ADDENDUM

TO THE

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

STANDBY POWER GENERATION SYSTEM UPGRADE PROJECT
SCH NO. 2019029099

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INTRODUCTION

Background

Union Sanitary District's (USD) Standby Power Generation System Upgrade Project (Project) will serve to replace aging standby generators and auxiliary equipment and to adequately supply reliable standby power to existing plant electrical loads for peak demand periods and to facilitate future standby power improvements. An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared in February 2019 (SCH No. 2019029099) on the Project.[1] A public hearing was held on March 11, 2019, and the IS/MND was adopted and the Project approved by the USD Board of Directors on October 14, 2019. The Notice of Determination (NOD) was filed with the Alameda County Clerk Recorders Office on October 17, 2019, and with the State Office of Planning and Research (OPR) on October 16, 2019.

The approved Project evaluated in the IS/MND included two new minimum-rated 3.5 megawatt (MW) standby engine generators, with room for two future engine generators, with associated electrical equipment. Since that time, the Project changed because electrical load projections for the Alvarado Wastewater Treatment Plant (WWTP) have been amended. The approved Project was designed for an ultimate electrical load of 11.4 megawatts (MW) which included an existing peak demand of 2.9 MW and an additional buildout projected load of 8.5 MW. Since the IS/MND for the approved Project was adopted, the electrical load projections have decreased significantly due to a new strategy for the planned treatment process upgrades. Originally, USD had planned for a new membrane bioreactor treatment system, but instead, USD is now planning to expand Alvarado WWTP's existing conventional aeration system.

The modified Project is designed for an ultimate electrical load of 5.7 MW, which includes the existing peak demand (2.9 MW) with an additional revised projected load of up to 2.8 MW. Because the projected electrical loads are much smaller, USD needs less standby generation capacity. As a result, the Project scope has been reduced to include smaller 2.5 MW generators.

Purpose of this Addendum

As discussed above, USD has further refined the Project components as described in Chapter 2. Because USD has proposed these changes following IS/MND adoption, an addendum to the IS/MND is necessary to meet the requirements of the California Environmental Quality Act (CEQA).

The CEQA Guidelines (Sections 15162 and 15164) allow that a lead agency may prepare an addendum to a previously adopted IS/MND if minor technical changes or additions to the environmental evaluation are necessary, but none of the following occurs:

1. Substantial changes are proposed in the project which will require major revisions to the Environmental Impact Report or negative declaration due to the involvement of new significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous Environmental Impact Report or negative declaration due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous Environmental Impact Report or negative declaration was adopted, shows any of the following:

    a. The project will have one or more significant effect not discussed in the Environmental Impact Report;

    b. Significant effects previously examined will be substantially more severe than shown;

    c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

    d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous Environmental Impact Report or negative declaration would substantially reduce one or more significant effects on the environments, but the project proponents decline to adopt the mitigation measure or alternative.

This Addendum documents that included modifications to the approved Project do not trigger any of the conditions described above. Specifically, given the Project description and knowledge of the Alvarado Wastewater Treatment Plant site (based on the Project and site-specific environmental review), USD has concluded that the modified Project would not result in any new significant impacts not previously disclosed in the circulated IS/MND, nor would it result in a substantial increase in the magnitude of any significant environmental impact previously identified. For these reasons, an addendum to the adopted IS/MND is sufficient to meet the requirements of CEQA and CEQA-Plus. In accordance with the State Water Resources Control Board State Revolving Fund Program requirements, this Addendum will be circulated through the State Clearinghouse, adopted by USD, and a NOD filed with the Alameda County Clerk Recorders Office and OPR. USD must consider the Addendum with the adopted IS/MND to making a decision on the Project.

The approved mitigation measures provided in the adopted IS/MND Mitigation Monitoring and Reporting Program (MMRP) have been incorporated by reference, with modifications (additions, deletions, renumbering/renaming, or other minor revisions) made as necessary to apply to the modified Project as shown in Appendix A. The adjusted mitigation measures do not change the original impact conclusions from the IS/MND, nor are they considerably different from that analyzed in the IS/MND.

CHAPTER 2

PROJECT DESCRIPTION

Design of the modified Standby Power Generation System Project (Project) is proceeding with submittal of the 90% design package submitted in December 2019. The goals of the modified Project and an overview of the Project changes are provided below.

Project Goals

The goals for the new standby power system are to:

- Adequately supply reliable standby power to existing plant electrical loads for peak demand periods, including system "N+1" redundancy[a] for the new generator units.

- Facilitate standby power system expandability to accommodate the anticipated increase in peak plant power demand associated with upgrading the existing secondary treatment system to provide biological nutrient removal (BNR), while minimizing system "re-work" and/or stranded assets.

- Select an individual generator unit size that maximizes individual unit rating usage and allows future installed generators to match the size and meet the estimated future peak demand loads.

- Due to the rapid changes in equipment technology, minimize or eliminate the need for future retrofit or field modification to initially installed standby power system paralleling switchgear and generator.

Project Description

Figure 1 shows the updated site plan with construction characteristics for the modified Project. The main changes which are the subject of this Addendum include the following:[2]

1. Three new minimum rated 2.5 megawatt (MW) standby engine generators each with its own exhaust stack, with space for one additional future minimum-rated 2.5 MW generator. The initial Project was to provide two new minimum-rated 3.5 MW generators with space for two additional future minimum-rated 3.5 MW generators. These smaller generators require a smaller building with an area of 5,500 square feet (sf). The original building was 13, 800 sf and L-shaped.

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[a] N+1 redundancy is a form of resilience that ensures system availability in the event of component failure. Components (N) have at least one independent backup component (+1). The level of resilience is referred to as active/passive or standby as backup components do not actively participate within the system during normal operation.

2. The modified Project also requires less fuel storage capacity. One new above-ground 20,000-gallon fuel storage tank, with space for a future tank, will be located along the eastern side of the Standby Power Building. The approved Project was to provide two above-ground 30,000-gallon fuel storage tanks, with space for a future tank, near the southwest corner of the Standby Power Building.

3. Elimination of the future battery storage area that was to be located just to the south of the original fuel storage area location.

4. New ductbanks will be required. Two options for routing 480 volt (V) conduit from the Standby Power Building to the Generator 2/3 Building are being considered as shown on Figure 1. Option 1 would require routing about 700 feet of new conduit and Option 2 about 150 feet. An additional ductbank of about 200 feet in length will be needed at Substation No. 2.

5. New Substation No. 2 has been moved slightly to the north.

There will also be a number of other minor construction scope reductions. Overall, the modified Project represents a smaller construction project than evaluated in the IS/MND.

FIGURE 1

CHAPTER 3

EVALUATION OF ENVIRONMENTAL IMPACTS

This chapter evaluates environmental impacts associated with the modified Standby Power Generation System Upgrade Project (Project) based on the modifications described in Chapter 2.

TOPICS DISMISSED FROM FURTHER ANALYSIS

The existing analysis in the Initial Study/Mitigated Negative Declaration (IS/MND) adequately addresses environmental conditions and potential impacts relevant to the following topics because either the nature, scale, and timing of the Project has not changed in ways relevant to the topic or there has not been a substantial change in the circumstances involving the topic on the Project site, nor the local environment surrounding the site.

- **Aesthetics.** The original Project analyzed in the IS/MND was larger than the modified Project discussed in Chapter 2. New ductbanks will be subsurface. Aesthetic impacts will be reduced.

- **Agriculture and Forest Resources.** The modified Project will be constructed within the Alvarado Wastewater Treatment Plant (WWTP). This topic is not relevant to the proposed Project. Accordingly, pursuant to CEQA-Plus requirements, the Project would have no impact relative to the Federal Farmland Protection Policy Act.

- **Tribal Cultural Resources.** No tribal cultural resources are known to exist within the Project area. Mitigation Measures ARCH 1 – ARCH 6 in the IS/MND provide protocol for accidental discovery of cultural resources during construction.

- **Geology and Soils.** The IS/MND evaluated a larger Project. The modified Project as discussed in Chapter 2 includes smaller standby engine generators and Standby Power Building, and reduced storage requirements for diesel fuel. Geologic soils and seismic issues associated with the modified Project have been adequately analyzed in the IS/MND.

- **Hazards and Hazardous Materials.** As with the original Project, the modified Project will be constructed within the WWTP at the same location, with the addition of several additional segments of ductbanks. Health and safety issues associated with the modified Project have been adequately analyzed for the larger, approved Project in the IS/MND.

- **Hydrology and Water Quality.** As the modified Project will be smaller and will be constructed at the same location as the original Project, hydrology and water quality issues have been adequately addressed in the IS/MND. It is expected any dewatering

needed at the Standby Power Building site will be less. Compliance will be maintained with federal Wild and Scenic Rivers Act of 1958, the Safe Water Drinking Act, and Executive Order 11988 (Floodplain Management).

- **Land Use and Planning.** The modified Project will be constructed within the WWTP site, will not divide an established community, and is consistent with local land use plans and policies pursuant to CEQA-Plus. The Project is not within the Coastal Zone, nor subject to the requirements of the Bay Conservation and Development Commission, and thus provisions of the Coastal Zone Management Act do not apply.

- **Mineral Resources.** The modified Project would be constructed within the highly disturbed WWTP site which, according to the IS/MND, has no known mineral resources.

- **Population and Housing.** The modified Project will not induce substantial population growth nor displace housing or people. Pursuant to CEQA-Plus requirements, the modified Project will have no effect on minority and low-income populations (Executive Order 12989 – Environmental Justice).

- **Public Services.** The modified Project will be constructed within the WWTP site and will have no impacts to public services

- **Recreation.** The modified Project will not increase the use of local parks nor will it involve construction of new facilities.

- **Transportation/Traffic.** A traffic analysis of the larger approved Project was included in the IS/MND and found the impacts to be less than significant. With the smaller modified Project, traffic impacts would be less and were adequately analyzed in the IS/MND.

- **Utilities and Service Systems.** The modified Project has no issues associated with utilities and service system. No impacts will occur.

No additional analyses of these topics are required. Other topics are considered below. The discussion below describes the environmental impacts of the modified Project as compared with the impacts of the approved Project as addressed in the IS/MND. This Addendum only addresses those resource areas that would be potentially affected by the proposed changes to the approved Project. As discussed below, no new significant environmental impacts were identified.

AIR QUALITY

Setting

The air quality setting relevant to the Project site, including applicable regulations and air quality conditions, has not appreciably changed since the adoption of the IS/MND. The Bay Area Air Quality Management District (BAAQMD) maintains regional authority for air quality

management in the Project area and vicinity. At the time of adoption of the IS/MND, the BAAQMD's 2017 Clean Air Plan (CAP) was the applicable air quality plan in place to protect public health and climate in the Bay Area.[3]

Findings of Previously Adopted IS/MND

The adopted IS/MND had the following impact findings:

No Impacts

- Creation of objectionable odors.

Less than Significant Impacts

- Conflict or abstract implementation of the applicable air quality plan.
- Violation of an air quality standard.
- Result in a cumulatively considerable net increase of any criteria pollutant in a non-attainment area.
- Expose sensitive receptors to substantial pollutant concentrations.

Impacts Discussion

Resource Category/ Significance Criteria:	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporation	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
AIR QUALITY – Would the project:					
1) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒	☐
2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒	☐
3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒	☐
4) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒	☐
5) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒	☐

1. Same Impact as Approved Project (Less than Significant)

The IS/MND concluded that the approved Project would have a less than significant impact relative to conflicts with the 2017 CAP. As the modified Project would be a smaller project and emissions, as discussed below, would remain below significance thresholds the modified Project would also not conflict with or obstruct implementation of the 2017 CAP. This impact would be the same as identified in the IS/MND, and would not result in any new or more significant impacts beyond those identified in the IS/MND.

2, 3. Same Impact as Approved Project (Less than Significant)

The IS/MND evaluated the significance of construction and operational emissions of the approved Project relative to BAAQMD and federal conformity thresholds of significance (see Tables 3 and 4 of the IS/MND). All emissions were well below applicable thresholds. The IS/MND also compared the emission rates of the existing engine generators to the new minimally-rated 3.5 MW generators noting that the replacement engines would provide substantial improvement to criteria pollutant emission rates.

Project Construction. Construction emissions presented in the IS/MND were well below BAAQMD and Federal conformity significance thresholds. Because the modified Project will be a smaller construction project than analyzed in the IS/MND, construction emissions were not recalculated for this Addendum but it can be concluded that they would be less than those presented in Table 4 of the IS/MND, the impact would remain less than significant, the modified Project would remain in compliance with the Federal Clean Air Act (CAA) pursuant to CEQA-Plus requirements, and new or more significant impacts beyond those identified in the IS/MND would not occur.

Project Operation. Operational emissions for the proposed Project have been estimated in support of the amendment to Authority to Construct permit from the BAAQMD.[4] Table 1 presents the daily and annual emissions and compares them to BAAQMD and Federal conformity significance thresholds. Technical support information is included in Appendix B. Nitrogen oxide (NO_x) and reactive organic emissions (ROG) are less than those included in the IS/MND and emissions for PM_{10} and $PM_{2.5}$ are slightly more. Variations in emissions are due to engine emission rates. Table 2 compares the engine emission rates for existing engines at the WWTP to the 2.5 MW engine generators of the modified Project. As can be seen, the new 2.5 MW engine generators will also provide a substantial improvement to criteria pollutant emission rates. Relative to this Addendum, operational emissions of the modified Project would remain less than significant, the modified Project would remain in compliance with the Federal CAA pursuant to CEQA-Plus requirements, and new or more significant impacts beyond those identified in the IS/MND would not occur.

4. Same Impact as Approved Project (Less than Significant)

The IS/MND addressed exposure of sensitive receptors to substantial pollutant concentrations for both construction and operation. For construction, diesel particulate matter (DPM), the main component of $PM_{2.5}$ and PM_{10} emissions, is used as a surrogate measure of exposure for the mix of chemicals that make up diesel exhaust as a whole. With $PM_{2.5}$ and PM_{10} estimated to be only 0.35 pounds per day over a 12-month construction schedule, the IS/MND concluded the impact to be less than significant. Operationally, the IS/MND noted the replacement of the existing older engine generators, which were a source of toxic air contaminants (TACs), would be a beneficial impact due to reduced exposure of sensitive receptors to substantial pollutant concentrations.

The modified Project will be a smaller construction project than analyzed in the IS/MND and $PM_{2.5}$ and PM_{10} emissions, with associated DPM, would be less. For purposes of this Addendum, this impact would be the same as identified in the IS/MND (less than significant) and would not result in any new or more significant impacts beyond those identified in the IS/MND. Reduced TAC emissions associated with the replacement of the existing engine generators will still occur.

Table 1. Significance of Operations Emissions for Modified Project

Emissions	NO_x[a] / ROG[b]	SO_2	Exhaust PM_{10}[c]	Exhaust $PM_{2.5}$[d]
	Lbs/day			
Daily emissions	13.85	0.015	0.33	0.33
BAAQMD threshold	54	-	82	54
Significant impact (?)	No	-	No	No
	Tons/year			
Annual emissions	2.53	0.0028	0.06	0.06
BAAQMD threshold	10	-	15	10
Exceed threshold (?)	No	-	No	No
Federal conformity threshold	100	100	100	100
Exceed threshold (?)	No	No	No	No

Source: Brown and Caldwell, December 2019.

[a] Nitrogen oxides
[b] Reactive organic gases
[c] Fine particulate matter with a diameter less than 10 microns.
[d] Fine particulate matter with a diameter less than 2.5 microns.

Table 2. Comparison of Emission Rates of Existing and Modified Project Engine Generators

Criteria Pollutant	Emission rate, g/bhp-hr[a]	
	Existing Engines[b]	New Engines[c]
NO_x + ROG	11.21	4.20[d]
NO_x	10.89	-
ROG	0.32	-
CO	2.49	0.75
$PM_{10}/PM_{2.5}$	0.32	0.10

[a] Grams per brake horsepower per hour
[b] Emission factors derived from USEPA AP-42, Table 3.4-1
[c] Emission factors compiled from D2 Cycle testing from the Manufacturer Spec Sheet
[d] Worst case engine is Cummins with only a combined emission factor available

Source: Brown and Caldwell, December 2019.

5. Same Impact as Approved Project (No Impact)

The IS/MND concluded that the approved Project would have no impact relative to creation of objectionable odors. The modified Project does not include any modifications that would change this finding.

BIOLOGICAL RESOURCES

Setting

The Biological Resource Assessment (BRA) included in the IS/MND considered the entire WWTP to be the Area of Potential Effects (APE). The APE provides very little value in terms of possible wildlife habitat given its developed condition, absence of vegetative cover, and intensity of human disturbance. No indications of western burrowing owl or nesting by any bird species in any of the trees in the vicinity of the APE were observed.

Findings of Previously Adopted IS/MND

No Impact

- Effects on any riparian habitat or other sensitive natural community.
- Effect on federally protected wetlands.
- Conflict with local policies or ordinances.
- Conflict with provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan

Less than Significant Impact

- Interfere with wildlife movement.

Less than Significant with Mitigation Incorporated

- Effects on special-status species.

Impacts Discussion

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporation	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
BIOLOGICAL RESOURCES – Would the project:					
1) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game for U.S. Fish and Wildlife Service?	☐	☐	☐	☒	☐
2) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒	☐
3) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption, or other means?	☐	☐	☐	☒	☐
4) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒	☐

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporation	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
5) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	☐
6) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒	☐

1. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

The IS/MND included Mitigation Measure BIO-1 which includes a preconstruction survey and appropriate construction restrictions to address the remote possibility that nesting birds could be impacted in violation of the Federal Migratory Bird Treaty Act and the State Fish and Game Code. The modified Project would be at the same location as the original Project with the addition of ductbank sections as shown on Figure 1. Given the IS/MND BRA considered the entire WWTP site as the APE, the potential impact of the modified Project would be the same as identified in the IS/MND, Mitigation Measure BIO-1 would still be needed, and the modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND. Pursuant to CEQA-Plus requirements, the modified Project would remain consistent with the Federal Endangered Species Act.

2, 3, 5, 6. Same impact as Approved Project (No Impact)

The modified Project would have no impact relative to sensitive habitats, wetlands, policy or ordinance conflicts, or conflicts with a conservation plan, and would not result in any new or more significant impacts beyond those identified in the IS/MND. Pursuant to CEQA-Plus requirements, the modified Project would remain consistent with Executive Order 11990 – Protection of Wetlands, and no impacts relative to Coastal Barriers Resources Act will occur.

4. Same Impact as Approved Project (Less than Significant)

The IS/MND concluded the approved Project would have a less than significant impact relative to wildlife movement or wildlife nursery sites, due to acclimation to human disturbance, dense screening, and distance to construction activities. As shown on Figure 1, the modified Project has a more consolidated and smaller footprint with the addition of several ductbank sections. The modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND. Pursuant to CEQA-Plus requirements, no essential fish habitat would

be affected and the modified Project remains consistent with the Magnuson-Stevens Fishery Conservation and Management Act.

CULTURAL RESOURCES

Setting

The IS/MND included in Phase 1 Cultural Resources Survey which found no evidence of identified archaeological resources within the APE. In the area of the Standby Power Building, the footprint of the APE has been reduced with the modified Project. The modified Project does include an additional ductbank segments within the core area of the WWTP and to the south near new Substation No. 2 (Figure 1). These ductbank segments will have shallow excavation and are not identified within the Phase 1 Cultural Resources Survey APE map, but generally included within the database search, pedestrian survey, and consultation process with local Native American contacts.

Findings of Previously Adopted IS/MND

Less than Significant with Mitigation Incorporated

- Change in significance of a historical resource.
- Change in significance of an archaeological resource.
- Destruction of a unique paleontological resource or unique geologic feature.
- Disturbance of human remains.

Impacts Discussion

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporation	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
CULTURAL RESOURCES – Would the project:					
1) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒	☐
2) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒	☐
3) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒	☐
4) Disturb any human remains including those interred outside of formal cemeteries?	☐	☐	☐	☒	☐

1, 2, 3, 4. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

Although a remote possibility, the IS/MND concluded that fill or underlying sediments could contain historic archaeological and paleontological resources, and human remains. Mitigation Measures ARCH 1-ARCH 6 were developed to reduce impacts to less than significant levels. They include development and implementation of a monitoring and reporting program (ARCH 1), preparation of an archaeological "Alert Sheet" and an on-site education session with the construction crew (ARCH 2), spot monitoring of soils emerging from the pile driving process (ARCH 3), archaeological monitoring during excavation of the western portion of the Standby Power Building site (ARCH 4), and protocol to be followed in the event of accidental discovery of archaeological deposits or human remains (ARCH 5 and 6). These measures remain valid for the modified Project including the shallow excavation associated with the additional ductbanks. Thus, the impact of the modified Project would be the same as identified in the IS/MND, and would not result in any new or more significant impacts beyond those identified in the IS/MND. Pursuant to CEQA-Plus requirements, the modified Project remains compliant with Section 106 of the National Historic Preservation Act.

GREENHOUSE GAS EMISSIONS

Setting

Sources of greenhouse gas (GHG) emissions include exhaust with such chemicals or carbon dioxide, methane, and nitrous oxide. The IS/MND assessed both construction and operational GHG impacts of the approved Project.

Findings of Previously Adopted IS/MND

Less than Significant Impacts

- Construction and operational emissions.
- Conflict with any applicable plan, policy, or regulation relative to GHG emissions.

Impacts Discussion

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporation	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
GREENHOUSE GAS EMISSIONS – Would the project:					
1) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒	☐

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporation	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
2) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒	☐

1. Same Impact as Approved Project (Less than Significant)

The IS/MND estimated that the approved Project construction activities would generate about 376 metric tons (MT) or 414 tons of carbon dioxide equivalent (CO_2e) emissions. While construction emissions for the modified Project were not calculated, construction activities would be less as would GMG emissions. The impact would be the same as identified in the IS/MND, and would not result in any new or more significant impacts beyond those identified in the IS/MND.

The IS/MND estimated GHG emissions for the 3.5 MW engine generators originally proposed to be 282 MT/year or 310 tons/year (Appendix B). For the modified Project, the estimated GHG emissions are about 178 MT/year or 196 tons/year for the 2.5 MW engine generators. Thus, the modified Project will generate fewer GHG emissions and have less impact than the approved Project. This impact (less than significant) would be the same as identified in the IS/MND, and would not result in any new or more significant impacts beyond those identified in the IS/MND.

2. Same Impact as Approved Project (Less than Significant)

Based on the emission estimates in the IS/MND, the approved Project would not conflict with applicable plans for reduction of GHG emissions. As GHG emissions for the modified Project would be less, the impact would be the same as identified in the IS/MND, and would not result in any new or more significant impacts beyond those identified in the IS/MND.

NOISE

Setting

A noise and vibration technical report for the approved Project was prepared by Charles M. Salter Associates and included in the IS/MND. Surrounding land use conditions have not changed since the technical report was prepared.

Findings of Previously Adopted IS/MND

The adopted IS/MND had the following impact findings:

No Impact

- Exposure of people within proximity to an airport to excessive noise levels.

Less Than Significant Impact with Mitigation Incorporated

- Exposure of persons to or generation of noise levels in excess of standards.
- Exposure of persons to or generation of excessive ground borne vibration or noise levels.
- Permanent increase in ambient noise levels.
- Temporary increase in ambient noise levels.

Significance Criteria

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporated	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
Would the Project result in:					
1) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒	☐
2) Exposure of persons to, or generation of, excessive ground borne vibration or ground borne noise levels?	☐	☐	☐	☒	☐
3) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☒	☐
4) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☒	☐
5) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒	☐

Resource Category/ Significance Criteria	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporated	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
6) For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒	☐

1, 3. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

The noise and vibration technical report in the IS/MND assessed the temporary and permanent operational noise levels associated with the approved Project at four sensitive receptor sites and found noise limits would be exceeded representing a significant adverse impact. Mitigation Measures NOI-1 through NOI-5 in the IS/MND were developed to reduce impacts to less than significant levels.

Charles M. Salter Associates updated their operational noise assessment to reflect smaller engine generators and revised site plan and this report is included as Appendix C. The findings of the updated report, as reflected in the revised Table 7 included in the Appendix, have not changed but modification to Mitigation Measure NOI-2 and NOI-3 were made and NOI-4, which addressed outdoor heating, ventilation, and air conditioning (HVAC) units has been deleted. The updated Mitigation Monitoring and Reporting Plan is included as Appendix A. The modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND.

2. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

The IS/MND found that vibration generating generators and mechanical equipment have the potential to generate vibration at neighboring properties. Mitigation Measures NOI-6 and NOI-7 (now NOI-5 and NOI-6) as shown in Appendix A were developed to reduce impacts to less than significant levels.

The modified Project with a reduced construction footprint and smaller generators will lessen vibration impacts but Mitigation Measures NOI-6 and NOI-7 (now NOI-5 and NOI-6) are still necessary. The modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND.

4. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

The IS/MND found that noise generating construction activities over the construction period could increase ambient noise levels at neighboring sensitive land uses resulting in a significant adverse impact. Mitigation Measure NOI-8 (now NOI-7) includes reasonable measures to

manage construction activities to reduce the potential noise impact to less than significant levels.

The modified Project with reduced construction activities will lessen construction noise impacts, but due to the proximity of residential land uses, the impact would remain significant and Mitigation Measure NOI-8 (now Mitigation Measure NOI-7) is still necessary. The modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND.

MANDATORY FINDINGS OF SIGNIFICANCE

Issues (and Supporting Information Sources)	New Potentially Significant Impact	New Less Than Significant with Mitigation Incorporated	New Less Than Significant Impact	Same Impact as Approved Project	Less Impact than Approved Project
MANDATORY FINDINGS OF SIGNIFICANCE – Would the Project:					
1) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒	☐
2) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects)?	☐	☐	☐	☒	☐
3) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒	☐

1. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

The IS/MND contained Mitigation Measures ARCH 1-3 and BIO-1 to address accidental discovery of archaeological resources or human remains, and inadvertent take of bird nests. Impacts would be reduced to less than significant levels in the modified Project. These mitigation measures remain applicable to the modified Project, and the modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND .

2. Same Impact as Approved Project (No Impact).

The IS/MND concluded the approved Project would not result in cumulatively considerable impacts. The modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND.

3. Same Impact as Approved Project (Less than Significant with Mitigation Incorporated)

The IS/MND found that the Contract Documents will contain the necessary safeguards for protection of the health and safety of workers and mitigation measures were identified to mitigate noise and vibration impacts to nearby sensitive land uses. For the modified Project, minor adjustments to several of the noise mitigation measures were made (see Appendix A). The modified Project would not result in any new or more significant impacts beyond those identified in the IS/MND.

CHAPTER 4

REFERENCES

1. Scheidegger & Associates. IS/MND on the Standby Power Generation System Upgrade, February 2019.

2. Brown and Caldwell, December 2019.

3. BAAQMD. Spare the Air: Cool the Climate–Final 2017 Clean Air Plan. Adopted April 19, 2017.

4. BAAQMD. Authority to Construct Permits for USD Standby Power Generation System Upgrade Project.

APPENDIX A

Mitigation Monitoring and Reporting Plan (Revised)

MITIGATION MONITORING AND REPORTING PLAN

The following mitigation measures shall be implemented to reduce the impact to less than significant levels:

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
D. Biological Resources				
D1. Impact to Special-Status Species	**BIO-1.** Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps. • If initial construction is proposed during the nesting season (February 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the APE and surrounding area within 100 feet of proposed construction. The survey shall be reconducted any time construction has been delayed or curtailed for more than 7 days during the nesting season. • If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions. • If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the CDFW, and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be fenced with temporary orange construction fencing if construction is to be initiated elsewhere in the APE. • A report of findings shall be prepared by the qualified biologist and submitted to the District for review and approval prior to initiation of construction during the nesting season (February 1 to August 31). The report shall either confirm absence of any active nests or should confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of	Contractor* USD *Hire qualified biologist	Conduct pre-construction survey	Prior to start of construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	findings is required if construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.			
E. Cultural Resources				
E1-E4. Impact to historic, archaeological, and paleontological resources and disturbed or redeposited human remains	**ARCH 1:** Once the Project's construction plan has been finalized, an archaeologist shall be retained to develop and implement a monitoring and reporting plan.	Contractor/ USD* *hire qualified archaeologist	Develop plan	Prior to construction
	ARCH 2: An archaeologist shall be retained to prepare an archaeological "Alert Sheet" which will be distributed to the construction crew. A brief, on-site education session with the construction crew shall be conducted. The Alert Sheet will identify the procedures to be followed in the event of accidental discovery of historic, archaeological, or paleontological resources in compliance with the California Health and Safety Code and the Public Resources Code.	Contractor/ USD	Prepare "Alert Sheet," have session	Prior to start of construction
	ARCH 3: Soils emerging from pile driving within the engine generation building site shall be intermittently inspected by an on-site archaeologist.	Contractor/USD	Spot monitoring	During pile driving excavation
	ARCH 4: Archaeological monitoring shall occur during excavation of the western portion of the engine generator building site.	Contractor/USD	Monitoring during excavation of western portion of the site	During construction
	ARCH 5: If an archaeological deposit is found—whether archaeologist identifies an intact and potentially significant archaeological resource, he or she shall develop a treatment plan in consultation with the Union Sanitary District, the SWRCB, tribal representatives (in the event of a prehistoric site) and the State Historic Preservation Officer (SHPO). This plan would likely entail a program of systematic data recovery in which cultural materials are documented and removed.	Contractor/USD	Develop treatment plan	During construction
	ARCH 6: If human remains are encountered, the following procedures will be implemented: a. Per the stipulations of the California Health and Safety Code Section 7050.5(b), the Alameda County Coroner's Office will be contacted immediately; this will occur whether or not a Most Likely Descendant has already been appointed. b. The Coroner's Office has two working days in which to examine the identified remains. If the Coroner determines that the remains are Native American, then—if a Most Likely Descendant has not yet been appointed—the Office will notify the	Contractor/USD	Follow requirements of Health and Safety Code	During construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	Native American Heritage Commission (NAHC) within 24 hours. c. Following receipt of the Coroner's Office notice, the NAHC will contact a Most Likely Descendant. The Most Likely Descendant then has 48 hours in which they can make recommendations to the project sponsor and consulting archaeologist regarding the treatment and/or re-interment of the human remains and any associated grave goods. d. Appropriate treatment and disposition of Native American human remains and associated grave goods will be collaboratively determined in consultation between the appointed Most Likely Descendant, the consulting archaeologist, and the landowner or authorized representative. The treatment of human remains may potentially include the preservation, excavation, analysis and/or reburial of those remains and any associated artifacts. e. If the remains are determined not to be Native American, the Coroner, archaeological research team, and USD will collaboratively develop a procedure for the appropriate study, documentation, and ultimate disposition of the historic human remains.			
M. Noise				
M1, M3. Impact of equipment operation to ambient and average daily noise levels and local standards	**Mitigation Measure NOI-1.** The Standby Power Building envelope shall be constructed of sound-attenuating materials equivalent to a STC 37. Recommendations include the following: • The walls and roof would be an upgraded or augmented modular/prefabricated panel system, if available, or a more traditional framing system. • Depending on location/orientation of doors, they will likely need to be gasketed. • Depending on size and location, ventilation openings will also require sound attenuation measures with an effective sound insertion loss between 20 and 30 dB (A-weighted). This could be achieved by common sound attenuators including one or more of the following: ・ A duct silencer or bank of silencers (typically 10 to 30 dB sound insertion loss) ・ Acoustical louvers (typically 10 to 15 dB sound insertion loss) ・ Duct/plenum internally lined with acoustical insulation (typically 5 to 20 dB sound insertion loss)	USD	Require design to include	During design and construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	Mitigation Measure NOI-2. At each exhaust pipe of the engine exhaust systems a muffler shall be installed to provide an effective sound insertion loss of 40 dB (A-weighted).	USD	Require design to include	During design and construction
	Mitigation Measure NOI-3. Place exhaust fans behind noise barrier screen walls or locate within the building **(e.g. in-line cabinet or mixed-flow fans)** and ducted to the outdoor ventilation openings through similar sound attenuating measures described in NOI-1 for each ventilation opening. A minimum 15 dB (A-weighted) of effective sound insertion loss would be needed to reduce exhaust fan discharge noise.	USD	Require design to include	During design and construction
	~~**Mitigation Measure NOI-4.** Install outdoor HVAC units behind a noise barrier screen wall that a) will be at least two feet taller than the units, b) will be solid with no gaps, c) have a minimum surface weight of three pounds per square foot, d) constructed with a surface that is sound absorbing, which can be achieved with prefabricated insulated metal panels or a traditional solid wall with an applied sound absorbing finish.~~	USD	Require design to include	During design and construction
	Mitigation Measure NOI-~~5~~ 4. Complete an updated noise analysis during the Project's design phase when the equipment selections and designs are finalized in order to confirm the details of necessary noise mitigation.	USD	Update noise analysis	During design
M2. Impact of construction and operational groundborne vibration on adjacent land uses	**Mitigation Measure NOI-~~6~~ 5.** Limit construction activities with the highest potential to produce significant vibration (e.g., such as a vibratory roller) to the least sensitive daytime hours. Residences within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence.	USD/Contractor	Notify adjacent property owners, limit use of construction equipment with high vibration generation	Prior to and during construction
	Mitigation Measure NOI-~~7~~ 6. Insulate vibration-generating generators and mechanical equipment using spring isolation mounts and hangers per the American Society of Heating, Refrigerating and Air Conditioning Engineers guidelines.	USD/Contractor	Require design to include	During design and construction
M4. Impact of construction activity on ambient noise levels and neighboring land uses	**Mitigation Measure NOI-~~8~~ 7.** To reduce potential noise impact from construction-related activities, the following measures shall be employed: • Properly muffle and maintain all construction equipment powered by internal combustion engines.	USD/Contractor	Condition Contract Documents, implement during construction	Prior to and during construction

Potential Impact	Mitigation Measure	Responsibility	Action	Completion Date
	• Prohibit unnecessary idling of combustion engines. • Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded. • Select quiet construction equipment, particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order. • Residences within 500 feet of the Project site shall be notified once (in writing) of the proposed construction schedule before construction activities commence (see Mitigation Measure NOI-6). • The Contractor shall designate a Project Liaison responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.			

APPENDIX B

Supplemental Air Quality

Technical Appendix

for Operational Emissions

Table 1. Estimated Emissions for Criteria Pollutants and Toxic Air Contaminants During Non-Emergency Use							
				Single Engine		Three Engines	
Criteria Pollutant	Emission Factor (g/bhp-hr)	Engine Use (hr/yr)	Mechanical Output (bhp)	Emissions (g/hr)	Emissions (tons/yr)	Emissions (g/hr)	Emissions (tons/yr)
NOx + NMHC	4.20	50	3640	15,288	0.84	45,864	2.53
NOx		50	3640				
NMHC		50	3640				
CO	0.75	50	3640	2,730	0.15	8,190	0.45
PM10/PM2.5	0.10	50	3640	364	0.02	1,092	0.06

			Fuel Use		Single Engine		Three Engines	
Criteria Pollutant	Emission Factor (lb/MMBtu)	Engine Use (hr/yr)	(gal/hr)	(MMBtu/hr)	Emissions (lb/hr)	Emissions (tons/yr)	Emissions (lb/hr)	Emissions (tons/yr)
SOx	0.001515	50	173.1	24.234	0.037	0.00092	0.11	0.0028

Hours of Operation:

50 hours per the CARB ATCM 17 CCR, Section 93115.6(a)(3)

Source of emission rates:

NOx, CO, NMHC, and PM10 were compiled from the D2 Cycle testing from the Manufacturer Spec Sheet

SOx per CARB diesel (15 ppm as S = 0.001515 lb/MMBtu per BAAQMD Permit Handbook, Section 2.3.1)

Equations:

Fuel Use (MMBtu/hr) = Fuel Use (gal/hr) x 0.14 MMBtu/gal (BAAQMD default conversion factor)

Emissions (g/hr) = Emission Rate (g/bhp-hr) x Mechanical Output (bhp)

Emissions (lb/hr) = Emission Rate (g/bhp-hr) x Mechanical Output (bhp) x 0.00220462 lb/gram

Emissions (lb/hr) = Emission Rate (lb/MMBtu) x Fuel Use (MMBtu/hr)

Emissions (tons/yr) = Emissions (g/hr) x Engine Use (hr/year) x 0.0000011023 ton/g

Emissions (tons/yr) = Emissions (lb/hr) x Engine Use (hr/year) x ton/2000lb

Table 2. Greenhouse Gas Estimated Emissions During Operation
Calculations Using Local Operations Protocol for Greenhouse Gas Assessment
USD - Standby Power System Project

Source	Hours of Use hr/yr	Fuel Type	Hourly Fuel Use gallons/hr	Annual Fuel Use gallons/yr	Emission Factors kg/gallon			GWP			Emissions metric tons/yr			
					CO2	CH4	N2O	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
S-50	50	Diesel	173.1	8,655	10.21	5.8E-04	2.6E-04	1	21	310	88	0.0050	0.0023	89.2
S-51	50	Diesel	173.1	8,655	10.21	5.8E-04	2.6E-04	1	21	310	88	0.0050	0.0023	89.2
S-52	50	Diesel	173.1	8,655	10.21	5.8E-04	2.6E-04	1	21	310	88	0.0050	0.0023	89.2
													Total	178

Source of Emission Factors and Global Warming Potentials (GWP):

Local Government Operations Protocol, For the Quantification and Reporting of Greenhouse Gas Emissions Inventories
Version 1.1, May 2010
Tables G.11 and G.14 for emission factors
Appendix E for GWP

Formula for emissions and conversion to metric tons:

Emissions = Fuel Usage (gallons/yr) x Emission Factor (kg/gallon) x 0.001 (metric ton/kg)

Formulas for converting to CO2e:

CO2e from CO2 = CO2 Emissions (metric tons) x 1 (GWP)
CO2e from CH4 = CH4 Emissions (metric tons) x 21 (GWP)
CO2e from N2O = N2O Emissions (metric tons) x 310 (GWP)
CO2e = CO2e from CO2 + CO2e from CH4 + CO2e from N2O

APPENDIX C

Supplemental Analysis for

Operational Noise Levels

MEMORANDUM

date: 16 December 2019

name:	company:	email:
William Pevec	**Brown and Caldwell**	wpevec@brwncald.com
Mallika Ramanathan	**Brown and Caldwell**	mramanathan@brwncald.com

from: Sybille Roth and Jeremy Decker, PE

subject: **USD Generator**
Supplementary Analysis for Environmental Noise Impact Technical Report
salter project number: 18-0696

We have received updated information and sound data for the emergency generator equipment (received 19 November 2019) and outdoor HVAC equipment (received 9 December 2019). This letter summarizes our updated analysis for the USD generator project and serves as a supplementary document for our 16 January 2019 Noise Impact Technical Report. We have the following comments.

UPDATED EQUIPMENT INFORMATION

- In lieu of two 3.5 MW generators, the project will consist of three 2.5 MW generator engines
- Two additional outdoor HVAC units

Our analysis is based on provided sound data for two generator engine options: a 2.5 MW Cummins 2500DQKAN or a 2.5 MW Caterpillar generator system. We have used the loudest sound levels for this analysis.

We understand that the engines would be fully enclosed in a building with large openings at the building envelope for radiator ventilation. The engine exhaust outlet would be located outdoors with a in-line muffler.

Outdoor noise levels listed in this report are based on conditions with three engine generators and all accessory HVAC units operating simultaneously. The site plan indicates that the building is sized for total four generators. One additional generator could be added in the future, which would be expected to increase noise by approximately 1 decibel, nominally, if the design parameters are effectively the same.

The rooftop exhaust fans have not changed.

For the outdoor HVAC units, our analysis is based on provided sound data for Mitsubishi model PUY-A12NKA7.

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NOISE IMPACTS AND UPDATED MITIGATION MEASURES

Noise Impact Measures

Impact 1: Operational Noise ("temporary"). The Project equipment noise could result in a significant temporary increase in ambient noise levels and/or exceed local standards.

Impact 2: Operational Noise ("permanent"). If operated for a long period of time, the Project equipment noise could result in a significant increase in ambient average daily noise levels and/or exceed local standards.

Engine and Radiator Noise and the Building Envelope

The engines are to be fully enclosed in a building. The example 2.5 MW Cummins engine is rated to generate a sound power level of 125 dB (A-weighted) and the 2.5 MW Caterpillar engine is rated to generate a sound pressure level of 94 dB (A-weighted) at a 23-foot distance. The wall and roof construction would need to be sound-attenuating materials. The composite sound transmission loss performance of the building envelope would need to be equivalent to STC 37. This is inclusive of the walls, roof, doors, vents, and other openings.

- The walls and roof might be an upgraded or augmented modular/prefabricated panel system, if available, or a more traditional framing system.
- Depending on location/orientation of doors, they will likely need to be gasketed.
- Depending on size and location, ventilation openings will also require sound attenuation measures with an effective sound insertion loss between 20 to 30 dB (A-weighted). This could be achieved by common sound attenuators including one or more of the following:
  - A duct silencer or bank of silencers (typically 10 to 30 dB sound insertion loss)
  - Acoustical louvers (typically 10 to 15 dB sound insertion loss)
  - Duct/plenum internally lined with acoustical insulation (typically 5 to 20 dB sound insertion loss)

Engine Exhaust Noise

The generators will include engine exhaust systems with outdoor openings. The example 2.5 MW Cummins engine exhaust is rated to generate a sound power level of 133 dB (A-weighted) an the 2.5 MW Caterpillar engine exhaust is rated to generate a sound pressure level of 105 dB (A-weighted) at a 23-foot distance. At each exhaust pipe, a muffler would be needed to provide an effective sound insertion loss of at least 40 dB (A-weighted).

Building Exhaust Fans

The analysis also accounts for three exhaust fans, each with a sound power rating of 92 dB (A-weighted). The exhaust fans would either need to be placed behind noise barrier screen walls or located inside the building (e.g., in-line cabinet or mixed-flow fans) and ducted to the outdoor ventilation openings through similar sound attenuation measures described above for each ventilation opening. At least 15 dB (A-weighted) of effective sound insertion loss would be needed to reduce exhaust fan discharge noise.

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Building Outdoor HVAC Units

The building site includes two outdoor HVAC units installed at grade. This analysis accounts for two Mitsubishi model PUY-A12NKA7 units with a sound pressure rating of 44 dB (A-weighted) at a 3-foot distance. This meets the noise levels at the property lines without mitigation.

Calculated Equipment Noise Levels

Based on the updated analysis, noise levels as outlined in Table 7[1] (see below for reference) do not chance for the two operational scenarios (temporary and permanent), both on an unmitigated and mitigated basis.

Table 7. Temporary and "Permanent" Operational Noise Levels with Mitigation

Temporary Equipment Noise Levels dB				"Permanent" Average Daily Noise Levels (Ambi + Equipment Noise), DNL[b] dB		
Reception[a]	Baseline/Unmitigated Conditions	With Mitigation	"Temporary" Noise Limit	Baseline/Unmitigated Conditions	With Mitigation	"Permane Noise Lir
1	68	49	49-50	64	58	61
2	58	40	49-50	58	56	60
3	54	35	49-50	55	53	58
4	51	33	49-50	58	58	60

[a] See Figure 2 in Appendix F for receptor locations.

[b] DNL = Average daily noise level.

Source: Charles M. Salter Associates. January 2019.

* * *

This concludes our supplementary comments. Please call with any questions.

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[1] As shown in the *USD Initial Study Standby Power Generation System Upgrade Project, February 2019*