April 5, 2019
File No. 02219702.00

Mr. Vincent Prieto
President
New Jersey Sports and Exposition Authority
One DeKorte Park Plaza
Lyndhurst, New Jersey 07071

SUBJECT: Leachate Seep Repair Report
Keegan Landfill

Dear Mr. Prieto:

As requested, SCS Engineers (SCS) observed and documented the repair of a leachate seep on the southern sideslope of the Keegan Landfill in Kearny, New Jersey (see location of seep on Drawing in Attachment 1). The repair work commenced on March 15, 2019 and final completion was observed on March 18, 2019.

SCS was onsite and observed the excavation, leachate drainage capacity of the excavation, placement of stone backfill and placement of soil backfill as documented in the daily reports included in Attachment 2. Hydrogen sulfide (H_2S) monitoring was performed in the vicinity of the seep before, during and after the seep repair as included in Attachment 3. H_2S measurements taken after the seep was repaired were significantly lower than those measured before and during repair of the seep.

SCS confirms that the repair was executed in accordance with industry health and safety and construction standards.

Please call with any questions or comments.

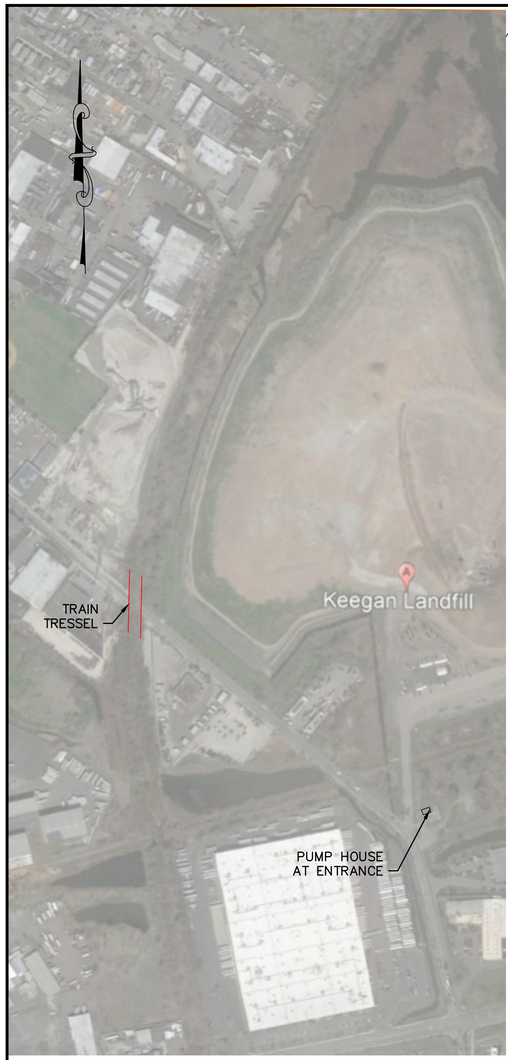
Sincerely,

Camilo J. Aponte
Staff Engineer
SCS ENGINEERS

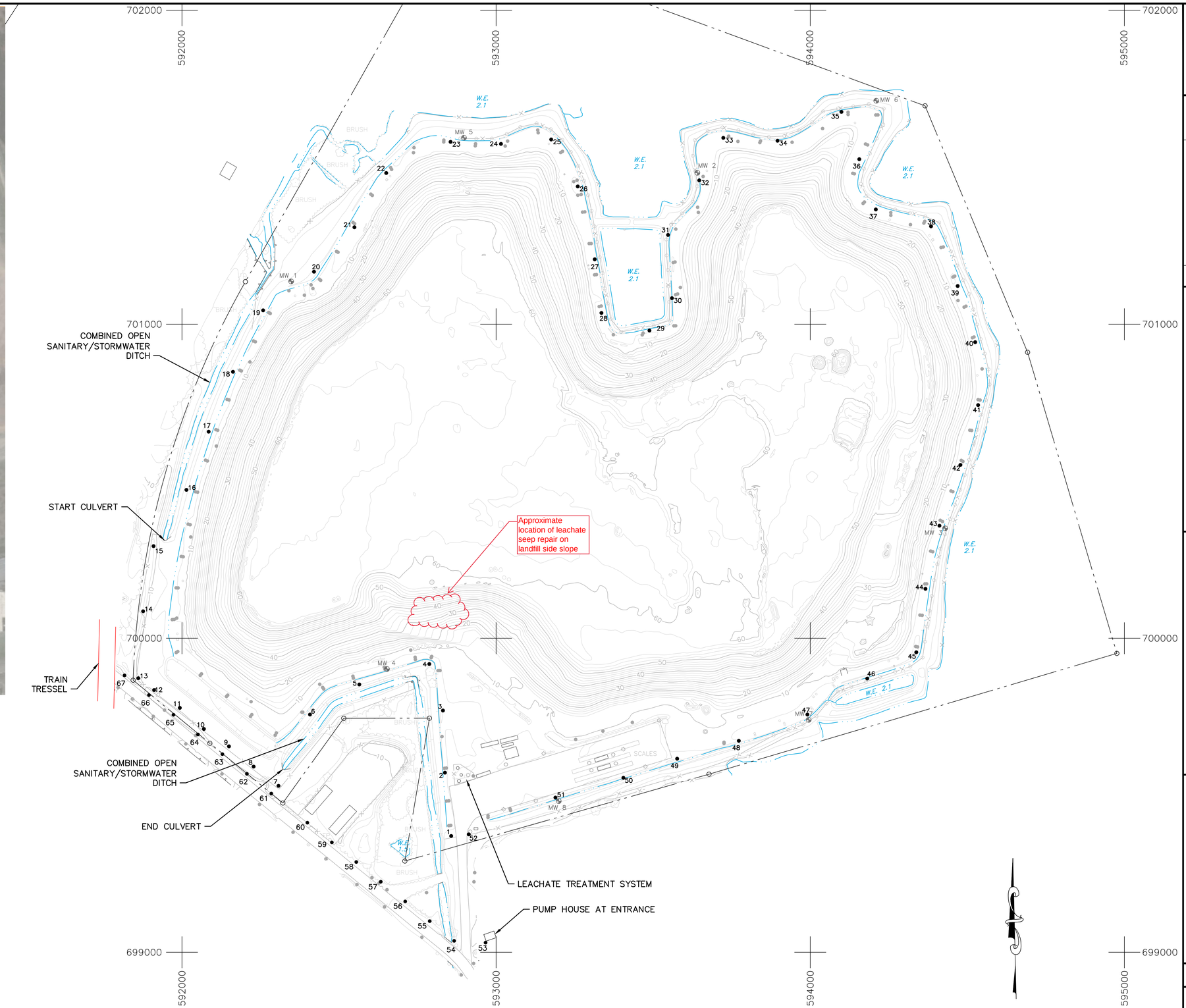
Lisa K. Wilkinson, P.E.
Project Director I
SCS ENGINEERS

cc: T. Marturano, NJSEA
C. Sanz, NJSEA
A. Levy, NJSEA
J. Stewart, Lowenstein Sandler

Attachment 1



0 300 600 900
SCALE IN FEET



150 75 0 150 300
SCALE: 1"=150'

LEGEND:

- PROPERTY LINE
- EXISTING CONTOUR
- VEGETATION LINE
- GROUND WATER MONITORING WELL
- MONITORING LOCATION

REFERENCES:

1. FEATURES DEPICTED BASED ON DRAWING ENTITLED 'EXISTING TOPOGRAPHY, KEEGAN LANDFILL' DATE OF AERIAL FLIGHT IS 03-17-18, PREPARED BY KUCERA INTERNATIONAL INC., DATED 3-17-18. (FILENAME: KEEGAN 2018 REVISED.DWG FILE DATE 5-24-2018)
2. BOUNDARY DEPICTED WAS TAKEN FROM BEST AVAILABLE SOURCES. ALL BEARINGS AND DISTANCES SHOWN WERE DERIVED FROM OR CALCULATED FROM DATA FURNISHED KUCERA INTERNATIONAL BY NJSEA AND SHOULD NOT BE USED AS THE LEGAL BOUNDARY OF RECORD.
3. COORDINATE AND ELEVATION DATA FOR MONITORING WELLS WERE PROVIDED BY NJSEA.

NO.	REVISION	DATE
A	ISSUED FOR CLIENT REVIEW	2/28/2019

SHEET TITLE
MONITORING SITE PLAN

PROJECT TITLE
MONITORING SUPPORT KEEGAN LANDFILL

CLIENT
NEW JERSEY SPORTS & EXHIBITION AUTHORITY
1 DE KORTE PARK PLAZA, POB 640
LYNDHURST, NJ 07071

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
4 EXECUTIVE BLVD, SUITE 202, SUFFERN, NY 10901
PH. (845) 357-1510 FAX. (845) 357-1049

PROJ. NO. 02219702.00
DWN. BY: SHY
Q/A RVW BY: LKW
DSN. BY: LKW
CHK. BY: LKW
APP. BY: LKW

CADD FILE: MONITORING SP
DATE: 2/28/2019
SCALE: AS SHOWN
DRAWING NO. 1 of 1

L:\PROJECTS\02219702.00\DRAWINGS\MONITORING SP.DWG layout: SP plotted on: 2/28/2019 4:10 PM Yovchak, Sharon

Attachment 2

Daily 3/15/19-Page 1

SCS ENGINEERS
Environmental Consultants and Contractors

Summary:

Camilo Aponte; SCS Staff Professional

Site: Keegan Landfill
Location: 437 Bergen Ave, Kearny, NJ 07032
Job # 02219702.00 Task: 1
Keegan Landfill - 2019 Leachate Seep Repair

Weather: 67°F; Mostly Sunny; _76_% humidity; 29.8 in Pressure; Wind_13_ MPH SW
Mileage: Total Miles: 60 **Total Hours: 8.5**

Daily Log Notes:

- **Left home at 5:30, On site at 6:15**
- **Took pictures of leachate seep area before repair**
- **Took H2S readings on and around leachate seep area using Jerome 631X**
- **Crew begins to dig out leachate seep area**
- **Crew finishes digging up seep area down to 9'-10' below grade.**
- **Took readings during entire digging process after every truck load delivered back to top of landfill**
- **Crew identifies depth of leachate source at 2' below ground level. Leachate does not accumulate at bottom of hole. Indicates proper drainage.**
- **Crew fills up area with large 3"-5" stone up to 2' below grade**
- **Took readings after every load of stone delivered and packed**
- **Identified most western side of seep as Highest H2S Readings**
- **Took readings 1" away from leachate sources before and after source is covered by stone**
- **Crew takes lunch break. Took readings on the top of landfill**
- **Crew fills rest of area with soil up to grade**
- **Took readings after every load of soil delivered and packed**
- **Took final readings over soil where original highest readings where recorded**

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CQA Photos:

1 Leachate seep area prior to repair, four origins of the seep converging into a single stream

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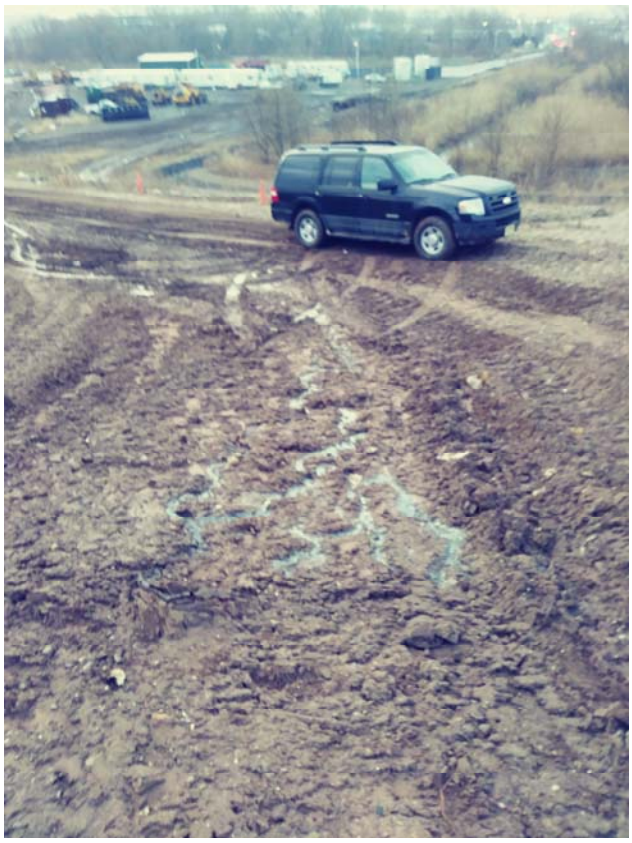
Environmental Consultants and Contractors

CQA Photos:



2 Designation Cones for Source Area Location. South of Source Area

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CQA Photos:

3 Crew Begins to Dig Up Leachate seep Area

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CQA Photos

4 Crew Finishes Digging up seep Area Down to 9'-10' Below Grade.

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CQA Photos:

5 Crew Identifies Depth of Leachate Source at 2' Below Ground Level. Leachate Does Not Accumulate at Bottom of Hole. Indicates Proper Drainage.

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CQA Photos:

6 Excavation is backfilled with 3"-5" Stone up to 2' Below Grade

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CQA Photos:

7 Soil is backfilled over the stone to surrounding grades

Daily 3/18/19-Page 1

SCS ENGINEERS
Environmental Consultants and Contractors

Summary:

Camilo Aponte; SCS Staff Professional

Site: Keegan Landfill
Location: 437 Bergen Ave, Kearny, NJ 07032J
Job # 02219702.00 Task: 2
Keegan Landfill - 2019 Leachate Seep Repair

Weather: 39°F; Mostly Sunny; _33_% Humidity; 30.29 in Hg Pressure; Wind_9_ MPH WNW
Mileage: Total Miles: 60 **Total Hours: .5**

Daily Log Notes:

- **On site at 4:25 pm**
- **Took pictures of previous week's leachate seep area**
- **Took H2S Readings on and Around Leachate Seep Area. See attachment 3.**

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Environmental Consultants and Contractors

CQA Photos:

1 Area of repaired leachate seep, looking upslope.

2 Area of repaired leachate seep, looking west

Attachment 3

H_2S Leachate Seep Repair CQA - 3/15/2019
Keegan Landfill

Weather [1]					
Date	Temp	Barometric Pressure (in Hg)	Humidity	Precipitation (inches)	Wind (mph)
3/15/2019	65°F	29.8	76%	0	13 SW

(1) Weather data from from weather.com, barometric pressure and precipitation from wunderground.com data for "newark airport"

(2) Data from Accuweather.com, data for Amtrak RR. Swing Bridge

Technician:	Camilo J Aponte		
Meter Make:	Arizona Instrument		
Model:	Jerome 631X		
Regeneration:	Yes	Barometric	
Anemometer make:	Kestrel	Pressure Start :	29.81 in Hg
Anemometer model:	4500		
Time Start:	7:22 AM	Barometric	
Time End :	3:03 PM	Pressure End :	29.62 in Hg

Time Start:	8:49	AM
Time End :	3:03	PM

Leachate Seep Area (Before excavation)

Monitoring Point	H_2S Concentration (ppm)	Time	Wind Direction [3]	Wind Velocity (mph)
5' North West of Area	0.012	7:22	S	3.4
5' North of Area	0.03	7:23	S	3.5
5' North East of Area	0.011	7:24	S	2.9
1' N East of Area, 2' from Ground Level	0.011	7:25	S	4.1
1' N West of Area, 2' from Ground Level	0.015	7:26	S	1.8
5' West of Area	0.015	7:27	S	2.4
5' South West of Area	0.01	7:28	S	4.4
5' South of Area	0.009	7:29	S	1.7
5' South East of Area	0.009	7:30	S	3.4
5' North East of Area	0.009	7:31	S	2.8
Closet Cone to Area (South of Area)	0.009	7:32	S	3.4
2nd Closet Cone to Area (South of Area)	0.01	7:33	S	2.4
3rd Closet Cone to Area (South of Area)	0.01	7:34	S	4
4th Closet Cone to Area (South of Area)	0.01	7:35	S	2.5
5' North East of Area Directly at Ground Level	0.035	7:38	S	2.9
100' North West of Area	0.009	7:41	S	4.5
100' North of Area	0.012	7:44	S	6.1
100' North East of Area	0.009	7:46	S	4.3
200' East of Area	0.01	7:47	S	3.9
50' North of Area	0.01	7:49	S	1.9
25' North of Area	0.01	7:50	S	1.8
North East Section of Area 6 " Above Ground Level	0.023	7:51	S	2.2
North Section of Area 1 " Above Ground Level	1.4	7:52	S	1.7
East Section of Area 1 " Above Ground Level	1.7	7:53	S	1.3
South West Section of Area 1 " Above Ground Level	0.027	7:54	S	2.1
Puddle of water 5' S of Area 1" aboce ground level	0.009	7:56	S	2.4
WNEWSection of Area 1 " Above Ground Level	0.03	7:57	S	1.3
WSW Section of Area 1 " Above Ground Level	0.046	7:58	S	1.2
WNW Section of Area 6 " Above Ground Level	0.009	7:59	S	1.2
6 " WNW Section of Area 1 " Above Ground Level	3.2	8:02	S	1.8
<1" Above Ground Level on Most Western Leachate Source Stream	2.1	8:03	-	-
<1" Above Ground Level on Most Western Leachate Source Stream	2.7	8:04	-	-
<1" Above Ground Level on Most Western Leachate Source Stream	2.8	8:05	-	-
<1" Above Ground Level on 2nd Most Western Lechate Source Stream	5	8:06	-	-
<1" Above Ground Level on 2nd Most Western Lechate Source Stream	7	8:07	-	-
<1" Above Ground Level on 2nd Most Western Lechate Source Stream	7	8:08	-	-
<1" Above Ground Level on 2nd Most Western Lechate Source Stream	5	8:09	-	-
<1" Above Ground Level on 2nd Most Western Lechate Source Stream	6	8:10	-	-
<1" Above Ground Level on 2nd Most Eastern Leachate Source Stream	12	8:11	-	-
<1" Above Ground Level on 2nd Most Eastern Leachate Source Stream	1.9	8:12	-	-
<1" Above Ground Level on 2nd Most Eastern Leachate Source Stream	3.7	8:13	-	-
<1" Above Ground Level on 2nd Most Eastern Leachate Source Stream	23	8:14	-	-
<1" Above Ground Level on 2nd Most Eastern Leachate Source Stream	7	8:15	-	-
<1" Above Ground Level on 2nd Most Eastern Leachate Source Stream	14	8:16	-	-
<1" Above Ground Level on Most Eastern Lecheate Source Stream	1.2	8:16	-	-
<1" Above Ground Level on Most Eastern	0.86	8:17	-	-
<1" Above Ground Level on Most Eastern Lecheate Source Stream	2.6	8:18	-	-
<1" Above Ground Level on Most Eastern Lecheate Source Stream	4.7	8:19	-	-
<1" Above Ground Level 6' East from Most Eastern Lecheate Source Stream Above Soil	0.19	8:26	S	6.1

Leachate Seep Area Monitoring (During Excavation/Backfill Activities)

Monitoring Point	H_2S Concentration (ppm)	Time	Wind Direction	Wind Velocity (mph)
Adjacent North of Area 3' Above Ground Level	0.025	8:49	S	2.3
Adjacent North of Area 3' Above Ground Level	0.046	8:55	S	2.3
50' West of Area Above Ground Level	0.01	9:00	S	2.5
Adjacent West of Area (Rod in Ditch)	0.011	9:05	S	2.2
Adjacent West of Area (Rod in Ditch)	1.3	9:10	S	4.2
Adjacent West of Area	0.013	9:21	S	3.1
Adjacent North of Area	0.042	9:37	S	4.2
Adjacent North of Area	0.009	10:01	SW	7.1
Adjacent West of Area (Rod in Ditch)	0.012	10:03	SW	7.1
3' North of Area	0.008	10:12	SW	2.1
3' North of Area	0.007	10:33	SW	9.1
Adjacent South of Area (Rod in Ditch)	0.008	10:56	SW	9.3
In Ditch Post Stone Placement 1" From Most Western Leachate Source	3.7	11:12	-	-
3' North of Area at Ground Level	0.04	11:13	SW	10.4
Adjacent West of Area at Ground Level	0.037	11:14	SW	3.5
Adjacent East of Area at Ground Level	0.006	11:15	W	5.7
In Ditch Post Stone Placement 1" From Most Eastern Leachate Source	0.028	11:25	W	2.8
Adjacent NorthEast of Area (Rod in Ditch)	1.6	11:29	S	1.9
In Ditch Post Stone Placement 1" From Most Western Leachate Source	12	11:31	SW	10.1
In Ditch Post Stone Placement 1" From Most Western Leachate Source (Stone Covering Source)	0.006	11:49	SW	9.9
In Ditch Post Stone Placement 1" From Most Eastern Leachate Source (Stone Covering Source)	0.005	11:52	SW	9.7
3' North of Area at Ground Level	0.004	11:55	SW	5.6
In Ditch Post Stone Placement 1" From Most Western Leachate Source (Stone Covering Source)	0.079	12:07	SW	6.1
In Ditch Post Stone Placement 1" From Middle Leachate Source (Stone Covering Source)	0.003	12:08	SW	6.8
In Ditch Post Stone Placement 1" From Most Eastern Leachate Source (Stone Covering Source)	0.002	12:09	SW	7.2
In Ditch Post Stone Placement 1" From Most Western Leachate Source (Stone Covering Source)	0.09	12:57	SW	6.8
In Ditch Post Stone Placement 1" From Most Eastern Leachate Source (Stone Covering Source)	0.002	12:58	SW	3.7
In Ditch Post Stone Placement 1" From Middle Leachate Source (Stone Covering Source)	0.002	1:00	SW	4.8
In Ditch Post Stone Placement 1" From Most Western Leachate Source (Stone Covering Source)	0.004	2:32	SW	6.1
In Ditch Post Stone Placement 1" From Most Eastern Leachate Source (Stone Covering Source)	0.003	2:33	SW	6.5
In Ditch Post Stone Placement 1" From Middle Leachate Source (Stone Covering Source)	0.004	2:34	SW	5.9
In Ditch Post Soil Placement 1" From Most Western Leachate Source (Soil Covering Source)	0.003	3:03	SW	7.1

H_2S Leachate Seep Repair CQA - 3/18/2019
Keegan Landfill

Weather [1]					
Date	**Temp**	**Barometric Pressure (in Hg)**	**Humidity**	**Precipitation (inches)**	
3/18/2019	43 °F	30.1	27%	0	

(1) Weather data from wunderground.com data for "newark airport"

Technician:	Camilo J Aponte		
Meter Make:	Arizona Instrument		
Model:	Jerome 631X	Barometric	
Regeneration:	Yes	Pressure	
Anemometer make:	Kestrel	Start :	30.0 in Hg
Anemometer model:	4500	Barometric	
Time Start:	4:30 AM	Pressure	
Time End :	4:42 PM	End :	30.1 in Hg

Location #	Location Description	Time	H2S (ppm)	Wind Direction	Wind Speed
1	Top of Soil Covered Main Seep Area (1" Above Ground)	4:30	0.027	NW	6.6
2	Location 1 + 5' West	4:33	0.020	NW	5.5
3	Location 1 + 5' North	4:36	0.040	NW	6
4	Location 1 + 5' East	4:39	0.025	NW	4.6
5	Location 1 + 5' South	4:42	0.060	NW	2.5