

Hsu, Benjamin

From: Madden, Melissa
Sent: Thursday, August 24, 2017 12:43 PM
To: Hsu, Benjamin
Subject: FW: WACS ID 41193 - October 216 Water Balance for Southeast County Landfill
Attachments: Leachate Balance October 2016.pdf

Please feel free to contact me with any questions or concerns.

Thanks, Melissa



Melissa Madden

Environmental Consultant – Solid Waste
Florida Department of Environmental Protection, Southwest District
13051 N Telecom Parkway, Suite 101, Temple Terrace, FL 33637 **NEW!**
(813) 470-5795 Phone | (813) 470-5995 Fax
melissa.madden@dep.state.fl.us

From: Pelley, Cindy [mailto:PelleyCA@HillsboroughCounty.ORG]
Sent: Tuesday, November 15, 2016 9:34 AM
To: Madden, Melissa <Melissa.Madden@dep.state.fl.us>
Cc: Morgan, Steve <Steve.Morgan@dep.state.fl.us>; Ruiz, Larry <RuizLE@HillsboroughCounty.ORG>; Byer, Kimberly <ByerK@hillsboroughcounty.org>; 'bclark@scsengineers.com'; Morris, John R. <John.R.Morris@dep.state.fl.us>
Subject: WACS ID 41193 - October 216 Water Balance for Southeast County Landfill

Melissa,

Please see the attached October 2016 Water Balance for Southeast County Landfill.

Please let me know if you have any questions or concerns.

Thank you, Cindy

Cindy A. Pelley

General Manager II

Solid Waste Management Division
Public Works Department

M: (813) 455-2193
P: (813) 671-7707
E: pelleyca@HCFLGov.net
W: HCFLGov.net

Hillsborough County

601 E. Kennedy Blvd., Tampa, FL 33602

[Facebook](#) | [Twitter](#) | [YouTube](#) | [LinkedIn](#)

Please note: All correspondence to or from this office is subject to Florida's Public Records law.



Public Works

Board of County Commissioners

Kevin Beckner
Victor D. Crist
Ken Hagan
Al Higginbotham
Lesley "Les" Miller, Jr.
Sandra L. Murman
Stacy R. White

County Administrator
Michael S. Merrill

County Administrator Executive Team
Lucia E. Garsys
Carl S. Harness
Gregory S. Horwedel
Ramin Kouzehkanani
Liana Lopez
Bonnie M. Wise

Interim Internal Auditor
Peggy Caskey

County Attorney
Chip Fletcher

Public Works
PO Box 1110
Tampa, FL 33601-1110
Phone: (813) 272-5912
Fax: (813) 272-5811

DATE: November 7, 2016

TO: *Larry E. Ruiz*
Larry E. Ruiz, Manager Landfill Operations, Solid Waste Management Division

FROM: *CP* Cindy A. Pelley, Landfill Supervisor, Solid Waste Management Division

SUBJECT: Leachate Water Balance Report Forms for October 2016
Southeast County Landfill, Hillsborough County, Florida

The Solid Waste Management Division (SWMD) staff has compiled and reviewed the leachate management operational data from the Southeast County Landfill Phases I-VI, Sections 7-8, and Section 9. Attached are the Leachate Water Balance Report Form (Table 1), the Leachate Field Data Entry Form (Table 2), and the 2016 Summary (Table 3). Also, attached find Figure 1 showing leachate levels in Pump Station B sump of Phases I-VI and rainfall for the month.

TABLE 1

Day (Column I)

Column I presents the calendar days for the month.

Rainfall (Column II)

Column II presents the average rainfall, in inches, as measured in the field from rainfall stations at the site. This month there was 3.48 inches of rainfall at the Southeast County Landfill (SCLF).

Depth in Pond A (Column III)

Column III presents the daily depth, in feet, of effluent stored in effluent pond (Pond A). The daily depth in Pond A varies as a function of the spray irrigation frequency/duration and effluent hauled from the pond. This month the daily average depth of effluent stored in Pond A was 2.7 feet.

Depth in Pond B (Column IV)

Column IV presents the daily depth, in feet, of effluent or leachate that is stored in the effluent/leachate storage pond (Pond B). The depth in Pond B varies as a function of the evaporation frequency/duration and effluent or leachate hauled from the pond. This month the daily average depth of effluent stored in Pond B was 3.1 feet.

Estimated Depth at Pump Station B Sump (PS-B) (Column V)

Column V presents the depth of leachate, in inches, in the PS-B sump. Leachate from Phases I-VI flows to the PS-B sump for removal from the landfill. PS-B then pumps the leachate to Pump Station A (PS-A). Daily depth readings from the PS-B sump are included in this column. This month PS-B was below the normal operation level of 24-inches. The average recorded depth of leachate in the PS-B sump was 13.4 inches.

Leachate Pumped to MLPS from Phases I-VI (Column VI)

Column VI presents the daily amount of leachate, in gallons, collected from PS-A and pumped through the MLPS to the 575,000-gallon storage tank at the Leachate Treatment and Reclamation Facility (LTRF) for treatment or disposal. The average daily amount of leachate pumped from PS-A was 99,925 gallons. A total of 3,097,682 gallons of leachate was pumped this month.

Leachate Pumped from Sections 7-8 LDS (Column VII)

Column VII presents the quantity of leachate removed from the leak detection system (LDS) of Sections 7-8. The quantity is measured by a flow meter before being pumped for removal with Sections 7-8 leachate. The removal rate did not exceed 1,930 gallons per day. On August 31, the LDS pump went down and a temporary pump was installed. We had anticipated installing the new pump in mid-October however the new pump was not sized appropriately. Another pump will be ordered. This month the LDS was pumped manually and we estimate that a total of 1,200 gallons of leachate was removed from the leak detection system of Sections 7-8.

Leachate Pumped to MLPS from Sections 7-8 (Column VIII)

Column VIII presents the quantity of leachate collected at Sections 7-8 and pumped to the MLPS. The quantity is measured by a flow meter and includes any leachate removed from the leak detection system of Sections 7-8 (Column VIII). On October 17th a new replacement pump was installed at this pump station. This month a total of 282,434 gallons was removed.

Leachate Pumped to LTRF from the MLPS (Column IX)

Column IX presents the total quantity of leachate pumped to the LTRF from Phases I-VI and Sections 7-8. This month a total of 3,380,116 gallons of leachate was pumped to the LTRF.

Leachate Pumped to LTRF from Section 9 (Column X)

Column X presents the daily amount of leachate, in gallons, collected from Section 9 and pumped to the 575,000-gallon storage tank at the Leachate Treatment and Reclamation Facility (LTRF) for treatment or disposal. A total of 148,897 gallons of leachate was pumped this month.

Leachate Pumped from Section 9 LDS (Column XI)

Column XI presents the daily amount of leachate, in gallons, collected from the LDS of Section 9 and pumped to the 575,000-gallon storage tank at the LTRF for treatment or disposal. The removal rate did not exceed 4,651 gallons per day. This month a total 322 gallons of leachate was removed from the leak detection system.

Leachate in 575,000-Gallon Tank (Column XII)

Column XII presents the daily amount of leachate, in gallons, stored in the 575,000-gallon leachate holding tank at the LTRF. The amount of leachate stored in the tank is calculated based on the circumference of the tank and the daily level reading. This month an average of 370,000 gallons of leachate was stored in the tank.

Effluent in 575,000-Gallon Tank (Column XIII)

Column XIII presents the daily amount of effluent, in gallons, stored in the 575,000-gallon effluent holding tank at the LTRF. The amount of effluent stored in the tank is calculated based on the circumference of the tank and the daily level reading. This month an average of 405,800 gallons of effluent was stored in the tank.

Leachate Treated at LTRF (Column XIV)

Column XIV presents the daily amount of leachate, in gallons, treated at the LTRF. This month a total of 880,300 gallons of leachate was treated at the plant.

Total Leachate Hauled (Column XV)

Column XV presents the daily amount of leachate, in gallons, hauled off site. This month a total of 2,507,491 gallons of leachate was hauled off site.

Leachate Dust Control Sprayed (Column XVI)

Column XVI presents the daily amount of leachate, in gallons, measured from the flow meter at the bypass-loading arm at the leachate storage tank. The leachate is used for dust control in the active area of the landfill. This month leachate was not used for dust control.

Pond A Storage (Column XVII)

Column XVII presents the daily amount of effluent, in gallons, stored in Pond A. The daily amount stored in the pond is calculated by using the daily depth of effluent in the Pond A (Column IV). Under normal operating conditions, the daily amount of effluent stored in the pond varies depending upon the daily amount of leachate treated at the LTRF, the daily rainfall, daily effluent hauling operations, daily spray irrigation operations, and the daily amount of effluent used for dust control/evaporation. This month a daily average of 94,800 gallons of effluent was stored in Pond A.

Pond B Storage (Column XVIII)

Column XVIII presents the daily amount of effluent, in gallons, stored in Pond B. The daily amount stored in the pond is calculated by using the daily depth of effluent in Pond B (Column IV). Under normal operating conditions, the amount stored in the pond will vary depending upon the daily amount of effluent removed from the pond by the evaporation system, hauled from the pond, used for dust control or evaporated. This month a daily average of 183,200 gallons of effluent was stored in Pond B.

Effluent Sprayed at Pond B (Column XIX)

Column XIX presents the daily amount of effluent, in gallons, sprayed for evaporation at Pond B. The amount evaporated is calculated by using 5 percent of the daily flow meter quantity sprayed at Pond B and it is included in Column XXIII. This month 480,725 gallons of effluent was sprayed in Pond B.

Effluent Irrigation (Column XX)

Column XX presents the daily amount of effluent, in gallons, used for spray irrigation on top of Phases I-VI. The daily amount of effluent irrigation on Phases I-VI is measured from the flow meter at the irrigation pump station. This month a total of 979,296 gallons of effluent was used for spray irrigation.

Effluent Dust Control Sprayed (Column XXI)

Column XXI presents the daily amount of effluent, in gallons, sprayed for dust control in the active areas of the SCLF. The daily amount of effluent used for dust control, is measured from the flow meter at the bypass-loading arm. This month effluent was not sprayed as dust control.

Total Effluent Hauled (Column XXII)

Column XXII presents the daily amount of effluent, in gallons, hauled off site, as measured from the flow meter at the bypass-loading arm. This month 153,720 gallons of effluent was hauled off site.

Total Evaporation (Column XXIII)

Column XXIII presents the daily amount of leachate and effluent, in gallons, that evaporates and therefore will not be returned to the SCLF and/or requires treatment. Evaporation rates of 80 percent and 5 percent evaporation rate for spray in Pond B are assumed. Total evaporation estimated for this month was 807,600 gallons.

TABLE 2

Table 2 presents data assembled from daily logs compiled by the SWMD staff.

TABLE 3

Leachate Balance Summary

The Leachate Balance Summary (see Table 3) presents a review of inflow and outflow quantities for the LTRF, as well as rainfall and effluent disposal quantities at the landfill. Total inflow quantity to the LTRF was 3,540,248 gallons. Total outflow quantity from the LTRF was 3,387,791 gallons. The change in storage for the month increased by 152,457 gallons.

Please advise should you have any questions concerning the information provided.

TABLE 2. FIELD DATA ENTRY FORM
OCTOBER 2016
SOUTHEAST COUNTY LANDFILL, HILLSBOROUGH COUNTY, FLORIDA

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R		S	T	U	V	W
																	Contractor	County					
Day	Rainfall (in.)	Flow Meter Pump Sta. A (gal.)	Reading PS-B (in.)	Section 9 Pump 1 (gal.)	Section 9 Pump 2 (gal.)	Section 9 LDS (gal.)	Sections 7-8 Pump (gal.)	Sections 7-8 LDS (gal.)	Pond A Depth (ft.)	Pond B Depth (ft.)	Pond B Effluent Sprayed (gal.)	Depth in 575K Tank Leachate (ft.)	Depth in 575K Tank Effluent (ft.)	Leachate at LTRF (gal.)	Leachate Contractor (gal.)	Leachate County (gal.)	Leachate Dust Control (Sprayed) (gal.)	Effluent Contractor (gal.)	Effluent County (gal.)	Effluent Dust Control (Sprayed) (gal.)			
1	1.50	2,253,395	12.1	3,305,862	1,382,432	5,829,974	2,021,702	NR	3.2	3.2	50,204	12.00	16.42	23,772	56,218	49,629	0	0	0	0			
2	0.75	2,335,268	14.7	3,507,517	1,385,900	5,829,990	2,029,701	NR	3.1	3.1	0	13.67	16.30	23,772	0	0	0	0	0	0			
3	0.55	2,457,140	17.2	3,609,171	1,388,900	5,830,005	2,037,700	NR	3.0	3.0	0	15.33	16.58	23,772	56,346	14,691	0	0	21,938	0			
4	0.00	2,562,574	10.4	3,512,170	1,391,170	5,830,123	2,049,200	NR	3.0	3.0	0	16.00	16.17	23,513	86,472	42,612	0	0	44,192	0			
5	0.01	2,669,100	11.0	3,513,819	1,395,629	5,830,127	2,057,476	NR	3.0	3.0	0	14.67	15.75	22,272	93,886	42,805	0	0	36,571	0			
6	0.34	2,775,900	12.5	3,516,344	1,399,135	5,830,130	2,057,476	NR	2.8	2.8	0	13.17	14.83	20,281	86,765	42,729	0	0	36,557	0			
7	0.33	2,884,933	15.8	3,519,516	1,403,260	5,830,134	2,080,836	NR	2.8	2.8	0	12.00	14.50	25,797	86,720	49,779	0	0	7,139	0			
8	0.00	2,992,440	15.5	3,522,804	1,410,332	5,830,136	2,092,442	NR	2.8	2.8	0	11.50	15.17	25,706	42,169	40,757	0	0	0	0			
9	0.00	3,094,020	13.9	3,523,412	1,414,490	5,830,136	2,106,915	NR	3.0	3.0	0	13.00	15.46	23,706	0	0	0	0	0	0			
10	0.00	3,195,600	12.2	3,524,019	1,418,647	5,830,136	2,121,388	NR	3.2	3.2	0	14.50	15.75	25,705	79,790	44,027	0	0	0	0			
11	0.00	3,291,500	10.9	3,524,019	1,418,814	5,830,136	2,131,915	NR	3.8	3.8	490,480	13.00	16.50	26,213	86,746	0	0	0	0	0			
12	0.00	3,398,968	16.3	3,524,610	1,423,787	5,830,136	2,143,882	NR	3.6	3.6	0	12.92	15.75	23,659	42,137	72,159	0	0	0	0			
13	0.00	3,493,300	11.5	3,524,613	1,429,652	5,830,138	2,146,150	NR	3.3	3.3	0	11.67	15.92	23,226	42,102	86,556	0	0	0	0			
14	0.00	3,592,759	16.4	3,529,573	1,432,664	5,830,138	2,163,052	NR	3.4	3.4	61,392.0	10.58	15.00	22,016	49,216	35,532	0	0	7,303	0			
15	0.00	3,691,501	19.0	3,529,946	1,432,666	5,830,138	2,164,070	NR	3.7	3.7	304,270.2	10.25	14.08	24,460	42,192	46,918	0	0	0	0			
16	0.00	3,792,101	15.1	3,529,947	1,439,154	5,830,139	2,164,452	NR	2.2	2.2	0	11.63	14.21	24,460	0	0	0	0	0	0			
17	0.00	3,892,900	11.1	3,529,948	1,445,642	5,830,139	2,164,833	NR	3.6	3.6	0	13.00	14.33	24,461	35,058	43,732	0	0	0	0			
18	0.00	3,995,000	11.6	3,529,958	1,447,045	5,830,139	2,190,927	NR	2.7	2.7	87,393.0	13.50	15.17	27,852	49,188	0	0	0	0	0			
19	0.00	4,093,700	11.6	3,529,961	1,451,306	5,830,139	2,203,761	NR	2.8	2.8	0	14.08	14.17	31,898	42,186	86,556	0	0	0	0			
20	0.00	4,193,000	11.6	3,529,964	1,457,373	5,830,139	2,213,083	NR	2.8	2.8	0	12.58	13.17	31,363	42,116	64,842	0	0	0	0			
21	0.00	4,295,554	18.0	3,531,134	1,458,895	5,830,139	2,223,015	NR	3.1	3.1	30,618	11.50	12.42	32,018	42,140	42,644	0	0	0	0			
22	0.00	4,395,866	15.8	3,531,139	1,463,109	5,830,139	2,230,682	NR	2.0	2.0	0	11.25	11.67	29,756	42,172	47,682	0	0	0	0			
23	0.00	4,489,483	13.8	3,531,143	1,468,557	5,830,139	2,238,521	NR	2.5	2.5	0	12.63	12.34	29,756	0	0	0	0	0	0			
24	0.00	4,583,100	11.8	3,531,147	1,474,005	5,830,139	2,246,559	NR	2.9	2.9	361,290.0	14.00	13.00	29,755	42,152	0	0	0	0	0			
25	0.00	4,677,500	11.0	3,531,150	1,474,071	5,830,139	2,254,194	NR	2.2	2.2	32,569	14.00	12.17	35,793	79,687	0	0	0	0	0			
26	0.00	4,771,500	10.7	3,531,431	1,478,692	5,830,139	2,261,917	NR	2.4	2.4	3,1728.0	13.83	11.50	31,638	79,636	0	0	0	0	0			
27	0.00	4,866,000	11.1	3,531,436	1,484,870	5,830,139	2,264,584	NR	2.0	2.0	71,872.0	13.17	11.00	37,508	87,590	0	0	0	0	0			
28	0.00	4,960,889	12.9	3,531,453	1,485,048	5,830,139	2,275,910	NR	2.2	2.2	0	12.50	10.50	37,098	94,110	0	0	0	0	0			
29	0.00	5,055,814	13.3	3,531,458	1,492,023	5,830,139	2,283,481	NR	2.2	2.2	75,997.0	11.25	11.50	36,930	87,411	0	0	0	0	0			
30	0.00	5,151,307	13.2	3,531,458	1,496,591	5,830,139	2,291,059	NR	2.0	2.0	0	12.21	12.34	36,930	0	0	0	0	0	0			
31	0.00	5,246,800	13.1	3,531,461	1,501,159	5,830,139	2,298,636	NR	1.7	1.7	337,170.2	13.17	13.17	880,016	1,653,841	853,650	0	0	133,720	0			
Totals	3.48										480,725												

projects/balance/201610-16bal.xls (ds 11/02/16)

1. NIR = No Records, NA = Not Available.
2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values.
3. Column IV includes quantities from leak detection system.
4. Column B, trace is less than 0.01 inches.
5. Columns C, D, F, G, H, I, L, N, Q, R, V and W are quantities from flow meters.
6. Columns K and M measured from staff gauges in each pond.

Type of Cover	Phases I-VI acres	Sections 7-8 acres	Section 9 acres
Open	5	0	0
Intermediate	134.4	19.3	1.5
Final	23	0	0
Not Opened	0	0	0

- Notes:
1. NIR = No Records, NA = Not Available.
 2. Values in bold are estimated; values in italic are substitute for missing data and are based on averaged values.
 3. Column IV includes quantities from leak detection system.

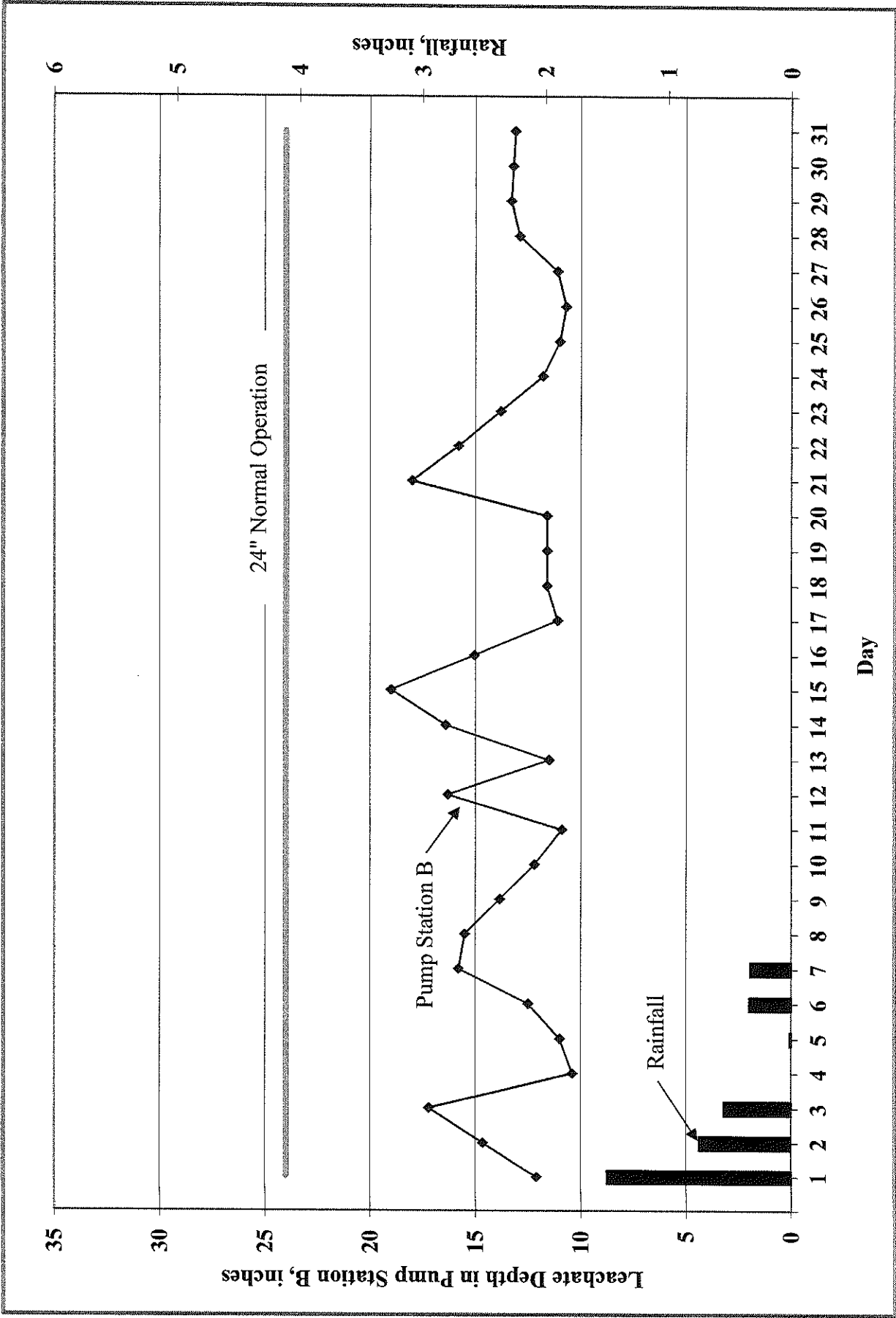


Figure 1. Leachate Levels in Pump Station B and Rainfall for October 2015.

TABLE 3. LEACHATE BALANCE SUMMARY
SOUTHEAST COUNTY LANDFILL
HILLSBOROUGH COUNTY, FLORIDA
YEAR-2016

Month	Rainfall (in.)	Leachate Arriving at LTRF				Leachate Leaving LTRF			Effluent Disposal			Inflow / Outflow For LTRF		
		Condensate from LFG System (gal.)	Leachate from Section 9 Pumped to LTRF (gal.)	Leachate from Section 7-8 Pumped to LTRF (gal.)	Leachate from Phases I-VI Pumped to LTRF (gal.)	Total Leachate Hauled from LTRF (gal.)	Leachate Dust Control (Sprayed) (gal.)	Leachate Treated at LTRF (gal.)	Total Effluent Hauled (gal.)	Effluent Dust Control (Sprayed) (gal.)	Effluent Irrigation (gal.)	Total Inflow to LTRF (gal.)	Total Outflow from LTRF (gal.)	Change in Storage ³ (gal.)
January	7.36	13,493	720	155,274	2,520,135	2,382,887	0	183,500	0	0	2,689,622	2,566,387	123,235	
February	1.61	9,430	511	218,755	2,493,661	1,353,187	0	1,061,000	0	0	2,722,357	2,414,187	308,170	
March	2.31	8,864	410	120,310	2,157,400	1,738,430	27,118	360,800	0	0	2,286,984	2,126,348	160,636	
April	2.50	5,771	195	102,931	2,268,165	1,607,452	0	743,800	0	0	2,377,062	2,351,252	25,810	
May	8.03	12,092	228	53,694	2,719,435	1,652,011	0	948,800	0	0	2,785,449	2,600,811	184,638	
June	11.46	13,747	236	1	2,472,400	1,650,372	5,293	853,400	21,936	9,579	2,486,384	2,509,065	-22,681	
July	5.55	9,860	0	0	2,930,831	1,956,329	10,698	1,020,000	0	0	2,940,691	2,987,027	-46,336	
August	11.00	11,158	458,958	340,165	3,352,655	2,804,839	33,420	1,184,800	22,005	0	4,162,936	4,023,059	139,877	
September	5.27	3,343	322,087	680,918	3,529,312	3,564,637	0	936,400	108,019	0	4,535,660	4,501,037	34,623	
October	3.48	10,913	149,219	282,434	3,097,682	2,507,491	0	880,300	153,720	0	3,540,248	3,387,791	152,457	
November														
December														
YTD Total	58.57	98,671	932,564	1,954,482	27,541,676	21,217,635	76,529	8,172,800	305,680	9,579	30,527,303	29,466,964	1,060,429	

Note:
1. If the bypass at the effluent pond is ever used to pump effluent back to the LTRF, this table must be modified.
2. Leachate from the Hillsborough Heights and Taylor Road landfills is being hauled to the Faulkenburg Road Wastewater Treatment Facility.
3. Change in storage represents total inflow to LTRF minus total outflow from LTRF.