

**Bowerman Power LFG,
LLC**

**11006 Bee Canyon
Access Road
Irvine, CA 92602**

May 2024

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**Noise Impact Study for Bowerman
Power RNG Plant**

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List of Acronyms and Abbreviations

| | |
|------------------|---|
| BP | Bowerman Power LFG, LLC |
| BMP | Best Management Practices |
| CalEEMod | California Emissions Estimator Model [®] |
| CNEL | Community Noise Equivalent Level |
| CO ₂ | Carbon Dioxide |
| dB | Decibel |
| dBA | A-Weighted Decibel |
| DOT | [United States] Department of Transportation |
| FHWA | Federal Highway Administration |
| FICON | Federal Interagency Committee on Noise |
| FRB | Frank R. Bowerman [Landfill] |
| FTA | Federal Transit Administration |
| hp | Horsepower |
| Hz | Hertz |
| in/sec | Inches per Second |
| ISO | International Organization for Standardization |
| L _{dn} | Day-Night Noise Level |
| L _{eq} | Equivalent Energy Level |
| L _{max} | Maximum Level of Noise |
| LFG | Landfill Gas |
| MSW | Municipal Solid Waste |
| N ₂ | Nitrogen |
| OCWR | Orange County Waste & Recycling |
| OPR | [California] Office of Planning and Research |
| PPV | Peak Particle Velocity |
| RMS | Root Mean Squared |
| RNG | Renewable Natural Gas |
| SoCalGas | Southern California Gas Company |

Noise Impact Study for Bowerman Power RNG Plant

1.0 INTRODUCTION

1.1 Purpose and Objectives

Yorke Engineering, LLC (Yorke) has been retained by Bowerman Power LFG, LLC (BP) to complete a Noise Impact Study for the proposed Bowerman Renewable Natural Gas (RNG) Plant planned at the Frank R. Bowerman (FRB) Landfill in County of Orange, California (Project). The FRB Landfill is a state-of-the-art, Class III, municipal solid waste (MSW) landfill. The project is being conducted under a partnership agreement between BP and Orange County Waste & Recycling (OCWR) to process the landfill gas (LFG) produced by the Bowerman Landfill. The proposed RNG Plant will be designed to process a portion of the excess LFG that is produced by the Bowerman Landfill (i.e., produce RNG from LFG) and deliver it to a new 12-inch diameter the Southern California Gas Company (SoCalGas) pipeline connecting the processing plant to an existing SoCalGas pipeline at the corner of Portola Parkway and Jeffrey Road near the Project site.

BP requested Yorke's support to perform ambient noise measurements in the vicinity, assess the noise impacts of the proposed project on the nearby properties, and propose noise control measures, if applicable.

Yorke has evaluated the potential for adverse noise impacts on nearest residential receptors during construction and operation of the proposed project. This report contains:

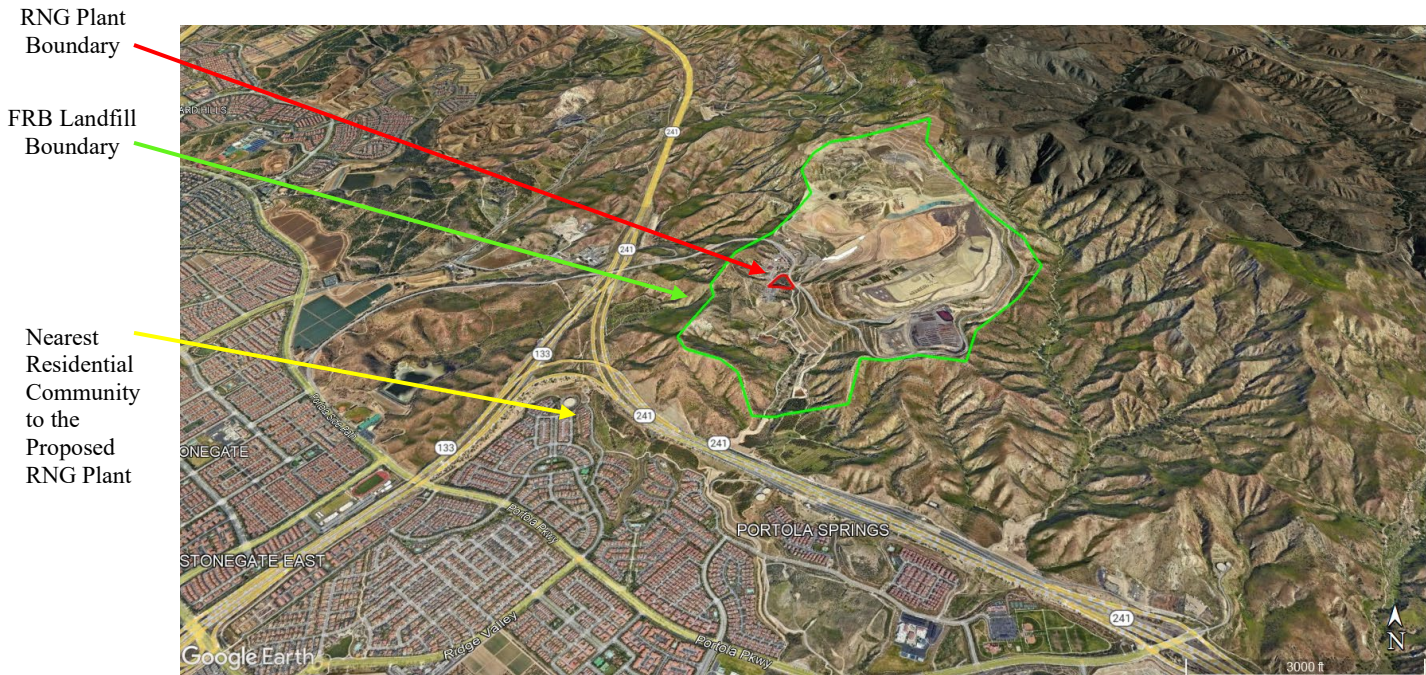
- A review of the State of California 2017 General Plan Guidelines;
- A review of the Orange County General Plan and Municipal Noise Ordinance;
- A review of the City of Irvine's General Plan and Municipal Noise Ordinance;
- The results of ambient noise measurements taken on June 20, 2023;
- A screening-level noise and vibration impacts analysis for project construction;
- Acoustical modeling results for the operational phase of the project; and
- A noise data analysis.

1.2 Facility Description, Location, and Zoning

The proposed site is located at 11006 Bee Canyon Access Road in Irvine, CA, which is within the jurisdiction of the County of Orange (the County). The facility is located in the unincorporated General Agricultural, Citrus Rural District (A1) zone. The nearest sensitive receptors are homes located in the City of Irvine, Portola Springs neighborhood, generally south of the Project site, on the south side of State Route (SR) 241 and east of SR 133.

Figure 1-1 is satellite imagery showing the location of the proposed facility, the surrounding area, highways, and the nearest sensitive receptors.

Figure 1-1: Proposed RNG Plant Location Diagram



The proposed facility will be operating 24 hours per day, 7 days a week. The planned list of noise generating equipment, estimated noise levels, and operational hours of each device are shown in Table 1-1.

The new SoCalGas pipeline will run from the point of interconnect within RNG Plant boundary, down Bee Canyon Access Road to the existing SoCal Gas pipeline on the corner of Portola Parkway and Jeffery Road, as shown in Figure 1-2. The new SoCal Gas pipeline will be approximately 2.0 miles in length along Bee Canyon Access Road and approximately 0.4 miles in length along Portola Parkway, for a total of 2.4 miles.

The Project will be located in unincorporated Orange County within the sphere of influence of the City of Irvine, except for a small portion of the new SoCal Gas pipeline, which will be located within the City of Irvine.

Figure 1-2: Proposed SoCalGas Location Diagram

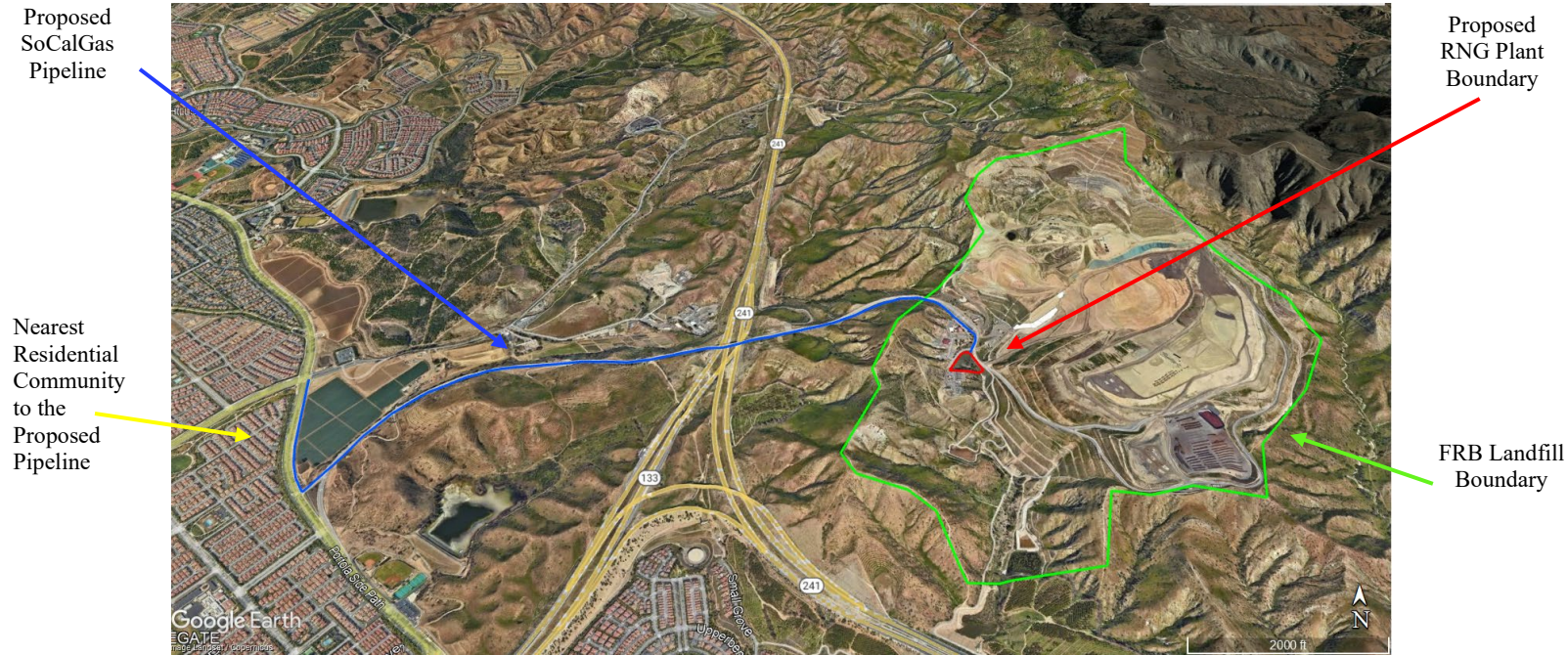


Table 1-1: List of Noise Generating Equipment

| Equipment Type | Quantity | Motor Size (hp) | Estimated Sound Pressure Levels per Equipment (dBA) | Operational Hours | Operating Schedule |
|---|----------|-----------------|---|-------------------|---|
| Feed Compressors | 3 | 600 | 90 dBA at 10 feet | Continuous | All three compressors will run simultaneously |
| Feed Compressors Aftercoolers | 3 | 15 | 95 dBA at 3 feet | Continuous | All three aftercoolers will run simultaneously with feed compressors |
| Feed Compressors Oil Coolers | 3 | 20 | 95 dBA at 3 feet | Continuous | All three oil coolers will run simultaneously with feed compressors |
| Glycol Circulation Pumps | 3 | ~5 | 85 dBA at 3 feet | Continuous | Pumps run simultaneously with feed compressors |
| CO ₂ Removal Vacuum Compressors | 6 | 250 | 85 dBA at 3 feet | Continuous | All six compressors will run simultaneously |
| RNG Product Gas Cooler | 1 | 10 | 95 dBA at 3 feet | Continuous | Product gas cooler will run constantly |
| N ₂ Removal Vacuum Compressors | 3 | 600 | 90 dBA at 10 feet | Continuous | All three compressors will run simultaneously |
| N ₂ Removal Vacuum Compressors Oil Coolers | 3 | 15 | 95 dBA at 3 feet | Continuous | All three oil coolers will run simultaneously with vacuum compressors |
| N ₂ Removal Recycle Compressors | 2 | 600 | 90 dBA at 10 feet | Continuous | Both compressors will run simultaneously |
| N ₂ Removal Recycle Compressors Aftercoolers | 2 | 10 | 95 dBA at 3 feet | Continuous | Both aftercoolers will run simultaneously with recycle compressors |
| N ₂ Removal Recycle Compressors Oil Coolers | 2 | 15 | 90 dBA at 3 feet | Continuous | Both oil coolers will run simultaneously with recycle compressors |

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| Equipment Type | Quantity | Motor Size (hp) | Estimated Sound Pressure Levels per Equipment (dBA) | Operational Hours | Operating Schedule |
|--|----------|-----------------|---|-------------------|---|
| Product Gas Cooler from EQ PSA | 1 | 7.5 | 95 dBA at 3 feet | Continuous | Product gas cooler will run constantly |
| Product Compressors | 2 | 350 | 100 dBA at 10 feet | Continuous | Both compressors will run simultaneously |
| Product Compressors Aftercoolers | 2 | 10 | 95 dBA at 3 feet | Continuous | Both aftercoolers will run simultaneously with product compressors |
| Thermal Oxidizer Blower | 1 | 30 | 100 dBA at 3 feet | Continuous | Blower will be running constantly |
| Thermal Oxidizer Combustion Air Blower | 1 | 15 | 100 dBA at 3 feet | Continuous | Blower will be running constantly |
| Flare Combustion Blower | 1 | 250 | 100 dBA at 3 feet | Intermittent | Blower will only come on during disruptions in product gas quality |
| Instrument Air Compressors | 2 | 35 | 95 dBA at 3 feet | Intermittent | One compressor will be running, one on standby |
| Ventilation Fans | 6 | 15 | 85 dBA at 3 feet | Continuous | Fans used for temperature control with process room, highest use during the day in summer |
| Back Up Generator (inside of a weatherproof steel enclosure) | 1 | 200 | 100 dBA at 3 feet | Power Outage Only | Generator on standby, only comes on during power disruptions |
| PSA Vessels (Pressure Changes) | 1 | N/A | 100 dBA at 3 feet | Intermittent | Occurs during cycle changes which varies with time. |
| CO ₂ Removal Vacuum Oil Coolers | 3 | 15 | 95 dBA at 3 feet | Continuous | All three oil coolers will run simultaneously with CO ₂ vacuum compressors |

Source: Applicant 2023.

2.0 NOISE AND VIBRATION FUNDAMENTALS

2.1 Definition and Measurement of Noise

Sound is a pressure wave created by a moving or vibrating source that travels through a fluid medium such as air or water. Noise is defined as a sound or aggregated sounds that are perceived as dissonant, irritating, objectionable, intrusive and/or disruptive to the quality of daily life. Sound is measured on a logarithmic scale of sound pressure level known as the decibel (dB) scale. A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency sound sources by discriminating against very low and very high frequencies of the audible spectrum. The dBA scale is weighted to reflect only those frequencies which are audible to the human ear, generally defined as a range of 20 to 20,000 Hertz (Hz). Figure 2-1 presents a range of noise levels associated with common indoor and outdoor activities.

Figure 2-1: Typical Noise Levels and Effects on People

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|-----------------------------------|-------------------|---|
| | 110 | Rock band |
| Jet flyover at 1,000 feet | | |
| | 100 | |
| Gas lawnmower at 3 feet | | |
| | 90 | |
| Diesel truck at 50 feet at 50 mph | | Food blender at 3 feet |
| | 80 | Garbage disposal at 3 feet |
| Noisy urban area, daytime | | |
| Gas lawnmower, 100 feet | 70 | Vacuum cleaner at 10 feet |
| Commercial area | | Normal speech at 3 feet |
| Heavy traffic at 300 feet | 60 | |
| | | Large business office |
| Quiet urban daytime | 50 | Dishwasher in next room |
| | | |
| Quiet urban nighttime | 40 | Theater, large conference room (background) |
| Quiet suburban nighttime | | |
| | 30 | Library |
| | | Bedroom at night, concert hall (background) |
| Quiet rural nighttime | 20 | |
| | | Broadcast/recording studio |
| | 10 | |
| | 0 | |

Source: California Department of Transportation, Technical Noise Supplement, September 2013.

2.2 Noise Descriptors

Environmental noise descriptors are generally based on time weighted averages, rather than instantaneous noise levels. Noise levels emitted by various sources are often expressed as equivalent energy level (L_{eq}). Maximum Level of Noise (L_{max}) is the root mean squared (RMS) maximum level of a noise source or environment measured on a sound level meter during a designated time interval (e.g., 15, 30, or 60 minutes) using fast meter response.

Because sound levels at a particular location typically vary over the course of the day and because people tend to be more sensitive to noise in the evening and at night than during the morning and afternoon, sound levels are commonly averaged over a 24-hour period, weighted for night and evening sensitivity, and expressed as either Day-Night Noise Level (L_{dn}) or Community Noise Equivalent Level (CNEL). These two expressions of average sound levels are nearly equivalent, and while this Noise Element usually refers to CNEL, standards cited from certain State and federal regulations may use L_{dn} .

2.3 Noise Range

Decibel scales are logarithmic, such that an increase from 30 to 40 dB represents a tenfold increase in sound level, while an increase from 30 to 50 dB represents a hundredfold increase. Human perception of sound loudness, however, is subjective. Everyday sounds normally range from 30 dBA (very quiet, such as a soft whisper) to 100 dBA (very loud, such as the noise produced by a jet takeoff at a distance of 200 feet). In general, noise may become a nuisance at levels of 45 dBA CNEL or greater, e.g., speech interference. Psychological and physiological stress are common with noise levels in the 65 to 75 dBA CNEL range, and hearing loss can occur at sustained noise levels of 75 dBA CNEL or more (Jansen 1969).

2.4 Sound Propagation

Sound is transmitted in air by pressure variations from its source to the surroundings. Sound levels will decrease exponentially as the inverse square of the distance between the source and the receiver (receptor) increases, i.e., exclusive of other physical factors, doubling the distance from a source decreases the sound intensity by a factor of four. While absorption by air is one of the factors attributing to the weakening of a sound during transmission, distance plays a more important role in noise reduction during transmission. Depending on the source of the sound, for every doubling of distance, the level will be reduced between 3 and 6 dB. The reduction of a sound is called attenuation. Other factors for noise attenuation are terrain absorption and shielding (insertion loss).

To attenuate the line-of-sight noise transmission, sound walls between a noise source and a receiver (receptor) are often used for noise control, e.g., along freeways. Additional barriers such as interceding buildings, rough terrain, hills, and heavy vegetation can also reduce noise levels. Typically, sound walls will reduce noise levels by 5 to 10 dB. The higher the wall is, the greater the noise reduction will be. Effective noise barriers can reduce noise levels by 10 to 15 dB. A sound barrier is most effective when placed close to the noise source or receiver.

2.5 Vibration Transmission

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods employed. Operation of construction equipment can cause vibrations that spread through the ground that diminish in strength with distance, similar to sound attenuation. While such ground-borne vibration is not a threat to humans or animals, buildings founded on the soil near a construction site may respond to these vibrations with varying effects, ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or RMS vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is the maximum instantaneous positive or negative

peak of the vibration signal. PPV is often used in monitoring of construction vibration since it is related to the stresses that are experienced by buildings and is not used to evaluate human response.

3.0 NOISE STANDARDS

3.1 State of California 2017 General Plan Guidelines

The California Governor’s Office of Planning and Research’s noise element guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise, e.g., residential next to industrial. The guidelines contain a table that describes the compatibility of various land uses with a range of environmental noise levels in terms of CNEL. Table 3-1, Land Use Compatibility for Community Noise Environments, reproduces the guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community’s sensitivity to noise, and the community’s assessment of the relative importance of noise pollution.

Table 3-1: State of California Land Use Compatibility for Community Noise Environments

| Land Use Category | Community Noise Exposure (L_{dn} or CNEL, dBA) | | | |
|--|---|--------------------------|-----------------------|----------------------|
| | Normally Acceptable | Conditionally Acceptable | Normally Unacceptable | Clearly Unacceptable |
| Residential – Low Density, Single-Family, Duplex, Mobile Homes | 50-60 | 55-70 | 70-75 | 75-85 |
| Residential – Multiple Family | 50-65 | 60-70 | 70-75 | 70-85 |
| Transient Lodging – Motel, Hotels | 50-65 | 60-70 | 70-80 | 80-85 |
| Schools, Libraries, Churches, Hospitals, Nursing Homes | 50-70 | 60-70 | 70-80 | 80-85 |
| Auditoriums, Concert Halls, Amphitheaters | NA | 50-70 | NA | 65-85 |
| Sports Arenas, Outdoor Spectator Sports | NA | 50-75 | NA | 70-85 |
| Playgrounds, Neighborhood Parks | 50-70 | NA | 65-75 | 75-85 |
| Golf Courses, Riding Stables, Water Recreation, Cemeteries | 50-70 | NA | 70-80 | 80-85 |
| Office Buildings, Business Commercial and Professional | 50-70 | 65-75 | 75-85 | NA |
| Industrial, Manufacturing, Utilities, Agriculture | 50-75 | 70-80 | 75-85 | NA |

Source: California Governor’s Office of Planning and Research (OPR) 2017.

3.2 County of Orange General Plan, Noise Element

The Noise Element of the Orange County General Plan contains information that relates to the noise environment in the unincorporated areas of Orange County. Specifically, this Noise Element responds to the requirements of Section 65302(f) of the California Government Code. The purpose of the Noise Element is to provide a statement of public policy and a decision framework for the

maintenance of a quiet environment. Table 3-2 characterizes land uses in terms of noise sensitivity. For the purpose of complying with the Table 3-2 criteria, the noise from all sources will be combined and rated in terms of CNEL. See Table 3-3 for definitions of the entries in Table 3-2.

Table 3-2: Orange County Compatibility Matrix for Land Use and Community Noise Equivalent Level (CNEL)

| | <u>65+ decibels CNEL</u> | <u>60 to 65 decibels CNEL</u> |
|----------------------------------|--------------------------|-------------------------------|
| TYPE OF USE | | |
| <u>Residential</u> | 3a, b, e | 2a, e |
| <u>Commercial</u> | 2c | 2c |
| <u>Employment</u> | 2c | 2c |
| <u>Open Space</u> | | |
| <i>Local</i> | 2c | 2c |
| <i>Community</i> | 2c | 2c |
| <i>Regional</i> | 2c | 2c |
| <u>Educational Facilities</u> | | |
| <i>Schools (K through 12)</i> | 2c, d, e | 2c, d, e |
| <i>Preschool, college, other</i> | 2c, d, e | 2c, d, e |
| <u>Places of Worship</u> | 2c, d, e | 2c, d, e |
| <u>Hospitals</u> | | |
| <i>General</i> | 2a, c, d, e | 2a, c, d, e |
| <i>Convalescent</i> | 2a, c, d, e | 2a, c, d, e |
| <u>Group Quarters</u> | 1a, b, c, e | 2a, c, e |
| <u>Hotel / Motels</u> | 2a, c | 2a, c |
| <u>Accessory Uses</u> | | |
| <i>Executive Apartments</i> | 1a, b, e | 2a, e |
| <i>Caretakers</i> | 1a, b, c, e | 2a, c, e |

Source: Orange County General Plan, Noise Element.

Table 3-3: Explanation and Definition on Table 3-2

ACTION REQUIRED TO ENSURE COMPATIBILITY
BETWEEN LAND USE AND NOISE FROM EXTERNAL SOURCES

- 1 = Allowed if interior and exterior community noise levels can be mitigated.
- 2 = Allowed if interior levels can be mitigated.
- 3 = New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport or air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited “infill” development within an established neighborhood.

STANDARDS REQUIRED FOR COMPATIBILITY OF LAND USE AND NOISE

- a = Interior Standard: CNEL of less than 45 decibels (habitable rooms only).
- b = Exterior Standard: CNEL of less than 65 decibels in outdoor living areas.
- c = Interior Standard: Leq (h)=45 to 65 decibels interior noise level, depending on interior use.
- d = Exterior Standard: Leq (h) of less than 65 decibels in outdoor living areas.
- e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

KEY DEFINITIONS

Habitable Room– Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

Interior – Spaces that are covered and largely enclosed by walls.

Leq (h) – The A-weighted equivalent sound level averaged over a period of “h” hours. An example would be Leq (12) where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period “h” is defined to match the hours of operation of a given type of use.

Outdoor Living Area – Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Source: Orange County General Plan, Noise Element.

As shown above, the County specifies outdoor and indoor noise limits for residential uses, places of worship, educational facilities, hospitals, hotels/motels, and commercial and other land uses. The noise standard for exterior living areas is 65 dBA CNEL. The indoor noise standard is 45 dBA CNEL, which is consistent with the standard in the California Noise Insulation Standard.

3.3 County of Orange Municipal Code, Noise Control

Section 4-6-1 of the Orange County Municipal Code states that unnecessary, excessive, and annoying sounds emanating from unincorporated areas of the County are prohibited.

3.3.1 Exterior Noise

Per Section 4-6-5 of the Code, the exterior noise standards shown in Table 3-4 apply to all residential properties within a designated noise zone:

Table 3-4: Orange County Exterior Noise Standards

| Noise Zone | Noise Levels (dBA) | |
|------------|--------------------------|----------------------------|
| | Daytime (7 a.m.-10 p.m.) | Nighttime (10 p.m.-7 a.m.) |
| 1 | 55 | 50 |

The entire territory of Orange County, including incorporated and unincorporated territory, is hereby designated as “Noise Zone 1”. In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by 5 dBA.

It is unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, either incorporated or unincorporated, to exceed:

- The noise standard for a cumulative period of more than 30 minutes in any hour; or
- The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour; or
- The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or
- The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour; or
- The noise standard plus 20 dBA for any period of time.

In the event the ambient noise level exceeds any of the first four noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

3.3.2 Interior Noise

Per Section 4-6-6 of the Code, the interior noise standards shown in Table 3-5 apply to all residential properties within a designated noise zone:

Table 3-5: Orange County Interior Noise Standards

| Noise Zone | Noise Levels (dBA) | |
|------------|--------------------------|----------------------------|
| | Daytime (7 a.m.-10 p.m.) | Nighttime (10 p.m.-7 a.m.) |
| 1 | 55 | 45 |

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by 5 dBA.

It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property, either incorporated or unincorporated, to exceed:

- The interior noise standard for a cumulative period of more than 5 minutes in any hour; or
- The interior noise standard plus 5 dBA for a cumulative period of more than 1 minute in any hour; or
- The interior noise standard plus 10 dBA for any period of time.

In the event the ambient noise level exceeds either of the first two noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased in reflect the maximum ambient noise level.

3.4 City of Irvine General Plan Noise Element

Since the nearest sensitive receptors are in Irvine, CA, the City of Irvine General Plan was also reviewed.

The City's interior and exterior noise standards are shown on Table 3-6. Table 3-7 shows each land use category and the CNEL which is compatible with the uses in the category.

Table 3-6: City of Irvine Interior and Exterior Noise Standards Energy Average (CNEL)

| LAND USE CATEGORIES | | ENERGY AVERAGE (CNEL) | |
|-----------------------------------|---|-------------------------------------|-------------------------|
| CATEGORIES | USES | INTERIOR ⁽¹⁾ | EXTERIOR ⁽²⁾ |
| RESIDENTIAL | Single-Family Multiple-Family | 45 ⁽³⁾ 55 ⁽⁴⁾ | 65 ⁽⁷⁾ |
| | Mobile Home | _____ | 65 ⁽⁵⁾ |
| COMMERCIAL/ INDUSTRIAL | Hotel, motel, transient lodging | 45 | 65 ⁽⁶⁾ |
| | Commercial, retail, bank, restaurant | 55 | _____ |
| | Office building, professional office, research & development | 50 | _____ |
| | Amphitheater, concert hall, auditorium, meeting hall | 45 | _____ |
| | Gymnasium (Multipurpose) | 50 | _____ |
| | Health clubs | 55 | _____ |
| | Manufacturing, warehousing, wholesale, utilities | 65 | _____ |
| | Movie theater | 45 | _____ |
| INSTITUTIONAL | Hospital, school classroom | 45 | 65 |
| | Church, library | 45 | _____ |
| OPEN SPACE | Parks | _____ | 65 |

Interpretation:

1. Interior environment excludes bathrooms, toilets, closets, and corridors.
2. Outdoor environment limited to private yard of single-family or multi-family residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.
4. Noise level requirement with open windows if they are used to meet natural ventilation requirement.
5. Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.
6. Except those areas affected by aircraft noise.
7. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

Source: City of Irvine General Plan, Noise Element.

Table 3-7: City of Irvine Land Use Noise Compatibility

| <u>LAND USE CATEGORIES</u> | | <u>ENERGY AVERAGE (CNEL)</u> | | | | | | |
|--|---|------------------------------|-----------|-----------|-----------|-----------|-----------|---------------|
| <u>Categories</u> | <u>Uses</u> | <u>≤</u> | <u>55</u> | <u>60</u> | <u>65</u> | <u>70</u> | <u>75</u> | <u>80></u> |
| RESIDENTIAL | Single-Family | A | A | B | B | C | D | D |
| RESIDENTIAL | Mobile Home | A | A | B | C | C | D | D |
| COMMERCIAL Regional | Hotel, Motel, Transient Lodging | A | A | B | B | C | C | D |
| COMMERCIAL Regional Community | Commercial retail, Bank, Restaurant, Movie theater | A | A | A | A | B | B | C |
| COMMERCIAL Community INDUSTRIAL & INSTITUTIONAL | Office building, Research & development Professional office, City office building | A | A | A | B | B | C | D |
| COMMERCIAL Recreation INSTITUTIONAL General | Amphitheater, Concert hall Auditorium, Meeting hall | B | B | C | C | D | D | D |
| COMMERCIAL Recreation | Children's amusement park, Miniature golf, Go-cart track, Health club, Equestrian center | A | A | A | B | B | D | D |
| COMMERCIAL Community INDUSTRIAL General | Automobile service station, Auto dealer, Manufacturing, Warehousing, Wholesale, Utilities | A | A | A | A | B | B | B |
| INSTITUTIONAL General | Hospital, Church, Library, School classrooms | A | A | B | C | C | D | D |
| OPEN SPACE | Parks | A | A | A | B | C | D | D |
| OPEN SPACE | Golf courses, Nature centers, Cemeteries, Wildlife reserves, Wildlife habitat | A | A | A | A | B | C | C |
| AGRICULTURAL | Agriculture | A | A | A | A | A | A | A |

Interpretation

Zone A: Clearly Compatible: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

Zone B: Normally Compatible: New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Zone C: Normally Incompatible: New construction or development should normally be discouraged. If new construction or development does proceed, a detailed analysis or noise reduction requirements must be made and needed noise insulation features must be included in the design.

Zone D: Clearly Incompatible: New construction or development should generally not be undertaken.

Source: City of Irvine General Plan, Noise Element.

3.5 City of Irvine Municipal Code Noise Ordinance

Since the nearest sensitive receptors are within the city limits of Irvine, the City of Irvine Noise Ordinance was also reviewed.

All hospitals, libraries, churches, schools, and residential properties are considered Noise Zone 1. Section 6-8-204 of the Ordinance states that the following noise standards apply to all properties within a noise zone 1.

Table 3-8: City of Irvine Noise Standards

| Interior/ Exterior | Time Period | 30 mins/hr | 15 mins/hr | 5 mins/hr | 1 min/hr | 0 (anytime) |
|-----------------------|-----------------|------------|------------|-----------|----------|-------------|
| Exterior | 7 a.m.-10 p.m. | 55 | 60 | 65 | 70 | 75 |
| Interior | 10 p.m.- 7 a.m. | 50 | 55 | 60 | 65 | 70 |

Each of the noise standards specified above shall be reduced by 5 dBA for impact or predominant tone noise.

Section 6-8-205 of the Ordinance states that construction activities may occur between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities shall be permitted outside of these hours or on Sundays and federal holidays, except Columbus Day, unless a temporary waiver is granted by the Chief Building Official or his or her authorized representative. Trucks, vehicles, and equipment that are making or are involved with material deliveries, loading, or transfer of materials; equipment service; or maintenance of any devices or appurtenances for or within any construction project in the City shall not be operated or driven on City streets outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the City. Any waiver granted shall take impact upon the community into consideration. No construction activity will be permitted outside of these hours except in emergencies, including maintenance work on the City rights-of-way that might be required.

4.0 EXISTING LAND USES AND SENSITIVE RECEPTORS

4.1 Sensitive Receptors

Sensitive noise receptors (receivers) are defined as types of uses that are interrupted by relatively low levels of noise. Such receptors include residential uses, schools, hospitals, places of worship, and similar uses.

4.2 Surrounding Land Uses

The proposed facility is bordered by the LFG-fired electric power generation facility (i.e., LFG to energy facility) and the BP Flare Station to the south, the OCWR FRB Landfill operations buildings to the west and north, and the FRB Landfill to the east. The nearest sensitive receptor area is the Portola Springs residential community of single-family homes located approximately 4,200 feet (0.8 miles) south of the proposed RNG Plant and 230 feet south of the SoCalGas pipeline, in the City of Irvine.

Sharp terrain characterizes the general area around the proposed site. Salient hills stand between the project site and the residential development, rising more than 100 feet above the project site and more than 400 feet above the residential area. This elevated terrain provides a substantial natural noise barrier between the project site and the residences. Furthermore, the northern part of the residential development is bounded by two major highways, SR 133 and SR 241, which are closer and less shielded major noise sources compared to the project site.

5.0 EXISTING AMBIENT NOISE ENVIRONMENT

5.1 Background Noise Measurements

On June 20, 2023, Yorke conducted short-term noise measurements at four locations in the vicinity of the project site as indicated on Figure 5-1. Several studies investigating short-term versus long-term measurements have reported that such short-term measurements can be representative for the long-term. This applies especially if there is a rather constant distribution of noise. A Quest SoundPro SE/DL Type 2 sound level meter was used to document the noise levels. Location 1 represents the existing ambient noise levels at the proposed site. Locations 2 through 4 represent the residences to the south. Table 5-1 summarizes the results of the short-term measurements for each of the locations and time periods. Field notes and raw noise meter data are provided in Appendices A and B, respectively.

Figure 5-1: Noise Measurement Locations



Table 5-1: Summary of Noise Measurements

| Sample Location | Sample No. | Meter Sample ID | Time On | Time Off | L _{eq} (dBA) | L _{max} (dBA) | Descriptions |
|--------------------|------------|-----------------|---------|----------|-----------------------|------------------------|---|
| Location 1 SL#1 | 1 | S172 | 8:16 | 8:36 | 63.1 | 74.6 | Daytime noise measurement: <ul style="list-style-type: none"> ▪ Occasional trucks passing by from OCWR in the distance for the landfill close by, sounds of trucks dumping; ▪ Whirring noise from the FRB Landfill; ▪ 8:25 a.m. sound of birds chirping overhead; ▪ 8:29 a.m. multiple trucks passing by in the distance at once. |
| | 5 | S178 | 22:07 | 22:27 | 62.8 | 64.9 | Nighttime noise measurement: <ul style="list-style-type: none"> ▪ Noticeably more buzzing and chirping coming from the insects in the surrounding foliage; ▪ No truck activity on site, only occasional sound of cars from the freeway. |
| Location 2 SL#2 | 2 | S174 | 9:17 | 9:37 | 42.0 | 59.8 | Daytime noise measurement: <ul style="list-style-type: none"> ▪ Throughout measurement, there was ambient noise coming from birds chirping, whirring of cars passing by, workers in the area doing yard work for the surrounding apartments; ▪ Throughout measurement, resident at closest apartment was audibly making noise in home; ▪ 9:25 a.m. louder more noticeable sounds of insects; ▪ 9:27 a.m. and 9:31 a.m. loud sound occurred from resident. |
| | 6 | S181 | 23:49 | 0:09 | 38.2 | 59.6 | Nighttime noise measurement: <ul style="list-style-type: none"> ▪ 11:50 p.m. sound of car driving by; ▪ 11:51 p.m. family making sound outside, being dropped off; ▪ 11:57 p.m. sound of slamming car doors; ▪ 12:01 a.m. -12:05 a.m., dog barking. |

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| Sample Location | Sample No. | Meter Sample ID | Time On | Time Off | L _{eq} (dBA) | L _{max} (dBA) | Descriptions |
|--------------------|------------|-----------------|---------|----------|-----------------------|------------------------|--|
| Location 3 SL#3 | 3 | S176 | 10:41 | 11:01 | 47.3 | 65.3 | Daytime noise measurement: <ul style="list-style-type: none"> ▪ Lawn maintenance being done in the distance; ▪ Sounds of birds chirping in the brush; ▪ 10:44 a.m. sound of garbage truck reversing; ▪ 10:47 a.m. another garbage truck; ▪ 10:51 a.m. birds chirping in the tree above where sound measurements being taken; ▪ 10:56 a.m. and 11:01 a.m. sounds of car passing by. |
| | 7 | S180 | 23:20 | 23:40 | 38.9 | 50.7 | Nighttime noise measurement: <ul style="list-style-type: none"> ▪ No more lawn maintenance or garbage truck activity; ▪ Sounds of frogs in the distance by the water; ▪ 11:34 p.m. sound of resident's Air Conditioning system coming online. |
| Location 4 SL#4 | 4 | S175 | 9:54 | 10:14 | 48.1 | 62.7 | Daytime noise measurement: <ul style="list-style-type: none"> ▪ 9:51 a.m. distant conversation being made by residents; ▪ 9:52 a.m. sound of lawn maintenance from hedge trimmer; ▪ 9:55 a.m. helicopter flew by overhead; ▪ 9:56 a.m. sounds of birds chirping; ▪ Occasional sound spikes from cars passing by on the freeway. |
| | 8 | S179 | 22:47 | 23:07 | 41.2 | 54.7 | Nighttime noise measurement: <ul style="list-style-type: none"> ▪ Sounds of insects and occasional vehicles passing by on the freeway; ▪ 10:47 p.m. sound of car door slamming. |

6.0 FUTURE COMMUNITY NOISE IMPACTS

6.1 Construction Noise Impacts

6.1.1 Construction Noise Analysis Methodology

The screening-level noise analysis for project construction was completed based on methodology developed by the U.S. Department of Transportation Federal Highway Administration (DOT FHWA) at the John A. Volpe National Transportation Systems Center and other technical references consistent with California Emissions Estimator Model[®] (CalEEMod) outputs (equipment utilization). The DOT FHWA methodology uses actual noise measurement data collected during the Boston “Big Dig” project (1991-2006) as reference levels for a wide variety of construction equipment in common use, such as on the proposed project.

The FHWA noise model provides relatively conservative predictions because it does not account for site-specific geometry, dimensions of nearby structures, and local environmental conditions that can affect sound transmission, reflection, and attenuation. As a result, actual measured sound levels at receptors may vary somewhat from predictions, typically lower. Additionally, the impacts of noise upon receptors (persons) are subjective because of differences in individual sensitivities and perceptions.

Noise impacts are evaluated against community noise standards contained in the City or County General Plan, Municipal Code, or other State or federal agency as applicable to the vicinity of the project site. Screening-level project-generated noise is evaluated in relation to established thresholds of significance. Additionally, the same methods are used to determine noise impacts on the nearest sensitive receptor. There is no numerical standard in the Municipal Code for construction activities; however, the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment provides an 8-hour construction noise level threshold of 80 dBA L_{eq} during the daytime at residential (noise-sensitive) uses and 85 dBA during the daytime at commercial uses. Therefore, noise impacts for the proposed project are evaluated against the FTA noise standards.

During construction activities, the project would generate noise and vibration due to operation of off-road equipment, portable equipment, and vehicles at or near the project site. No strong sources of vibrations (e.g., hard rock-breaking, large pile-driving) are planned to be used during the construction of the RNG facility. A mounted impact hammer (hoe ram), which is a percussive source, may be occasionally used during the pipeline construction, when encountering rocks during trenching. FTA has published standard vibration velocities for construction equipment operations. Generally, a PPV vibration threshold of approximately 0.3 in/sec is sufficient to avoid physical damage to engineered structures (FTA 2018). The types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Table 6-1 presents average source levels in terms of velocity for different types of construction equipment.

Table 6-1: FTA Vibration Source Levels for Construction Equipment

| Equipment | PPV at 25 feet | |
|--------------------------------|----------------|-------|
| | (in/sec) | |
| Pile Driver (Impact) | Upper Range | 1.518 |
| | Typical | 0.644 |
| Pile Driver (Sonic) | Upper Range | 0.734 |
| | Typical | 0.170 |
| Clam Shovel Drop (slurry wall) | | 0.202 |
| Hydromill (slurry wall) | In Soil | 0.008 |
| | In Rock | 0.017 |
| Vibratory Roller | | 0.210 |
| Hoe Ram | | 0.089 |
| Large Bulldozer | | 0.089 |
| Caisson Drilling | | 0.089 |
| Loaded Trucks | | 0.076 |
| Jackhammer | | 0.035 |
| Small Bulldozer | | 0.003 |

Source: FTA 2018

No significant increase in traffic is expected due to this relatively small project. Since the receptors are near the two highways, the incremental effect of project operation would not be quantifiable against existing traffic noise (background) in the project vicinity (i.e., less than significant impact). Also, since no airport is closer than 2 miles from the project site, evaluation of aircraft noise upon the project is not required.

Traffic disruptions caused by pipeline construction would include the effects of temporary reduced speed limits for safety in work zones, such as lane reductions. Since vehicle speeds would be reduced, traffic noise would also be reduced due to: 1) less wind noise due to reduced velocity; 2) less tire noise due to lower wheel revolutions; and 3) less engine mechanical noise due to lower running speeds. Therefore, traffic disruptions would be expected to result in decreased traffic noise.

6.1.2 Sensitive Receptors

6.1.2.1 RNG Plant

Sensitive receptors that may be affected by the proposed RNG Plant are residences located approximately 0.8 miles south of the site, on the opposite side of SR 241. To assess the potential for short-term construction noise impacts, the nearest residence (SL#4 indicated on Figure 5-1) was used. This receptor represents all the residences located south of the site.

All distances are measured from the project site boundary closest to the edge of the nearby sensitive receptor locations. Other sensitive land uses in the project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance, topography, and the shielding of intervening structures. Attenuation distance is measured in a straight line from the project boundary for each phase to the nearest sensitive receptor location.

6.1.2.2 *SoCalGas Pipeline*

Construction of the new SoCal Gas pipeline route will take place in the SoCal right-of-way along Bee Canyon Access Road and Portola Parkway. The majority of the pipeline installation construction activities will use open-trench techniques within the paved sections of the roadways with horizontal directional drilling techniques in some locations. The construction work area along the proposed pipelines will be approximately 50 feet wide and the depth of disturbance for trenching activities will average 6 feet. A traffic control plan will be prepared to accommodate this work area corridor along the new SoCal Gas pipeline route. The traffic control plan will require temporary speed limit reductions for safety in work zones.

Sensitive receptors that may be affected by the construction of the proposed pipeline are residences approximately 230 feet south of the project site. To assess the potential for short-term pipeline construction noise impacts, the nearest residence to the pipeline, shown on Figure 1-2 was used. This receptor represents all the residences located south of the site.

All distances are measured from the project site boundary closest to the edge of the nearby sensitive receptor locations. Other sensitive land uses in the project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance, topography, and the shielding of intervening structures. Attenuation distance is measured in a straight line from the project boundary for each phase to the nearest sensitive receptor location.

6.1.3 *Construction Noise and Vibration Impacts*

Temporary construction noise would be limited to the City of Irvine's allowable daytime construction hours, i.e., between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays, and would permanently cease upon completion of construction. Most construction noise would occur during the site preparation, grading, building construction, trenching, and paving phases when heavy equipment would be operating. No demolition is planned for the proposed project.

During each of the six construction phases there would be a different mix of equipment operating, and cumulative noise levels would vary based on the amount of equipment in operation and the location of each activity at the project site. In general, use of off-road equipment and portable equipment would generate noise due to engine mechanicals, engine exhaust, driveline mechanicals, shaft-driven devices and accessories, hydraulics operation, ground friction and displacement, and gravity drops (dumping, unloading).

Based on the information presented in Table 6-1, nearest offsite structures over 1,300 meters (4,200 feet) away from the RNG facility would not be exposed to a PPV of greater than 0.3 in/sec during construction, which is the threshold at which physical damage to engineered buildings may occur. Since no intense percussive actions (e.g., hard rock-breaking, large pile-driving) are planned to occur during the construction of the RNG facility, no strong groundborne vibrations are expected to be generated that could affect nearby structures or be noticeable to their occupants (the landfill administration office building is over 100 meters away from the construction site). A mounted impact hammer (hoe ram), which is a percussive source, may be occasionally used during the pipeline construction, when encountering rocks during trenching. The PPV at nearest receptors approximately 230 feet from the proposed pipeline, would be about 0.003 in/sec, which is well below the FTA threshold of 0.3 in/sec.

Construction activities typically generate maximum noise levels in the range of 85 to 90 dBA at a distance of 50 feet. Types of equipment (FHWA 2006) to be used during the Project and noise-emitting characteristics (i.e., usage factors, reference dBA, and percussive source) are shown in Table 6-2 consistent with CalEEMod outputs.

The Project is expected to require up to approximately one year of planned work activities (i.e., from mobilization to substantial completion) comprising six construction phases:

1. Site preparation;
2. Grading;
3. Building construction;
4. Paving;
5. Architectural coating; and
6. Trenching and pipeline construction.

Deviations from this schedule would not affect the noise analysis because noise does not persist or accumulate in the environment.

Table 6-2: FHWA Noise Reference Levels and Usage Factors

| CalEEMod Construction Detail | | | FHWA Equipment Type | Ref. | Usage Factor percent | Ref. Level dBA | Percussive Source Yes/No |
|---|------------------------------------|------|---------------------------------|-------|----------------------|----------------|--------------------------|
| Phase Name | Equipment Description | Qty. | | | | | |
| Site Preparation (1) | Rubber Tired Dozers | 3 | Dozer (crawler tractor) | 1 | 40% | 85 | No |
| | Tractors/Loaders/Backhoes | 4 | Backhoe (with loader) | 1 | 40% | 80 | No |
| Grading (2) | Rubber Tired Dozers | 2 | Dozer (crawler tractor) | 1 | 40% | 85 | No |
| | Tractors/Loaders/Backhoes | 2 | Backhoe (with loader) | 1 | 40% | 80 | No |
| | Cement and Mortar Mixers | 1 | Drum Mixer | 1 | 50% | 80 | No |
| | Sweepers/Scrubbers | 1 | Vacuum Street Sweeper | 1 | 10% | 80 | No |
| | Dumpers/Tenders | 10 | Dump Truck | 1 | 40% | 84 | No |
| | Off-Highway Trucks | 1 | Water Truck | 1 | 40% | 84 | No |
| | Excavators | 1 | Excavator (hydraulic) | 1 | 40% | 85 | No |
| Building Construction (3) | Cranes | 2 | Crane | 1 | 16% | 85 | No |
| | Forklifts | 3 | Forklift | 1 | 40% | 80 | No |
| | Tractors/Loaders/Backhoes | 1 | Backhoe (with loader) | 1 | 40% | 80 | No |
| | Aerial Lifts | 1 | Man Lift | 1 | 20% | 85 | No |
| | Off-Highway Trucks | 1 | Water Truck | 1 | 40% | 84 | No |
| Paving (4) | Tractors/Loaders/Backhoes | 1 | Backhoe (with loader) | 1 | 40% | 80 | No |
| | Pavers | 1 | Paver (asphalt) | 1 | 50% | 85 | No |
| | Paving Equipment | 2 | Paver (asphalt) | 1 | 50% | 85 | No |
| | Rollers | 2 | Roller | 1 | 20% | 85 | No |
| | Cement and Mortar Mixers | 2 | Drum Mixer | 1 | 50% | 80 | No |
| Architectural Coating (5) | Air Compressors | 1 | Compressor (air) | 1 | 40% | 80 | No |
| Trenching and Pipeline Construction (6) | Bore/Drill rigs | 1 | Drill Rig Horizontal (boring) | 1,3,9 | 100% | 85 | No |
| | Excavators | 1 | Excavator (hydraulic) | 1 | 40% | 85 | No |
| | Rubber Tired Dozers | 1 | Tractor (rubber tire) | 1 | 40% | 84 | No |
| | Tractors/Loaders/Backhoes | 1 | Dozer (crawler tractor) | 1 | 40% | 85 | No |
| | Cranes | 1 | Crane | 1 | 16% | 85 | No |
| | Graders | 1 | Grader | 1 | 40% | 85 | No |
| | Other General Industrial Equipment | 1 | Mounted Impact Hammer (hoe ram) | 1 | 20% | 90 | Yes |
| | Air Compressors | 1 | Compressor (air) | 1 | 40% | 80 | No |
| | Other Construction Equipment | 1 | Crane | 1 | 16% | 85 | No |

Sources: CalEEMod version 2022.1.1.22, FHWA 2006

Table 6-3 shows a comparison of FHWA screening-level estimated daytime exterior noise impacts for peak RNG Plant construction activities at the nearest receptors with respect to the FTA thresholds. If the thresholds are not exceeded, then a project should be considered acceptable, i.e., less than significant.

Table 6-3: Estimated Peak Activity Construction Noise Impacts at the Nearest Sensitive Receptor

| Construction Phases | Normal Acceptance Criteria | | | |
|-----------------------|--|--------------------------|---|-----------------------------|
| | Modeled Noise Level (L _{eq} dBA) ^a | CalEEMod Duration (days) | Significance Threshold (L _{eq} dBA) ^b | Exceeds Threshold? (Yes/No) |
| Background | 48.1 | - | - | No |
| Site Preparation | 48.4 | 11 | 80 | No |
| Grading | 48.9 | 49 | 80 | No |
| Building Construction | 48.3 | 185 | 80 | No |
| Paving | 48.5 | 11 | 80 | No |
| Architectural Coating | 48.1 | 16 | 80 | No |
| Pipeline Construction | 77.2 | 240 | 80 | No |

Sources: CalEEMod version 2022.1.1.22, FHWA 2006, FTA 2018, Niland & Elam, 2021.

Notes:

- a) Includes existing ambient noise level (cumulative impacts)
- b) FTA Noise Limits for Construction

As shown in Table 6-3, the aggregated average construction noise would be below the 80 dBA FTA noise level threshold at nearby receptors. Although the estimated noise levels are below the threshold, the project is proposing to install a noise monitoring instrument during the SoCalGas pipeline construction activities, as a Best Management Practice (BMP), to continuously monitor the construction noise levels to ensure that they remain below the 80 dBA threshold. Noise barriers and mufflers may also be installed as additional BMPs. It should be noted that the proposed noise control measures are project design features, i.e., BMPs, and pursuant to CEQA, are not considered mitigations.

6.2 Operational Noise Impacts

6.2.1 Operational Noise Analysis Methodology

The potential noise impacts on the community are associated with the proposed equipment operating on the project site (see Table 1-1).

The project impact evaluation was performed using SoundPlan Essential 5.1, an environmental noise propagation computer program that was developed to assist with noise propagation calculations for major noise sources and projects. The program calculates the sound pressure level at a location utilizing the sound emission properties of the source(s) and environmental propagation factors (sound spreading due to distance, ground affects, barriers, topography, as well as atmospheric attenuation). The program also includes a number of standardized methodologies that can be utilized to quantify the acoustic effect of these environmental factors. The specific standard employed by this program is that described in the International Organization for Standardization (ISO) Standard 9613, “Acoustics – Attenuation of sound

during propagation outdoors.” The modeled ambient temperature was 10°C (50°F), and the assumed relative humidity was 70%. The ground absorption value utilized in the model was set to “0” for hard for the project site and existing facility to the south and “0.5” for partially hard and soft ground for the vegetative area (i.e., hills) to the south. The backup generator will be housed inside a sound-attenuated and weatherproof enclosure. Therefore, an insertion loss of 15 dB was applied to the backup generator since it will be located inside a steel weatherproof enclosure with silencing properties.

This study evaluates the acoustical impact of the proposed project on the nearest sensitive receptors and compares it to the ambient noise levels and local noise standard to assess whether any mitigation measure would be necessary to reduce the noise exposure to the community.

This study focuses on the daytime and nighttime noise levels in order to determine the acoustical impact of the project on the closest receptors.

6.2.2 Operational Noise Sources

The main noise source will be noise from motor-driven equipment, such as gas compressors. The expected “worst-case” scenario, with all equipment operating simultaneously, was assumed during both daytime and nighttime hours.

Noise sources were entered in the modeling system as octave band sound power levels based on the sound pressure of the equipment provided by vendors. Sound pressures were then converted to sound powers in SoundPlan. Table 6-4 lists the sound power levels of the proposed equipment.

Table 6-4: Sound Power Levels in Octave Band Format for Proposed Equipment (dBA)

| Source name | Sum, Sound Power (dBA) | Octave Band Centre Frequency (Hz), Sound Power Levels (dBA) | | | | | | | | | | | | |
|--|------------------------|---|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| | | 63Hz | 80Hz | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1,000Hz |
| Back Up Generator | 107.2 | 75.2 | 78.9 | 82.3 | 85.3 | 88.0 | 90.5 | 92.8 | 94.8 | 96.6 | 98.2 | 99.5 | 100.6 | 101.4 |
| CO2 Removal Vacuum Compressor | 92.2 | 60.2 | 63.9 | 67.3 | 70.3 | 73.0 | 75.5 | 77.8 | 79.8 | 81.6 | 83.2 | 84.5 | 85.6 | 86.4 |
| CO2 Removal Vacuum Oil Cooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| Feed Compressor | 107.7 | 75.7 | 79.4 | 82.8 | 85.8 | 88.5 | 91.0 | 93.3 | 95.3 | 97.1 | 98.7 | 100.0 | 101.1 | 101.9 |
| Feed Compressors Aftercooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| Feed Compressors Oil Cooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| Flare Combustion Blower | 107.2 | 75.2 | 78.9 | 82.3 | 85.3 | 88.0 | 90.5 | 92.8 | 94.8 | 96.6 | 98.2 | 99.5 | 100.6 | 101.4 |
| Glycol Circulation Pump | 92.2 | 60.2 | 63.9 | 67.3 | 70.3 | 73.0 | 75.5 | 77.8 | 79.8 | 81.6 | 83.2 | 84.5 | 85.6 | 86.4 |
| Instrument Air Compressor | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| N2 Removal Recycle Compressor | 107.7 | 75.7 | 79.4 | 82.8 | 85.8 | 88.5 | 91.0 | 93.3 | 95.3 | 97.1 | 98.7 | 100.0 | 101.1 | 101.9 |
| N2 Removal Vacuum Compressor | 107.7 | 75.7 | 79.4 | 82.8 | 85.8 | 88.5 | 91.0 | 93.3 | 95.3 | 97.1 | 98.7 | 100.0 | 101.1 | 101.9 |
| N2 Removal Recycle Compressors Aftercooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| N2 Removal Recycle Compressors Oil Cooler | 97.2 | 65.2 | 68.9 | 72.3 | 75.3 | 78.0 | 80.5 | 82.8 | 84.8 | 86.6 | 88.2 | 89.5 | 90.6 | 91.4 |

Noise Impact Study for Bowerman Power RNG Plant
 Bowerman Power LFG, LLC

| Source name | Sum, Sound Power (dBA) | Octave Band Centre Frequency (Hz), Sound Power Levels (dBA) | | | | | | | | | | | | |
|--|------------------------|---|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| | | 63Hz | 80Hz | 100Hz | 125Hz | 160Hz | 200Hz | 250Hz | 315Hz | 400Hz | 500Hz | 630Hz | 800Hz | 1,000Hz |
| N2 Removal Vacuum Compressors Oil Cooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| Product Compressor | 117.7 | 85.7 | 89.4 | 92.8 | 95.8 | 98.5 | 101.0 | 103.3 | 105.3 | 107.1 | 108.7 | 110.0 | 111.1 | 111.9 |
| Product Gas Cooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| Product Compressors Aftercooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| PSA Vessel | 107.2 | 75.2 | 78.9 | 82.3 | 85.3 | 88.0 | 90.5 | 92.8 | 94.8 | 96.6 | 98.2 | 99.5 | 100.6 | 101.4 |
| RNG Product Gas Cooler | 102.2 | 70.2 | 73.9 | 77.3 | 80.3 | 83.0 | 85.5 | 87.8 | 89.8 | 91.6 | 93.2 | 94.5 | 95.6 | 96.4 |
| Thermal Oxidizer Blower | 107.2 | 75.2 | 78.9 | 82.3 | 85.3 | 88.0 | 90.5 | 92.8 | 94.8 | 96.6 | 98.2 | 99.5 | 100.6 | 101.4 |
| Thermal Oxidizer Combustion Air Blower | 107.2 | 75.2 | 78.9 | 82.3 | 85.3 | 88.0 | 90.5 | 92.8 | 94.8 | 96.6 | 98.2 | 99.5 | 100.6 | 101.4 |
| Ventilation Fan | 92.2 | 60.2 | 63.9 | 67.3 | 70.3 | 73.0 | 75.5 | 77.8 | 79.8 | 81.6 | 83.2 | 84.5 | 85.6 | 86.4 |

Source: Applicant 2023, SoundPlan Essential 5.1

Notes:

Since no spectral data was available, only the sound power levels, the spectra for only the lower frequency ranges (four octaves) were estimated. The higher frequencies would not carry as far as the lower frequencies, therefore they are not expected to impact the nearest sensitive receptors.

An insertion loss of 15 dB was applied to the backup generator since it will be placed inside a weatherproof enclosure.

6.2.3 Sensitive Receptors

To assess the potential for operational noise impacts, three sensitive receptor (receiver) locations were used as shown on Figure 6-1. These were the same locations at which the ambient noise measurements were taken. The locations of these receptors are denoted by yellow dots in Figure 6-1. Note: Receiver 1 is not a sensitive receptor. Receiver 1 was used to predict the noise levels at the proposed site.

Figure 6-1 shows the future noise level map at the sensitive receptor areas and the property boundaries, including the 55 dBA daytime and 50 dBA nighttime noise limit lines. Figures 6-2 and 6-3 present noise level contours for all hours (daytime, evening, and nighttime) and CNEL, respectively, at the sensitive receptor areas and the property boundaries. Predicted operational noise levels, exclusive of ambient background, are anticipated to range between 25.5-40.4 dBA during the daytime, evening, and nighttime hours at the nearest sensitive receivers without any noise mitigation. Table 6-5 shows the results of the noise level predictions.

Figure 6-1: Operations Noise Levels Projections (dBA)

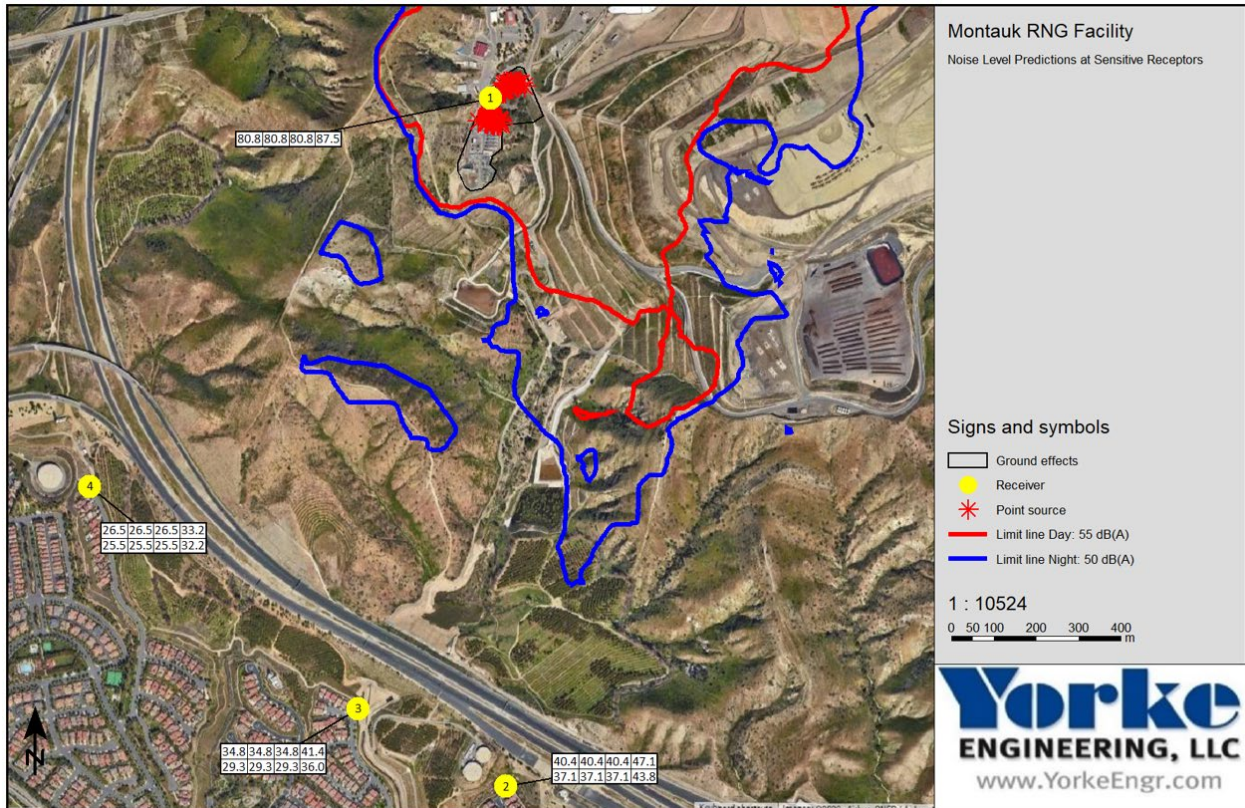


Figure 6-2: Operations Noise Level Contours (dBA)

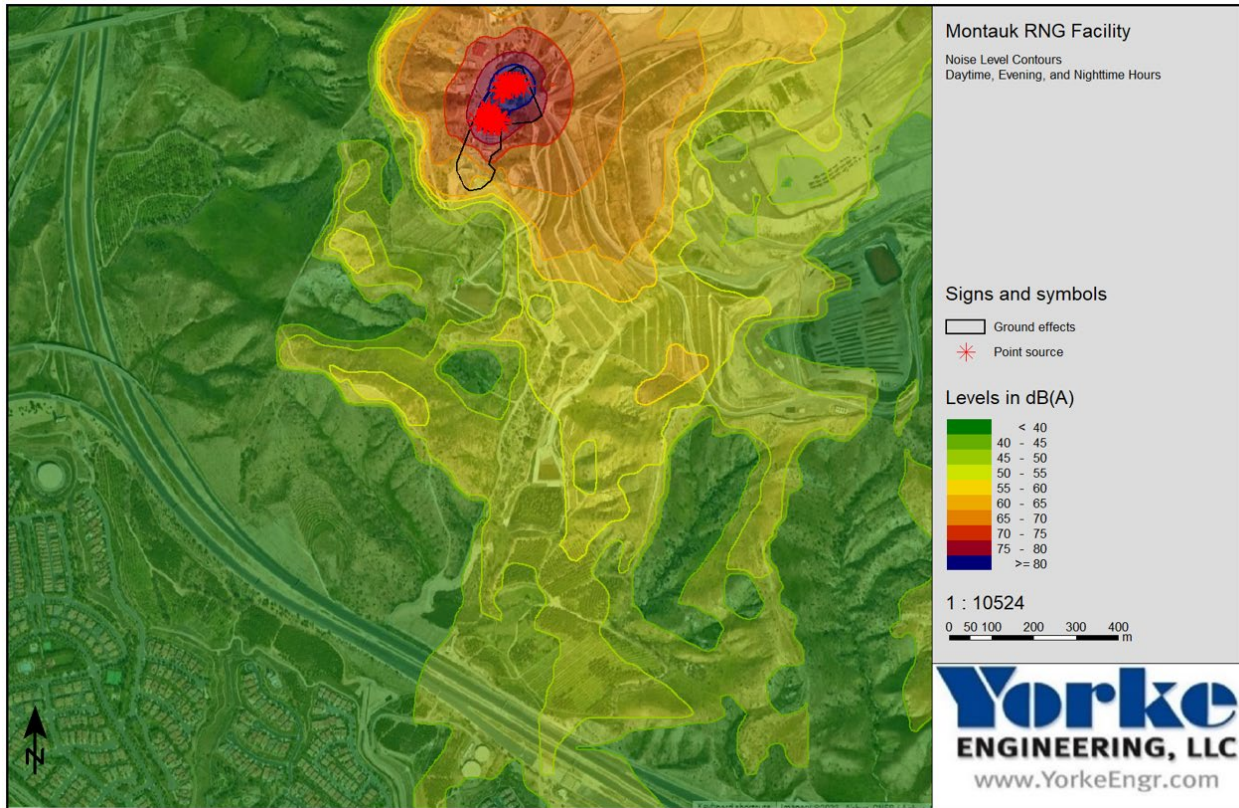


Figure 6-3: Operations Noise Level Contours (CNEL)

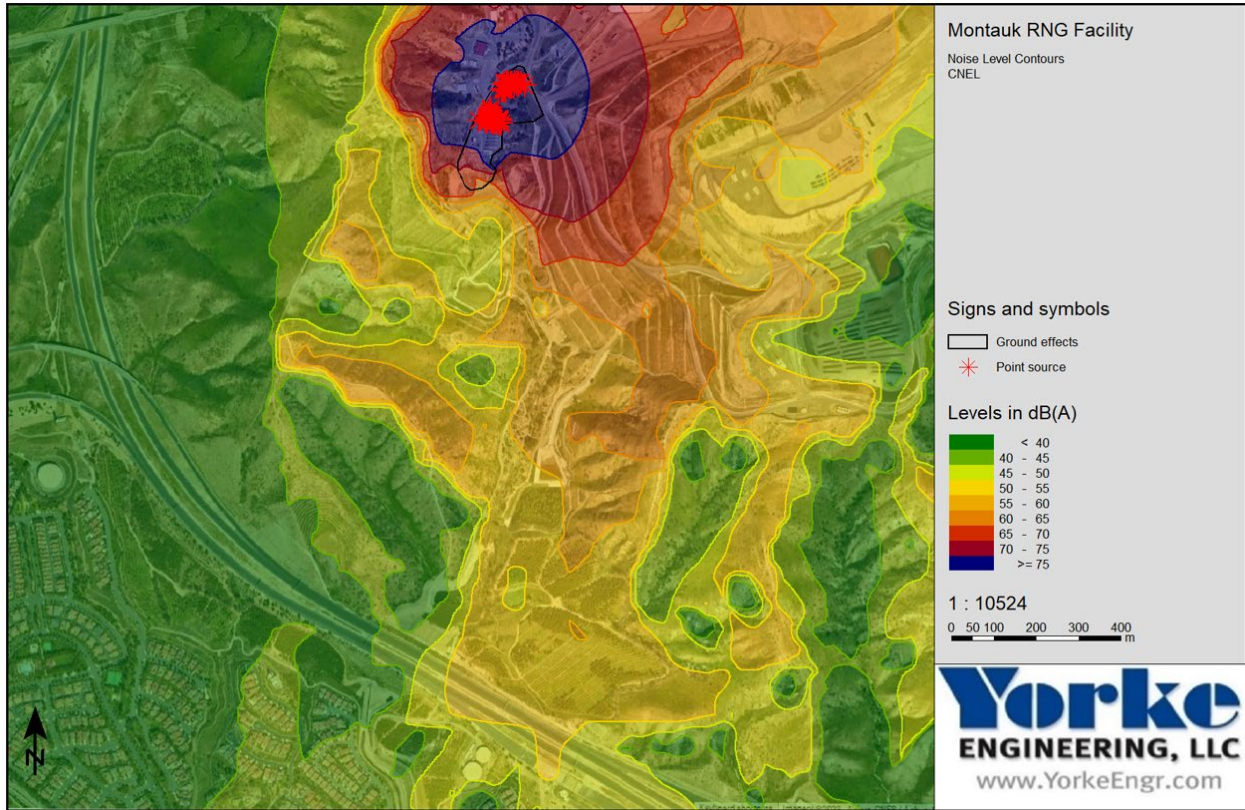


Table 6-5: Receiver Predicted Noise Level Impacts (dBA)

| Receiver No. | Receiver Name | Floor | Ambient Noise Levels (dBA) ^a | | | | Predicted Noise Levels (dBA) | | | Combined Noise Levels (dBA) | | | Difference between Ambient and Combined (dBA) | | |
|--------------|---------------|-------|---|---------|-----------|------|---------------------------------|-------------------|---------|-----------------------------|-----------|---------|---|-----------|--|
| | | | Daytime | Evening | Nighttime | CNEL | Daytime Evening Nighttime | CNEL | Daytime | Evening | Nighttime | Daytime | Evening | Nighttime | |
| 1 | Project Site | GF | 63.1 | 63.1 | 62.8 | 69.5 | 80.8 | 80.8 ^b | 80.9 | 80.9 | 80.9 | 17.8 | 17.8 | 18.1 | |
| 2 | SL#2 | GF | 42.0 | 42.0 | 38.2 | 45.9 | 37.1 | 43.8 | 43.2 | 43.2 | 40.7 | 1.2 | 1.2 | 2.5 | |
| 2 | SL#2 | 1.FI | 42.0 | 42.0 | 38.2 | 45.9 | 40.4 | 47.1 | 44.3 | 44.3 | 42.4 | 2.3 | 2.3 | 4.2 | |
| 3 | SL#3 | GF | 47.3 | 47.3 | 38.9 | 48.9 | 29.3 | 36.0 | 47.4 | 47.4 | 39.3 | 0.1 | 0.1 | 0.5 | |
| 3 | SL#3 | 1.FI | 47.3 | 47.3 | 38.9 | 48.9 | 34.8 | 41.4 | 47.6 | 47.6 | 40.3 | 0.2 | 0.2 | 1.4 | |
| 4 | SL#4 | GF | 48.1 | 48.1 | 41.2 | 50.3 | 25.5 | 32.2 | 48.1 | 48.1 | 41.3 | 0.0 | 0.0 | 0.1 | |
| 4 | SL#4 | 1.FI | 48.1 | 48.1 | 41.2 | 50.3 | 26.5 | 33.2 | 48.1 | 48.1 | 41.3 | 0.0 | 0.0 | 0.1 | |

Notes:

- a) Ambient noise levels are based on the noise measurements taken by Yorke on June 20, 2023, at daytime and nighttime hours. In order to be conservative, evening noise levels are assumed to be the same as daytime noise levels.
- b) For exposure determination purposes, CNEL at the project site is assumed to be the same as the daytime predicted noise levels since no operators are anticipated to be onsite outside of normal business hours (i.e., Penalties of 5 dB and 10 dB for evening and nighttime hours, respectively, are not applicable).

6.2.4 Operational Noise Impacts

As discussed above, both the County of Orange and the City of Irvine prohibit noise levels greater than 50 dBA at nighttime and 55 dBA during daytime hours at residential receptors. As shown in Table 6-5, total operational noise levels at the nearest sensitive receptors will not exceed the 50 dBA and 55 dBA limits at nighttime and daytime hours, respectively. As illustrated in Figure 6-1, operational noise that could exceed these limits would be confined to the project site and immediate vicinity of the landfill. Furthermore, the Federal Interagency Committee on Noise (FICON) guidance (1992) provides an established criteria to assess the impacts of substantial temporary or permanent increases in ambient noise levels. Based on the FICON criteria, if ambient noise levels are less than 60 dBA Leq, a change in a noise level of 5 dBA or greater is considered significant. The operation of the proposed equipment may raise the ambient noise level for the most impacted sensitive receptor by up to 4.2 dBA. Thus, the operation of the proposed facility is not expected to cause any significant impact during daytime, evening, or nighttime hours. Interior noise levels will be maintained at current levels at nearby receptors.

7.0 CONCLUSIONS

The noise survey performed indicated that the ambient noise levels at the nearest sensitive receptors (i.e., residences south of the project site) range between 42 and 48 dBA during daytime hours and between 38 and 41 dBA at nighttime.

There is no numerical noise standard in the County or City Municipal Codes for construction activities; however, FTA provides an 8-hour construction noise level threshold of 80 dBA Leq during the daytime at residential uses. The aggregated average construction noise will be well below the 80 dBA FTA noise level threshold at nearby receptors. Additionally, the temporary construction noise would be limited to the City's allowable construction hours, i.e., between 7:00 a.m. and 7:00 p.m. Mondays through Fridays, and 9:00 a.m. and 6:00 p.m. on Saturdays, and would permanently cease upon completion of construction. Therefore, the construction noise impact of the proposed project would be less than significant.

The main contributor to the operational noise levels is the simultaneous operation of processing equipment. The operations of the proposed equipment are not expected to substantially raise the ambient noise levels for the nearest sensitive receptors, and the interior noise levels will be maintained at current noise levels. Total operational noise levels at the nearest sensitive receptors will not exceed the 50 dBA and 55 dBA limits at nighttime and daytime hours, respectively. Moreover, the predicted CNEL at the proposed site is 80.8 dBA, which is considered "Normally Acceptable" for industrial land uses. Thus, no adverse impacts are expected from, and no special noise control measures would be required for, the operation of the proposed project. Therefore, the operational noise impact of the proposed project would be less than significant.

8.0 ANALYSIS OF NOISE SIGNIFICANCE CRITERIA

A project would normally have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of the community in which it is located. The applicable noise standards governing the unincorporated project site are the criteria in the County's General Plan Noise Element and its Noise Control Ordinance. Since the nearest sensitive receptors are in the City of Irvine, the City's Noise Ordinance and General Plan Noise Element were also reviewed.

This study predicts a less than significant impact in accordance with applicable noise ordinances and General Plans. Would the project result in:

- a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

No. As shown in the above analysis, temporary construction noise would be limited to the City of Irvine's allowable daytime construction hours and would permanently cease upon completion of construction. The screening-level noise analysis for project construction was completed based on methodology developed by the DOT FHWA. As shown in Table 6-3, the aggregated average RNG Plant and SoCalGas pipeline construction noise is not expected to exceed 80 dBA at nearby receptors, which is below the noise limit set by the FTA. Therefore, temporary impacts on ambient noise levels in excess of applicable standards during construction would be less than significant. Although the estimated noise levels are below the threshold, the project is proposing to install a noise monitoring instrument during the SoCalGas pipeline construction activities, as a BMP, to continuously monitor the construction noise levels to ensure that they remain below the 80 dBA threshold. Noise barriers and mufflers may also be installed as additional BMPs. It should be noted that the proposed noise control measures are project design features, i.e., BMPs, and pursuant to CEQA, are not considered mitigations.

PROJECTED IMPACT: Less than significant

The noise from the proposed RNG facility operation is not expected to substantially raise the ambient noise levels for the nearest sensitive receptors as they are approximately 0.8 miles from the project site and are shielded by the hills that are located between the residential area and the proposed facility. Interior noise levels will be maintained at current levels at nearby receptors. Additionally, total operational noise levels at the nearest sensitive receptors will not exceed the 50 dBA and 55 dBA limits at nighttime and daytime hours, respectively. Therefore, operational noise impacts would be less than significant.

PROJECTED IMPACT: Less than significant

- b) *Generation of excessive groundborne vibration or groundborne noise levels?*

No. Construction plans for the proposed RNG facility do not include intense percussive actions (e.g., hard rock-breaking, large pile-driving). A mounted impact hammer (hoe ram), which is a percussive source, may be occasionally used during the pipeline construction, when encountering rocks during trenching. The PPV at nearest receptors would be approximately 0.003 in/sec, which is well below the FTA threshold of 0.3 in/sec. Therefore, no strong groundborne vibrations are expected to be generated that could affect nearby structures or be noticeable to their occupants, and impacts would be less than significant.

PROJECTED IMPACT: Less than significant

- c) *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

There is no public or private use airport within 2 miles of the project site; therefore, no impact would be expected.

PROJECTED IMPACT: No impact

9.0 REFERENCES

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(https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf) accessed June 30, 2023.

APPENDIX A – NOISE MEASUREMENT FIELD NOTES

Noise Measurement Data Form

| Client: | | Bowerman Power LFG, LLC | | Sampled by: Ernesto Betancourt II | Date: 6/20/2023 | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|-------------|--|----------------------|---|---------------------------------------|---------|--|--|--|--|-------------------|-------------|------|----------------------|-----------|---------|-----------|-----------------------|------------|----------|-----------|------------|------------------|--------------|------------|
| Contact/PM: | | Tina Darjazanie | | Notes: Sampling taken place right outside the gate of Bowerman Power generation plant, approximately 30 ft from the entrance. No vehicles passed through the entrance, occasional sounds of birds and insects during measurements | | | | | | | | | | | | | | | | | | | | | |
| Site: | | 11002 Bee Canyon Access Rd, Irvine, CA 92602 | | | | | | | | | | | | | | | | | | | | | | | |
| Client No.: | | 1010-003-01 | | Calibrator Make/Model: Quest AC-300 Calibrator | Calibrator Cal Exp Date: 10/6/2023 | | | | | | | | | | | | | | | | | | | | |
| Sound Level Meter Make/Model: | | Quest SoundPro SE/DL Type 2 | | Sound Level Meter Serial Number: BIU070007 | Calibrator Serial Number: AC300013570 | | | | | | | | | | | | | | | | | | | | |
| Sample Location Name: | | Location 1 | | Sample Location Description: On a hill across from the 241 freeway, at the gate of electric power generation facility, which houses 7 Cat engines and a Willexa gas treatment facility, adjacent to where the RNG site will be built | | | | | | | | | | | | | | | | | | | | | |
| Microphone Height (ft): | | 4 | | | | | | | | | | | | | | | | | | | | | | | |
| Weighting: | A | Calibrated?: | Yes | <table border="1"> <thead> <tr> <th colspan="5">Weather</th> </tr> <tr> <th>Temperature (°F):</th> <th>Wind (MPH):</th> <th>Sky:</th> <th>Barometric Pressure:</th> <th>Humidity:</th> </tr> </thead> <tbody> <tr> <td>Day: 62</td> <td>Day: 2 NE</td> <td>Day: Sunny, no clouds</td> <td>Day: 30.00</td> <td>Day: 76%</td> </tr> <tr> <td>Night: 61</td> <td>Night: 2 N</td> <td>Night: No clouds</td> <td>Night: 29.98</td> <td>Night: 76%</td> </tr> </tbody> </table> | | Weather | | | | | Temperature (°F): | Wind (MPH): | Sky: | Barometric Pressure: | Humidity: | Day: 62 | Day: 2 NE | Day: Sunny, no clouds | Day: 30.00 | Day: 76% | Night: 61 | Night: 2 N | Night: No clouds | Night: 29.98 | Night: 76% |
| Weather | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature (°F): | Wind (MPH): | Sky: | Barometric Pressure: | Humidity: | | | | | | | | | | | | | | | | | | | | | |
| Day: 62 | Day: 2 NE | Day: Sunny, no clouds | Day: 30.00 | Day: 76% | | | | | | | | | | | | | | | | | | | | | |
| Night: 61 | Night: 2 N | Night: No clouds | Night: 29.98 | Night: 76% | | | | | | | | | | | | | | | | | | | | | |
| Response Time: | Slow | Calibration value: | 114 dB, 1000 Hz | | | | | | | | | | | | | | | | | | | | | | |
| Sample No. | Time On | Time Off | Range (in dBA) | Notes | | | | | | | | | | | | | | | | | | | | | |
| #1 (Meter Sample ID S172) | 8:16 | 8:36 | 60-65 | Day time noise measurement: -Occasional trucks passing by from OCWR in the distance for the landfill close by, sounds of trucks dumping -Whirring noise from the FRB Landfill -8:25 a.m. sound of birds chirping overhead -8:29 a.m. multiple trucks passing by in the distance at once, | | | | | | | | | | | | | | | | | | | | | |
| #5 (Meter Sample ID S178) | 22:07 | 22:27 | 60-65 | Night time noise measurement -Noticeably more buzzing and chirping coming from the insects in the surrounding foliage -No truck activity on site, only occasional sound of cars from the freeway | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

Noise Measurement Data Form

| Client: | | Bowerman Power LFG, LLC | | Sampled by: Ernesto Betancourt II | Date: 6/20/2023 |
|-------------------------------|---------|-------------------------------------|-----------------|--|---------------------------------------|
| Contact/PM: | | Tina Darjazanie | | Notes: Area is lower in elevation and blocked by houses, fencing, shrubbery, hills from the source of RNG plant. For sampling, mic is pointed towards source location | |
| Site: | | 103 Soaring Eagle, Irvine, CA 92618 | | | |
| Client No.: | | 1010-003-01 | | Calibrator Make/Model: Quest AC-300 Calibrator | Calibrator Cal Exp Date: 10/6/2023 |
| Sound Level Meter Make/Model: | | Quest SoundPro SE/DL Type 2 | | Sound Level Meter Serial Number: BIU070007 | Calibrator Serial Number: AC300013570 |
| Sample Location Name: | | Location 2 | | Sample Location Description: On the street along the sidewalk between two houses, which are across the 241 freeway on the opposite side of the proposed RNG site. Location is obstructed by hills, foilage, and the freeway | |
| Microphone Height (ft): | | 4 | | | |
| Weighting: | A | Calibrated?: | Yes | Weather | |
| Response Time: | Slow | Calibration value: | 114 dB, 1000 Hz | Temperature (°F): | Wind (MPH): |
| | | | | Day: 66 | Day: 3 NE |
| | | | | Night: 58 | Night: 2 NW |
| | | | | Day: Sunny, no clouds | Barometric Pressure: |
| | | | | Night: No clouds | Humidity: |
| | | | | Day: 29.99 | Day: 67% |
| | | | | Night: 29.97 | Night: 82% |
| Sample No. | Time On | Time Off | Range (in dBA) | Notes | |
| #2 (Meter Sample ID S174) | 9:17 | 9:37 | 37-49 | Day time noise measurement: -Throughout measurement, there was ambient noise coming from birds chirping, whirring of cars passing by, workers in the area doing yard work for the surrounding apartments -Throughout measurement, resident at closest apartment was audibly making noise in home -9:25 a.m. louder more noticeable sounds of insects -9:27 a.m.and 9:31 a.m. loud sound occurred from resident | |
| #6 (Meter Sample ID S181) | 23:49 | 0:09 | 36-71 | Night time noise measurement: -11:50 p.m.sound of car driving by -11:51 p.m.family making sound outside, being dropped off -11:57 p.m. sound of slamming car doors - 12:01-12:05 a.m., dog barking | |
| | | | | | |
| | | | | | |

Noise Measurement Data Form

| Client: | | Bowerman Power LFG, LLC | | Sampled by: Ernesto Betancourt II | Date: 6/20/2023 | | | | | | | | | | | | | | | |
|-------------------------------|--------------------------|---|----------------------------|--|---------------------------------------|---------|--|--|--|--|-------------------|-------------|------|----------------------|-----------|----------------------|--------------------------|---|----------------------------|------------------------|
| Contact/PM: | | Tina Darjazanie | | Notes: Sample taken along the sidewalk most exposed to the source location, obstructed by houses, hills, the freeway, and shrubbery | | | | | | | | | | | | | | | | |
| Site: | | 113 Tomato Springs, Irvine, CA 92618 | | | | | | | | | | | | | | | | | | |
| Client No.: | | 1010-003-01 | | Calibrator Make/Model: Quest AC-300 Calibrator | Calibrator Cal Exp Date: 10/6/2023 | | | | | | | | | | | | | | | |
| Sound Level Meter Make/Model: | | Quest SoundPro SE/DL Type 2 | | Sound Level Meter Serial Number: BIU070007 | Calibrator Serial Number: AC300013570 | | | | | | | | | | | | | | | |
| Sample Location Name: | | Location 3 | | Sample Location Description: On the sidewalk of a cul-de-sac, which is across the 241 freeway on the opposite side of the proposed RNG site. Location is obstructed by hills, foliage, and the freeway | | | | | | | | | | | | | | | | |
| Microphone Height (ft): | | 4 | | | | | | | | | | | | | | | | | | |
| Weighting: | A | Calibrated?: | Yes | | | | | | | | | | | | | | | | | |
| Response Time: | Slow | Calibration value: | 114 dB, 1000 Hz | <table border="1"> <tr> <th colspan="5">Weather</th> </tr> <tr> <td>Temperature (°F):</td> <td>Wind (MPH):</td> <td>Sky:</td> <td>Barometric Pressure:</td> <td>Humidity:</td> </tr> <tr> <td>Day: 70 Night: 59</td> <td>Day: 5 NE Night: 2 NW</td> <td>Day: Sunny, no clouds Night: No clouds</td> <td>Day: 29.99 Night: 29.97</td> <td>Day: 59% Night: 82%</td> </tr> </table> | | Weather | | | | | Temperature (°F): | Wind (MPH): | Sky: | Barometric Pressure: | Humidity: | Day: 70 Night: 59 | Day: 5 NE Night: 2 NW | Day: Sunny, no clouds Night: No clouds | Day: 29.99 Night: 29.97 | Day: 59% Night: 82% |
| Weather | | | | | | | | | | | | | | | | | | | | |
| Temperature (°F): | Wind (MPH): | Sky: | Barometric Pressure: | Humidity: | | | | | | | | | | | | | | | | |
| Day: 70 Night: 59 | Day: 5 NE Night: 2 NW | Day: Sunny, no clouds Night: No clouds | Day: 29.99 Night: 29.97 | Day: 59% Night: 82% | | | | | | | | | | | | | | | | |
| Sample No. | Time On | Time Off | Range (in dBA) | Notes | | | | | | | | | | | | | | | | |
| #3 (Meter Sample ID S176) | 10:41 | 11:01 | 35-45 | Day time noise measurement: -Lawn maintenance being done in the distance -Sounds of birds chirping in the brush -10:44 a.m. sound of garbage truck reversing -10:47 a.m. another garbage truck -10:51 a.m. birds chirping in the tree above where sound measurements being taken -10:56 and 11:01 a.m. sounds of car passing by | | | | | | | | | | | | | | | | |
| #7 (Meter Sample ID S180) | 23:20 | 23:40 | 35-45 | Night time noise measurement: -No more lawn maintenance or garbage truck activity -Sounds of frogs in the distance by the water -11:34 p.m. sound of resident's Air Conditioning system coming online | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |

Noise Measurement Data Form

| Client: | | Bowerman Power LFG, LLC | | Sampled by: Ernesto Betancourt II | Date: 6/20/2023 |
|-------------------------------|---------|-------------------------------------|-----------------|--|---------------------------------------|
| Contact/PM: | | Tina Darjazanie | | Notes: Area of sampling was obstructed by freeway, fencing, hills, and housing | |
| Site: | | 21 Small Grove, Irvine, CA 92618 | | | |
| Client No.: | | 1010-003-01 | | Calibrator Make/Model: Quest AC-300 Calibrator | Calibrator Cal Exp Date: 10/6/2023 |
| Sound Level Meter Make/Model: | | Quest SoundPro SE/DL Type 2 | | Sound Level Meter Serial Number: BIU070007 | Calibrator Serial Number: AC300013570 |
| Sample Location Name: | | Location 4 | | Sample Location Description: On the sidewalk of a cul-de-sac in front of a home, which is across the 241 freeway on the opposite side of the proposed RNG site. Location is obstructed by hills, foliage, and the freeway | |
| Microphone Height (ft): | | 4 | | | |
| Weighting: | A | Calibrated?: | Yes | Weather | |
| Response Time: | Slow | Calibration value: | 114 dB, 1000 Hz | Temperature (°F): | Wind (MPH): |
| | | | | Day: 68 | Day: 4 NE |
| | | | | Night: 60 | Night: 2 N |
| | | | | Day: Sunny, no clouds | Barometric Pressure: |
| | | | | Night: No clouds | Humidity: |
| | | | | Day: 29.98 | Day: 64% |
| | | | | Night: 29.97 | Night: 78% |
| Sample No. | Time On | Time Off | Range (in dBA) | Notes | |
| #4 (Meter Sample ID S175) | 9:54 | 10:14 | 30-45 | Day time noise measurement: -9:55 a.m. helicopter flew by overhead -9:56 a.m. sounds of birds chirping -Occasional sound spikes from cars passing by on the freeway | |
| #8 (Meter Sample ID S179) | 22:47 | 23:07 | 30-40 | Night time noise measurement: -Sounds of insects and occasional vehicles passing by on the freeway -10:47 p.m. sound of car door slamming | |
| | | | | | |
| | | | | | |

APPENDIX B – RAW NOISE METER DATA

Sample Location 1 Daytime

S172_BIU070007_20062023_084644: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|-------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 7:18:06 | 63.70 | 62.40 | 62.90 | 64.10 | 62.10 | 82.30 | 62.90 | 65.50 | 61.50 | 82.20 |
| 6/20/2023 7:19:06 | 63.60 | 62.50 | 62.90 | 64.50 | 62.00 | 80.60 | 62.90 | 67.40 | 61.20 | 80.70 |
| 6/20/2023 7:20:06 | 62.80 | 62.00 | 62.40 | 64.00 | 61.70 | 82.60 | 62.30 | 64.50 | 61.00 | 82.60 |
| 6/20/2023 7:21:06 | 63.40 | 62.30 | 62.80 | 64.50 | 61.80 | 80.70 | 62.80 | 66.70 | 61.10 | 80.70 |
| 6/20/2023 7:22:06 | 63.20 | 62.00 | 62.40 | 63.60 | 61.60 | 80.80 | 62.40 | 64.40 | 61.00 | 80.80 |
| 6/20/2023 7:23:06 | 63.30 | 62.10 | 63.30 | 74.60 | 61.70 | 92.90 | 63.00 | 79.00 | 60.90 | 92.90 |
| 6/20/2023 7:24:06 | 64.10 | 61.80 | 62.90 | 65.20 | 61.40 | 82.10 | 62.80 | 67.50 | 60.40 | 82.00 |
| 6/20/2023 7:25:06 | 63.30 | 62.40 | 62.90 | 63.70 | 61.90 | 82.70 | 62.80 | 64.70 | 61.10 | 82.70 |
| 6/20/2023 7:26:06 | 64.00 | 62.50 | 63.10 | 64.70 | 61.90 | 81.80 | 63.10 | 66.10 | 61.40 | 81.70 |
| 6/20/2023 7:27:06 | 64.20 | 62.90 | 63.60 | 64.80 | 62.30 | 81.40 | 63.50 | 66.00 | 61.60 | 81.30 |
| 6/20/2023 7:28:06 | 64.60 | 63.00 | 63.60 | 65.50 | 62.00 | 78.00 | 63.60 | 66.60 | 61.30 | 77.90 |
| 6/20/2023 7:29:06 | 65.20 | 62.40 | 63.60 | 65.90 | 62.00 | 83.40 | 63.50 | 67.90 | 61.40 | 83.40 |
| 6/20/2023 7:30:06 | 64.20 | 62.40 | 63.30 | 64.80 | 61.90 | 80.00 | 63.30 | 66.20 | 61.40 | 79.90 |
| 6/20/2023 7:31:06 | 64.00 | 62.40 | 63.10 | 65.70 | 61.90 | 80.50 | 63.10 | 66.90 | 61.00 | 80.50 |
| 6/20/2023 7:32:06 | 65.70 | 63.10 | 64.10 | 66.60 | 62.60 | 82.10 | 64.10 | 67.40 | 62.10 | 82.10 |
| 6/20/2023 7:33:06 | 63.70 | 62.40 | 62.90 | 64.10 | 62.00 | 78.40 | 62.80 | 64.80 | 61.30 | 78.40 |
| 6/20/2023 7:34:06 | 64.20 | 62.50 | 63.30 | 64.80 | 62.10 | 83.00 | 63.20 | 66.00 | 61.20 | 83.00 |
| 6/20/2023 7:35:06 | 63.80 | 62.50 | 63.10 | 64.70 | 62.10 | 83.10 | 63.00 | 65.20 | 61.30 | 83.10 |
| 6/20/2023 7:36:06 | 63.30 | 62.10 | 62.50 | 63.70 | 61.60 | 78.80 | 62.50 | 65.30 | 60.70 | 78.90 |
| 6/20/2023 7:37:06 | 62.40 | 61.40 | 61.80 | 62.40 | 61.00 | 75.90 | 61.80 | 63.10 | 60.40 | 75.80 |

S172_BIU070007_20062023_084644: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 65.50 | 64.90 | 64.50 | 64.40 | 64.20 | 64.10 | 64.00 | 64.00 | 63.90 |
| 10% | 63.90 | 63.80 | 63.80 | 63.70 | 63.70 | 63.60 | 63.60 | 63.60 | 63.50 | 63.50 |
| 20% | 63.50 | 63.40 | 63.40 | 63.40 | 63.40 | 63.30 | 63.30 | 63.30 | 63.20 | 63.20 |
| 30% | 63.20 | 63.20 | 63.10 | 63.10 | 63.10 | 63.00 | 63.00 | 63.00 | 63.00 | 63.00 |
| 40% | 62.90 | 62.90 | 62.90 | 62.90 | 62.90 | 62.80 | 62.80 | 62.80 | 62.80 | 62.80 |
| 50% | 62.70 | 62.70 | 62.70 | 62.70 | 62.70 | 62.70 | 62.60 | 62.60 | 62.60 | 62.60 |
| 60% | 62.60 | 62.50 | 62.50 | 62.50 | 62.50 | 62.50 | 62.40 | 62.40 | 62.40 | 62.40 |
| 70% | 62.40 | 62.30 | 62.30 | 62.30 | 62.30 | 62.30 | 62.20 | 62.20 | 62.20 | 62.20 |
| 80% | 62.20 | 62.20 | 62.10 | 62.10 | 62.10 | 62.10 | 62.10 | 62.00 | 62.00 | 62.00 |
| 90% | 62.00 | 61.90 | 61.90 | 61.90 | 61.80 | 61.80 | 61.70 | 61.60 | 61.50 | 61.40 |
| 100% | 60.90 | | | | | | | | | |

S172_BIU070007_20062023_084644: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 61.00 | 0.07 | 0.22 | 0.16 | 0.30 | 0.23 | 0.40 | 0.79 | 1.02 | 1.14 | 1.99 | 6.32 |
| 62.00 | 2.95 | 3.77 | 5.18 | 6.21 | 5.33 | 4.80 | 5.19 | 5.26 | 5.13 | 5.62 | 49.43 |
| 63.00 | 4.97 | 4.42 | 3.85 | 3.57 | 3.37 | 3.41 | 2.99 | 2.81 | 2.44 | 2.03 | 33.85 |
| 64.00 | 1.89 | 1.98 | 0.78 | 0.75 | 0.67 | 0.62 | 0.76 | 0.46 | 0.25 | 0.20 | 8.36 |
| 65.00 | 0.16 | 0.14 | 0.15 | 0.21 | 0.15 | 0.20 | 0.14 | 0.10 | 0.14 | 0.06 | 1.46 |
| 66.00 | 0.07 | 0.04 | 0.02 | 0.04 | 0.05 | 0.06 | 0.02 | 0.00 | 0.01 | 0.01 | 0.33 |
| 67.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |
| 68.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 69.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 70.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 71.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 72.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 73.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 74.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 61.80 | | 61.00 |
| Max | 64.10 | 74.60 | |

Sample Location 1 Nighttime

S178_BIU070007_20062023_223018: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|--------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 22:09:15 | 63.00 | 62.50 | 62.60 | 63.60 | 62.20 | 90.10 | 62.60 | 66.60 | 61.50 | 90.00 |
| 6/20/2023 22:10:15 | 62.70 | 62.40 | 62.50 | 62.80 | 62.00 | 78.30 | 62.40 | 63.30 | 61.60 | 78.40 |
| 6/20/2023 22:11:15 | 62.60 | 61.90 | 62.10 | 62.80 | 61.60 | 76.70 | 62.10 | 63.40 | 61.10 | 76.80 |
| 6/20/2023 22:12:15 | 62.50 | 61.90 | 62.20 | 62.70 | 61.60 | 79.40 | 62.10 | 63.40 | 61.00 | 79.40 |
| 6/20/2023 22:13:15 | 62.70 | 62.20 | 62.40 | 63.00 | 61.80 | 81.40 | 62.30 | 63.50 | 61.20 | 81.40 |
| 6/20/2023 22:14:15 | 62.90 | 62.30 | 62.50 | 63.10 | 62.00 | 76.80 | 62.40 | 63.50 | 61.10 | 76.80 |
| 6/20/2023 22:15:15 | 63.30 | 62.70 | 62.90 | 63.40 | 62.30 | 81.20 | 62.90 | 64.00 | 61.80 | 81.10 |
| 6/20/2023 22:16:15 | 63.50 | 62.70 | 63.00 | 63.80 | 62.30 | 78.20 | 62.90 | 64.40 | 61.80 | 78.00 |
| 6/20/2023 22:17:15 | 63.90 | 62.70 | 63.20 | 64.20 | 62.30 | 78.20 | 63.10 | 64.90 | 61.80 | 78.20 |
| 6/20/2023 22:18:15 | 63.00 | 62.30 | 62.60 | 63.20 | 62.10 | 79.60 | 62.50 | 63.80 | 61.50 | 79.60 |
| 6/20/2023 22:19:15 | 62.90 | 62.30 | 62.50 | 63.00 | 61.80 | 76.40 | 62.50 | 63.50 | 61.40 | 76.50 |
| 6/20/2023 22:20:15 | 63.10 | 62.50 | 62.70 | 63.10 | 61.90 | 76.90 | 62.70 | 63.70 | 61.40 | 76.90 |
| 6/20/2023 22:21:15 | 63.30 | 62.60 | 62.80 | 63.60 | 62.20 | 76.70 | 62.80 | 64.00 | 61.70 | 76.70 |
| 6/20/2023 22:22:15 | 63.40 | 62.60 | 62.90 | 63.80 | 62.30 | 76.50 | 62.80 | 64.40 | 61.80 | 76.30 |
| 6/20/2023 22:23:15 | 63.40 | 62.80 | 63.00 | 63.40 | 62.40 | 81.70 | 63.00 | 64.10 | 61.90 | 81.70 |
| 6/20/2023 22:24:15 | 64.40 | 63.00 | 63.60 | 64.90 | 62.70 | 82.40 | 63.60 | 65.80 | 62.30 | 82.30 |
| 6/20/2023 22:25:15 | 63.60 | 62.90 | 63.10 | 63.90 | 62.60 | 76.10 | 63.00 | 64.40 | 62.00 | 76.20 |
| 6/20/2023 22:26:15 | 64.10 | 62.70 | 63.30 | 64.30 | 62.40 | 77.40 | 63.20 | 65.30 | 61.80 | 77.40 |
| 6/20/2023 22:27:15 | 63.40 | 62.60 | 63.00 | 63.70 | 62.20 | 77.50 | 62.90 | 64.40 | 61.70 | 77.50 |
| 6/20/2023 22:28:15 | 63.50 | 62.80 | 63.00 | 63.70 | 62.40 | 77.70 | 63.00 | 64.30 | 61.90 | 77.60 |

S178_BIU070007_20062023_223018: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 64.10 | 63.90 | 63.80 | 63.60 | 63.50 | 63.40 | 63.40 | 63.30 | 63.30 |
| 10% | 63.20 | 63.20 | 63.20 | 63.10 | 63.10 | 63.10 | 63.10 | 63.10 | 63.00 | 63.00 |
| 20% | 63.00 | 63.00 | 63.00 | 62.90 | 62.90 | 62.90 | 62.90 | 62.90 | 62.90 | 62.90 |
| 30% | 62.90 | 62.80 | 62.80 | 62.80 | 62.80 | 62.80 | 62.80 | 62.80 | 62.80 | 62.70 |
| 40% | 62.70 | 62.70 | 62.70 | 62.70 | 62.70 | 62.70 | 62.70 | 62.70 | 62.60 | 62.60 |
| 50% | 62.60 | 62.60 | 62.60 | 62.60 | 62.60 | 62.60 | 62.60 | 62.60 | 62.50 | 62.50 |
| 60% | 62.50 | 62.50 | 62.50 | 62.50 | 62.50 | 62.50 | 62.40 | 62.40 | 62.40 | 62.40 |
| 70% | 62.40 | 62.40 | 62.40 | 62.40 | 62.40 | 62.30 | 62.30 | 62.30 | 62.30 | 62.30 |
| 80% | 62.30 | 62.30 | 62.30 | 62.20 | 62.20 | 62.20 | 62.20 | 62.20 | 62.20 | 62.10 |
| 90% | 62.10 | 62.10 | 62.10 | 62.10 | 62.00 | 62.00 | 61.90 | 61.90 | 61.80 | 61.70 |
| 100% | 61.50 | | | | | | | | | |

S178_BIU070007_20062023_223018: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 61.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.42 | 0.78 | 1.32 | 2.55 |
| 62.00 | 1.72 | 2.72 | 4.67 | 5.61 | 8.53 | 9.38 | 8.41 | 8.52 | 9.18 | 8.40 | 67.14 |
| 63.00 | 7.45 | 5.59 | 4.50 | 3.28 | 2.33 | 1.52 | 0.95 | 1.02 | 0.65 | 0.74 | 28.02 |
| 64.00 | 0.65 | 0.61 | 0.34 | 0.28 | 0.11 | 0.14 | 0.06 | 0.02 | 0.05 | 0.03 | 2.29 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 62.10 | | 61.60 |
| Max | 63.60 | 64.90 | |

Sample Location 2 Daytime

S174_BIU070007_20062023_093914: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|-------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 9:18:59 | 46.30 | 40.10 | 43.30 | 55.20 | 39.20 | 73.90 | 42.80 | 61.50 | 38.40 | 74.00 |
| 6/20/2023 9:19:59 | 42.00 | 40.10 | 41.00 | 44.10 | 38.70 | 78.60 | 40.90 | 51.80 | 37.30 | 78.60 |
| 6/20/2023 9:20:59 | 43.50 | 38.60 | 41.40 | 48.30 | 37.40 | 84.50 | 41.00 | 56.70 | 36.80 | 84.50 |
| 6/20/2023 9:21:59 | 47.00 | 39.60 | 43.30 | 49.50 | 37.40 | 82.40 | 42.80 | 54.30 | 36.70 | 82.40 |
| 6/20/2023 9:22:59 | 43.80 | 38.30 | 40.90 | 51.20 | 37.70 | 77.80 | 40.40 | 56.90 | 37.20 | 77.80 |
| 6/20/2023 9:23:59 | 46.10 | 39.70 | 43.20 | 49.70 | 38.90 | 72.00 | 42.90 | 54.40 | 38.10 | 72.20 |
| 6/20/2023 9:24:59 | 42.90 | 38.20 | 40.60 | 52.40 | 37.30 | 73.60 | 40.10 | 59.70 | 36.60 | 73.60 |
| 6/20/2023 9:25:59 | 48.30 | 40.20 | 45.40 | 54.00 | 39.70 | 73.50 | 45.10 | 57.90 | 37.50 | 73.20 |
| 6/20/2023 9:26:59 | 42.50 | 39.20 | 40.50 | 47.20 | 38.30 | 79.80 | 40.30 | 55.20 | 37.40 | 79.80 |
| 6/20/2023 9:27:59 | 47.10 | 38.90 | 42.60 | 53.10 | 38.40 | 75.40 | 41.90 | 60.30 | 37.20 | 75.40 |
| 6/20/2023 9:28:59 | 44.90 | 39.00 | 41.70 | 51.70 | 38.00 | 77.60 | 41.00 | 58.90 | 36.70 | 77.70 |
| 6/20/2023 9:29:59 | 42.50 | 38.30 | 40.00 | 46.00 | 37.40 | 70.90 | 39.80 | 50.20 | 36.60 | 71.00 |
| 6/20/2023 9:30:59 | 44.40 | 38.80 | 41.20 | 51.30 | 38.00 | 71.00 | 40.60 | 57.50 | 36.90 | 70.80 |
| 6/20/2023 9:31:59 | 45.20 | 38.80 | 41.70 | 50.00 | 37.70 | 70.30 | 41.20 | 55.70 | 36.70 | 70.30 |
| 6/20/2023 9:32:59 | 48.30 | 39.20 | 44.30 | 59.80 | 38.20 | 83.50 | 43.20 | 66.90 | 36.70 | 83.50 |
| 6/20/2023 9:33:59 | 47.90 | 39.20 | 43.70 | 55.50 | 38.10 | 76.60 | 42.40 | 63.60 | 36.70 | 76.60 |
| 6/20/2023 9:34:59 | 40.30 | 38.00 | 39.00 | 41.90 | 37.40 | 65.60 | 38.80 | 48.20 | 36.10 | 65.80 |
| 6/20/2023 9:35:59 | 44.90 | 38.90 | 41.30 | 51.10 | 37.90 | 74.50 | 40.90 | 58.10 | 36.30 | 74.30 |
| 6/20/2023 9:36:59 | 39.80 | 38.10 | 38.90 | 40.60 | 37.40 | 62.00 | 38.80 | 43.20 | 36.70 | 61.70 |
| 6/20/2023 9:37:59 | 42.60 | 37.70 | 39.80 | 49.20 | 37.20 | 76.30 | 39.40 | 55.80 | 36.50 | 76.40 |

S174_BIU070007_20062023_093914: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 50.70 | 49.10 | 48.20 | 47.50 | 47.10 | 46.80 | 46.30 | 46.00 | 45.70 |
| 10% | 45.40 | 45.10 | 44.90 | 44.60 | 44.20 | 43.90 | 43.60 | 43.30 | 43.10 | 42.90 |
| 20% | 42.70 | 42.60 | 42.50 | 42.40 | 42.30 | 42.10 | 42.00 | 41.90 | 41.80 | 41.70 |
| 30% | 41.60 | 41.50 | 41.40 | 41.30 | 41.20 | 41.10 | 41.00 | 41.00 | 40.90 | 40.80 |
| 40% | 40.70 | 40.70 | 40.60 | 40.50 | 40.50 | 40.40 | 40.30 | 40.30 | 40.20 | 40.20 |
| 50% | 40.10 | 40.10 | 40.00 | 39.90 | 39.90 | 39.90 | 39.80 | 39.80 | 39.80 | 39.70 |
| 60% | 39.70 | 39.70 | 39.60 | 39.60 | 39.50 | 39.50 | 39.50 | 39.40 | 39.40 | 39.30 |
| 70% | 39.30 | 39.30 | 39.20 | 39.20 | 39.20 | 39.10 | 39.10 | 39.00 | 39.00 | 38.90 |
| 80% | 38.90 | 38.90 | 38.80 | 38.80 | 38.70 | 38.70 | 38.60 | 38.60 | 38.50 | 38.40 |
| 90% | 38.40 | 38.30 | 38.20 | 38.10 | 38.10 | 38.00 | 37.90 | 37.80 | 37.70 | 37.50 |
| 100% | | 37.10 | | | | | | | | |

S174_BIU070007_20062023_093914: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 37.00 | 0.00 | 0.00 | 0.07 | 0.10 | 0.23 | 0.40 | 0.55 | 0.64 | 0.82 | 0.83 | 3.64 |
| 38.00 | 1.14 | 1.15 | 1.32 | 1.19 | 1.24 | 1.35 | 1.65 | 1.82 | 2.06 | 2.18 | 15.10 |
| 39.00 | 2.29 | 2.35 | 2.45 | 2.64 | 2.66 | 2.60 | 2.58 | 2.61 | 2.85 | 2.82 | 25.84 |
| 40.00 | 2.81 | 1.42 | 1.95 | 1.79 | 1.67 | 1.63 | 1.45 | 1.37 | 1.41 | 1.29 | 16.77 |
| 41.00 | 1.36 | 1.34 | 1.43 | 1.11 | 1.04 | 0.93 | 1.00 | 0.95 | 1.01 | 0.96 | 11.12 |
| 42.00 | 0.93 | 0.86 | 0.87 | 0.76 | 0.92 | 0.91 | 0.90 | 0.83 | 0.71 | 0.66 | 8.34 |
| 43.00 | 0.67 | 0.24 | 0.55 | 0.44 | 0.41 | 0.37 | 0.40 | 0.38 | 0.32 | 0.34 | 4.13 |
| 44.00 | 0.29 | 0.29 | 0.30 | 0.28 | 0.29 | 0.27 | 0.27 | 0.31 | 0.33 | 0.38 | 3.02 |
| 45.00 | 0.42 | 0.38 | 0.33 | 0.32 | 0.35 | 0.33 | 0.36 | 0.35 | 0.38 | 0.32 | 3.53 |
| 46.00 | 0.46 | 0.29 | 0.31 | 0.25 | 0.28 | 0.24 | 0.23 | 0.21 | 0.22 | 0.25 | 2.73 |
| 47.00 | 0.29 | 0.26 | 0.31 | 0.27 | 0.18 | 0.22 | 0.24 | 0.20 | 0.16 | 0.14 | 2.27 |
| 48.00 | 0.16 | 0.14 | 0.15 | 0.13 | 0.10 | 0.13 | 0.11 | 0.10 | 0.11 | 0.11 | 1.25 |
| 49.00 | 0.12 | 0.08 | 0.10 | 0.08 | 0.08 | 0.10 | 0.08 | 0.07 | 0.07 | 0.07 | 0.84 |
| 50.00 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.05 | 0.04 | 0.47 |
| 51.00 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.03 | 0.33 |
| 52.00 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.23 |
| 53.00 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.14 |
| 54.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.08 |
| 55.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| 56.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 57.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.04 |
| 58.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 59.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.04 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 38.90 | | 37.20 |
| Max | 45.40 | 59.80 | |

Sample Location 2 Nighttime

S181_BIU070007_21062023_001027: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|--------------------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|
| 6/20/2023 23:51:00 | 42.30 | 36.10 | 41.00 | 59.60 | 35.40 | 81.30 | 39.30 | 65.80 | 34.80 | 81.30 |
| 6/20/2023 23:52:00 | 40.30 | 36.30 | 38.20 | 42.10 | 35.50 | 62.40 | 38.20 | 43.70 | 35.00 | 62.50 |
| 6/20/2023 23:53:00 | 38.00 | 35.70 | 36.70 | 39.60 | 35.40 | 65.50 | 36.50 | 43.00 | 34.90 | 65.10 |
| 6/20/2023 23:54:00 | 40.30 | 35.50 | 37.30 | 43.20 | 35.10 | 75.30 | 37.10 | 48.90 | 34.70 | 75.30 |
| 6/20/2023 23:55:00 | 37.10 | 35.60 | 36.30 | 39.00 | 35.20 | 63.90 | 36.20 | 42.30 | 34.60 | 64.20 |
| 6/20/2023 23:56:00 | 37.10 | 35.50 | 36.50 | 46.50 | 35.20 | 82.70 | 36.20 | 54.80 | 34.80 | 82.70 |
| 6/20/2023 23:57:00 | 38.10 | 35.30 | 36.20 | 40.40 | 35.10 | 63.70 | 36.10 | 41.90 | 34.60 | 63.80 |
| 6/20/2023 23:58:00 | 38.90 | 35.20 | 36.80 | 46.10 | 34.90 | 71.00 | 36.50 | 52.60 | 34.60 | 70.90 |
| 6/20/2023 23:59:00 | 38.00 | 35.30 | 36.30 | 42.80 | 35.00 | 61.50 | 36.20 | 48.70 | 34.70 | 61.10 |
| 6/21/2023 0:00:00 | 37.00 | 35.40 | 35.80 | 38.60 | 35.10 | 53.70 | 35.70 | 38.50 | 34.70 | 54.60 |
| 6/21/2023 0:01:00 | 37.00 | 35.90 | 36.20 | 38.40 | 35.40 | 52.90 | 36.10 | 39.10 | 34.90 | 51.70 |
| 6/21/2023 0:02:00 | 38.70 | 35.60 | 36.80 | 39.70 | 35.40 | 52.70 | 36.80 | 40.40 | 35.00 | 52.60 |
| 6/21/2023 0:03:00 | 44.80 | 36.90 | 40.60 | 50.50 | 36.20 | 76.20 | 40.50 | 53.70 | 35.70 | 76.10 |
| 6/21/2023 0:04:00 | 78.90 | 42.40 | 72.80 | 82.60 | 37.00 | 100.80 | 70.30 | 87.20 | 35.40 | 100.70 |
| 6/21/2023 0:05:00 | 70.70 | 38.60 | 64.30 | 78.10 | 36.60 | 97.40 | 61.30 | 84.30 | 34.90 | 97.40 |
| 6/21/2023 0:06:00 | 47.60 | 35.60 | 41.60 | 55.00 | 35.00 | 86.60 | 40.00 | 62.80 | 34.70 | 86.60 |
| 6/21/2023 0:07:00 | 44.70 | 37.10 | 40.40 | 47.20 | 35.50 | 68.80 | 40.30 | 48.40 | 35.40 | 68.70 |
| 6/21/2023 0:08:00 | 41.40 | 35.50 | 38.60 | 42.80 | 35.20 | 57.50 | 38.40 | 43.60 | 34.70 | 57.70 |
| 6/21/2023 0:09:00 | 37.90 | 35.40 | 36.50 | 38.90 | 35.10 | 65.10 | 36.40 | 40.70 | 34.70 | 64.40 |
| 6/21/2023 0:10:00 | 39.80 | 36.10 | 38.00 | 40.00 | 35.60 | 60.20 | 37.80 | 40.90 | 35.10 | 59.90 |

S181_BIU070007_21062023_001027: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 76.50 | 73.50 | 71.10 | 69.00 | 66.30 | 62.20 | 57.00 | 50.60 | 47.20 |
| 10% | 45.40 | 43.90 | 42.60 | 41.90 | 41.30 | 40.80 | 40.30 | 40.00 | 39.80 | 39.60 |
| 20% | 39.50 | 39.30 | 39.20 | 39.10 | 39.00 | 38.80 | 38.70 | 38.60 | 38.50 | 38.30 |
| 30% | 38.20 | 38.10 | 38.00 | 37.90 | 37.80 | 37.70 | 37.60 | 37.50 | 37.40 | 37.30 |
| 40% | 37.20 | 37.10 | 37.10 | 37.00 | 36.90 | 36.90 | 36.80 | 36.80 | 36.70 | 36.60 |
| 50% | 36.60 | 36.50 | 36.50 | 36.40 | 36.40 | 36.30 | 36.30 | 36.20 | 36.20 | 36.20 |
| 60% | 36.10 | 36.10 | 36.10 | 36.00 | 36.00 | 36.00 | 35.90 | 35.90 | 35.90 | 35.90 |
| 70% | 35.80 | 35.80 | 35.80 | 35.70 | 35.70 | 35.70 | 35.60 | 35.60 | 35.60 | 35.60 |
| 80% | 35.50 | 35.50 | 35.50 | 35.50 | 35.40 | 35.40 | 35.40 | 35.40 | 35.40 | 35.30 |
| 90% | 35.30 | 35.30 | 35.20 | 35.20 | 35.20 | 35.20 | 35.10 | 35.10 | 35.10 | 35.00 |
| 100% | 34.80 | | | | | | | | | |

S181_BIU070007_21062023_001027: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 34.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.05 |
| 35.00 | 0.26 | 0.90 | 2.95 | 4.07 | 3.43 | 4.68 | 4.23 | 4.13 | 2.92 | 3.26 | 30.83 |
| 36.00 | 3.38 | 3.16 | 2.96 | 2.65 | 2.31 | 2.01 | 1.68 | 2.15 | 1.75 | 1.97 | 24.01 |
| 37.00 | 1.92 | 1.13 | 1.37 | 1.16 | 1.17 | 1.08 | 1.10 | 1.10 | 0.98 | 0.99 | 12.01 |
| 38.00 | 0.86 | 0.88 | 0.96 | 0.82 | 0.77 | 0.59 | 0.75 | 0.86 | 0.94 | 0.69 | 8.11 |
| 39.00 | 0.82 | 0.67 | 0.76 | 0.91 | 0.88 | 0.80 | 0.70 | 0.61 | 0.59 | 0.63 | 7.37 |
| 40.00 | 0.55 | 0.24 | 0.35 | 0.28 | 0.32 | 0.24 | 0.24 | 0.21 | 0.18 | 0.17 | 2.77 |
| 41.00 | 0.18 | 0.17 | 0.20 | 0.17 | 0.17 | 0.14 | 0.13 | 0.15 | 0.18 | 0.18 | 1.68 |
| 42.00 | 0.20 | 0.17 | 0.13 | 0.11 | 0.12 | 0.13 | 0.17 | 0.15 | 0.12 | 0.10 | 1.41 |
| 43.00 | 0.08 | 0.03 | 0.07 | 0.08 | 0.06 | 0.06 | 0.07 | 0.09 | 0.10 | 0.07 | 0.73 |
| 44.00 | 0.06 | 0.07 | 0.07 | 0.05 | 0.10 | 0.10 | 0.09 | 0.06 | 0.05 | 0.05 | 0.70 |
| 45.00 | 0.06 | 0.06 | 0.08 | 0.07 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 0.58 |
| 46.00 | 0.11 | 0.09 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.04 | 0.05 | 0.56 |
| 47.00 | 0.06 | 0.08 | 0.05 | 0.03 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.40 |
| 48.00 | 0.03 | 0.03 | 0.04 | 0.04 | 0.03 | 0.04 | 0.04 | 0.04 | 0.03 | 0.04 | 0.36 |
| 49.00 | 0.03 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.22 |
| 50.00 | 0.02 | 0.04 | 0.05 | 0.03 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.26 |
| 51.00 | 0.02 | 0.04 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.21 |
| 52.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.13 |
| 53.00 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.14 |
| 54.00 | 0.01 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.02 | 0.02 | 0.01 | 0.02 | 0.16 |
| 55.00 | 0.02 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.15 |
| 56.00 | 0.02 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 | 0.14 |
| 57.00 | 0.02 | 0.01 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.18 |
| 58.00 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.17 |
| 59.00 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.20 |
| 60.00 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.17 |
| 61.00 | 0.02 | 0.03 | 0.01 | 0.02 | 0.02 | 0.03 | 0.02 | 0.03 | 0.02 | 0.03 | 0.23 |
| 62.00 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.20 |
| 63.00 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.21 |
| 64.00 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.25 |
| 65.00 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.04 | 0.02 | 0.03 | 0.02 | 0.04 | 0.27 |
| 66.00 | 0.03 | 0.04 | 0.03 | 0.04 | 0.04 | 0.04 | 0.03 | 0.04 | 0.04 | 0.04 | 0.35 |
| 67.00 | 0.04 | 0.05 | 0.02 | 0.05 | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.36 |
| 68.00 | 0.03 | 0.03 | 0.04 | 0.03 | 0.04 | 0.03 | 0.04 | 0.03 | 0.04 | 0.03 | 0.34 |
| 69.00 | 0.05 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.05 | 0.06 | 0.49 |
| 70.00 | 0.06 | 0.05 | 0.04 | 0.05 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.49 |
| 71.00 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 | 0.41 |
| 72.00 | 0.04 | 0.05 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.04 | 0.05 | 0.42 |
| 73.00 | 0.06 | 0.05 | 0.03 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.03 | 0.45 |
| 74.00 | 0.04 | 0.03 | 0.04 | 0.04 | 0.03 | 0.04 | 0.04 | 0.05 | 0.03 | 0.04 | 0.38 |
| 75.00 | 0.03 | 0.03 | 0.03 | 0.04 | 0.02 | 0.04 | 0.03 | 0.03 | 0.02 | 0.03 | 0.28 |
| 76.00 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.26 |
| 77.00 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 | 0.03 | 0.02 | 0.25 |
| 78.00 | 0.01 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.18 |
| 79.00 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.01 | 0.01 | 0.01 | 0.21 |
| 80.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.08 |
| 81.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.02 | 0.11 |
| 82.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.08 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 35.80 | | 34.90 |
| Max | 41.60 | 59.60 | |

Notes:

Dog barking between 12:01 am and 12:05 am.

The sound levels for this time period of measurement (highlighted in orange) have been excluded from the analysis due to dog barking in close proximity of the meter.

Sample Location 3 Daytime

S176_BIU070007_20062023_110323: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|--------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 10:43:22 | 46.20 | 43.40 | 44.60 | 47.50 | 42.20 | 62.80 | 44.50 | 49.60 | 41.20 | 63.40 |
| 6/20/2023 10:44:22 | 47.10 | 43.90 | 45.60 | 53.10 | 42.70 | 84.80 | 45.40 | 59.40 | 42.00 | 84.80 |
| 6/20/2023 10:45:22 | 47.90 | 44.00 | 46.10 | 49.10 | 43.50 | 73.60 | 45.90 | 52.30 | 42.70 | 73.70 |
| 6/20/2023 10:46:22 | 47.40 | 44.20 | 45.90 | 48.90 | 43.80 | 75.40 | 45.80 | 52.10 | 43.00 | 75.40 |
| 6/20/2023 10:47:22 | 48.20 | 45.10 | 46.80 | 53.00 | 44.20 | 74.00 | 46.70 | 57.20 | 42.80 | 74.00 |
| 6/20/2023 10:48:22 | 57.40 | 46.50 | 52.80 | 65.30 | 45.60 | 79.50 | 52.40 | 66.50 | 44.30 | 79.50 |
| 6/20/2023 10:49:22 | 51.70 | 46.40 | 48.80 | 54.90 | 45.70 | 74.80 | 48.40 | 58.80 | 45.10 | 74.80 |
| 6/20/2023 10:50:22 | 49.30 | 45.60 | 47.30 | 51.40 | 44.90 | 81.10 | 47.20 | 56.60 | 43.90 | 81.10 |
| 6/20/2023 10:51:22 | 47.80 | 45.20 | 46.40 | 48.70 | 44.40 | 73.70 | 46.30 | 50.40 | 43.50 | 73.70 |
| 6/20/2023 10:52:22 | 49.20 | 45.80 | 47.20 | 55.00 | 44.90 | 74.20 | 47.10 | 59.50 | 43.50 | 74.00 |
| 6/20/2023 10:53:22 | 50.30 | 46.80 | 48.50 | 52.40 | 46.20 | 71.60 | 48.40 | 56.60 | 44.90 | 71.60 |
| 6/20/2023 10:54:22 | 49.10 | 46.80 | 47.90 | 50.90 | 45.70 | 70.40 | 47.60 | 56.30 | 44.50 | 70.40 |
| 6/20/2023 10:55:22 | 48.60 | 44.90 | 46.80 | 51.70 | 44.20 | 72.00 | 46.60 | 55.90 | 42.60 | 71.70 |
| 6/20/2023 10:56:22 | 46.30 | 43.90 | 44.90 | 48.50 | 43.20 | 74.30 | 44.80 | 51.30 | 42.20 | 74.40 |
| 6/20/2023 10:57:22 | 50.20 | 44.80 | 47.10 | 56.30 | 43.90 | 74.70 | 47.00 | 59.00 | 43.00 | 74.70 |
| 6/20/2023 10:58:22 | 49.40 | 44.30 | 47.10 | 54.70 | 43.80 | 77.20 | 47.00 | 55.70 | 42.90 | 77.20 |
| 6/20/2023 10:59:22 | 47.40 | 45.00 | 46.10 | 49.00 | 44.10 | 67.80 | 46.00 | 52.50 | 43.20 | 67.80 |
| 6/20/2023 11:00:22 | 47.50 | 45.50 | 46.40 | 47.80 | 44.60 | 70.90 | 46.30 | 50.40 | 43.60 | 71.10 |
| 6/20/2023 11:01:22 | 46.70 | 45.40 | 46.10 | 47.30 | 44.80 | 65.50 | 46.00 | 48.70 | 44.20 | 65.60 |
| 6/20/2023 11:02:22 | 47.70 | 44.20 | 45.70 | 49.60 | 43.20 | 70.70 | 45.70 | 50.20 | 42.50 | 70.70 |

S176_BIU070007_20062023_110323: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 54.50 | 52.70 | 51.70 | 51.00 | 50.50 | 50.00 | 49.60 | 49.30 | 49.10 |
| 10% | 48.90 | 48.70 | 48.60 | 48.50 | 48.30 | 48.20 | 48.10 | 48.00 | 47.90 | 47.80 |
| 20% | 47.70 | 47.70 | 47.60 | 47.50 | 47.40 | 47.40 | 47.30 | 47.20 | 47.20 | 47.10 |
| 30% | 47.10 | 47.00 | 47.00 | 46.90 | 46.90 | 46.80 | 46.80 | 46.70 | 46.70 | 46.60 |
| 40% | 46.60 | 46.50 | 46.50 | 46.50 | 46.40 | 46.40 | 46.30 | 46.30 | 46.20 | 46.20 |
| 50% | 46.20 | 46.10 | 46.10 | 46.00 | 46.00 | 45.90 | 45.90 | 45.80 | 45.80 | 45.80 |
| 60% | 45.80 | 45.70 | 45.70 | 45.70 | 45.60 | 45.60 | 45.60 | 45.50 | 45.50 | 45.50 |
| 70% | 45.40 | 45.40 | 45.30 | 45.30 | 45.30 | 45.20 | 45.20 | 45.10 | 45.10 | 45.00 |
| 80% | 45.00 | 44.90 | 44.80 | 44.80 | 44.70 | 44.60 | 44.60 | 44.50 | 44.40 | 44.30 |
| 90% | 44.20 | 44.10 | 44.10 | 44.00 | 43.90 | 43.90 | 43.80 | 43.70 | 43.60 | 43.30 |
| 100% | 42.10 | | | | | | | | | |

S176_BIU070007_20062023_110323: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 42.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01 | 0.03 | 0.03 | 0.05 | 0.07 | 0.03 | 0.24 |
| 43.00 | 0.05 | 0.05 | 0.22 | 0.25 | 0.31 | 0.34 | 0.51 | 0.62 | 0.75 | 1.20 | 4.30 |
| 44.00 | 1.47 | 1.41 | 1.61 | 1.21 | 1.23 | 0.94 | 1.19 | 1.69 | 1.61 | 1.29 | 13.64 |
| 45.00 | 1.48 | 1.73 | 2.12 | 2.34 | 2.35 | 2.61 | 2.55 | 2.69 | 3.02 | 3.04 | 23.92 |
| 46.00 | 3.10 | 2.07 | 2.51 | 2.30 | 2.40 | 2.32 | 2.28 | 2.13 | 2.19 | 2.21 | 23.49 |
| 47.00 | 1.96 | 1.81 | 1.90 | 1.77 | 1.55 | 1.56 | 1.43 | 1.36 | 1.25 | 1.13 | 15.73 |
| 48.00 | 1.18 | 0.97 | 0.88 | 0.91 | 0.85 | 0.86 | 0.77 | 0.76 | 0.77 | 0.68 | 8.63 |
| 49.00 | 0.63 | 0.35 | 0.43 | 0.45 | 0.37 | 0.42 | 0.33 | 0.27 | 0.25 | 0.22 | 3.72 |
| 50.00 | 0.22 | 0.22 | 0.23 | 0.20 | 0.23 | 0.23 | 0.20 | 0.18 | 0.18 | 0.20 | 2.07 |
| 51.00 | 0.14 | 0.14 | 0.12 | 0.11 | 0.13 | 0.13 | 0.16 | 0.16 | 0.18 | 0.18 | 1.45 |
| 52.00 | 0.14 | 0.09 | 0.09 | 0.10 | 0.06 | 0.07 | 0.11 | 0.10 | 0.10 | 0.08 | 0.93 |
| 53.00 | 0.06 | 0.05 | 0.06 | 0.05 | 0.05 | 0.05 | 0.04 | 0.06 | 0.05 | 0.05 | 0.53 |
| 54.00 | 0.05 | 0.05 | 0.06 | 0.06 | 0.05 | 0.04 | 0.05 | 0.06 | 0.04 | 0.03 | 0.49 |
| 55.00 | 0.02 | 0.02 | 0.03 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.19 |
| 56.00 | 0.02 | 0.02 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.13 |
| 57.00 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.11 |
| 58.00 | 0.02 | 0.02 | 0.02 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 |
| 59.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 60.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 61.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 62.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.03 |
| 63.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.06 |
| 64.00 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.11 |
| 65.00 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 44.60 | | 42.20 |
| Max | 52.80 | 65.30 | |

Sample Location 3 Nighttime

S180_BIU070007_20062023_234148: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|--------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 23:21:59 | 44.40 | 37.80 | 40.90 | 46.20 | 37.40 | 67.40 | 40.90 | 49.70 | 36.80 | 67.30 |
| 6/20/2023 23:22:59 | 43.70 | 38.20 | 40.50 | 45.00 | 37.40 | 75.30 | 40.30 | 50.80 | 35.70 | 75.50 |
| 6/20/2023 23:23:59 | 41.10 | 37.90 | 39.30 | 42.40 | 37.30 | 64.60 | 39.10 | 44.10 | 36.50 | 64.00 |
| 6/20/2023 23:24:59 | 40.40 | 36.10 | 38.20 | 42.20 | 35.80 | 64.80 | 38.10 | 44.60 | 35.20 | 64.40 |
| 6/20/2023 23:25:59 | 39.40 | 36.40 | 37.70 | 41.30 | 35.70 | 68.40 | 37.60 | 43.10 | 35.40 | 68.20 |
| 6/20/2023 23:26:59 | 41.20 | 35.60 | 38.60 | 42.00 | 35.30 | 55.30 | 38.60 | 43.60 | 34.90 | 56.20 |
| 6/20/2023 23:27:59 | 38.60 | 35.60 | 36.90 | 39.20 | 35.20 | 56.20 | 36.90 | 40.10 | 34.80 | 56.80 |
| 6/20/2023 23:28:59 | 43.50 | 36.00 | 39.90 | 45.70 | 35.50 | 61.80 | 39.90 | 47.50 | 35.00 | 61.90 |
| 6/20/2023 23:29:59 | 40.30 | 35.70 | 37.60 | 41.20 | 35.20 | 62.70 | 37.50 | 42.30 | 34.80 | 62.60 |
| 6/20/2023 23:30:59 | 41.70 | 36.80 | 39.80 | 42.20 | 36.20 | 59.20 | 39.60 | 43.00 | 35.70 | 59.80 |
| 6/20/2023 23:31:59 | 39.20 | 35.70 | 37.30 | 40.10 | 35.00 | 66.50 | 37.20 | 42.50 | 34.70 | 66.30 |
| 6/20/2023 23:32:59 | 37.30 | 35.20 | 36.10 | 40.50 | 34.80 | 56.90 | 36.00 | 43.60 | 34.50 | 56.50 |
| 6/20/2023 23:33:59 | 38.30 | 35.60 | 36.90 | 40.10 | 35.40 | 56.50 | 36.80 | 41.50 | 34.90 | 56.60 |
| 6/20/2023 23:34:59 | 39.70 | 35.30 | 37.00 | 40.00 | 35.10 | 66.10 | 37.00 | 42.50 | 34.60 | 65.60 |
| 6/20/2023 23:35:59 | 41.30 | 39.30 | 40.20 | 45.30 | 38.80 | 77.80 | 40.00 | 53.00 | 37.90 | 77.70 |
| 6/20/2023 23:36:59 | 40.50 | 37.20 | 38.90 | 41.00 | 36.80 | 64.90 | 38.80 | 44.30 | 36.40 | 64.90 |
| 6/20/2023 23:37:59 | 39.50 | 36.90 | 37.90 | 40.50 | 36.60 | 69.80 | 37.90 | 46.80 | 36.30 | 69.80 |
| 6/20/2023 23:38:59 | 39.70 | 37.00 | 38.20 | 40.90 | 36.80 | 65.60 | 38.10 | 44.40 | 36.50 | 65.70 |
| 6/20/2023 23:39:59 | 39.90 | 37.80 | 38.70 | 40.40 | 37.20 | 60.50 | 38.60 | 41.40 | 36.60 | 60.50 |
| 6/20/2023 23:40:59 | 43.60 | 39.10 | 41.80 | 50.70 | 38.10 | 81.90 | 41.50 | 59.10 | 37.50 | 81.80 |

S180_BIU070007_20062023_234148: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 44.50 | 43.60 | 43.10 | 42.70 | 42.20 | 41.90 | 41.70 | 41.50 | 41.30 |
| 10% | 41.10 | 40.90 | 40.70 | 40.60 | 40.50 | 40.40 | 40.30 | 40.20 | 40.10 | 40.00 |
| 20% | 39.90 | 39.80 | 39.80 | 39.70 | 39.70 | 39.60 | 39.60 | 39.50 | 39.50 | 39.40 |
| 30% | 39.30 | 39.20 | 39.20 | 39.10 | 39.00 | 39.00 | 38.90 | 38.80 | 38.80 | 38.70 |
| 40% | 38.70 | 38.60 | 38.60 | 38.50 | 38.50 | 38.40 | 38.40 | 38.30 | 38.20 | 38.20 |
| 50% | 38.10 | 38.00 | 38.00 | 37.90 | 37.90 | 37.80 | 37.80 | 37.70 | 37.70 | 37.60 |
| 60% | 37.60 | 37.50 | 37.50 | 37.40 | 37.40 | 37.30 | 37.30 | 37.20 | 37.20 | 37.10 |
| 70% | 37.00 | 36.90 | 36.90 | 36.80 | 36.80 | 36.70 | 36.70 | 36.60 | 36.60 | 36.50 |
| 80% | 36.40 | 36.30 | 36.30 | 36.20 | 36.10 | 36.00 | 36.00 | 35.90 | 35.80 | 35.80 |
| 90% | 35.70 | 35.60 | 35.50 | 35.50 | 35.40 | 35.40 | 35.30 | 35.30 | 35.20 | 35.10 |
| 100% | 34.70 | | | | | | | | | |

S180_BIU070007_20062023_234148: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 34.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.11 | 0.12 |
| 35.00 | 0.11 | 0.56 | 1.13 | 1.00 | 1.49 | 2.08 | 1.72 | 1.31 | 1.42 | 1.55 | 12.38 |
| 36.00 | 1.41 | 1.59 | 1.18 | 1.29 | 1.21 | 1.37 | 1.31 | 1.81 | 1.66 | 2.08 | 14.91 |
| 37.00 | 1.86 | 1.18 | 1.43 | 1.41 | 1.73 | 2.06 | 2.08 | 2.03 | 2.05 | 2.20 | 18.03 |
| 38.00 | 2.16 | 1.81 | 1.47 | 1.45 | 1.64 | 1.74 | 2.10 | 2.13 | 1.93 | 1.58 | 18.01 |
| 39.00 | 1.49 | 1.41 | 1.32 | 1.41 | 1.31 | 1.44 | 1.74 | 2.30 | 1.75 | 1.56 | 15.74 |
| 40.00 | 1.69 | 0.79 | 1.07 | 1.00 | 1.16 | 0.85 | 0.87 | 0.96 | 0.65 | 0.64 | 9.67 |
| 41.00 | 0.57 | 0.38 | 0.39 | 0.45 | 0.61 | 0.51 | 0.64 | 0.57 | 0.53 | 0.50 | 5.13 |
| 42.00 | 0.33 | 0.29 | 0.36 | 0.27 | 0.20 | 0.17 | 0.13 | 0.19 | 0.23 | 0.21 | 2.37 |
| 43.00 | 0.29 | 0.13 | 0.32 | 0.21 | 0.21 | 0.22 | 0.21 | 0.15 | 0.17 | 0.12 | 2.04 |
| 44.00 | 0.08 | 0.10 | 0.10 | 0.06 | 0.10 | 0.15 | 0.08 | 0.07 | 0.08 | 0.09 | 0.92 |
| 45.00 | 0.05 | 0.03 | 0.04 | 0.06 | 0.09 | 0.10 | 0.04 | 0.03 | 0.03 | 0.02 | 0.50 |
| 46.00 | 0.02 | 0.01 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 |
| 47.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 48.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 49.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| 50.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 36.10 | | 34.80 |
| Max | 41.80 | 50.70 | |

Sample Location 4 Daytime

S175_BIU070007_20062023_101511: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|--------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 9:55:33 | 61.80 | 47.80 | 57.20 | 62.70 | 44.70 | 82.80 | 56.80 | 63.60 | 42.10 | 82.70 |
| 6/20/2023 9:56:33 | 55.90 | 43.10 | 50.30 | 57.00 | 41.60 | 82.00 | 49.90 | 58.70 | 40.00 | 81.90 |
| 6/20/2023 9:57:33 | 55.10 | 42.70 | 48.80 | 59.70 | 41.00 | 79.90 | 47.80 | 64.40 | 39.80 | 79.90 |
| 6/20/2023 9:58:33 | 44.20 | 41.30 | 42.90 | 49.00 | 40.30 | 73.90 | 42.70 | 55.70 | 39.60 | 73.90 |
| 6/20/2023 9:59:33 | 47.10 | 43.00 | 45.20 | 49.20 | 41.80 | 79.50 | 45.10 | 53.00 | 40.10 | 79.50 |
| 6/20/2023 10:00:33 | 46.70 | 41.90 | 44.20 | 48.50 | 41.10 | 73.10 | 43.90 | 51.00 | 39.40 | 73.10 |
| 6/20/2023 10:01:33 | 44.40 | 40.00 | 42.00 | 46.20 | 39.50 | 62.30 | 41.80 | 48.80 | 38.20 | 62.30 |
| 6/20/2023 10:02:33 | 46.80 | 42.00 | 44.40 | 48.60 | 39.50 | 73.30 | 44.30 | 50.80 | 38.30 | 73.30 |
| 6/20/2023 10:03:33 | 44.40 | 40.00 | 42.60 | 47.10 | 39.30 | 74.40 | 42.50 | 49.50 | 38.70 | 74.40 |
| 6/20/2023 10:04:33 | 52.10 | 42.20 | 46.60 | 54.60 | 40.30 | 73.40 | 46.50 | 55.90 | 39.30 | 73.10 |
| 6/20/2023 10:05:33 | 46.30 | 42.80 | 44.60 | 50.50 | 42.20 | 72.60 | 44.50 | 57.20 | 40.60 | 72.60 |
| 6/20/2023 10:06:33 | 49.20 | 44.30 | 46.30 | 53.10 | 43.50 | 67.80 | 46.20 | 55.90 | 41.60 | 67.70 |
| 6/20/2023 10:07:33 | 44.10 | 41.60 | 42.80 | 46.30 | 41.10 | 75.60 | 42.70 | 52.80 | 40.30 | 75.70 |
| 6/20/2023 10:08:33 | 49.10 | 42.30 | 46.10 | 52.50 | 41.00 | 72.20 | 45.80 | 59.30 | 40.40 | 72.10 |
| 6/20/2023 10:09:33 | 50.10 | 40.80 | 46.80 | 53.40 | 39.30 | 70.30 | 46.20 | 58.30 | 38.10 | 70.20 |
| 6/20/2023 10:10:33 | 51.40 | 41.60 | 47.80 | 53.10 | 40.50 | 72.80 | 47.40 | 57.80 | 39.50 | 72.70 |
| 6/20/2023 10:11:33 | 51.50 | 42.10 | 47.90 | 57.50 | 41.50 | 74.10 | 47.40 | 61.50 | 40.00 | 74.00 |
| 6/20/2023 10:12:33 | 48.80 | 42.40 | 45.90 | 52.40 | 41.20 | 72.70 | 45.70 | 55.60 | 40.00 | 72.80 |
| 6/20/2023 10:13:33 | 44.90 | 40.60 | 42.80 | 47.20 | 39.60 | 65.90 | 42.60 | 53.10 | 38.40 | 66.10 |
| 6/20/2023 10:14:33 | 46.60 | 41.50 | 44.10 | 49.90 | 40.60 | 81.70 | 43.80 | 55.80 | 39.00 | 81.70 |

S175_BIU070007_20062023_101511: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 59.90 | 58.10 | 56.60 | 55.60 | 54.50 | 53.00 | 52.30 | 51.80 | 51.10 |
| 10% | 50.60 | 50.10 | 49.70 | 49.30 | 49.00 | 48.70 | 48.50 | 48.20 | 47.90 | 47.70 |
| 20% | 47.50 | 47.20 | 47.00 | 46.90 | 46.70 | 46.60 | 46.40 | 46.30 | 46.20 | 46.10 |
| 30% | 46.00 | 45.90 | 45.80 | 45.70 | 45.60 | 45.50 | 45.50 | 45.40 | 45.30 | 45.20 |
| 40% | 45.10 | 45.00 | 44.90 | 44.90 | 44.80 | 44.70 | 44.60 | 44.50 | 44.50 | 44.40 |
| 50% | 44.30 | 44.20 | 44.20 | 44.10 | 44.00 | 44.00 | 43.90 | 43.80 | 43.80 | 43.70 |
| 60% | 43.60 | 43.60 | 43.50 | 43.40 | 43.40 | 43.30 | 43.20 | 43.10 | 43.10 | 42.90 |
| 70% | 42.90 | 42.80 | 42.70 | 42.70 | 42.60 | 42.50 | 42.50 | 42.40 | 42.40 | 42.30 |
| 80% | 42.20 | 42.10 | 42.00 | 42.00 | 41.90 | 41.80 | 41.80 | 41.70 | 41.60 | 41.50 |
| 90% | 41.40 | 41.30 | 41.20 | 41.10 | 40.90 | 40.70 | 40.50 | 40.20 | 39.90 | 39.70 |
| 100% | | 39.20 | | | | | | | | |

S175_BIU070007_20062023_101511: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 39.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.09 | 0.15 | 0.25 | 0.39 | 0.37 | 0.41 | 1.73 |
| 40.00 | 0.45 | 0.24 | 0.27 | 0.37 | 0.38 | 0.45 | 0.44 | 0.39 | 0.52 | 0.38 | 3.89 |
| 41.00 | 0.48 | 0.67 | 0.71 | 0.88 | 0.92 | 1.06 | 1.10 | 1.09 | 1.36 | 1.59 | 9.85 |
| 42.00 | 1.34 | 1.19 | 1.11 | 1.54 | 1.20 | 1.54 | 1.88 | 1.64 | 1.37 | 1.48 | 14.28 |
| 43.00 | 1.65 | 0.57 | 1.25 | 1.23 | 1.45 | 1.43 | 1.65 | 1.51 | 1.30 | 1.53 | 13.57 |
| 44.00 | 1.52 | 1.45 | 1.46 | 1.51 | 1.30 | 1.26 | 1.23 | 1.27 | 1.24 | 1.17 | 13.42 |
| 45.00 | 1.28 | 1.26 | 1.18 | 1.19 | 1.15 | 1.09 | 1.13 | 1.19 | 1.17 | 1.13 | 11.78 |
| 46.00 | 1.03 | 0.71 | 1.01 | 1.01 | 0.85 | 0.92 | 0.78 | 0.73 | 0.66 | 0.71 | 8.40 |
| 47.00 | 0.58 | 0.51 | 0.48 | 0.51 | 0.44 | 0.39 | 0.49 | 0.44 | 0.46 | 0.41 | 4.71 |
| 48.00 | 0.40 | 0.37 | 0.40 | 0.37 | 0.32 | 0.36 | 0.40 | 0.43 | 0.36 | 0.33 | 3.74 |
| 49.00 | 0.37 | 0.30 | 0.32 | 0.33 | 0.33 | 0.32 | 0.29 | 0.30 | 0.26 | 0.23 | 3.05 |
| 50.00 | 0.20 | 0.23 | 0.20 | 0.22 | 0.19 | 0.20 | 0.22 | 0.20 | 0.21 | 0.20 | 2.08 |
| 51.00 | 0.18 | 0.18 | 0.16 | 0.15 | 0.18 | 0.18 | 0.14 | 0.13 | 0.17 | 0.13 | 1.60 |
| 52.00 | 0.20 | 0.15 | 0.15 | 0.25 | 0.25 | 0.18 | 0.10 | 0.12 | 0.12 | 0.14 | 1.67 |
| 53.00 | 0.13 | 0.09 | 0.06 | 0.08 | 0.07 | 0.07 | 0.08 | 0.07 | 0.08 | 0.09 | 0.82 |
| 54.00 | 0.06 | 0.09 | 0.05 | 0.05 | 0.06 | 0.06 | 0.08 | 0.07 | 0.08 | 0.09 | 0.71 |
| 55.00 | 0.11 | 0.11 | 0.07 | 0.08 | 0.06 | 0.09 | 0.11 | 0.11 | 0.08 | 0.08 | 0.90 |
| 56.00 | 0.08 | 0.07 | 0.11 | 0.08 | 0.11 | 0.10 | 0.16 | 0.19 | 0.05 | 0.08 | 1.03 |
| 57.00 | 0.07 | 0.05 | 0.06 | 0.06 | 0.10 | 0.05 | 0.05 | 0.05 | 0.03 | 0.03 | 0.57 |
| 58.00 | 0.03 | 0.10 | 0.08 | 0.11 | 0.06 | 0.08 | 0.11 | 0.07 | 0.07 | 0.08 | 0.79 |
| 59.00 | 0.06 | 0.04 | 0.03 | 0.04 | 0.03 | 0.03 | 0.04 | 0.04 | 0.03 | 0.04 | 0.38 |
| 60.00 | 0.05 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.07 | 0.07 | 0.31 |
| 61.00 | 0.04 | 0.05 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.06 | 0.04 | 0.03 | 0.30 |
| 62.00 | 0.03 | 0.04 | 0.03 | 0.03 | 0.09 | 0.08 | 0.07 | 0.04 | 0.00 | 0.00 | 0.41 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 42.00 | | 39.30 |
| Max | 57.20 | 62.70 | |

Sample Location 4 Nighttime

S179_BIU070007_20062023_230957: Logged Data Table

| Date/Time | L10-1 | L90-1 | Lavg-1 | Lmax-1 | Lmin-1 | Lpk-1 | Lavg-2 | Lmax-2 | Lmin-2 | Lpk-2 |
|--------------------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|
| 6/20/2023 22:49:44 | 45.10 | 40.60 | 43.30 | 54.70 | 39.70 | 77.50 | 42.80 | 61.20 | 38.20 | 77.50 |
| 6/20/2023 22:50:44 | 42.50 | 36.90 | 39.70 | 44.30 | 36.20 | 71.10 | 39.50 | 51.50 | 35.50 | 71.30 |
| 6/20/2023 22:51:44 | 41.70 | 38.20 | 39.70 | 44.20 | 37.60 | 75.00 | 39.60 | 49.30 | 36.80 | 74.90 |
| 6/20/2023 22:52:44 | 44.60 | 39.70 | 42.30 | 47.70 | 38.80 | 85.00 | 42.10 | 55.80 | 37.90 | 85.00 |
| 6/20/2023 22:53:44 | 44.00 | 37.80 | 41.00 | 48.20 | 37.20 | 84.40 | 40.80 | 56.80 | 36.70 | 84.40 |
| 6/20/2023 22:54:44 | 42.60 | 38.50 | 40.80 | 45.70 | 37.70 | 72.50 | 40.70 | 48.60 | 36.90 | 72.40 |
| 6/20/2023 22:55:44 | 42.90 | 39.00 | 40.80 | 46.40 | 37.30 | 78.20 | 40.70 | 53.20 | 36.40 | 78.10 |
| 6/20/2023 22:56:44 | 43.70 | 39.20 | 41.60 | 44.60 | 37.80 | 69.00 | 41.30 | 46.90 | 36.50 | 69.40 |
| 6/20/2023 22:57:44 | 41.80 | 37.10 | 38.90 | 47.00 | 36.70 | 75.50 | 38.60 | 55.20 | 36.10 | 75.50 |
| 6/20/2023 22:58:44 | 47.00 | 38.40 | 43.20 | 52.50 | 36.70 | 73.10 | 43.00 | 54.80 | 36.20 | 73.00 |
| 6/20/2023 22:59:44 | 44.10 | 38.90 | 41.70 | 44.80 | 38.10 | 58.80 | 41.70 | 45.90 | 37.40 | 58.20 |
| 6/20/2023 23:00:44 | 44.60 | 37.60 | 41.60 | 45.40 | 37.00 | 70.10 | 41.50 | 46.00 | 36.50 | 70.20 |
| 6/20/2023 23:01:44 | 43.90 | 39.10 | 41.60 | 45.40 | 37.80 | 72.50 | 41.50 | 51.80 | 37.70 | 72.60 |
| 6/20/2023 23:02:44 | 43.90 | 37.50 | 41.10 | 47.00 | 37.20 | 60.60 | 41.00 | 48.20 | 36.70 | 60.40 |
| 6/20/2023 23:03:44 | 43.30 | 37.60 | 39.80 | 45.50 | 36.70 | 69.30 | 39.60 | 46.50 | 36.20 | 69.40 |
| 6/20/2023 23:04:44 | 45.20 | 39.10 | 42.20 | 46.60 | 38.00 | 70.30 | 42.20 | 48.20 | 37.40 | 70.30 |
| 6/20/2023 23:05:44 | 43.70 | 38.20 | 40.90 | 45.00 | 37.50 | 71.00 | 40.70 | 47.20 | 36.70 | 70.90 |
| 6/20/2023 23:06:44 | 44.30 | 38.10 | 41.30 | 45.40 | 37.50 | 72.70 | 41.10 | 52.30 | 36.90 | 72.60 |
| 6/20/2023 23:07:44 | 41.00 | 37.10 | 38.80 | 44.60 | 36.70 | 73.70 | 38.70 | 48.70 | 36.00 | 73.80 |
| 6/20/2023 23:08:44 | 42.50 | 37.90 | 40.00 | 44.50 | 37.40 | 77.50 | 39.90 | 51.20 | 36.70 | 77.30 |

S179_BIU070007_20062023_230957: Exceedance Table

| | 0% | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0% | | 46.60 | 45.30 | 44.90 | 44.70 | 44.50 | 44.30 | 44.20 | 44.00 | 43.90 |
| 10% | 43.80 | 43.60 | 43.50 | 43.30 | 43.20 | 43.10 | 42.90 | 42.90 | 42.80 | 42.70 |
| 20% | 42.60 | 42.50 | 42.50 | 42.40 | 42.30 | 42.20 | 42.10 | 42.10 | 42.00 | 41.90 |
| 30% | 41.80 | 41.70 | 41.70 | 41.60 | 41.50 | 41.40 | 41.40 | 41.30 | 41.20 | 41.20 |
| 40% | 41.10 | 41.00 | 41.00 | 40.90 | 40.80 | 40.70 | 40.70 | 40.60 | 40.50 | 40.50 |
| 50% | 40.40 | 40.30 | 40.20 | 40.20 | 40.10 | 40.00 | 39.90 | 39.80 | 39.70 | 39.70 |
| 60% | 39.60 | 39.60 | 39.50 | 39.50 | 39.40 | 39.30 | 39.30 | 39.20 | 39.20 | 39.10 |
| 70% | 39.00 | 39.00 | 38.90 | 38.80 | 38.80 | 38.70 | 38.70 | 38.60 | 38.50 | 38.40 |
| 80% | 38.40 | 38.30 | 38.20 | 38.20 | 38.10 | 38.00 | 37.90 | 37.80 | 37.80 | 37.70 |
| 90% | 37.60 | 37.50 | 37.50 | 37.40 | 37.30 | 37.20 | 37.10 | 37.00 | 36.90 | 36.70 |
| 100% | 36.10 | | | | | | | | | |

S179_BIU070007_20062023_230957: Statistics Table

| dB | 0.0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | % |
|-------|------|------|------|------|------|------|------|------|------|------|-------|
| 36.00 | 0.00 | 0.00 | 0.02 | 0.07 | 0.07 | 0.05 | 0.03 | 0.35 | 0.67 | 0.65 | 1.93 |
| 37.00 | 0.81 | 0.65 | 0.89 | 1.11 | 1.30 | 1.27 | 1.37 | 1.31 | 1.28 | 1.18 | 11.17 |
| 38.00 | 1.20 | 1.29 | 1.28 | 1.60 | 1.35 | 1.26 | 1.25 | 1.28 | 1.78 | 1.78 | 14.06 |
| 39.00 | 1.65 | 1.51 | 1.40 | 1.87 | 1.70 | 1.29 | 1.63 | 1.85 | 1.66 | 1.58 | 16.14 |
| 40.00 | 1.62 | 0.81 | 1.21 | 1.25 | 1.28 | 1.44 | 1.27 | 1.30 | 1.62 | 1.31 | 13.11 |
| 41.00 | 1.31 | 1.43 | 1.49 | 1.40 | 1.46 | 1.52 | 1.51 | 1.31 | 1.22 | 1.15 | 13.80 |
| 42.00 | 1.24 | 1.26 | 1.28 | 1.22 | 1.30 | 1.38 | 1.15 | 1.07 | 1.28 | 1.31 | 12.50 |
| 43.00 | 1.43 | 0.47 | 0.88 | 0.84 | 0.67 | 0.76 | 0.79 | 0.73 | 0.61 | 0.81 | 7.99 |
| 44.00 | 0.83 | 0.75 | 0.65 | 0.56 | 0.66 | 0.57 | 0.53 | 0.49 | 0.48 | 0.43 | 5.97 |
| 45.00 | 0.38 | 0.33 | 0.24 | 0.22 | 0.16 | 0.15 | 0.13 | 0.10 | 0.09 | 0.05 | 1.85 |
| 46.00 | 0.06 | 0.07 | 0.06 | 0.08 | 0.09 | 0.06 | 0.05 | 0.05 | 0.09 | 0.05 | 0.66 |
| 47.00 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.01 | 0.02 | 0.22 |
| 48.00 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.13 |
| 49.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.08 |
| 50.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.07 |
| 51.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.10 |
| 52.00 | 0.01 | 0.01 | 0.02 | 0.03 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 |
| 53.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 |
| 54.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.03 |

| | Lavg-1 | Lmax-1 | Lmin-1 |
|-----|--------|--------|--------|
| Min | 38.80 | | 36.20 |
| Max | 43.30 | 54.70 | |