**Platte River Biogas README**

**Overview**

The Platte River Biogas deployment is led by the Air Toxics and Ozone Precursors Program (ATOPs) within the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment (CDPHE). The deployment was initiated to respond to emissions of hydrogen sulfide (H2S), an air toxic regulated by HB21-1189, produced by the Platte River Biogas facility and to address complaints from nearby residents regarding odors and health impacts. The goal of this deployment is to determine whether the Platte River Biogas facility is emitting hazardous concentrations of air toxics. This README file explains the instruments used, compounds detected, units of measurement, and specifications relevant for data interpretation.

**Measurement Specifications**

**Hydrogen Sulfide (H2S)**

|  |  |
| --- | --- |
| **Instrument Manufacturer** | Teledyne API |
| **Instrument Model** | T101 |
| **Compounds Detected** | H2S |
| **Units** | ppbV |
| **Detection Limits (in units)** | 0.4 |
| **Sampling Resolution** | 1 second |
| **Notes** |  |

**Methane (CH4)**

|  |  |
| --- | --- |
| **Instrument Manufacturer** | Aeris Technologies, Inc. |
| **Instrument Model** | MIRA LDS |
| **Compounds Detected** | CH4, Ethane (C2H6), H2O |
| **Units** | ppmV, ppbV, ppmV |
| **Detection Limits (in units)** | 0.002, 0.5, N/A |
| **Sampling Resolution** | 1 second |
| **Notes** | CH4 reported as dry mixing ratio, water is measured and subtracted from signal. |

**BTEX (Benzene, Toluene, Ethyl Benzene, Xylenes)**

|  |  |
| --- | --- |
| **Instrument Manufacturer** | Entanglement Technologies |
| **Instrument Model** | AROMA-VOC |
| **Compounds Detected** | Benzene, Toluene, Ethyl Benzene, Xylenes (BTEX) |
| **Units** | ppbV, ppbV, ppbV, ppbV |
| **Detection Limits (in units)** | 0.056, 0.118, 0.182, 0.538 |
| **Sampling Resolution** | 10 minutes |
| **Notes** | Sampling period is 10 minutes, measurement pauses between samples to process data and can vary slightly. |

**Health Guideline Value (HGV) / Level 1 Acute Exposure Guideline Levels (AEGL)**

These concentrations are established by the EPA (AEGL) and CDPHE (HGV) for the compounds measured at this deployment that can cause acute health effects. Methane and ethane are explosive before they become toxic, and are thus not included in this table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Exposure Time** | **H2S (ppbV)** | **Benzene (ppbV)** | **Toluene (ppbV)** | **Ethyl Benzene (ppbV)** | **Xylenes (ppbV)** |
| 10 min | 750 | 130000 | 67000 | 33000 | N/A |
| 30 min | 600 | 73000 | 67000 | 33000 | N/A |
| 60 min | 510\*/70\*\* | 52000\*/9\*\* | 67000\*/2000\*\* | 33000\*/5000\*\* | 2000\*\* |
| 4 hr | 360 | 18000 | 67000 | 33000 | N/A |
| 8 hr | 330 | 9000 | 67000 | 33000 | N/A |

\*1 hour AEGL  
\*\*1 hour HGV