

8-23-18 GAS FLOW 57 CFM @ 19.7°C

8-31-18 GAS FLOW 59 CFM @ 20.3°C

9-7-18 GAS FLOW 53 CFM @ 19.1°C

9-12-18 GAS FLOW 56 CFM @ 19.4°C ϕ COND.

COLBERT GAS RD

9/2018

DATE: 9/21/2018 (Fri)

FAN HR: 21112

GAS FLOW 53 CFM GAS TEMP: 19.1°C GEM 500 #410

WEATHER P. CLOUDY MID-60'S B. PRESS 30.14

GAS CALIB: ZEROED CH₄ TO AB AIR $\rightarrow$ CAL GAS $\rightarrow$

CH₄ READING 14.8% CALIB TO 15.0% CH₄; CO₂

READING 15.1% CALIB TO 15.0% $\rightarrow$ ~~REMOVED~~

~~CAL GAS~~ $\rightarrow$ ZEROED O₂ TO CAL GAS $\rightarrow$ REMOVED

CAL GAS $\rightarrow$ O₂ READING 20.7 CALIB. O₂ 20.9%

AB AIR.

* ALL 21 GAS PROBE LOCATIONS ? 4

GAS EXTRACTION LOCATIONS WERE SAMPLED FOLLOWING NORMAL PROTOCOL WHILE SAMPLING FOR %CH₄, %CO₂, %O₂ & PRESSURE AT ALL LOCATION. ALL READINGS ARE WITHIN NORMAL READINGS NOTHING OUT OF THE ORDINARY WAS OBSERVED. NO ADJUSTMENTS WERE MADE.

- GAS FAN MAINT: GREASED SHAFT BEARING & MOTOR BEARING. LOOK @ BELT OIL TENSION 5.5 LBS
- 2.5 GAL OF COND IN EFF GAS LINE
- KNOCKOUT @ ϕ
- $\checkmark$ GAS LINE TRAPS OK.
- TANK LEVELS 2.75-3.00" IS 9.5"

9-28-18 (FRI)

- GAS Flow 56 CFM @ 18.1°C 1 GAL COND

10-4-18 (THURS)

- GAS Flow 56 CFM @ 18.7°C Ø

10-12-18 (FRI)

- GAS Flow 51 CFM @ 18.1°C 1 GAL COND

10-18-18 (THURS)

- GAS Flow 55 CFM @ 18.9°C 2 GAL COND

10-26-18 (FRI)

- GAS Flow 56 CFM @ 17.9°C 5 GAL COND
(TURNED HEAT TRACE ON)
GAS PROBES

10-30-18 (TUES)

TECH: M. TERRIS

FAN HR 22048 HR.

WEATHER P. CLOUDY 40'S-50'S B.P. 3007 R

GAS TEMP 12.4°C

GEM 500 #410

GAS Flow 51 CFM

GAS CALIB.: ZEROED CH₄ TO AB AIR → CAL GAS

CH₄ READING 15.1% CALIB. TO 15.0%; CO₂

READING 14.9% CALIB. TO 15.0%; ZEROED

O₂ TO CAL GAS → O₂ READING 20.6% CAL.
TO AB AIR 20.9%

- ALL 21 GAS PROBES + 4 GAS EXTRACTION SYSTEM LOCATIONS WERE SAMPLED FOLLOWING NORMAL PROTOCOL WHILE SAMPLING %CH₄, %CO₂, %O₂ & PRESSURE AT ALL LOCATIONS. ALL READINGS ARE WITHIN NORMAL READINGS NOTHING OUT OF THE ORDINARY WAS OBSERVED. NO ADJUSTMENT WERE MADE.

- GAS FAN MAINT. BEARINGS GREASED ✓ BELTS

- 30 GAL OF CONDENSATE. IN EFF GAS LINE

- KNOCK OUT @ Ø

- TANIC LEVELS 2.75" IS 9.5"

11/2/2018 GAS FLOW 51 CFM 13.9° 2 GAL CON

11/9/2018 GAS FLOW 49 CFM @ 13.1° Ø

11/16/2018 (fri) TRENCH RISERS / GAS PROBES / EXTRACTION GEM 500 #410

WEATHER: MOSTLY CLEAR 30's LOW 40's B.P. 30.09
GAS FLOW 46-48 CFM @ 12.4° FAN HR: 30446
4 GAL OF COND IN EFF LINE (DRAIN)

THE FOLLOWING WAS SAMPLED USING GEM 500

LOCATIONS	%CH ₄	%CO ₂	%O ₂	FLOW	PRESS	TEMP
13 TRENCH	X	X	X	X	X	X
21 GAS PROBE	X	X	X		X	
4 GAS EXTRACT	X	X	X		X	

NORMAL PROTOCOL WAS USED WHILE SAMPLING ALL LOCATIONS ABOVE. ALL READINGS ARE IN NORMAL RANGES, NO ADJUSTMENTS WERE MADE. NOTHING OUT OF THE ORDINARY WAS OBSERVED.

- WINTERIZED GAS SYSTEM (TURNED TRENCH RISERS TO ALLOW GOOD FLOW OF COND.)
- FLAGGED ALL SURFACE LEVEL LOCATIONS.
- FAN MAINT. TURNED FAN OFF ✓ BELT A LITTLE WEAR BUT OK AT THIS TIME 5-6 lbs TENSION lbs ON BELT (OK)
- TURNED FAN BACK ON GREASED ALL BEARINGS SHAFT & MOTOR
- KNOCKOUT COUNTER @ 1 RESET TO Ø
- TRAPS LOOK / SOUND GOOD
- TANK LEVELS 2 3/4" COND IS 9.5" OIL

11/20/2018 (Tues)

- WEEKLY GAS FLOW 50 CFM @ 12.9°C
1 GAL COND.

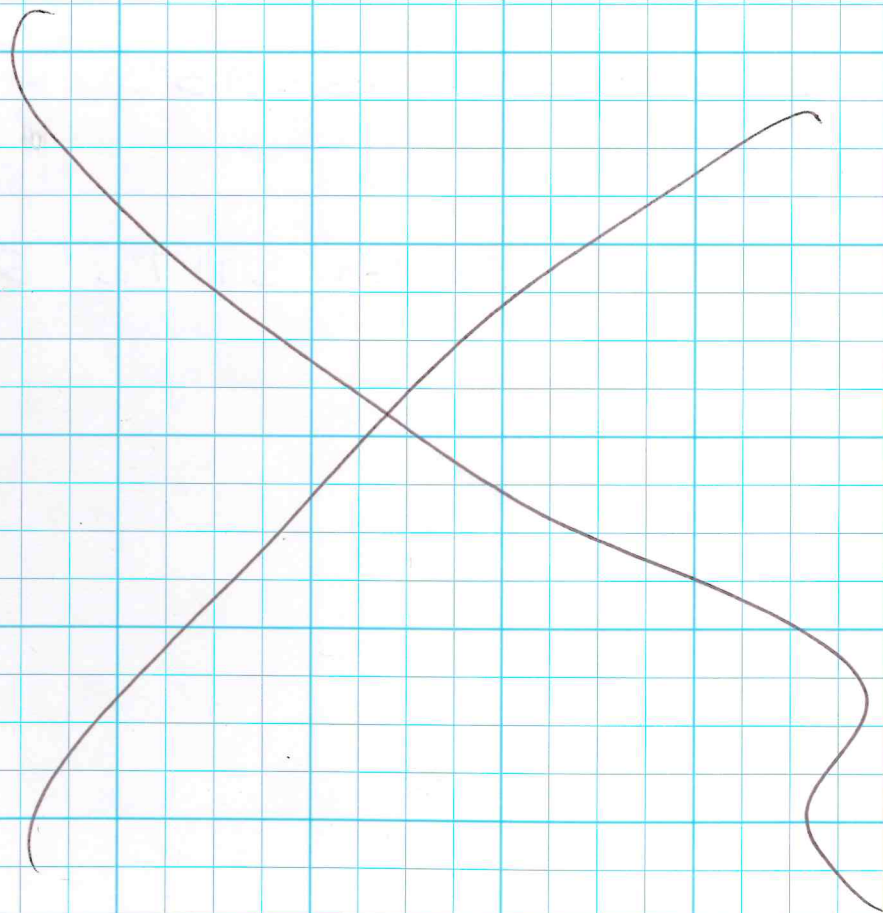
- PULLED SADDLING FROM COVER
(WE HAVE A PACK OF COYOTES ON
COVER (4-5) THEY ARE THE ONES
DIGGING HOLES

12/4/2018 (Tues)

- Weekly Gas flow 49 CFM @ 12.8°C

12-14-18 (Fri)

- WEEKLY FLOW 51 CFM @ 14.1°C 2 GAL



MONTHLY GP/EXTRACTION

12-19-2018 (FRI)

TECH: M. TERRIS

WEATHER: R CLOUDY 40's

B.P 30.01 R

GAS FLOW 56 CFM @ 12.8%

KNOCKOUT @ 0

GEM 500 #410

GAS CALIB: 0 CH₄ TO AB AIR → CAL GAS CH₄

READING 14.9 CALIB TO 15.0%; CO₂

READING 15.1% CALIB TO 15.0%; ZEROED

O₂ TO CAL GAS → O₂ READING 20.6

TO AB AIR CALIB. TO 20.9%

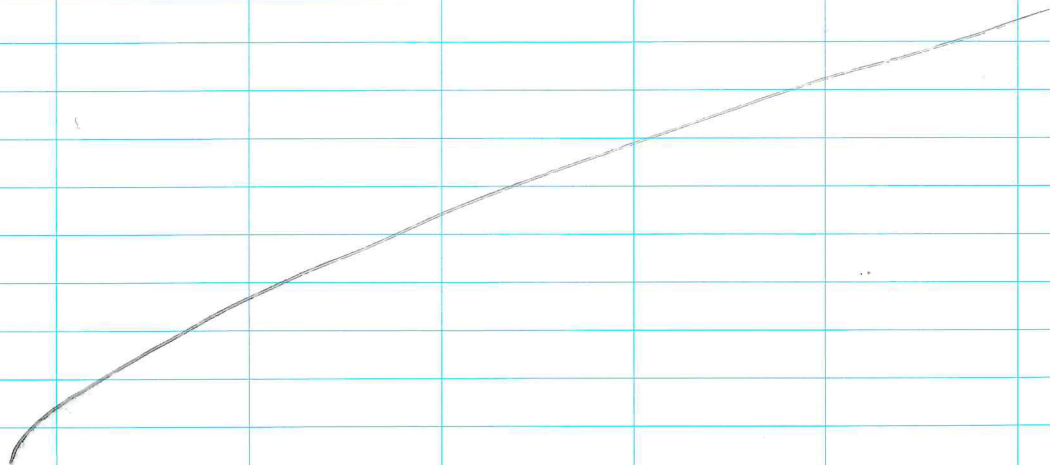
* ALL 21 GAS PROBES & 4 GAS EXTRACTION
SYSTEM LOCATIONS WERE SAMPLED
FOR % CH₄, % CO₂, % O₂ & PRESSURE.
ALL LOCATIONS ARE IN NORMAL RANGE
NO ADJUSTMENTS WERE MADE

- GAS FAN MAINT & BELT ✓ = ALL IS OK
BELT TENSION @ 5.5 lbs GREASED BEARINGS

- TANK LEVELS 2.75-3.00 IS = 9.5"

12/26/2018 (WED)

* WEEKLY GAS FLOW 54 CFM @ 11.7% 2 GAL



COLLECT GP/EXTRACTION

1/4/2019 (Fri) 405
WEATHER: P.C. UPPER 40S

TECH: M. TERRIS
B.P. 30.22 ↓

GAS FLOW 54 CFM e 14.1% KNOCKOUT e 0
FAN HR: 31617 ZERO COND IN EFF LINE
GEM 500 #410

GAS CALIB: 0 CH₄ TO AB AIR → CAL GAS
CH₄ READING 14.8 CALIB TO 15.0%;
CO₂ READING 15.0% NO CAL NEEDED;
ZEROED O₂ TO CAL GAS → O₂
READING 20.7 CALIB TO 20.9 AB
AIR.

MT SAMPLED ALL 21 GAS PROBE LOCATION
(INTERIOR/EXTENSION) & 4 GAS
EXTRACTIONS LOCATIONS AS PER OUR
REGULATIONS. SAMPLED %CH₄, %CO₂,
%O₂ & PRESSURE AT ALL 25 LOCATION.
NOTHING OUT OF THE ORDINARY WAS
OBSERVED SO NO ADJUSTMENTS WERE
MADE

- GAS FLOW FAN MAINT WITH NORMAL SERVICE
- U/D COND. TANK NE CORNER OF
LANDFILL: 2.75"-3" 9.5 IS.
- KNOCKOUT 0
- 0 COND. IN EFF GAS LINE

1/11/2019 (Fri)

GAS FLOW 52 CFM e 12.1% 1 GAL COND.

1/18/19 (FRI)

GAS FLOW c 54 CFM 12.2°C TEMP ✓ COND.

1/18/19 - New BATT for Gem (GF)

1/25/19 (FRI)

54 CFM GAS FLOW TEMP 10.9°C 2 GAL

~~1/26~~
~~NE~~

COLBERT GAS PROBE/EXTRACTION

2/1/2019 (FRI)

WEATHER: CLOUDY 40'S

TECH: M. TERRY

B.P. 30.01 ✓

GAS FLOW 52 CFM c 9.7°C

EFF GAS LINE: ✓ COND

FAN HR: 32291

GEM 500#410 CALIBRATION?

✓ CH₄ TO AB AIR; CAL GAS → CH₄ READING 14.9% CALIB. TO 15.0%; CO₂ READING 15.1% CALIB. TO 15.0%; O₂ ZEROED TO GAS CALIB. → O₂ READING 20.7% TO AB AIR CALIB. TO 20.9%

MT SAMPLED ALL 21 GAS PORT LOCATIONS (INTERIOR & EXTENSION) AND 4 EXTRACTION LOCATION PER OUR REQUIREMENTS.

MT SAMPLE FOR %CH₄, %CO₂, %O₂ AND PRESSURE AT ALL LOCATIONS. NOTHING OUT OF THE ORDINARY OBSERVED SO NO ADJUSTMENTS WERE MADE. ~~SEEN~~

- SEEM TO BE POCKETS OF SETTLEMENT ON LANDFILL NEED DAVE BENTON'S CREW OUT TO SURVEY.

- GAS FAN NORMAL MAINT GREASED BEARING
- ✓ V BELT 55 lbs TENSION ON BELT
- ✓ SUMPS O.K.
- TANK N/E CORNER 2.75" - 3.00" IS 9.5"

2/6/19 (WED)

COLD VENT COLD!!!
GAS flow 53 cfm 8.7°C

Ø COND.

2/14/19 (Thursday)

another cold wind (very) day
Gas flow 53 cfm 8.8°C

Ø cond.

2/20/19 (Wednesday)

very cold - windy also
Gas flow 54 cfm

8.7°C

Ø Cond

2/27/19 (Wednesday)

Once again Cold 19°F

Gas flow 54 cfm

8.7°C

Ø Cond

3/7/19 (Thursday)

Gas flow 53 cfm

8.8°C

Ø Cond

3/14/19

GAS flow 54 cfm

9.9°C

Ø COND

3/22/2019 (FRI)

- GAS Flow 56 cfm

12.2°C

3 GAL COND.

3/26/2019 (TUES)

GAS flow

54 cfm

13.7°C

1 GAL COND

4/3/2019 (WED)

GAS

GAS PROBES (EXT. SYSTEM)

3/21/19 (THURS)

TECH: KM

GEM 500 #410

WEATHER: P. CLOUDY → CLOUDY UPPER 30'S LOW 40'S

B. PRESS 30.05

Flow 51 CFM

NO GAS CAL INFO

- ALL GAS PROBES READING TAKEN, + 4 GAS EXTRACTIONS LOCATIONS SAMPLED
%CH₄, %CO₂, %O₂ + PRESSURE

ALL INFORMATION RECORDED. IN THIS ROUND

4/3/19 (WED)

GAS Flow 52 CFM @ 14.0°C Ø COND

4/12/19 (FRI)

GAS Flow 54 CFM 13.7°C Ø COND.

4/3/19 (WED)

- GAS FLOW 52 CFM @ 14.0° ϕ COND

4/12/19 (FRI)

- GAS FLOW 54 CFM @ 13.7° ϕ COND

4/17/19 (WED)

- GAS FLOW 52 CFM @ 14.7° ϕ COND

4/26/19 (FRI) COLBERT GAS ANNUAL
TECH: M. TERRIS

FAN HR: 34305 WEATHER: CLOUDY SHOWERS 50'S
GAS FLOW 55 CFM @ 17.1° B. PRESS 30.01 ↓

GAS CALIBRATION: ZEROED CH₄ TO AB AIR → CAL GAS →
CH₄ READING 14.8% CALB. TO 15.0%; CO₂ READING 14.9%
CALIB TO 15.0%; ZEROED O₂ TO CAL GAS; O₂ READING
20.6% CALB TO 20.9% AB AIR.

MT SAMPLE AT EACH LOCATION AS FOLLOWS

LOCATION	%CH ₄	%CO ₂	%O ₂	FLOW	PRESSURE	TEMP
13 TR'S	X	X	X	X	X	X
2 MV'S	X	X	X		X	
5 MS'S	X	X	X		X	
5 TS'S	X	X	X		X	
21 GP'S	X	X	X		X	
4 EXTRACTION	X	X	X		X	

MT PERFORMED ANNUAL GAS SAMPLING EVENT
AT ALL LOCATIONS ABOVE NORMAL PROTOCOL
WAS FOLLOWED; ALL TR VALVE PLACED INTO
SUMMER POSITION NOTHING OUT OF THE
ORDINARY WAS OBSERVED NO ADJUSTMENT
WERE MADE

12/26/19 CONT.

GAS FAN WAS TURNED OFF DID SEMI-ANNUAL
MAINT. CLEANED BEARING EXTRA GREASE
OFF. REGREASED BEARING TO NORMAL
MOTOR BEARINGS GREASED CLEANED BELT
✓ TENSION & WEAR TENSION @ 5.5 lbs.
A LITTLE WEAR IN BELT WAS OBSERVED.

Ø COND IN EFF LINE

- KNOWLOUT @ 5 RESET TO Ø IS 9.5
TANK LEVELS 2.75-3.00"
✓ Sumps IN LINE OK.

1/1/2019 (WED)

GAS FLOW 55 CFM @ 17.9% Ø COND

1/10/2019 (FRI)

GAS FLOW 56 CFM @ 20.0% Ø COND
CGREASE BEARING ON GAS FAN - NOISE

* 5/1/19 CALLED DAVE BERTO FOR SCHEDULING
OF MARKERS ON SITE, ALLEN BERRY
CALLED WILL SCHEDULE. (NEED MAP)

5/15/19 PROCARE ON SITE TO SPRAY ROADS

COLGAS PROBER

5/20/2019 (MON)

FAN HR: 34904

GAS FLOW: 56 CFM @ 14.8%

~~THE~~ WEATHER: P. CLOUDY 60'S NE WIND 10-15 MPH

B. PRESS 30.00V

GAS CALIB. HAD TO RESET TO FACTORY SETTINGS
THEN CALIB METER.

ZERO CH₄ TO AB AIR → CALGAS → CH₄ READING 14.1%
CALIB TO 15.0% ; CO₂ READING 14.4% CALIB
TO 15.0% ; ZEROED O₂ TO CALGAS → O₂ READING
20.1% CALIB TO 20.9%

MT SAMPLED C ALL 21 GP LOCATION ON
SITE + 4 GAS EXTRACTION LOCATION
FOR %CH₄, %CO₂; O₂ & PRESSURE. ALL
READING ARE IN NORMAL RANGE. NOTHING
OUT OF THE ORDINARY WAS OBSERVED
NO ADJUSTMENT WERE MADE.

- MAINT. ON GAS FAN GREASED BEARING
- KNOCKOUT @ Ø
- NO COND IN GAS LINE
- TANK LEVELS AT 2.50"-2.75" IS 9.5"

6.0 References

Landau Associates. 1992. Phase II Remedial Design Remedial Action Colbert Landfill Spokane, Washington *Final Groundwater Monitoring Plan*. August 7.

Landau Associates. 1992. *Quality Assurance Project Plan - Phase II Remedial Design/Remedial Action - Colbert Landfill - Spokane, WA*. February 28.

Landau Associates. 1991. Colbert Landfill Remedial Design Remedial Action Spokane County, Washington *Final Phase I Engineering Report*. December 30.

EPA. 2011. Colbert Landfill Superfund Site Spokane County, Washington. *Remediation System Evaluation*. U.S. Environmental Protection Agency. October 14.

Landau Associates. 1998. *Colbert Landfill Operations and Maintenance Manual*.

Landau Associates. 1996. *MFS Groundwater Monitoring Plan*

Spokane County Utilities/ Landau Assoc. 2013. *Final Work Plan, Groundwater Pump and Treat System Shut-down Test, Colbert Landfill CERCLA Site*.

Spokane County Utilities. 2007. *1,4-Dioxane Work Plan for the Colbert Landfill*

Spokane County Utilities. 1991. *Quality Assurance and Field Sampling Plan-Colbert Residential Well Sampling*

CH2MHill. May 1997. *Operations and Maintenance Manual for Colbert Landfill Closure*

U.S. District Court, Eastern District of Washington. 1988. Consent Decree No. C-89-033-RJM. The Washington State Department of Ecology and The United States of America on behalf of the U.S. Environmental Protection Agency (plaintiffs) v. County of Spokane and Key Tronic Corporation (defendants). February 28.