



29-Apr-2016

Roger Bellas
Pennsylvania DEP Bureau of Air Quality
12th Floor RCSOB
400 Market Street
Harrisburg, PA 17105

Tel: (570) 826-2511
Fax:

Re: Keystone Landfill (KSL)- 4/10/16

Work Order: **1604359**

Dear Roger,

ALS Environmental received 6 samples on 12-Apr-2016 10:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Rob Nieman

Electronically approved by: Rob Nieman

Rob Nieman
Project Manager

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Environmental 

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Client: Pennsylvania DEP Bureau of Air Quality
Project: Keystone Landfill (KSL)- 4/10/16
Work Order: 1604359

Work Order Sample Summary

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u> |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1604359-01 | KSL041016-1 / Red | Air | | 4/10/2016 | 4/12/2016 10:30 | <input type="checkbox"/> |
| 1604359-02 | KSL041016-2 / Blue | Air | | 4/10/2016 | 4/12/2016 10:30 | <input type="checkbox"/> |
| 1604359-03 | KSL041016-3 / Green | Air | | 4/10/2016 | 4/12/2016 10:30 | <input type="checkbox"/> |
| 1604359-04 | KSL041016-4 / Orange | Air | | 4/10/2016 | 4/12/2016 10:30 | <input type="checkbox"/> |
| 1604359-05 | KSL041016-5 / Yellow | Air | | 4/10/2016 | 4/12/2016 10:30 | <input type="checkbox"/> |
| 1604359-06 | KSL041016-Summa | Air | | 4/10/2016 | 4/12/2016 10:30 | <input type="checkbox"/> |

Client: Pennsylvania DEP Bureau of Air Quality
Project: Keystone Landfill (KSL)- 4/10/16

Work Order: 1604359

Analytical Results

Lab ID: 1604359-01A
Client Sample ID: KSL041016-1 / Red

Collection Date: 4/10/2016
Matrix: AIR

Analyses

| AMMONIA BY NIOSH 6015 MOD. | | Method: N6015 | Air Volume (L): 95.14 | Analyst: ALST |
|-----------------------------------|-----------|----------------------|------------------------------|----------------------|
| Date Analyzed: 4/23/2016 | | Reporting Limit | | |
| | µg/sample | µg/sample | ug/m3 | ppb |
| Ammonia | ND | 1.2 | <13 | <18 |

Lab ID: 1604359-02A
Client Sample ID: KSL041016-2 / Blue

Collection Date: 4/10/2016
Matrix: AIR

Analyses

| ALDEHYDES BY HPLC | | Method: ETO-11 | Air Volume (L): 213.2 | Analyst: JMB |
|--------------------------------|-------------|-----------------------|------------------------------|---------------------|
| Date Analyzed: 4/20/2016 11:04 | | Reporting Limit | | |
| | µg/sample | µg/sample | ug/m3 | ppb |
| Acetaldehyde | ND | 0.20 | <0.94 | <0.52 |
| Acrolein | 1.6 | 0.20 | 7.5 | 3.3 |
| Formaldehyde | 0.21 | 0.20 | 0.99 | 0.81 |

Lab ID: 1604359-03A
Client Sample ID: KSL041016-3 / Green

Collection Date: 4/10/2016
Matrix: AIR

Analyses

| METHANOL BY NIOSH 2000 MOD. | | Method: N2000 | Air Volume (L): 7.1 | Analyst: MHW |
|------------------------------------|-----------|----------------------|----------------------------|---------------------|
| Date Analyzed: 4/26/2016 | | Reporting Limit | | |
| | µg/sample | µg/sample | ug/m3 | ppb |
| Methanol | ND | 10 | <1,400 | <1,100 |

Lab ID: 1604359-04A
Client Sample ID: KSL041016-4 / Orange

Collection Date: 4/10/2016
Matrix: AIR

Analyses

| METHYLAMINE BY OSHA 40 | | Method: O40 | Air Volume (L): 21.3 | Analyst: MHW |
|--------------------------------|-----------|--------------------|-----------------------------|---------------------|
| Date Analyzed: 4/13/2016 19:27 | | Reporting Limit | | |
| | µg/sample | µg/sample | ug/m3 | ppb |
| Methylamine | ND | 3.0 | <140 | <110 |

Note:

Client: Pennsylvania DEP Bureau of Air Quality
Project: Keystone Landfill (KSL)- 4/10/16

Work Order: 1604359

Analytical Results

Lab ID: 1604359-05A

Collection Date: 4/10/2016

Client Sample ID: KSL041016-5 / Yellow

Matrix: AIR

Analyses

| AMINE(S) BY OSHA PV2060 MOD. | | Method: O2060 | Air Volume (L): 21.3 | Analyst: MHW |
|-------------------------------------|-----------|----------------------|-----------------------------|---------------------|
| Date Analyzed: 4/25/2016 | | Reporting Limit | | |
| | µg/sample | µg/sample | ug/m3 | ppb |
| Triethylamine | ND | 10 | <470 | <110 |

Note:

Client: Pennsylvania DEP Bureau of Air Quality
Work Order: 1604359
Project: Keystone Landfill (KSL)- 4/10/16

QC BATCH REPORT

Batch ID: **35446** Instrument ID: **GC5** Method: **O2060**

| | | | | | | | | | | |
|-------------|------------------------------------|-----|---------|-------------------------|------|---------------------------------|---------------|--------------|-----------|------|
| MBLK | Sample ID: MBLK-35446-35446 | | | Units: µg/sample | | Analysis Date: 4/25/2016 | | | | |
| Client ID: | Run ID: GC5_160425A | | | SeqNo: 1267616 | | Prep Date: 4/25/2016 | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Triethylamine ND 10

| | | | | | | | | | | |
|------------|-----------------------------------|-----|---------|-------------------------|------|---------------------------------|---------------|--------------|-----------|------|
| LCS | Sample ID: LCS-35446-35446 | | | Units: µg/sample | | Analysis Date: 4/25/2016 | | | | |
| Client ID: | Run ID: GC5_160425A | | | SeqNo: 1267617 | | Prep Date: 4/25/2016 | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Triethylamine 92.57 10 90.75 0 102 70-130 0

| | | | | | | | | | | |
|-------------|------------------------------------|-----|---------|-------------------------|------|---------------------------------|---------------|--------------|-----------|------|
| LCSD | Sample ID: LCSD-35446-35446 | | | Units: µg/sample | | Analysis Date: 4/25/2016 | | | | |
| Client ID: | Run ID: GC5_160425A | | | SeqNo: 1267636 | | Prep Date: 4/25/2016 | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Triethylamine 78.96 10 90.75 0 87 70-130 92.57 15.9 20

The following samples were analyzed in this batch: 1604359-05A

Client: Pennsylvania DEP Bureau of Air Quality

QC BATCH REPORT

Work Order: 1604359

Project: Keystone Landfill (KSL)- 4/10/16

Batch ID: 35466

Instrument ID: GC1

Method: N2000

| | | | | | | | | | | |
|-------------|------------------------------------|-----|---------|-------------------------|------|---------------|---------------------------------|------|--------------|------|
| MBLK | Sample ID: MBLK-35466-35466 | | | Units: µg/sample | | | Analysis Date: 4/26/2016 | | | |
| Client ID: | Run ID: GC1_160426A | | | SeqNo: 1268968 | | | Prep Date: 4/26/2016 | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Methanol | ND | 10 | | | | | | | | |

| | | | | | | | | | | |
|------------|-----------------------------------|-----|---------|-------------------------|------|---------------|---------------------------------|------|--------------|------|
| LCS | Sample ID: LCS-35466-35466 | | | Units: µg/sample | | | Analysis Date: 4/26/2016 | | | |
| Client ID: | Run ID: GC1_160426A | | | SeqNo: 1268969 | | | Prep Date: 4/26/2016 | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Methanol | 87.03 | 10 | 79.1 | 0 | 110 | 64.1-145 | 0 | | | |

| | | | | | | | | | | |
|-------------|------------------------------------|-----|---------|-------------------------|------|---------------|---------------------------------|------|--------------|------|
| LCSD | Sample ID: LCSD-35466-35466 | | | Units: µg/sample | | | Analysis Date: 4/26/2016 | | | |
| Client ID: | Run ID: GC1_160426A | | | SeqNo: 1268988 | | | Prep Date: 4/26/2016 | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Methanol | 88.32 | 10 | 79.1 | 0 | 112 | 64.1-145 | 87.03 | 1.47 | 20 | |

The following samples were analyzed in this batch:

1604359-03A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Pennsylvania DEP Bureau of Air Quality

QC BATCH REPORT

Work Order: 1604359

Project: Keystone Landfill (KSL)- 4/10/16

Batch ID: 35337

Instrument ID: HPLC2

Method: ETO-11

| MBLK | Sample ID: MBLK-35337-35337 | Units: µg/sample | | | | Analysis Date: 4/20/2016 11:04 AM | | | | |
|--------------|------------------------------------|-------------------------|---------|---------------|------|--|---------------|--------------|-----------|------|
| Client ID: | Run ID: HPLC2_160420B | SeqNo: 1265970 | | | | Prep Date: 4/20/2016 | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Acetaldehyde | ND | 0.20 | | | | | | | | |
| Formaldehyde | ND | 0.20 | | | | | | | | |

| LCS | Sample ID: LCS-35337-35337 | Units: µg/sample | | | | Analysis Date: 4/20/2016 11:04 AM | | | | |
|--------------|-----------------------------------|-------------------------|---------|---------------|------|--|---------------|--------------|-----------|------|
| Client ID: | Run ID: HPLC2_160420B | SeqNo: 1265971 | | | | Prep Date: 4/20/2016 | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Acetaldehyde | 1.296 | 0.20 | 2 | 0 | 64.8 | 61.5-120 | 0 | | | |
| Formaldehyde | 2.106 | 0.20 | 2 | 0 | 105 | 70-130 | 0 | | | |

| LCSD | Sample ID: LCSD-35337-35337 | Units: µg/sample | | | | Analysis Date: 4/20/2016 11:04 AM | | | | |
|--------------|------------------------------------|-------------------------|---------|---------------|------|--|---------------|--------------|-----------|------|
| Client ID: | Run ID: HPLC2_160420B | SeqNo: 1265986 | | | | Prep Date: 4/20/2016 | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Acetaldehyde | 1.292 | 0.20 | 2 | 0 | 64.6 | 61.5-120 | 1.296 | 0.317 | 20 | |
| Formaldehyde | 2.067 | 0.20 | 2 | 0 | 103 | 70-130 | 2.106 | 1.83 | 20 | |

The following samples were analyzed in this batch:

1604359-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Pennsylvania DEP Bureau of Air Quality

QC BATCH REPORT

Work Order: 1604359

Project: Keystone Landfill (KSL)- 4/10/16

Batch ID: R127865

Instrument ID: HPLC1

Method: O40

| | | | | | | | | | | |
|-------------|--------------------------------------|-----|---------|-------------------------|------|---------------|--|------|--------------|------|
| MBLK | Sample ID: MB-R127865-R127865 | | | Units: µg/sample | | | Analysis Date: 4/13/2016 07:27 PM | | | |
| Client ID: | Run ID: HPLC1_160413A | | | SeqNo: 1261066 | | | Prep Date: | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Methylamine ND 3.0

| | | | | | | | | | | |
|------------|---------------------------------------|-----|---------|-------------------------|------|---------------|--|------|--------------|------|
| LCS | Sample ID: LCS-R127865-R127865 | | | Units: µg/sample | | | Analysis Date: 4/13/2016 07:27 PM | | | |
| Client ID: | Run ID: HPLC1_160413A | | | SeqNo: 1261067 | | | Prep Date: | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Methylamine 8.147 3.0 9.175 0 88.8 9.88-161 0

| | | | | | | | | | | |
|-------------|--|-----|---------|-------------------------|------|---------------|--|------|--------------|------|
| LCSD | Sample ID: LCSD-R127865-R127865 | | | Units: µg/sample | | | Analysis Date: 4/13/2016 07:27 PM | | | |
| Client ID: | Run ID: HPLC1_160413A | | | SeqNo: 1261099 | | | Prep Date: | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Methylamine 9.514 3.0 9.175 0 104 9.88-161 8.147 15.5 20

The following samples were analyzed in this batch:

1604359-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Pennsylvania DEP Bureau of Air Quality
 Work Order: 1604359
 Project: Keystone Landfill (KSL)- 4/10/16

QC BATCH REPORT

Batch ID: **R128209** Instrument ID: **SUB** Method: **N6015**

| MBLK | | Sample ID: MB-R128209-R128209 | | | Units: µg/sample | | | Analysis Date: 4/23/2016 | | |
|------------|--------|--------------------------------------|---------|---------------|-------------------------|---------------|---------------|---------------------------------|-----------|--------------|
| Client ID: | | Run ID: SUB_160423A | | | SeqNo: 1267545 | | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Ammonia | ND | 1.2 | | | | | | | | |

| LCS | | Sample ID: LCS-R128209-R128209 | | | Units: µg/sample | | | Analysis Date: 4/23/2016 | | |
|------------|--------|---------------------------------------|---------|---------------|-------------------------|---------------|---------------|---------------------------------|-----------|--------------|
| Client ID: | | Run ID: SUB_160423A | | | SeqNo: 1267546 | | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Ammonia | 22.1 | 1.2 | 24.3 | 0 | 90.9 | 74.3-115.2 | 0 | | | |

| LCSD | | Sample ID: LCSD-R128209 | | | Units: µg/sample | | | Analysis Date: 4/23/2016 | | |
|------------|--------|--------------------------------|---------|---------------|-------------------------|---------------|---------------|---------------------------------|-----------|--------------|
| Client ID: | | Run ID: SUB_160423A | | | SeqNo: 1267561 | | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Ammonia | 22.6 | 1.2 | 24.3 | 0 | 93 | 74.3-115.2 | 22.1 | 2.24 | 20 | |

The following samples were analyzed in this batch:

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Pennsylvania DEP Bureau of Air Quality
Project: Keystone Landfill (KSL)- 4/10/16
WorkOrder: 1604359

**QUALIFIERS,
ACRONYMS, UNITS**

| <u>Qualifier</u> | <u>Description</u> |
|------------------|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL |

| <u>Acronym</u> | <u>Description</u> |
|----------------|-------------------------------------|
| DUP | Method Duplicate |
| E | EPA Method |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitation Limit |
| SDL | Sample Detection Limit |
| SW | SW-846 Method |

| <u>Units Reported</u> | <u>Description</u> |
|-----------------------|--------------------|
| µg/sample | |
| ppbv | |
| ppm | |

Sample Receipt Checklist

Client Name: PADEP-HARRISBURG

Date/Time Received: 12-Apr-16 10:30

Work Order: 1604359

Received by: RDN

Checklist completed by: Stephanie Harrington 12-Apr-16
eSignature Date

Reviewed by: Rob Nieman 13-Apr-16
eSignature Date

Matrices:

Carrier name: FedEx

- Shipping container/cooler in good condition? Yes [checked] No [] Not Present []
Custody seals intact on shipping container/cooler? Yes [] No [] Not Present [checked]
Custody seals intact on sample bottles? Yes [checked] No [] Not Present []
Chain of custody present? Yes [checked] No []
Chain of custody signed when relinquished and received? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Samples in proper container/bottle? Yes [checked] No []
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []
All samples received within holding time? Yes [checked] No []
Container/Temp Blank temperature in compliance? Yes [checked] No []

Temperature(s)/Thermometer(s): 15.5

Cooler(s)/Kit(s):

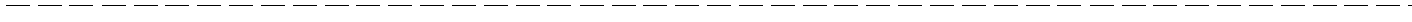
Water - VOA vials have zero headspace? Yes [] No [] No VOA vials submitted [checked]

Water - pH acceptable upon receipt? Yes [] No [] N/A [checked]

pH adjusted? Yes [] No [] N/A [checked]

pH adjusted by:

Login Notes:



Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: