Keegan Landfill Technical Update

NJSEA Board Meeting
June 20, 2019

SCS ENGINEERS

Summary of Work Update

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- May 8 – Monitoring Station Operation
- May 23 – Submit Air and SW Permit Applications
  - Includes GCCS Design Drawings
  - Submit response to NJDEP comments
    - May 31 – Air
    - June 11 –SW
    - June 17 – SW
- May 29 – Submit Emissions Estimates per ACO
- May 31 – Submit ACO Progress Report
- June 18 – Resolution for Construction Contractor

Construction Schedule

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GCCS Construction Schedule

Activity	Approximate Duration
Mobilization	Week of June 24
Trench Excavation	8-10 weeks
Vertical Well Drilling	2 weeks
Flare Skid Installation	5 days
System startup	2 days

- Full-time operation of GCCS expected by end of September 2019
- Ahead of ACO schedule to submit proposal by September 30, if requested

Landfill Gas Collection and Control System

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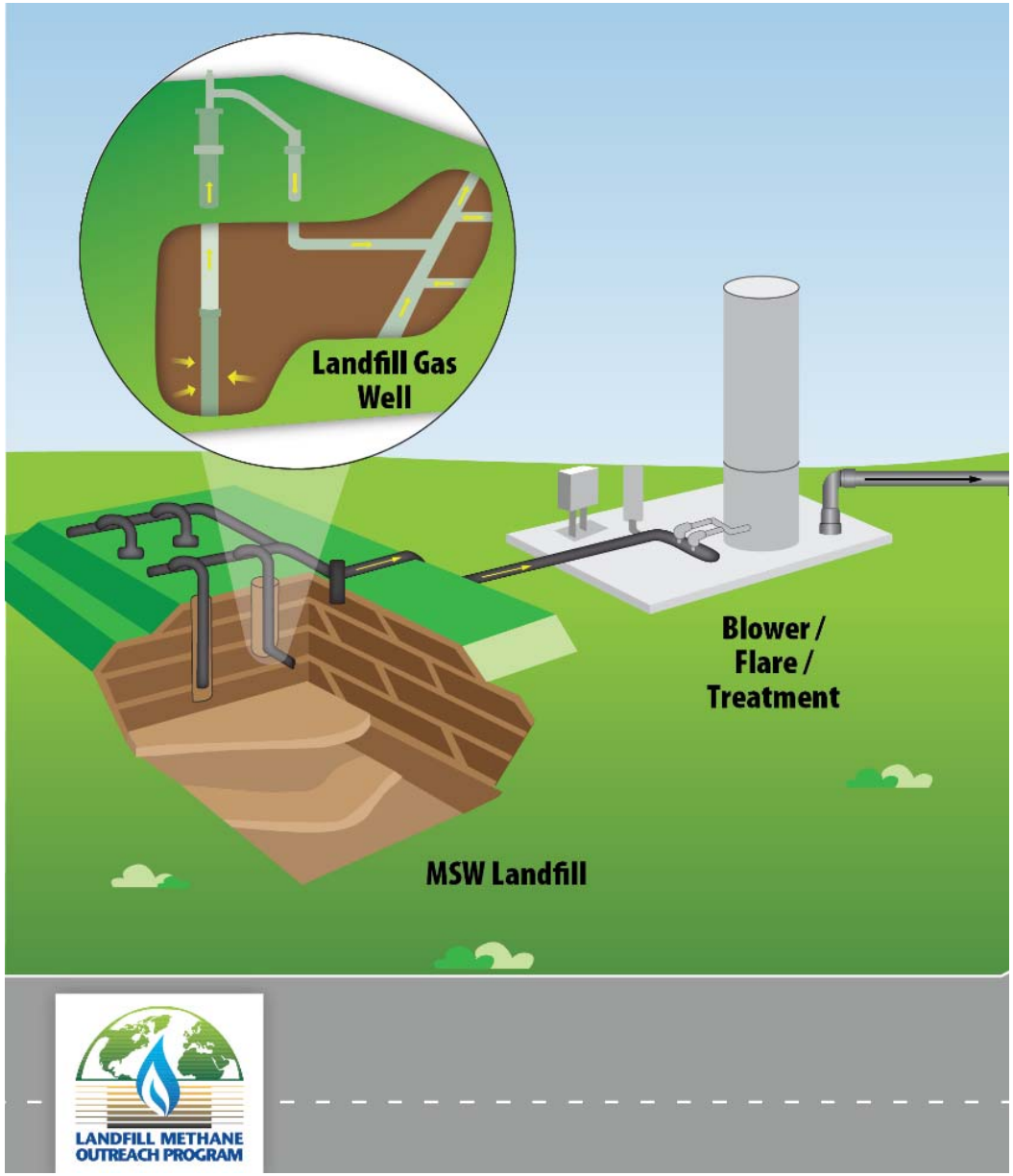
Gas Collection and Control (GCCS) System

- Vertical gas extraction wells
  - Drilled into waste mass
- Horizontal collectors
- HDPE laterals and headers
- Blower to extract gas from the wells
- Flare to combust collected gas
- Goal: Maximize LFG collection to reduce odors


Landfill Gas
Well
Blower /
Flare /
Treatment
MSW Landfill
LANDFILL METHANE
OUTREACH PROGRAM

LEGEND:

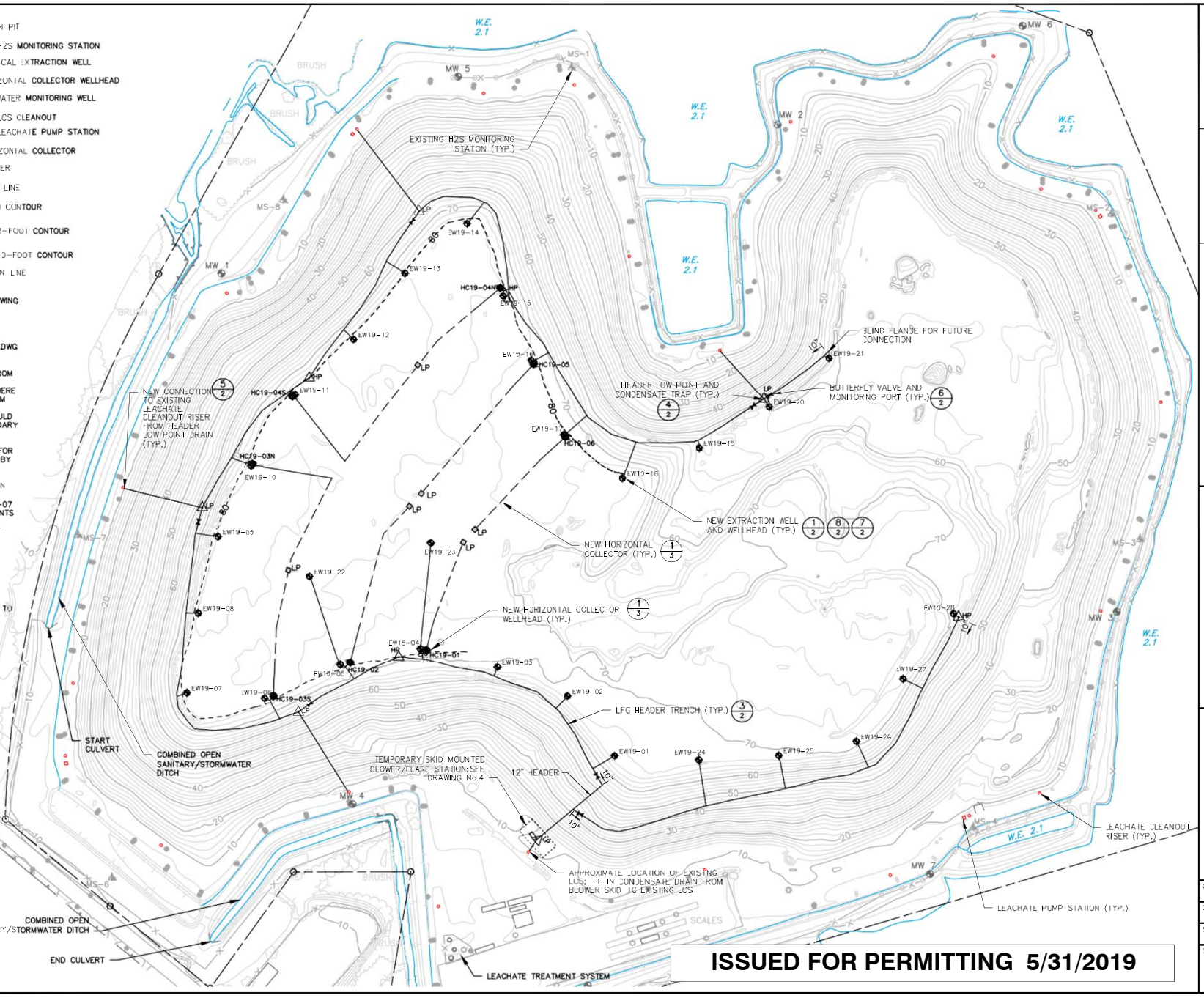
- NEW DRAIN PIT
- MS-1 EXISTING H2S MONITORING STATION
- EW NEW VERTICAL EXTRACTION WELL
- HC NEW HORIZONTAL COLLECTOR WELLHEAD
- MW GROUND WATER MONITORING WELL
- EXISTING LCS CLEANOUT
- EXISTING LEACHATE PUMP STATION
- NEW HORIZONTAL COLLECTOR
- NEW HEADER
- PROPERTY LINE
- 80 ESTIMATED CONTOUR
- EXISTING 2-FOOT CONTOUR
- 30 EXISTING 10-FOOT CONTOUR
- VEGETATION LINE

REFERENCES:

1. FEATURES DEPICTED BASED ON DRAWING ENTITLED 'EXISTING TOPOGRAPHY, KEEGAN LANDFILL' DATE OF AERIAL FLIGHT IS 03-18-19, PREPARED BY KUCERA INTERNATIONAL INC., DATED 3-18-19. (FILENAME: KEEGAN 2019.DWG FILE DATE 4-10-2019)
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.
4. LCS CLEANOUT LOCATIONS BASED ON DRAWING ENTITLED "PROPOSED SITE IMPROVEMENTS PLAN" DATED 9-28-07 PREPARED BY CONVERSE CONSULTANTS
5. FINAL CONTOUR BASED ON 30 FOOT OFFSET FROM EXISTING 70 FOOT CONTOUR.

CONSTRUCTION NOTES:

1. ALL LATERALS SHALL BE 4" SDR17 HDPE PIPE
2. RESTORE ALL DISTURBED SURFACES TO ORIGINAL CONDITIONS



ISSUED FOR PERMITTING 5/31/2019

NO.	REVISION	DATE
1	ISSUED FOR PERMITTING	5/22/2019
2	REVISED BLOWER/FLARE AND HEADER LOCATION	5/31/2019
3		
4		
5		

SHEET TITLE: **SITE PLAN**

PROJECT TITLE: **2019 LFG COLLECTION SYSTEM 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 303, SUFFERN, NY 10901
TEL (845) 357-1810 FAX (845) 357-1848

PROJ. NO. 02219702.00 | DWG. BY: SHY | QA REVIEW BY: DJS
SIG. BY: LKW | CHK. BY: LKW | APP. BY: LKW

CADD FILE: 2019 Site Plan_5.31.19

DATE: 5/31/2019

SCALE: 1"=100'

DRAWING NO. 1 of 4

I:\PROJECTS\02219702.00\DRAWINGS\2019 LFG SYSTEM\2019 SITE PLAN_5.31.19.DWG layout: SP plotted on: 5/31/2019 12:49 PM Aparto, Camilo

Keegan Landfill GCCS

- 28 Vertical Gas Extraction Wells
  -1,140 vertical feet
- 6 horizontal collectors
- About one mile of main header pipe
- About ¾ mile of lateral pipe
- Valves for isolation
- 5 condensate drains
- 1 skid-mounted utility flare

Vertical Extraction Wells Design Parameters

- Well Depth 40 to 50 feet
- Boreholes 36" diameter
- Casing is PVC
- Bottom slotted - start 20-30 feet below ground surface
- Typical "radius of influence" – 100 feet
  - ~200 foot spacing on landfill

Vertical Well Drilling

Extraction Well Installation

Extraction Well Installation

Wellhead

Horizontal Collectors Design Parameters

- Installed on flat plateau of landfill
- Perforated pipe in a gravel trench
- 6-inch HDPE pipe
- Drain pits at low points
- Solid pipe to outside slopes to prevent air intrusion

LFG Collection Piping

- Pathway for LFG from wellheads to blowers
- Pipe material: HDPE
- Sized for velocity and pressure drop
- Design intent is to have more vacuum than necessary at all wells. Wellhead valve is adjusted to reduce vacuum to needed level
- Pipe sloped to promote condensate drainage

Trenching

Pipe Placement in Trench

Condensate Management

- LFG is saturated with water.
- As LFG cools, water condenses
- Temperature drop is affected by pipe length, wind, flow rate and whether piping is above or below grade.
- Quantity of condensate produced is a function of flow rate and temperature differential

Skid-Mounted Blower/Flare

- 15-hp blower with 500 scfm capacity
- 6-inch utility flare with 750 scfm capacity
- 24-inch diameter moisture separator
- Automatic shut-off valve
- Flow meter with chart recorder and remote monitoring
- Pilot flame assembly and ignitor
- Control panel for automatic operation

Bales

Odor Control Plan

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During Construction

- Minimize open trench
- No open boreholes, trenches overnight
- Odorous waste from drilling/trenching directly onto trucks
- Stockpiled cover materials to cover odorous waste
- Monitoring stations active during construction
- Odor neutralizing agent direct applied
- Inspection of all disruption activities

Odor Neutralizing Agent

- Neutralene by Air Care
- Absorbent filter
- Suppression of dust, particles
- Salt that acts as solvent and surfactant
- NOT a masking agent
- Used at Monmouth County and other NJ Landfills