

McLemore-Price, Ruth

From: Catches, John [John.Catches@hdrinc.com]
Sent: Tuesday, April 23, 2013 2:18 PM
To: DEP_CD
Cc: Heidorn, Marjorie; Lubozynski, Tom; Jennifer Stirk
Subject: Tomoka Farms Road Landfill - Evaluation monitoring completion reports and well logs
Attachments: B76-6.CR&log.pdf; B79-6.CR&log.pdf; B82-1.CR&log.pdf; B83.CR&log.pdf; B85.CR&log.pdf; B86.CR&log.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Attached are the well completion reports and drilling logs for evaluation monitoring wells installed at the Tomoka Farms Landfill in February 2013. The reports include WACS IDs and up to date survey information.

JOHN CATCHES, P.G.
SOLID WASTE

HDR Engineering, Inc.
Sr. Project Manager

200 W. Forsyth Street, Suite 800 | Jacksonville, FL 32202-4321
904.598.8968 | c: 904.548.7557
john.catches@hdrinc.com | HDRINC.COM

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Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(30)
Form Title: Monitoring Well Completion Report
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: 2/12/13

FACILITY NAME: Tomoka Farms Road Landfill

DEP PERMIT NO.: SO64-0078767-023 WACS FACILITY ID NO.: 27540

WACS MONITORING SITE NUM.: 28781 WACS WELL NO.: B76-6

WELL TYPE: BACKGROUND DETECTION COMPLIANCE

LATITUDE: 29° 08' 8.1" LONGITUDE: -81° 05' 31.3"

(see back for LAT / LONG requirements):

Coordinate Accuracy 0.10 ft. Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method GPS Collection Date 2/27/13

Collector Name J.E. Zapert Collector Affiliation Sliger & Associates Inc.

AQUIFER MONITORED: Zone 6 (Shallow)

DRILLING METHOD: Sonic / Continuous Sample DATE INSTALLED: 2/6/13

INSTALLED BY: Groundwater Protection & Terracon; QC Person - Karamjit Singh (HDR)

BORE HOLE DIAMETER: 6" TOTAL DEPTH: 50' (BLS)

CASING TYPE: Schd 40 PVC CASING DIAMETER: 2' CASING LENGTH: 40'

SCREEN TYPE: Schd 40 PVC SCREEN SLOT SIZE: 0.010" SCREEN LENGTH: 10'

SCREEN DIAMETER: 2' SCREEN INTERVAL: 50' TO 40' (BLS)

FILTER PACK TYPE: Fine quartz sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 50' TO 38' (BLS)

SEALANT TYPE: Bentonite Chips SEALANT INTERVAL: 38' TO 36' (BLS)

GROUT TYPE: Portland Cement GROUT INTERVAL: 36' TO 0' (BLS)

TOP OF CASING ELEVATION (NGVD): 27.33 GROUND SURFACE ELEVATION (NGVD): 27.88

DESCRIBE WELL DEVELOPMENT: Pump started at 13:35 on 2/6 for 30 mins until clear water observed.

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 17.63 ft (10' 3" below ground surface)

DATE AND TIME MEASURED: 2/27/13

REMARKS: Water level measured during the initial GW monitoring event.

NAME OF PERSON PREPARING REPORT: Karamjit Singh, HDR Engineering Inc., (904) 598 8930

Karamjit.Singh@hdrinc.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
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Temple Terrace, FL
813-632-7600

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West Palm Beach, FL 33401
561-681-6600


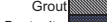



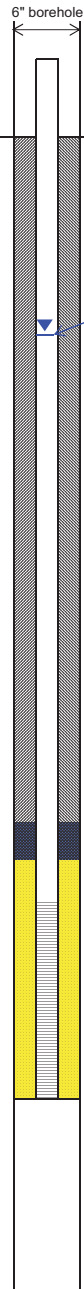
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B76-6
 Date Begin: 2/6/2013
 Date End: 2/6/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 50 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/6/2013</u> End Drilling: <u>2/6/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 40 ft bls</u> Screen: <u>40 ft to 50 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 36 ft bls</u> Seal: <u>36 ft to 38 ft</u> Filter Pack: <u>38 ft to 50 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 3 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 3/4th bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 5 bags</u></p> <p>Backfill: _____</p> <p>Surface Completion</p> <p>Protection: <u>6" dia manhole cover</u></p> <p>Pad: <u>2'x2'x4" premix concrete</u></p> <p>Lock: <u>Padlock on the manhole cover</u></p> <p>HDR Personnel</p> <p>Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes</p> <p>' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>6" borehole</p> 	<p>Elevations (FT-NGVD 1929)</p> <p>PVC Top-of-Casing 27.33 Concrete Pad 28.21 Ground Surface 27.88</p> <p>Horizontal Position (Lat./Long.)</p> <p>29° 08' 8.1" Latitude -81° 05' 31.3" Longitude</p> <p>Notes:</p>	<p>SPT Data ASTM 1596</p> <p>per 6" N</p>
			<p>SAND, fine sand, light brown, SP</p> <p>Water level at 10' 3" bls (17.63 ft) - 2/27/2013</p> <p>SAND, fine sand, grey to brown, SP</p> <p>SAND, silty, grey, SM</p> <p>SAND, silty, dark grey, SM</p> <p>SAND, silty, black stained, black, SM</p> <p>SAND, silty, pale green, SM</p> <p>SAND, clayey, pale green, SC, increased moisture</p> <p>SAND, silty, light grey, SM</p> <p>SAND, silty, pale green, SM</p> <p>SAND, clayey, pale green, SC</p> <p>SAND, silty sand with fragmented shell, pale green</p> <p>SHELL, fragmented shell with fine sand, grey</p>	



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(30)
Form Title: Monitoring Well Completion Report
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: 2/12/13

FACILITY NAME: Tomoka Farms Road Landfill

DEP PERMIT NO.: SO64-0078767-023 WACS FACILITY ID NO.: 27540

WACS MONITORING SITE NUM.: 28783 WACS WELL NO.: B79-6

WELL TYPE: BACKGROUND DETECTION COMPLIANCE

LATITUDE: 29° 07' 53.8" LONGITUDE: -81° 05' 9.8"

(see back for LAT / LONG requirements):

Coordinate Accuracy 0.10 ft. Datum NAD 1983 Elevation Datum _____

Collection Method GPS Collection Date 2/27/13

Collector Name J.E. Zapert Collector Affiliation Sliger & Associates Inc.

AQUIFER MONITORED: Zone 6 (Shallow)

DRILLING METHOD: Sonic / Continuous Sample DATE INSTALLED: 2/7/13

INSTALLED BY: Groundwater Protection & Terracon; QC Person - Karamjit Singh (HDR)

BORE HOLE DIAMETER: 6" TOTAL DEPTH: 50' (BLS)

CASING TYPE: Schd 40 PVC CASING DIAMETER: 2' CASING LENGTH: 40'

SCREEN TYPE: Schd 40 PVC SCREEN SLOT SIZE: 0.010" SCREEN LENGTH: 10'

SCREEN DIAMETER: 2' SCREEN INTERVAL: 50' TO 40' (BLS)

FILTER PACK TYPE: Fine quartz sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 50' TO 38' (BLS)

SEALANT TYPE: Bentonite Chips SEALANT INTERVAL: 38' TO 36' (BLS)

GROUT TYPE: Portland Cement GROUT INTERVAL: 36' TO 0' (BLS)

TOP OF CASING ELEVATION (NGVD): 27.51 GROUND SURFACE ELEVATION (NGVD): 24.56

DESCRIBE WELL DEVELOPMENT: Pump started at 11:05 on 2/7 for 30 mins until clear water observed.

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 16.56 ft (8' below ground surface)

DATE AND TIME MEASURED: 2/7/13 @ 14:00

REMARKS: Water level measured with chalk powder & measuring tape.

NAME OF PERSON PREPARING REPORT: Karamjit Singh, HDR Engineering Inc., (904) 598 8930

Karamjit.Singh@hdrinc.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
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




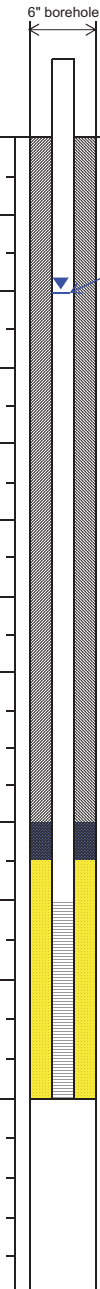
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B79-6
 Date Begin: 2/7/2013
 Date End: 2/7/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 50 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/7/2013</u> End Drilling: <u>2/7/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 40 ft bls</u> Screen: <u>40 ft to 50 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 36 ft bls</u> Seal: <u>36 ft to 38 ft</u> Filter Pack: <u>38 ft to 50 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 3 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 3/4th bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 5 bags</u></p> <p>Backfill: _____</p> <p>Surface Completion Protection: <u>6"x6" Steel Stickup</u> Pad: <u>2'x2'x4" premix concrete</u> Lock: <u>Padlock on locking cover</u></p> <p>HDR Personnel Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes ' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>6" borehole</p> 	<p>Elevations (FT-NGVD 1929) PVC Top-of-Casing 27.51 Concrete Pad 24.89 Ground Surface 24.56</p> <p>Horizontal Position (Lat./Long.) 29° 07' 53.8" Latitude -81° 05' 9.8" Longitude</p> <p>Notes:</p>	<p>SPT Data ASTM 1596 per 6" N</p>
		0		
		2		SAND, fine sand with organics, grey to brown, SP
		4		Water level at 8' 0" bls (16.56 ft) - 2/7/2013
		6		SAND, fine sand with organics, brown, SP
		8		SAND, fine sand with some silt, light brown to grey, SP-SM
		10		
		12		SAND, silty, grey, SM
		14		
		16		
		18		SAND, silty with some shell fragments, grey
		20		SAND, silty with fragmented shell, light grey to cream
		22		
		24		
		26		
		28		SAND, fine sand with some silt and little fragmented shell, light grey
		30		
		32		SAND, silty with fragmented shell, grey to cream
		34		
		36		SAND, silty with fragmented shell, grey
		38		
		40		SAND, fine sand with some silt, pale green to light grey, SP-SM
		42		
		44		
		46		
		48		SAND, silty with limerock chunks, cream to light grey
		50		
		52		
		54		
		56		
		58		
		60		



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Bob Martinez Center
2600 Blair Stone Road
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Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: 2/12/13

FACILITY NAME: Tomoka Farms Road Landfill

DEP PERMIT NO.: SO64-0078767-023 WACS FACILITY ID NO.: 27540

WACS MONITORING SITE NUM.: 28776 WACS WELL NO.: B82-1

WELL TYPE: BACKGROUND DETECTION COMPLIANCE

LATITUDE: 29° 08' 10.9" LONGITUDE: -81° 05' 29.9"

(see back for LAT / LONG requirements):

Coordinate Accuracy 0.10 ft. Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method GPS Collection Date 2/27/2013

Collector Name J.E. Zapert Collector Affiliation Sliger & Associates Inc.

AQUIFER MONITORED: Zone 4 (Shallow)

DRILLING METHOD: Sonic / Continuous Sample DATE INSTALLED: 2/6/13

INSTALLED BY: Groundwater Protection & Terracon; QC Person - Karamjit Singh (HDR)

BORE HOLE DIAMETER: 6" TOTAL DEPTH: 35' (BLS)

CASING TYPE: Schd 40 PVC CASING DIAMETER: 2' CASING LENGTH: 25'

SCREEN TYPE: Schd 40 PVC SCREEN SLOT SIZE: 0.010" SCREEN LENGTH: 10'

SCREEN DIAMETER: 2' SCREEN INTERVAL: 35' TO 25' (BLS)

FILTER PACK TYPE: Fine quartz sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 35' TO 23' (BLS)

SEALANT TYPE: Bentonite Chips SEALANT INTERVAL: 23' TO 21' (BLS)

GROUT TYPE: Portland Cement GROUT INTERVAL: 21' TO 0' (BLS)

TOP OF CASING ELEVATION (NGVD): 30.78 GROUND SURFACE ELEVATION (NGVD): 28.12

DESCRIBE WELL DEVELOPMENT: Pump started at 13:35 on 2/6 for 60 mins until clear water observed.

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 21.20 ft. (6.92 ft bls)

DATE AND TIME MEASURED: 2/7/13 @ 11:30

REMARKS: Water level measured with chalk powder & measuring tape.

NAME OF PERSON PREPARING REPORT: Karamjit Singh, HDR Engineering Inc., (904) 598 8930

Karamjit.Singh@hdrinc.com

(Name, Organization, Phone No., E-mail)

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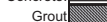



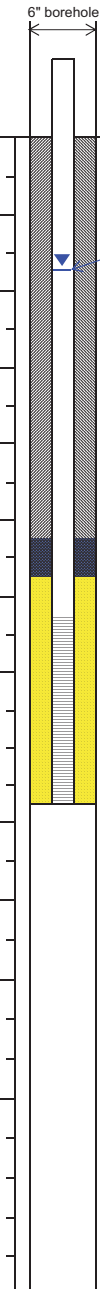
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B82-1
 Date Begin: 2/6/2013
 Date End: 2/6/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 35 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/6/2013</u> End Drilling: <u>2/6/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 25 ft bls</u> Screen: <u>25 to 35 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 21 ft bls</u> Seal: <u>21 ft to 23 ft</u> Filter Pack: <u>23 ft to 35 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 2 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 3/4th bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 5 bags</u></p> <p>Backfill: _____</p> <p>Surface Completion</p> <p>Protection: <u>6"x6" Steel Stickup</u></p> <p>Pad: <u>2'x2'x4" premix concrete</u></p> <p>Lock: <u>Padlock on locking cover</u></p> <p>HDR Personnel</p> <p>Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes</p> <p>' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>6" borehole</p> 	<p>Elevations (FT-NGVD 1929)</p> <p>PVC Top-of-Casing 30.78 Concrete Pad 28.45 Ground Surface 28.12</p> <p>Horizontal Position (Lat./Long.)</p> <p>29° 08' 10.9" Latitude -81° 05' 29.9" Longitude</p> <p>Notes:</p>	<p>SPT Data ASTM 1596</p> <p>per 6" N</p>
		0	SAND, fine sand with organics, brown, SP	
		2	SAND, fine sand with some organics, black stained grey, SP	
		4	Water level at 6' 11" bls (apprx. El. - 2/7/2013)	
		6	SAND, fine sand with organics, light brown, SP	
		8	SAND, silty, grey, SP-SM	
		10	SAND, silty, brown to grey, SP-SM	
		12		
		14		
		16	SAND, silty, dark grey, SM	
		18		
		20	SAND, silty, grey, SM	
		22		
		24	SAND, silty, brown, SP-SM	
		26	SAND, silty, pale green, SM	
		28		
		30	SAND, fine sand, grey, SP	
		32	SAND, silty, pale green, SM-SP	
		34		
		36		
		38		
		40		
		42		
		44		
		46		
		48		
		50		
		52		
		54		
		56		
		58		
		60		



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MONITORING WELL COMPLETION REPORT

DATE: 2/12/13

FACILITY NAME: Tomoka Farms Road Landfill

DEP PERMIT NO.: SO64-0078767-023 WACS FACILITY ID NO.: 27540

WACS MONITORING SITE NUM.: 28777 WACS WELL NO.: B83

WELL TYPE: BACKGROUND DETECTION COMPLIANCE

LATITUDE: 29° 08' 7.3" LONGITUDE: -81° 05' 32.3"

(see back for LAT / LONG requirements):

Coordinate Accuracy 0.10 ft. Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method GPS Collection Date 2/27/13

Collector Name J.E. Zapert Collector Affiliation Sliger & Associates Inc.

AQUIFER MONITORED: Upper Floridan

DRILLING METHOD: Sonic / Continuous Sample DATE INSTALLED: 2/5/13

INSTALLED BY: Groundwater Protection & Terracon; QC Person - Karamjit Singh (HDR)

BORE HOLE DIAMETER: 6" TOTAL DEPTH: 100' (BLS)

CASING TYPE: Schd 40 PVC CASING DIAMETER: 2' CASING LENGTH: 90'

SCREEN TYPE: Schd 40 PVC SCREEN SLOT SIZE: 0.010" SCREEN LENGTH: 10'

SCREEN DIAMETER: 2' SCREEN INTERVAL: 100' TO 90' (BLS)

FILTER PACK TYPE: Fine quartz sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 100' TO 88' (BLS)

SEALANT TYPE: Bentonite Chips SEALANT INTERVAL: 88' TO 86' (BLS)

GROUT TYPE: Portland Cement GROUT INTERVAL: 86' TO 0' (BLS)

TOP OF CASING ELEVATION (NGVD): 30.57 GROUND SURFACE ELEVATION (NGVD): 27.39

DESCRIBE WELL DEVELOPMENT: Pump started at 8:10 on 2/6 for 55 mins until clear water observed.

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 13.14 ft. (14.3' below ground surface)

DATE AND TIME MEASURED: 2/7/13 @ 10:30

REMARKS: Water level measured with chalk powder & measuring tape.

NAME OF PERSON PREPARING REPORT: Karamjit Singh, HDR Engineering Inc., (904) 598 8930

Karamjit.Singh@hdrinc.com

(Name, Organization, Phone No., E-mail)

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Pensacola, FL 32501-5794
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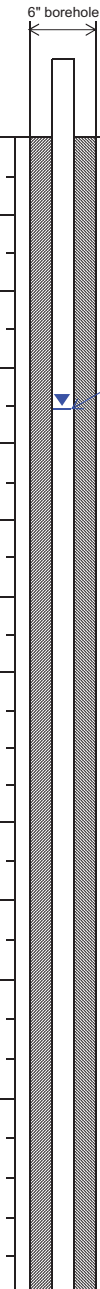
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B83
 Date Begin: 2/5/2013
 Date End: 2/5/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 100 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/5/2013</u> End Drilling: <u>2/5/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 90 ft bls</u> Screen: <u>90 ft to 100 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 86 ft bls</u> Seal: <u>86 ft to 88 ft</u> Filter Pack: <u>88 ft to 100 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 8 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 1 bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 6 bags</u></p> <p>Backfill: _____</p> <p>Surface Completion Protection: <u>6"x6" Steel Stickup</u> Pad: <u>2'x2'x4" premix concrete</u> Lock: <u>Padlock on locking cover</u></p> <p>HDR Personnel Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes ' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>Elevations (FT-NGVD 1929) PVC Top-of-Casing 30.57 Concrete Pad 27.72 Ground Surface 27.39</p> <p>Horizontal Position (Lat./Long.) 29° 08' 7.3" Latitude -81° 05' 32.3" Longitude</p> <p>Notes:</p>	<p>SPT Data ASTM 1596 per 6" N</p>	
<p>6" borehole</p> 		<p>0</p> <p>2</p> <p>4</p> <p>6</p> <p>8</p> <p>10</p> <p>12</p> <p>14</p> <p>16</p> <p>18</p> <p>20</p> <p>22</p> <p>24</p> <p>26</p> <p>28</p> <p>30</p> <p>32</p> <p>34</p> <p>36</p> <p>38</p> <p>40</p> <p>42</p> <p>44</p> <p>46</p> <p>48</p> <p>50</p> <p>52</p> <p>54</p> <p>56</p> <p>58</p> <p>60</p>	<p>SAND, fine sand, light brown, SP</p> <p>SAND, silty, grey to brown, SM</p> <p>Water level at 14' 3" bls (Approx. El. = 13.14 ft) - 2/7/2013</p> <p>SAND, silty, grey, SM</p> <p>SAND, silty, black stained grey SAND, silty, light grey, SM</p> <p>SAND, clayey, grey, SC</p> <p>SAND, clayey, pale green, SC</p> <p>SAND, silty, pale green, SM</p> <p>SAND, clayey, pale green, SC, increased moisture</p> <p>SAND, silty clayey with shell, pale green, SM-SC</p> <p>SHELL, fragmented shell with fine sand, grey</p> <p>SAND, fine sand with fragmented shell, grey</p>	


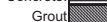



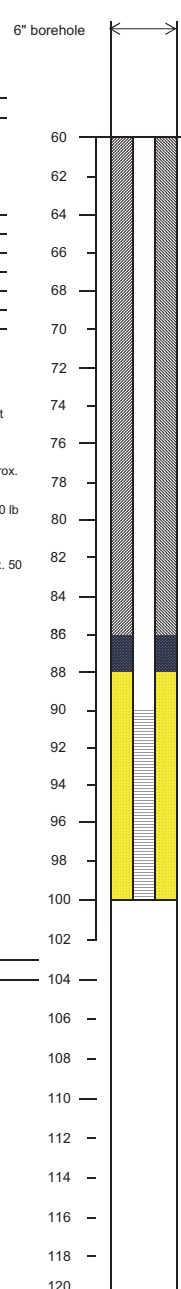
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B83
 Date Begin: 2/5/2013
 Date End: 2/5/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 100 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/5/2013</u> End Drilling: <u>2/5/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 90 ft bls</u> Screen: <u>90 ft to 100 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 86 ft bls</u> Seal: <u>86 ft to 88 ft</u> Filter Pack: <u>88 ft to 100 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 8 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 1 bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 6 bags</u></p> <p>Backfill: _____</p> <p>Surface Completion Protection: <u>6"x6" Steel Stickup</u> Pad: <u>2'x2'x4" premix concrete</u> Lock: <u>Padlock on locking cover</u></p> <p>HDR Personnel Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes ' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>6" borehole</p> 	<p>Notes:</p>	<p>SPT Data ASTM 1596 per 6" N</p>
	60		SAND, fine sand with fragmented shell, grey (as above)	
	62		SAND, clayey with fragmented shell, grey	
	64			
	66			
	68		SAND, fine sand well graded, grey, SP	
	70		SAND, fine sand with fragmented shell, grey	
	72			
	74		SAND, silty with some fragmented shell, pale green	
	76			
	78			
	80			
	82			
	84			
	86		LIMEROCK, grey to cream (top of limerock)	
	88			
	90		LIMEROCK, soft, cream to grey	
	92			
	94			
	96		LIMEROCK, cream to grey	
	98			
	100			
	102			
	104			
	106			
	108			
	110			
	112			
	114			
	116			
	118			
	120			



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(30)
Form Title: Monitoring Well Completion Report
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: 2/12/13

FACILITY NAME: Tomoka Farms Road Landfill

DEP PERMIT NO.: SO64-0078767-023 WACS FACILITY ID NO.: 27540

WACS MONITORING SITE NUM.: 28779 WACS WELL NO.: B85

WELL TYPE: BACKGROUND DETECTION COMPLIANCE

LATITUDE: 29° 07' 57.4" LONGITUDE: -81° 05' 5.8"

(see back for LAT / LONG requirements):

Coordinate Accuracy 0.10 ft. Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method GPS Collection Date 2/27/2013

Collector Name J.E. Zapert Collector Affiliation Sliger & Associates Inc.

AQUIFER MONITORED: Zone 4 (Shallow)

DRILLING METHOD: Sonic / Continuous Sample DATE INSTALLED: 2/6/13

INSTALLED BY: Groundwater Protection & Terracon; QC Person - Karamjit Singh (HDR)

BORE HOLE DIAMETER: 6" TOTAL DEPTH: 40' (BLS)

CASING TYPE: Schd 40 PVC CASING DIAMETER: 2' CASING LENGTH: 30'

SCREEN TYPE: Schd 40 PVC SCREEN SLOT SIZE: 0.010" SCREEN LENGTH: 10'

SCREEN DIAMETER: 2" SCREEN INTERVAL: 40' TO 30' (BLS)

FILTER PACK TYPE: Fine quartz sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 40' TO 28' (BLS)

SEALANT TYPE: Bentonite Chips SEALANT INTERVAL: 28' TO 26' (BLS)

GROUT TYPE: Portland Cement GROUT INTERVAL: 26' TO 0' (BLS)

TOP OF CASING ELEVATION (NGVD): 27.07 GROUND SURFACE ELEVATION (NGVD): 24.24

DESCRIBE WELL DEVELOPMENT: Pump started at 17:10 on 2/6 for 35 mins until clear water observed.

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 16.41 ft. (7' 10" below ground surface)

DATE AND TIME MEASURED: 2/7/13 @ 13:00

REMARKS: Water level measured with chalk powder & measuring tape.

NAME OF PERSON PREPARING REPORT: Karamjit Singh, HDR Engineering Inc., (904) 598 8930

Karamjit.Singh@hdrinc.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pky.
Temple Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600


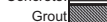



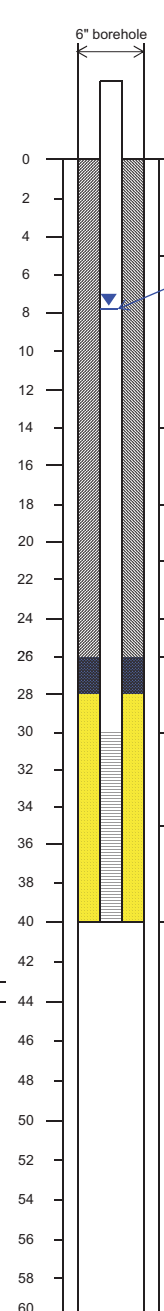
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B85
 Date Begin: 2/6/2013
 Date End: 2/6/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 40 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/6/2013</u> End Drilling: <u>2/6/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 30 ft bls</u> Screen: <u>30 to 40 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 26 ft bls</u> Seal: <u>26 ft to 28 ft</u> Filter Pack: <u>28 ft to 40 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 2 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 3/4th bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 5 bags</u></p> <p>Backfill: _____</p> <p>Surface Completion</p> <p>Protection: <u>6"x6" Steel Stickup</u></p> <p>Pad: <u>2'x2'x4" premix concrete</u></p> <p>Lock: <u>Padlock on locking cover</u></p> <p>HDR Personnel</p> <p>Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes ' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>6" borehole</p> 	<p>Elevations (FT-NGVD 1929)</p> <p>PVC Top-of-Casing 27.07 Concrete Pad 24.57 Ground Surface 24.24</p> <p>Horizontal Position (Lat./Long.) 29° 07' 57.4" Latitude -81° 05' 5.8" Longitude</p> <p>Notes:</p>	<p>SPT Data ASTM 1596</p> <p>per 6" N</p>
		0		
		2		SAND, fine sand with organics, grey to brown, SP
		4		Water level at 7' 10" bls (Approx. El. = 16.41 ft) - 2/7/2013
		6		SAND, silty with organics, light brown, SP-SM
		8		
		10		
		12		
		14		SAND, silty, light brown, SP-SM
		16		
		18		SAND, silty, dark grey, SM
		20		
		22		SHELL, fragmented shell with fine sand, grey
		24		
		26		SAND, fine sand with some fragmented shell, grey
		28		SAND, fine sand with fragmented shell, grey
		30		
		32		SAND, fine sand with fragmented shell, grey to pale green
		34		
		36		SAND, fine sand with concentrated fragmented shell, pale green to light grey
		38		
		40		
		42		
		44		
		46		
		48		
		50		
		52		
		54		
		56		
		58		
		60		



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form # 62-701.900(30)
Form Title: Monitoring Well Completion Report
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: 2/12/13

FACILITY NAME: Tomoka Farms Road Landfill

DEP PERMIT NO.: SO64-0078767-023 WACS FACILITY ID NO.: 27540

WACS MONITORING SITE NUM.: 28780 WACS WELL NO.: B86

WELL TYPE: BACKGROUND DETECTION COMPLIANCE

LATITUDE: 29° 07' 39.7" LONGITUDE: -81° 05' 19.2"

(see back for LAT / LONG requirements):

Coordinate Accuracy 0.10 ft. Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method GPS Collection Date 2/17/13

Collector Name J.E. Zapert Collector Affiliation Sliger & Associates Inc.

AQUIFER MONITORED: Zone 6 (Shallow)

DRILLING METHOD: Sonic / Continuous Sample DATE INSTALLED: 2/7/13

INSTALLED BY: Groundwater Protection & Terracon; QC Person - Karamjit Singh (HDR)

BORE HOLE DIAMETER: 6" TOTAL DEPTH: 50' (BLS)

CASING TYPE: Schd 40 PVC CASING DIAMETER: 2' CASING LENGTH: 39.3'

SCREEN TYPE: Schd 40 PVC SCREEN SLOT SIZE: 0.010" SCREEN LENGTH: 10'

SCREEN DIAMETER: 2' SCREEN INTERVAL: 49.3' TO 39.3' (BLS)

FILTER PACK TYPE: Fine quartz sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 50' TO 37' (BLS)

SEALANT TYPE: Bentonite Chips SEALANT INTERVAL: 37' TO 35' (BLS)

GROUT TYPE: Portland Cement GROUT INTERVAL: 35' TO 0' (BLS)

TOP OF CASING ELEVATION (NGVD): 29.46 GROUND SURFACE ELEVATION (NGVD): 26.57

DESCRIBE WELL DEVELOPMENT: Pump started at 16:00 on 2/7 for 70 mins until clear water observed.

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 18.82 ft. (7' 9" below ground surface)

DATE AND TIME MEASURED: 2/27/13

REMARKS: 2' PVC pipe raised 8" during sand filter placement. Although drilled well is 50' bls, the PVC pipe (solid+screened) is 49'4" bls as additional 8" sand filter sits below the PVC pipe.

NAME OF PERSON PREPARING REPORT: Karamjit Singh, HDR Engineering Inc., (904) 598 8930

Karamjit.Singh@hdrinc.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pky.
Temple Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600


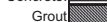



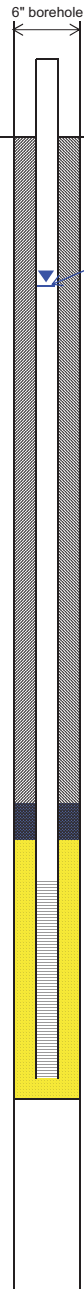
HDR Engineering, Inc.

Borehole and Well Construction Log

Site Name: Tomoka Farms Road Landfill
 Boring ID: B86
 Date Begin: 2/7/2013
 Date End: 2/7/2013

HDR Project No.: 100-201710
 Contractor/Driller: Terracon/Groundwater Protection
 Rig Type: Sonic
 Method: Sonic, Continuous Sample

Site Location: Port Orange, FL
 Total Depth Drilled: 50 feet
 Sample Method/Size: Continuous Sample 4"
 Cutting Disposal: Spread on site

Temporary Well Construction Log		Lithology	Borehole Log	
			Sample Interval	Description
<p>Date & Time Begin Drilling: <u>2/7/2013</u> End Drilling: <u>2/7/2013</u></p> <p>Construction Details</p> <p>Well Construction Intervals</p> <p>Riser: <u>0 to 39.3 ft bls</u> Screen: <u>39.3 ft to 49.3 ft bls</u> Silt Trap: <u>N/A</u> Surf. Seal: <u>0 to 35 ft bls</u> Seal: <u>35 ft to 37 ft</u> Filter Pack: <u>37 ft to 50 ft</u> Backfill: <u>N/A</u></p> <p>Materials Riser: <u>2" Sch. 40 PVC</u> Screen: <u>2" Sch 40 PVC - 0.010" slot</u></p> <p>Surf. Seal: <u>Neat Type II Portland (approx. 92 lb bag each), 3 bags</u> Seal: <u>Bentonite Chips (approx. 50 lb bag each), 3/4th bag</u></p> <p>Filter Pack: <u>20/30 Quartz Sand (approx. 50 lb bag each), 5.5 bags</u></p> <p>Backfill:</p> <p>Surface Completion Protection: <u>6"x6" Steel Stickup</u> Pad: <u>2'x2'x4" premix concrete</u> Lock: <u>Padlock on locking cover</u></p> <p>HDR Personnel Field Work: <u>Karamjit Singh</u> Log Draft: <u>Karamjit Singh</u></p> <p>Symbols</p> <p>Concrete:  Grout:  Bentonite:  Sand: </p> <p>Notes ' - feet " - inches BLS - below land surface ALS - above land surface bTOC - Below top of PVC casing NA - not applicable HSA - Hollow-stem auger  - water level</p>		<p>6" borehole</p> 	<p>Elevations (FT-NGVD 1929)</p> <p>PVC Top-of-Casing 29.46 Concrete Pad 26.90 Ground Surface 26.57</p> <p>Horizontal Position (Lat./Long.) 29° 07' 39.7" Latitude -81° 05' 19.2" Longitude</p> <p>Notes: 2" PVC pipe rose 8" during placement of sand filter pack. Therefore total pipe (solid + screened) depth below land surface is 49'-4" with additional 8" of sand filter pack sitting at bottom of the pipe.</p>	<p>SPT Data ASTM 1596</p> <p>per 6" N</p>
		0	SAND, fine sand with organics, light brown, SP	
		2		
		4	Water level at 7'9" bls (18.82 ft) - 02/27/2013	
		6	SAND, silty, brown to grey, SP-SM	
		8	SAND, silty, grey, SM	
		10		
		12	SAND, clayey, grey, increased moisture, SP-SC	
		14		
		16	SAND, silty with black stains, dark grey to black, SM	
		18	SAND, silty, grey to pale green, SM	
		20	SAND, silty, pale green, SM	
		22		
		24		
		26	SAND, fine sand, pale green, SP	
		28		
		30	SAND, silty, pale green, SM	
		32		
		34	SAND, clayey, pale green to grey, SP-SC	
		36		
		38		
		40	SHELL, fragmented shell with silty sand, grey to cream	
		42		
		44		
		46	SAND, silty sand with fragmented shell, grey	
		48	SHELL, fragmented shell with silty sand, grey	
		50		
		52		
		54		
		56		
		58		
		60		