

Southern California Edison
ELM Project A.18-05-007

DATA REQUEST SET A1805007-ED-SCE-DEF-001

To: ENERGY DIVISION
Prepared by: Rey Gonzales
Title: Environmental Project Manager
Dated: 07/17/2018

Question 46 (B-24):

Provide supporting calculations / spreadsheets / technical reports that support emission estimates in the PEA.

The PEA Air Quality (and GHG emission) calculations are incomplete because activity assumptions do not appear to be included. The PEA includes “Appendix F: Air Quality Calculations” (pp. F-1 to F-11). The appendix refers to CalEEMod as the basis for emission factors. However, calculating each emission rate depends on multiplying the activity assumption with each emission factor. The activity assumptions that were used to arrive at all Air Quality and GHG totals should be shown. The activity assumptions in the calculations supporting PEA Air Quality Tables 4.3-8 and 4.3-9 and GHG Table 4.7-1 are needed. This can be in the form of tables, spreadsheets, or CalEEMod results reports. Also, the PEA’s use of CalEEMod from 2013 and the ARB OFFROAD 2007 model needs to be updated to the current versions of the models. A. Please address the deficiencies noted above.

Response to Question 46 (B-24):

The criteria air pollutant (CAP) and greenhouse gas (GHG) emissions presented in Appendix F: Air Quality Calculations were prepared using multiple data sources. As described in Appendix F: Air Quality Calculations, emissions from the following sources were calculated separately, then combined to generate the total Project emissions:

- Off-road construction equipment,
- On-road vehicle travel,
- Earthwork, and
- Sulfur hexafluoride- (SF₆-) containing equipment.

The off-road construction equipment emissions were estimated using emission factors, horsepower, and load factors from the latest version of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 User’s Guide (Appendix D – Default Data Tables). As a result, these emissions are consistent with the latest version of CalEEMod and have not been revised.

The on-road vehicle travel emission factors were developed using CalEEMod Version 2013.2.2. The input files from these CalEEMod runs were modified for use in the latest version of CalEEMod and new output reports were generated. The resulting emission factors were then used to reevaluate the Project emissions. The resulting output reports are included in the attached

"Attach C: Updated CalEEMod Output Reports." Revised CAP and GHG emission results that incorporate the updated CalEEMod emission factors are included in the attached "Attach D: Updated Criteria Air Pollutant and Greenhouse Gas Emissions." As shown, the revised emissions are consistent with the impact determinations presented in the PEA.

The activity assumptions required to duplicate these calculations will be provided separately as an Excel spreadsheet (see Attachment I: AQ and GHG Activity Assumptions and EFs). This spreadsheet includes the following:

- Daily operating time for off-road equipment, quantity of off-road equipment required, and off-road equipment load factors;
- Emission factors for on-road vehicles, daily vehicle-miles-traveled for each on-road vehicle type;
- Helicopter emission factors and emissions calculations; and
- Emission factors for earthwork.

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

ELM On-Road Emission Factors
Mojave Desert Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

Project Characteristics -

Land Use -

Construction Phase - One-day phases setup to evaluate on-road emission factors.

Off-road Equipment - Defaults set to zero to eliminate off-road equipment.

Trips and VMT - Single, 1,000 mile trips to evaluate emission factors.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

On-road Fugitive Dust - Unpaved construction phases modified so all travel is on unpaved roads.

Construction Off-road Equipment Mitigation - Use Soil Stabilizer
Reduce Vehicle Speed on Unpaved Roads

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

tblTripsAndVMT	WorkerTripLength	16.80	1,000.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	1,000.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00

2.0 Emissions Summary

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Personal-Paved	Building Construction	6/1/2019	6/1/2019	7	1	
2	Personal-Unpaved	Building Construction	6/2/2019	6/2/2019	7	1	
3	Delivery-Paved	Building Construction	6/3/2019	6/3/2019	7	1	
4	Delivery-Unpaved	Building Construction	6/4/2019	6/4/2019	7	1	
5	Heavy Duty-Paved	Building Construction	6/5/2019	6/5/2019	7	1	
6	Heavy Duty-Unpaved	Building Construction	6/6/2019	6/6/2019	7	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Personal-Paved	Cranes	0	4.00	231	0.29
Personal-Paved	Forklifts	0	6.00	89	0.20
Personal-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Delivery-Unpaved	Cranes	0	4.00	231	0.29
Heavy Duty-Paved	Cranes	0	4.00	231	0.29
Heavy Duty-Unpaved	Cranes	0	4.00	231	0.29
Personal-Unpaved	Cranes	0	4.00	231	0.29
Delivery-Paved	Cranes	0	4.00	231	0.29
Delivery-Unpaved	Forklifts	0	6.00	89	0.20
Heavy Duty-Paved	Forklifts	0	6.00	89	0.20
Heavy Duty-Unpaved	Forklifts	0	6.00	89	0.20
Personal-Unpaved	Forklifts	0	6.00	89	0.20
Delivery-Paved	Forklifts	0	6.00	89	0.20
Delivery-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Heavy Duty-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Heavy Duty-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Personal-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Delivery-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Personal-Paved	0	1.00	0.00	0.00	1,000.00	0.00	0.00	LD_Mix	MHDT	HHDT
Delivery-Unpaved	0	0.00	1.00	0.00	0.00	1,000.00	0.00	LD_Mix	MHDT	HHDT
Heavy Duty-Paved	0	0.00	0.00	1.00	0.00	0.00	1,000.00	LD_Mix	MHDT	HHDT
Heavy Duty-Unpaved	0	0.00	0.00	1.00	0.00	0.00	1,000.00	LD_Mix	MHDT	HHDT
Personal-Unpaved	0	1.00	0.00	0.00	1,000.00	0.00	0.00	LD_Mix	MHDT	HHDT
Delivery-Paved	0	0.00	1.00	0.00	0.00	1,000.00	0.00	LD_Mix	MHDT	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Reduce Vehicle Speed on Unpaved Roads

3.2 Personal-Paved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.2 Personal-Paved - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3079	0.2786	3.2810	7.9200e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		788.5116	788.5116	0.0282		789.2163
Total	0.3079	0.2786	3.2810	7.9200e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		788.5116	788.5116	0.0282		789.2163

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.2 Personal-Paved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3079	0.2786	3.2810	7.9200e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		788.5116	788.5116	0.0282		789.2163
Total	0.3079	0.2786	3.2810	7.9200e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		788.5116	788.5116	0.0282		789.2163

3.3 Personal-Unpaved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.3 Personal-Unpaved - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3079	0.2786	3.2810	7.9200e-003	1,471.7771	4.5700e-003	1,471.7817	146.8940	4.2100e-003	146.8982		788.5116	788.5116	0.0282		789.2163
Total	0.3079	0.2786	3.2810	7.9200e-003	1,471.7771	4.5700e-003	1,471.7817	146.8940	4.2100e-003	146.8982		788.5116	788.5116	0.0282		789.2163

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.3 Personal-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3079	0.2786	3.2810	7.9200e-003	405.5636	4.5700e-003	405.5681	40.4448	4.2100e-003	40.4490		788.5116	788.5116	0.0282		789.2163
Total	0.3079	0.2786	3.2810	7.9200e-003	405.5636	4.5700e-003	405.5681	40.4448	4.2100e-003	40.4490		788.5116	788.5116	0.0282		789.2163

3.4 Delivery-Paved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.4 Delivery-Paved - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3462	4.6832	2.0229	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7691	2,397.7691	0.0300		2,398.5180
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3462	4.6832	2.0229	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7691	2,397.7691	0.0300		2,398.5180

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.4 Delivery-Paved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3462	4.6832	2.0229	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7691	2,397.7691	0.0300		2,398.5180
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3462	4.6832	2.0229	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7691	2,397.7691	0.0300		2,398.5180

3.5 Delivery-Unpaved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.5 Delivery-Unpaved - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3462	4.6832	2.0229	0.0231	1,471.9923	0.1496	1,472.1419	146.9846	0.1431	147.1277		2,397.7691	2,397.7691	0.0300		2,398.5180
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3462	4.6832	2.0229	0.0231	1,471.9923	0.1496	1,472.1419	146.9846	0.1431	147.1277		2,397.7691	2,397.7691	0.0300		2,398.5180

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.5 Delivery-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3462	4.6832	2.0229	0.0231	405.7787	0.1496	405.9283	40.5354	0.1431	40.6785		2,397.7691	2,397.7691	0.0300		2,398.5180
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3462	4.6832	2.0229	0.0231	405.7787	0.1496	405.9283	40.5354	0.1431	40.6785		2,397.7691	2,397.7691	0.0300		2,398.5180

3.6 Heavy Duty-Paved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.6 Heavy Duty-Paved - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1614	6.1023	0.9234	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,233.3605	3,233.3605	0.0172		3,233.7896
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1614	6.1023	0.9234	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,233.3605	3,233.3605	0.0172		3,233.7896

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.6 Heavy Duty-Paved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1614	6.1023	0.9234	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,233.3605	3,233.3605	0.0172		3,233.7896
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1614	6.1023	0.9234	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,233.3605	3,233.3605	0.0172		3,233.7896

3.7 Heavy Duty-Unpaved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.7 Heavy Duty-Unpaved - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1614	6.1023	0.9234	0.0308	1,471.8933	0.0343	1,471.9276	146.9328	0.0328	146.9656		3,233.3605	3,233.3605	0.0172		3,233.7896
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1614	6.1023	0.9234	0.0308	1,471.8933	0.0343	1,471.9276	146.9328	0.0328	146.9656		3,233.3605	3,233.3605	0.0172		3,233.7896

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

3.7 Heavy Duty-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1614	6.1023	0.9234	0.0308	405.6797	0.0343	405.7140	40.4836	0.0328	40.5164		3,233.3605	3,233.3605	0.0172		3,233.7896
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1614	6.1023	0.9234	0.0308	405.6797	0.0343	405.7140	40.4836	0.0328	40.5164		3,233.3605	3,233.3605	0.0172		3,233.7896

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533720	0.036539	0.171303	0.112547	0.020259	0.005751	0.010148	0.095159	0.001607	0.002105	0.008722	0.000887	0.001253

5.0 Energy Detail

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Summer

7.0 Water Detail

7.1 Mitigation Measures Water**8.0 Waste Detail**

8.1 Mitigation Measures Waste**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

ELM On-Road Emission Factors
Mojave Desert Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

Project Characteristics -

Land Use -

Construction Phase - One-day phases setup to evaluate on-road emission factors.

Off-road Equipment - Defaults set to zero to eliminate off-road equipment.

Trips and VMT - Single, 1,000 mile trips to evaluate emission factors.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

On-road Fugitive Dust - Unpaved construction phases modified so all travel is on unpaved roads.

Construction Off-road Equipment Mitigation - Use Soil Stabilizer
Reduce Vehicle Speed on Unpaved Roads

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

tblTripsAndVMT	WorkerTripLength	16.80	1,000.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	1,000.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00

2.0 Emissions Summary

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Personal-Paved	Building Construction	6/1/2019	6/1/2019	7	1	
2	Personal-Unpaved	Building Construction	6/2/2019	6/2/2019	7	1	
3	Delivery-Paved	Building Construction	6/3/2019	6/3/2019	7	1	
4	Delivery-Unpaved	Building Construction	6/4/2019	6/4/2019	7	1	
5	Heavy Duty-Paved	Building Construction	6/5/2019	6/5/2019	7	1	
6	Heavy Duty-Unpaved	Building Construction	6/6/2019	6/6/2019	7	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Personal-Paved	Cranes	0	4.00	231	0.29
Personal-Paved	Forklifts	0	6.00	89	0.20
Personal-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Delivery-Unpaved	Cranes	0	4.00	231	0.29
Heavy Duty-Paved	Cranes	0	4.00	231	0.29
Heavy Duty-Unpaved	Cranes	0	4.00	231	0.29
Personal-Unpaved	Cranes	0	4.00	231	0.29
Delivery-Paved	Cranes	0	4.00	231	0.29
Delivery-Unpaved	Forklifts	0	6.00	89	0.20
Heavy Duty-Paved	Forklifts	0	6.00	89	0.20
Heavy Duty-Unpaved	Forklifts	0	6.00	89	0.20
Personal-Unpaved	Forklifts	0	6.00	89	0.20
Delivery-Paved	Forklifts	0	6.00	89	0.20
Delivery-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Heavy Duty-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Heavy Duty-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Personal-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Delivery-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Personal-Paved	0	1.00	0.00	0.00	1,000.00	0.00	0.00	LD_Mix	MHDT	HHDT
Delivery-Unpaved	0	0.00	1.00	0.00	0.00	1,000.00	0.00	LD_Mix	MHDT	HHDT
Heavy Duty-Paved	0	0.00	0.00	1.00	0.00	0.00	1,000.00	LD_Mix	MHDT	HHDT
Heavy Duty-Unpaved	0	0.00	0.00	1.00	0.00	0.00	1,000.00	LD_Mix	MHDT	HHDT
Personal-Unpaved	0	1.00	0.00	0.00	1,000.00	0.00	0.00	LD_Mix	MHDT	HHDT
Delivery-Paved	0	0.00	1.00	0.00	0.00	1,000.00	0.00	LD_Mix	MHDT	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Reduce Vehicle Speed on Unpaved Roads

3.2 Personal-Paved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.2 Personal-Paved - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3293	0.2872	2.4526	6.9400e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		691.6297	691.6297	0.0233		692.2122
Total	0.3293	0.2872	2.4526	6.9400e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		691.6297	691.6297	0.0233		692.2122

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.2 Personal-Paved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3293	0.2872	2.4526	6.9400e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		691.6297	691.6297	0.0233		692.2122
Total	0.3293	0.2872	2.4526	6.9400e-003	0.7597	4.5700e-003	0.7643	0.2014	4.2100e-003	0.2056		691.6297	691.6297	0.0233		692.2122

3.3 Personal-Unpaved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.3 Personal-Unpaved - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3293	0.2872	2.4526	6.9400e-003	1,471.7771	4.5700e-003	1,471.7817	146.8940	4.2100e-003	146.8982		691.6297	691.6297	0.0233		692.2122
Total	0.3293	0.2872	2.4526	6.9400e-003	1,471.7771	4.5700e-003	1,471.7817	146.8940	4.2100e-003	146.8982		691.6297	691.6297	0.0233		692.2122

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.3 Personal-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3293	0.2872	2.4526	6.9400e-003	405.5636	4.5700e-003	405.5681	40.4448	4.2100e-003	40.4490		691.6297	691.6297	0.0233		692.2122
Total	0.3293	0.2872	2.4526	6.9400e-003	405.5636	4.5700e-003	405.5681	40.4448	4.2100e-003	40.4490		691.6297	691.6297	0.0233		692.2122

3.4 Delivery-Paved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.4 Delivery-Paved - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3493	4.9326	1.9854	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7302	2,397.7302	0.0293		2,398.4637
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3493	4.9326	1.9854	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7302	2,397.7302	0.0293		2,398.4637

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.4 Delivery-Paved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3493	4.9326	1.9854	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7302	2,397.7302	0.0293		2,398.4637
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3493	4.9326	1.9854	0.0231	0.9749	0.1496	1.1245	0.2920	0.1431	0.4352		2,397.7302	2,397.7302	0.0293		2,398.4637

3.5 Delivery-Unpaved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.5 Delivery-Unpaved - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3493	4.9326	1.9854	0.0231	1,471.9923	0.1496	1,472.1419	146.9846	0.1431	147.1277		2,397.7302	2,397.7302	0.0293		2,398.4637
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3493	4.9326	1.9854	0.0231	1,471.9923	0.1496	1,472.1419	146.9846	0.1431	147.1277		2,397.7302	2,397.7302	0.0293		2,398.4637

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.5 Delivery-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3493	4.9326	1.9854	0.0231	405.7787	0.1496	405.9284	40.5354	0.1431	40.6785		2,397.7302	2,397.7302	0.0293		2,398.4637
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.3493	4.9326	1.9854	0.0231	405.7787	0.1496	405.9284	40.5354	0.1431	40.6785		2,397.7302	2,397.7302	0.0293		2,398.4637

3.6 Heavy Duty-Paved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.6 Heavy Duty-Paved - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1617	6.3845	0.9231	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,230.3741	3,230.3741	0.0178		3,230.8191
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1617	6.3845	0.9231	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,230.3741	3,230.3741	0.0178		3,230.8191

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.6 Heavy Duty-Paved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1617	6.3845	0.9231	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,230.3741	3,230.3741	0.0178		3,230.8191
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1617	6.3845	0.9231	0.0308	0.8759	0.0343	0.9102	0.2402	0.0328	0.2730		3,230.3741	3,230.3741	0.0178		3,230.8191

3.7 Heavy Duty-Unpaved - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.7 Heavy Duty-Unpaved - 2019
Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1617	6.3845	0.9231	0.0308	1,471.8933	0.0343	1,471.9276	146.9328	0.0328	146.9656		3,230.3741	3,230.3741	0.0178		3,230.8191
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1617	6.3845	0.9231	0.0308	1,471.8933	0.0343	1,471.9276	146.9328	0.0328	146.9656		3,230.3741	3,230.3741	0.0178		3,230.8191

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

3.7 Heavy Duty-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1617	6.3845	0.9231	0.0308	405.6797	0.0343	405.7140	40.4836	0.0328	40.5164		3,230.3741	3,230.3741	0.0178		3,230.8191
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.1617	6.3845	0.9231	0.0308	405.6797	0.0343	405.7140	40.4836	0.0328	40.5164		3,230.3741	3,230.3741	0.0178		3,230.8191

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533720	0.036539	0.171303	0.112547	0.020259	0.005751	0.010148	0.095159	0.001607	0.002105	0.008722	0.000887	0.001253

5.0 Energy Detail

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Winter

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

**ELM On-Road Emission Factors
Mojave Desert Air Basin, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	0.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

Project Characteristics -

Land Use -

Construction Phase - One-day phases setup to evaluate on-road emission factors.

Off-road Equipment - Defaults set to zero to eliminate off-road equipment.

Trips and VMT - Single, 1,000 mile trips to evaluate emission factors.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

Off-road Equipment - Defaults set to zero.

On-road Fugitive Dust - Unpaved construction phases modified so all travel is on unpaved roads.

Construction Off-road Equipment Mitigation - Use Soil Stabilizer
Reduce Vehicle Speed on Unpaved Roads

Mobile Land Use Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	0.5
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDays	0.00	1.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

tblTripsAndVMT	WorkerTripLength	16.80	1,000.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripLength	16.80	1,000.00
tblTripsAndVMT	WorkerTripLength	16.80	0.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	1.00

2.0 Emissions Summary

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Personal-Paved	Building Construction	6/1/2019	6/1/2019	7	1	
2	Personal-Unpaved	Building Construction	6/2/2019	6/2/2019	7	1	
3	Delivery-Paved	Building Construction	6/3/2019	6/3/2019	7	1	
4	Delivery-Unpaved	Building Construction	6/4/2019	6/4/2019	7	1	
5	Heavy Duty-Paved	Building Construction	6/5/2019	6/5/2019	7	1	
6	Heavy Duty-Unpaved	Building Construction	6/6/2019	6/6/2019	7	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Personal-Paved	Cranes	0	4.00	231	0.29
Personal-Paved	Forklifts	0	6.00	89	0.20
Personal-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Delivery-Unpaved	Cranes	0	4.00	231	0.29
Heavy Duty-Paved	Cranes	0	4.00	231	0.29
Heavy Duty-Unpaved	Cranes	0	4.00	231	0.29
Personal-Unpaved	Cranes	0	4.00	231	0.29
Delivery-Paved	Cranes	0	4.00	231	0.29
Delivery-Unpaved	Forklifts	0	6.00	89	0.20
Heavy Duty-Paved	Forklifts	0	6.00	89	0.20
Heavy Duty-Unpaved	Forklifts	0	6.00	89	0.20
Personal-Unpaved	Forklifts	0	6.00	89	0.20
Delivery-Paved	Forklifts	0	6.00	89	0.20
Delivery-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Heavy Duty-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Heavy Duty-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Personal-Unpaved	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Delivery-Paved	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

3.7 Heavy Duty-Unpaved - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.0000e-005	3.2400e-003	4.6000e-004	2.0000e-005	0.1856	2.0000e-005	0.1856	0.0185	2.0000e-005	0.0185	0.0000	1.4661	1.4661	1.0000e-005	0.0000	1.4663
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.0000e-005	3.2400e-003	4.6000e-004	2.0000e-005	0.1856	2.0000e-005	0.1856	0.0185	2.0000e-005	0.0185	0.0000	1.4661	1.4661	1.0000e-005	0.0000	1.4663

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.533720	0.036539	0.171303	0.112547	0.020259	0.005751	0.010148	0.095159	0.001607	0.002105	0.008722	0.000887	0.001253

5.0 Energy Detail

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

6.0 Area Detail**6.1 Mitigation Measures Area**

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

7.0 Water Detail

7.1 Mitigation Measures Water

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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ELM On-Road Emission Factors - Mojave Desert Air Basin, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

ELM On-Road Emission Factors Mojave Desert Air Basin, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Delivery-Paved	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delivery-Unpaved	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty-Paved	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty-Unpaved	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal-Paved	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal-Unpaved	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Cranes	Diesel	No Change	0	0	No Change	0.00
Forklifts	Diesel	No Change	0	0	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	0	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	
Unmitigated tons/yr						Unmitigated mt/yr						
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	
Mitigated tons/yr						Mitigated mt/yr						
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	
Percent Reduction												
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Fugitive Dust Mitigation

Yes/No Mitigation Measure Mitigation Input Mitigation Input Mitigation Input

Yes	Soil Stabilizer for unpaved Roads	PM10 Reduction	55.00	PM2.5 Reduction	55.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		

No	Water Exposed Area	PM10 Reduction	0.00	PM2.5 Reduction	0.00	Frequency (per day)	
No	Unpaved Road Mitigation	Moisture Content %	0.50	Vehicle Speed (mph)	15.00		
No	Clean Paved Road	% PM Reduction	0.00				

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2
Delivery-Paved	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Delivery-Paved	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Delivery-Unpaved	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Delivery-Unpaved	Roads	0.67	0.07	0.19	0.02	0.72	0.72
Heavy Duty-Paved	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty-Paved	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty-Unpaved	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty-Unpaved	Roads	0.67	0.07	0.19	0.02	0.72	0.72
Personal-Paved	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Personal-Paved	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Personal-Unpaved	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Personal-Unpaved	Roads	0.67	0.07	0.19	0.02	0.72	0.72

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.00	0.15		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
No	Land Use	Increase Transit Accessibility	0.25	0.00		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.00			

No	Neighborhood Enhancements	Improve Pedestrian Network	0.00		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.00		
No	Neighborhood Enhancements	Implement NEV Network	0.00		
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00		
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00	
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00	
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00	
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00		
No	Transit Improvements	Provide BRT System	0.00	0.00	
No	Transit Improvements	Expand Transit Network	0.00	0.00	
No	Transit Improvements	Increase Transit Frequency	0.00		0.00
	Transit Improvements	Transit Improvements Subtotal	0.00		
		Land Use and Site Enhancement Subtotal	0.00		
No	Commute	Implement Trip Reduction Program			
No	Commute	Transit Subsidy			
No	Commute	Implement Employee Parking "Cash Out"	3.00		
No	Commute	Workplace Parking Charge		0.00	
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00
No	Commute	Provide Ride Sharing Program	5.00		
	Commute	Commute Subtotal	0.00		

No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.00		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	250.00
No	Use Low VOC Paint (Residential Exterior)	250.00
No	Use Low VOC Paint (Non-residential Interior)	250.00
No	Use Low VOC Paint (Non-residential Exterior)	250.00
No	Use Low VOC Paint (Parking)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
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Institute Recycling and Composting Services Percent Reduction in Waste Disposed	
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**ATTACHMENT D: ATTACHMENT D: UPDATED CRITERIA AIR
POLLUTANT AND GREENHOUSE GAS EMISSIONS**

Uncontrolled Construction Emissions

Pollutant	Uncontrolled Emissions (Tons per Year)					
	ROGs	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
California						
2019	1.9	16.7	15.4	15.4	79.2	9.3
2020	1.0	7.7	8.4	.5	37.2	4.6
Applicable Threshold	25	25	100	25	15	12
Threshold Exceeded?	No	No	No	No	Yes	No
Nevada						
2019	1.1	9.6	8.8	0.5	41.8	5.1
2020	0.3	2.6	2.7	< 0.1	19.1	2.0
Applicable Threshold	100	100	100	100	100	100
Threshold Exceeded?	No	No	No	No	No	No

Notes: ROGs = reactive organic gases; NO_x = nitrogen oxides; CO = carbon monoxide; SO₂ = sulfur dioxide; PM₁₀ = particulate matter 10 micrometers or less in diameter; PM_{2.5} = particulate matter 2.5 micrometers or less in diameter

Controlled Construction Emissions

Pollutant	Controlled Emissions (Tons per Year)					
	ROGs	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
California						
2019	1.0	5.6	17.5	0.6	14.3	2.4
2020	0.7	3.5	9.4	0.5	7.0	1.4
Applicable Threshold	25	25	100	25	15	12
Threshold Exceeded?	No	No	No	No	No	No
Nevada						
2019	0.7	4.0	10.1	0.5	12.4	2.0
2020	0.2	0.9	2.9	< 0.1	5.4	0.6
Applicable Threshold	100	100	100	100	100	100
Threshold Exceeded?	No	No	No	No	No	No

Total Annual Greenhouse Gas Emissions

Source	Greenhouse Gas (GHG) Emissions (Tons of CO₂e per Year)
2019 Construction and Fugitive SF ₆ Emissions	8,957.0
2020 Construction and Fugitive SF ₆ Emissions	4,342.9
Threshold	100,000

Notes: CO₂e = carbon dioxide equivalent; SF₆ = sulfur hexafluoride

Southern California Edison
ELM Project A.18-05-007

DATA REQUEST SET A1805007-ED-SCE-DEF-001

To: ENERGY DIVISION
Prepared by: Rey Gonzales
Title: Environmental Project Manager
Dated: 07/17/2018

Question 47 (B-24):

Identify Project Green House Gas (GHG) emissions:

- Every project will quantify GHG emissions from a business as usual snapshot. That is, what the GHG emissions will be from the proposed project if no mitigations were used.
- Every project will quantify GHG emission reductions from every Applicant Proposed Measure that is implemented. The quantifications will be itemized and placed in a table format.
- Every project will identify the net emissions of a project after mitigations have been applied.
- Applicant will calculate and quantify GHG emissions (CO₂equivalent) for the project including construction & operation.
- Applicant will calculate and quantify the GHG reduction based on reduction measures proposed for the project.
- Applicant will propose Applicant Proposed Measures (APM) to implement and follow to maximize GHG reductions. If sufficient, CPUC will accept them without adding further mitigation measures.
- Applicant will discuss programs already in place to reduce GHG emissions on a system wide level. This includes Applicant's voluntary compliance with USEPA SF₆ reduction program, reductions from energy efficiency, demand response, LTPP, et al

The PEA provides GHG mitigation (APMs). However, GHG estimates should use current versions of CalEEMod and ARBOFFROAD models.

The annual SF₆ leakage rates and equipment counts assumed in the calculations supporting PEA GHG Table 4.7-2 need to be provided.

Basis for GHG estimates in Table 4-7.1 is not provided.

A. Please address the deficiencies noted above.

Response to Question 47 (B-24):

As described in response to Question 46, emission factors from CalEEMod Version 2016.3.2 were used to prepare the emissions estimates in the PEA.

The annual emissions due to leaked SF₆ were determined by multiplying the total increase in volume of SF₆ by the manufacturer's guaranteed maximum annual leak rate (0.5 percent).

Attachment E: SF₆ Volume Change Summary provides a description of the potential changes in SF₆ volume at the Project locations. Because the final design is not complete, multiple scenarios have been included and the worst-case volume change (i.e., the greatest increase) was utilized.

ATTACHMENT E: SF₆ VOLUME CHANGE SUMMARY

Item	Equipment	Description of Change in SF ₆ Gas Volume	Worst-Case Change in SF ₆ (pounds)
1	Internal bypass switch for Lugo Series Capacitor at Eldorado Substation	<ul style="list-style-type: none"> • If Siemens is selected: <ul style="list-style-type: none"> – remove 52 pounds (existing equipment) for 1-segment design; – no change for 2-segment design • If ABB or GE is selected: <ul style="list-style-type: none"> – remove 104 pounds (existing equipment) and add 81 pounds for 1-segment design – remove 104 pounds (existing equipment) and add 162 pounds for 2-segment design 	162
2	Internal bypass switch for Newberry Springs Series Capacitor	<ul style="list-style-type: none"> • If Siemens is selected: <ul style="list-style-type: none"> – add 52 pounds for 1-segment design – add 104 pounds for 2-segment design • If ABB or GE is selected: <ul style="list-style-type: none"> – add 81 pounds for 1-segment design – add 162 pounds for 2-segment design 	162
3	Internal bypass switch for Eldorado Series Capacitors at Lugo Substation	<ul style="list-style-type: none"> • If Siemens is selected: <ul style="list-style-type: none"> – remove 52 pounds (existing equipment) for 1-segment design; – no change to for 2-segment design • If ABB or GE is selected: <ul style="list-style-type: none"> – remove 104 pounds (existing equipment) and add 81 pounds for 1-segment design – remove 104 pounds (existing equipment) and add 162 pounds for 2-segment design 	162

Item	Equipment	Description of Change in SF ₆ Gas Volume	Worst-Case Change in SF ₆ (pounds)
4	Internal bypass switch for Lugo Series Capacitors at Mohave Substation	<ul style="list-style-type: none"> • If Siemens is selected: <ul style="list-style-type: none"> – add 52 pounds for 1-segment design – add 104 pounds for 2-segment design • If ABB or GE is selected: <ul style="list-style-type: none"> – add 81 pounds for 1-segment design – add 162 pounds for 2-segment design 	162
5	Internal bypass switch for Ludlow Series Capacitor	<ul style="list-style-type: none"> • If Siemens is selected: <ul style="list-style-type: none"> – add 52 pounds for 1-segment design – add 104 pounds for 2-segment design • If ABB or GE is selected: <ul style="list-style-type: none"> – add 81 pounds for 1-segment design – add 162 pounds for 2-segment design 	162
6	Internal bypass switch for Mohave Series Capacitors at Lugo Substation	<ul style="list-style-type: none"> • If Siemens is selected: <ul style="list-style-type: none"> – remove 52 pounds (existing equipment) for 1-segment design – no change for 2-segment design • If ABB or GE is selected: <ul style="list-style-type: none"> – remove 104 pounds (existing equipment) and add 81 pounds for 1-segment design – remove 104 pounds (existing equipment) and add 162 pounds for new 2-segment design 	162
7	Reactor switching device for Lugo 500 kV line reactor at Eldorado Substation	<ul style="list-style-type: none"> • If Southern States RL Switchers or ABB HPL550B2 live tank circuit breakers used, no significant change (the quantity removed and added are similar) • If dead tank circuit breaker used, remove 150 pounds (existing equipment) and add 1,445 pounds (new equipment) 	1,295

Item	Equipment	Description of Change in SF ₆ Gas Volume	Worst-Case Change in SF ₆ (pounds)
8	Reactor switching device for Lugo 500 kV line reactor at Mohave Substation	<ul style="list-style-type: none"> • If Southern States RL Switchers or ABB HPL550B2 live tank circuit breakers used, no significant change (the quantity removed and added are similar) • If dead tank circuit breaker used, remove 150 pounds (existing equipment) and add 1,445 pounds (new equipment) 	1,295
9	500 kV circuit breakers at Eldorado Substation	<ul style="list-style-type: none"> • Remove 2,710 pounds from two existing circuit breakers and add 2,890 pounds for two new circuit breakers 	180
10	500 kV circuit breakers at Lugo Substation	<ul style="list-style-type: none"> • Remove 1,540 pounds from one existing circuit breaker and add 5,780 pounds for four new circuit breakers 	4,240
11	500 kV circuit breakers at Mohave Substation	<ul style="list-style-type: none"> • Add 5,780 pounds for four new circuit breakers 	5,780
Total	--	--	13,762

Southern California Edison
ELM Project A.18-05-007

DATA REQUEST SET A1805007-ED-SCE-DEF-001

To: ENERGY DIVISION
Prepared by: Rey Gonzales
Title: Environmental Project Manager
Dated: 07/17/2018

Question 48 (B-25):

Cultural Resources Report documenting a cultural resources investigation of the Proposed Project. This report should include a literature search, pedestrian survey, and Native American consultation.

SCE has provided some reports to BLM, which in turn has provided them to Aspen/CPUC. Reports received Include:

1. Include Historic Resources Assessment (Built Enviro. Report)
2. Class III Cultural Resources Inventory (Vol. I)
3. Class III Cultural Resources Inventory (Vol III)
4. Class III Cultural Resources Inventory (Vol. IV)

A. Please provide any and all reports and appendices not provided previously. See below. As of this Completeness Review (May 31, 2018), the following have not been completed or have not been provided to CPUC:

- Class III Cultural Resources Inventory (Vol II)
- Class III Cultural Resources Inventory (Vol V)
- Appendices for Vol I, III, & IV, which include Record Search Results -Paleontology Report for California and Nevada
- Cultural Resources Record Search Results
- Copy of Paleontology Record Search Results – Natural History Museum of LA County & Nevada State Museum

Response to Question 48 (B-25):

The Class III Cultural Resources Inventory (Vol V) document was delivered to the CPUC on June 7, 2018. The Class III Cultural Resources Inventory (Vol II) document was delivered to the CPUC on July 5th. Additionally, ASM has indicated that “The Cultural Resources Record Search Results” can be found in Volume I. Volume I contains a summary and the complete results are presented in one of the Appendices of the Volume.

Jim Shearer from the BLM requested for the CPUC’s Paleontologist to contact him and he will provide the following documents:

- Appendices for Vol I, III, & IV, which include Record Search Results -Paleontology Report for California and Nevada-Copy of Paleontology Record Search Results – Natural History

Museum of LA County & Nevada State Museum

Southern California Edison
ELM Project A.18-05-007

DATA REQUEST SET A1805007-ED-SCE-DEF-001

To: ENERGY DIVISION
Prepared by: Rey Gonzales
Title: Environmental Project Manager
Dated: 07/17/2018

Question 49 (B-26):

Provide a copy of all letters and documentation of Native American consultation.

Letters sent to tribes are provided in the PEA as part of Consultation. No information is provided on any responses or other communication. A reply message from NAHC to SCE regarding Sacred Lands Files Search request is provided, but not the original request letter to NAHC.

A. Please provide a complete record of communications regarding tribal issues, including outreach call log (if any), Sacred Lands Files Search and any other requests to NAHC, attachments sent with the outreach letters sent to each tribe, copies of any written responses or call logs from tribes to SCE.

Response to Question 49 (B-26):

The following is SCE's record of communications regarding tribal issues:

December 20, 2016 - SCE's consultant, ASM, sent a letter to the Native American Heritage Commission to request a Sacred Lands Files Search and Native American Contacts List.

January 3, 2017 - The Native American Heritage Commission responded back to ASM and provided the contact list of tribes with traditional lands or cultural places located within the boundaries of multiple counties as indicated within the response letter.

July 9, 2017 - BLM and SCE received an email from the San Manuel Band of Mission Indians' (SMBMI) Cultural Resources Management Department. They indicated they had reviewed project related information and requested to meet between July 24-August 11, 2017 with the BLM and SCE. A meeting with SMBMI was held on August 22, 2017 with the BLM and SCE.

July 25, 2017 - SCE received a letter from the Twenty-Nine Palms Band of Mission Indians indicating the tribe and the Tribal Historic Preservation Office look forward to continuing to work with the BLM and SCE on the project.

August 4, 2017 - SCE received an email from the Colorado River Indian Tribes' (CRIT) Tribal Historic Preservation Office indicating Mr. Brian Etsitty Acting Director would like to schedule a meeting to discuss the project. A conference call was scheduled with CRIT on August 28, 2017.

The aforementioned correspondence is attached in the following files:

ELM_Q#49_5.5 Cultural Resources_NAHC_ELMPC_Request_20161220.pdf

ELM_Q#49_5.5 Cultural Resources_NAHC_Letter_20170103.pdf

ELM_Q#49_5.5 Cultural Resources_SMBMI_Response_20170709.pdf
ELM_Q#49_5.5 Cultural Resources_Twenty-Nine Palms 20170725.pdf
ELM_Q#49_5.5 Cultural Resources_Letter from CRIT_20170804.pdf



December 20, 2016

Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691

RE: Sacred Lands Files Search and Native American Contacts List Request for Southern California Edison Eldorado – Lugo – Mohave Capacitor Series Project

To Whom This May Concern;

Southern California Edison (SCE) is proposing the Eldorado – Lugo – Mohave Capacitor Project (ELMCP) in San Bernardino County, California, and Clark County, Nevada. The purpose of the project is to provide safe and reliable electrical services; increase capacity on the existing Lugo – Mohave and Eldorado – Lugo 500 kV transmission lines for the purpose of increasing the amount of power delivered into the Los Angeles basin; meet proposed project needs while minimizing environmental impacts; and reducing loop flow through the neighboring utilized system for the purpose of mitigating overloads. Overall the ELMCP project involves approximately 2,402 acres of land. The proposed project is situated primarily on federally managed land under the administration of the United States Department of the Interior, Bureau of Land Management, and the National Park Service, Mojave National Preserve. Thus, the project is required to comply both with regulations set forth in the National Historic Preservation Act (NHPA) and with the California Environmental Quality Act (CEQA) governing the discovery and treatment of cultural resources, including traditional cultural properties.

To facilitate the request, the following items are enclosed:

- Sacred Lands File & Native American Contacts List Request Form;
- Table listing the USGS quadrangles;
- Legal description for project; and,
- Map illustrating the ELMPC project.

If you have any questions regarding this request or the proposed project, please do not hesitate to contact me at either 702-534-0375 or dwinslow@asmaffiliates.com.

Sincerely,

Diane L. Winslow, M.A., RPA
Director

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission

1550 Harbor Blvd, Suite 100

West Sacramento, CA 95691

916-373-3710

916-373-5471 – Fax

nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Eldorado - Lugo - Mohave Capacitor Series Project

County: San Bernardino County, California and Clark County, Nevada

USGS Quadrangle Name: See attached

Township: See attached **Range:** See attached **Section(s):** See attached

Company/Firm/Agency: ASM Affiliates, Inc.

Street Address: 2470 N. Decatur Blvd., Suit 160

City: Las Vegas, Nevada **Zip:** 89108

Phone: 702-534-0375

Fax: No fax line

Email: dwinslow@asmaffiliates.com

Project Description:

Southern California Edison (SCE) is proposing the Eldorado - Lugo - Mohave Capacitor Series Project (ELMPC) in San Bernardino County, California and Clark County, Nevada. The purpose of the project is to provide safe and reliable electrical services; increase capacity on the existing Lugo - Mohave and Eldorado - Lugo 500 kV transmission lines for the purpose of increasing the amount of power delivered into the Los Angeles basin; meet proposed project needs while minimizing environmental impacts; and reducing loop flow through the neighboring utilized system for the state and private land in San Bernardino County, California, and Clark County, Nevada.

USGS 7.5' Quadrangle
Apple Valley South, CA
Ash Hill, CA
Baker, CA
Bannock, CA
Bighorn Basin, CA
Blind Hills, CA
Broadwell Lake, CA
Budweiser Wash, CA
Butler, Peak, CA
Cajon, CA
Camp Rock Mine, CA
Cave Mountain, CA
Colton Well, CA
Cowhole Mountain, A
Crescent Peak, CA
Crucero Hill, CA
Danby, CA
Desert Spring, CA
East of Broadwell Lake, CA
East of Homer Mountain, CA
Essex, CA
Fair View Valley, CA
Fenner, CA
Fenner Hills, CA
Fifteenmile Valley, CA
Fountain Peak, CA
Frys Mtns. CA
Glasgow, CA
Goffs, CA
Grand View Mine, CA
Hector, CA
Hesperia, CA
Homer, CA
Homer Mountain, CA
Iron Ridge, CA
Kelso Dunes, CA
Lake Arrowhead, CA
Lavic Lake, CA
Lucern Valley, CA
Ludlow, CA
Minneola, CA
Nipton, CA
Silver Bell Mine, CA
Silverwood Lake, CA

USGS 7.5' Quadrangle
Sleeping Beauty, CA
Soda Lake South, CA
Sunshine Peak, CA
Van Winkle Spring, CA
West of Budweiser Wash, CA
West of Glasgow, CA
White Horse Mountain, CA
Yermo, CA
Boulder City SW, NV
Bridge Canyon, NV
Davis Dam, NV
Davis Dam SE, NV
Fourth of July Mountain, NV
Highland Spring, NV
Juniper Mine, NV
Keyhole Canyon, NV
McCullough Mountain, NV
McCullough Mountain NE, NV
Mount Manchester, NV
Nelson SW, NV
Searchlight, NV
Searchlight SE, NV
Sloan SE, NV
Tenmile Well, NV
West of Juniper Mine, NV

Legal Description of All Lands Involved with the ELMPC

Township	Range	Section	Land Status
03N	5W	11	Private
03N	5W	12	BLM Barstow/Private
03N	4W	1	Private
03N	4W	9	Private
03N	4W	10	Private
03N	4W	11	Private
03N	4W	12	Private
03N	4W	17	Private
03N	4W	18	BLM Barstow/Private
03N	3W	1	BLM Barstow/Private
03N	3W	2	BLM Barstow/Private
03N	3W	3	BLM Barstow
03N	3W	7	BLM Barstow/Private
03N	3W	8	BLM Barstow
03N	3W	9	BLM Barstow
03N	3W	10	BLM Barstow
04N	2W	1	BLM Barstow/Private
04N	2W	11	Private
04N	2W	12	Private
04N	2W	14	Private
04N	2W	22	Private
04N	2W	23	Private
04N	2W	26	Private
04N	2W	27	Private
04N	2W	28	BLM Barstow
04N	2W	29	BLM Barstow
04N	2W	31	BLM Barstow/Private
04N	2W	32	BLM Barstow/Private
04N	2W	36	Private
04N	1W	6	BLM Barstow /Private
04N	3W	36	Private
04N	1W	6	BLM Barstow/Private
05N	1E	4	BLM Barstow
05N	1E	5	BLM Barstow
05N	1E	6	Private
05N	1W	1	Private
05N	1W	2	Private
05N	1W	11	BLM Barstow/Private

Township	Range	Section	Land Status
05N	1W	15	BLM Barstow/Private
05N	1W	17	BLM Barstow/Private
05N	1W	21	Private
05N	1W	22	Private
05N	1W	28	Private
05N	1W	29	Private
05N	1W	31	Private
05N	1W	32	Private
06N	2E	13	BLM Barstow
06N	2E	14	BLM Barstow
06N	2E	15	BLM Barstow
06N	2E	21	BLM Barstow
06N	2E	22	BLM Barstow
06N	2E	28	BLM Barstow
06N	2E	29	BLM Barstow
06N	2E	30	BLM Barstow
06N	2E	31	BLM Barstow
06N	3E	12	BLM Barstow
06N	3E	13	BLM Barstow
06N	3E	14	BLM Barstow
06N	3E	15	BLM Barstow
06N	3E	16	California State
06N	3E	17	BLM Barstow
06N	3E	18	BLM Barstow
06N	4E	4	BLM Barstow
06N	4E	5	BLM Barstow
06N	4E	6	BLM Barstow
06N	4E	7	BLM Barstow
06N	1E	25	BLM Barstow
06N	1E	33	BLM Barstow/Private
06N	1E	34	BLM Barstow
06N	1E	35	BLM Barstow
06N	1E	36	Private
07N	4E	24	BLM Barstow
07N	4E	25	BLM Barstow
07N	4E	26	BLM Barstow
07N	4E	27	BLM Barstow
07N	4E	33	BLM Barstow
07N	4E	34	BLM Barstow
07N	4E	35	BLM Barstow

Township	Range	Section	Land Status
07N	5E	2	BLM Barstow/DoD, Twentynine Palms Marine Base
07N	5E	3	BLM Barstow/DoD, Twentynine Palms Marine Base
07N	5E	4	BLM Barstow/DoD, Twentynine Palms Marine Base
07N	5E	8	BLM Barstow
07N	5E	9	DoD, Twentynine Palms Marine Base
07N	5E	17	BLM Barstow
07N	5E	18	BLM Barstow
07N	5E	19	BLM Barstow
07N	8E	5	Private
08N	5E	24	BLM Barstow
08N	5E	25	Private
08N	5E	35	BLM Barstow /Private
08N	5E	36	Private
08N	6E	3	BLM Barstow
08N	6E	4	BLM Barstow
08N	6E	8	BLM Barstow
08N	6E	9	BLM Barstow
08N	6E	16	Private
08N	6E	17	BLM Barstow
08N	6E	18	BLM Barstow
08N	6E	19	BLM Barstow
08N	6E	20	BLM Barstow
08N	6E	21	BLM Barstow
08N	6E	22	BLM Barstow
08N	6E	23	BLM Barstow
08N	6E	24	BLM Barstow
08N	6E	26	BLM Barstow
08N	7E	27	BLM Barstow
08N	7E	28	BLM Barstow
08N	7E	29	BLM Barstow
08N	7E	30	BLM Barstow
08N	7E	34	BLM Barstow
08N	7E	35	BLM Barstow
08N	7E	36	BLM Barstow
08N	8E	13	BLM Needles
08N	8E	21	BLM Needles
08N	8E	22	BLM Needles
08N	8E	23	BLM Needles
08N	8E	24	BLM Needles

Township	Range	Section	Land Status
08N	8E	28	BLM Needles
08N	8E	29	BLM Needles
08N	8E	30	BLM Needles
08N	8E	31	BLM Needles
08N	9E	1	BLM Needles
08N	9E	2	BLM Needles
08N	9E	3	BLM Needles
08N	9E	9	BLM Needles
08N	9E	10	BLM Needles
08N	9E	17	BLM Needles
08N	9E	18	BLM Barstow
08N	10E	5	BLM Barstow
08N	10E	6	BLM Barstow
08N	17E	31	Private
09N	2E	19	Private
09N	6E	25	BLM Barstow
09N	6E	26	BLM Barstow
09N	6E	34	BLM Barstow
09N	6E	35	BLM Barstow
09N	7E	1	BLM Barstow
09N	7E	2	BLM Barstow
09N	7E	10	BLM Barstow
09N	7E	11	BLM Barstow
09N	7E	16	BLM Barstow/Private
09N	7E	19	BLM Barstow
09N	7E	20	BLM Barstow
09N	7E	30	BLM Barstow
09N	10E	25	BLM Needles
09N	10E	26	BLM Needles
09N	10E	27	BLM Needles
09N	10E	31	BLM Needles
09N	10E	32	BLM Needles
09N	10E	33	BLM Barstow
09N	10E	34	BLM Barstow
09N	11E	13	NPS, Mojave National Preserve
09N	11E	14	NPS, Mojave National Preserve
09N	11E	15	NPS, Mojave National Preserve
09N	11E	19	NPS, Mojave National Preserve
09N	11E	20	NPS, Mojave National Preserve
09N	11E	21	NPS, Mojave National Preserve

Township	Range	Section	Land Status
09N	11E	22	NPS, Mojave National Preserve
09N	11E	30	NPS, Mojave National Preserve
09N	12E	1	NPS, Mojave National Preserve
09N	12E	8	NPS, Mojave National Preserve
09N	12E	9	NPS, Mojave National Preserve
09N	12E	10	NPS, Mojave National Preserve
09N	12E	11	NPS, Mojave National Preserve
09N	12E	12	NPS, Mojave National Preserve
09N	12E	17	NPS, Mojave National Preserve
09N	12E	18	NPS, Mojave National Preserve
09N	13E	3	NPS, Mojave National Preserve
09N	13E	4	NPS, Mojave National Preserve
09N	13E	5	NPS, Mojave National Preserve
09N	13E	6	NPS, Mojave National Preserve
10N	7E	36	California State
10N	8E	2	BLM Needles
10N	8E	10	BLM Needles
10N	8E	11	BLM Needles
10N	8E	15	BLM Needles
10N	8E	16	California State
10N	8E	19	BLM Needles
10N	8E	20	BLM Needles
10N	8E	21	BLM Needles
10N	8E	30	BLM Needles
10N	8E	31	BLM Needles
10N	13E	34	NPS, Mojave National Preserve
10N	13E	35	NPS, Mojave National Preserve
10N	13E	36	California State
10N	R15E	31	NPS, Mojave National Preserve
10N	R15E	32	NPS, Mojave National Preserve
10N	R15E	33	NPS, Mojave National Preserve
10N	R15E	34	NPS, Mojave National Preserve
10N	R15E	35	NPS, Mojave National Preserve
10N	R15E	36	California State
10N	16E	25	NPS, Mojave National Preserve
10N	16E	26	NPS, Mojave National Preserve
10N	16E	27	NPS, Mojave National Preserve
10N	16E	28	NPS, Mojave National Preserve
10N	16E	29	NPS, Mojave National Preserve
10N	16E	30	NPS, Mojave National Preserve

Township	Range	Section	Land Status
10N	16E	31	NPS, Mojave National Preserve
10N	17E	22	NPS, Mojave National Preserve
10N	17E	23	NPS, Mojave National Preserve
10N	17E	24	NPS, Mojave National Preserve
10N	17E	27	NPS, Mojave National Preserve
10N	17E	28	NPS, Mojave National Preserve
10N	17E	29	NPS, Mojave National Preserve
10N	17E	30	NPS, Mojave National Preserve
10N	18E	12	NPS, Mojave National Preserve
10N	18E	13	NPS, Mojave National Preserve
10N	18E	14	NPS, Mojave National Preserve
10N	18E	15	NPS, Mojave National Preserve
10N	18E	16	NPS, Mojave National Preserve
10N	18E	17	NPS, Mojave National Preserve
10N	18E	19	NPS, Mojave National Preserve
10N	18E	20	NPS, Mojave National Preserve
10N	18E	25	Private
10N	18E	26	NPS, Mojave National Preserve/Private
10N	18E	35	Private
10N	19E	2	BLM Needles
10N	19E	3	BLM Needles/NPS, Mojave National Preserve
10N	19E	7	NPS, Mojave National Preserve
10N	19E	8	NPS, Mojave National Preserve
10N	19E	9	NPS, Mojave National Preserve
11N	8E	25	BLM Needles
11N	8E	35	BLM Needles
11N	8E	36	California State
11N	9E	14	BLM Needles/NPS, Mojave National Preserve
11N	9E	15	BLM Needles/NPS, Mojave National Preserve
11N	9E	16	Private
11N	9E	20	BLM Needles
11N	9E	21	BLM Needles
11N	9E	29	BLM Needles
11N	9E	30	BLM Needles
11N	10E	1	NPS, Mojave National Preserve
11N	10E	2	NPS, Mojave National Preserve
11N	10E	3	NPS, Mojave National Preserve
11N	10E	8	NPS, Mojave National Preserve
11N	10E	9	NPS, Mojave National Preserve

Township	Range	Section	Land Status
11N	10E	10	NPS, Mojave National Preserve
11N	10E	17	NPS, Mojave National Preserve
11N	10E	18	NPS, Mojave National Preserve
12N	7E	29	Private
12N	10E	36	NPS, Mojave National Preserve
12N	11E	12	NPS, Mojave National Preserve
12N	11E	13	NPS, Mojave National Preserve
12N	11E	14	NPS, Mojave National Preserve
12N	11E	15	NPS, Mojave National Preserve
12N	11E	21	NPS, Mojave National Preserve
12N	11E	22	NPS, Mojave National Preserve
12N	11E	28	NPS, Mojave National Preserve
12N	11E	29	NPS, Mojave National Preserve
12N	11E	31	NPS, Mojave National Preserve
12N	11E	32	NPS, Mojave National Preserve
12N	12E	4	NPS, Mojave National Preserve
12N	12E	5	NPS, Mojave National Preserve
12N	12E	6	NPS, Mojave National Preserve
12N	12E	7	NPS, Mojave National Preserve
11N	19E	13	BLM Needles
11N	19E	23	BLM Needles
11N	19E	24	BLM Needles
11N	19E	26	BLM Needles
11N	19E	27	BLM Needles
11N	19E	28	BLM Needles
11N	19E	31	BLM Needles
11N	19E	32	BLM Needles
11N	19E	33	BLM Needles
11N	20E	3	BLM Needles/Private
11N	20E	4	BLM Needles
11N	20E	8	BLM Needles
11N	20E	9	BLM Needles
11N	20E	18	BLM Needles
12N	20E	25	BLM Needles
12N	20E	34	Private
12N	20E	35	BLM Needles
12N	20E	36	California State
33S	65E	3	BLM Las Vegas
33S	65E	4	BLM Las Vegas
33S	65E	9	BLM Las Vegas

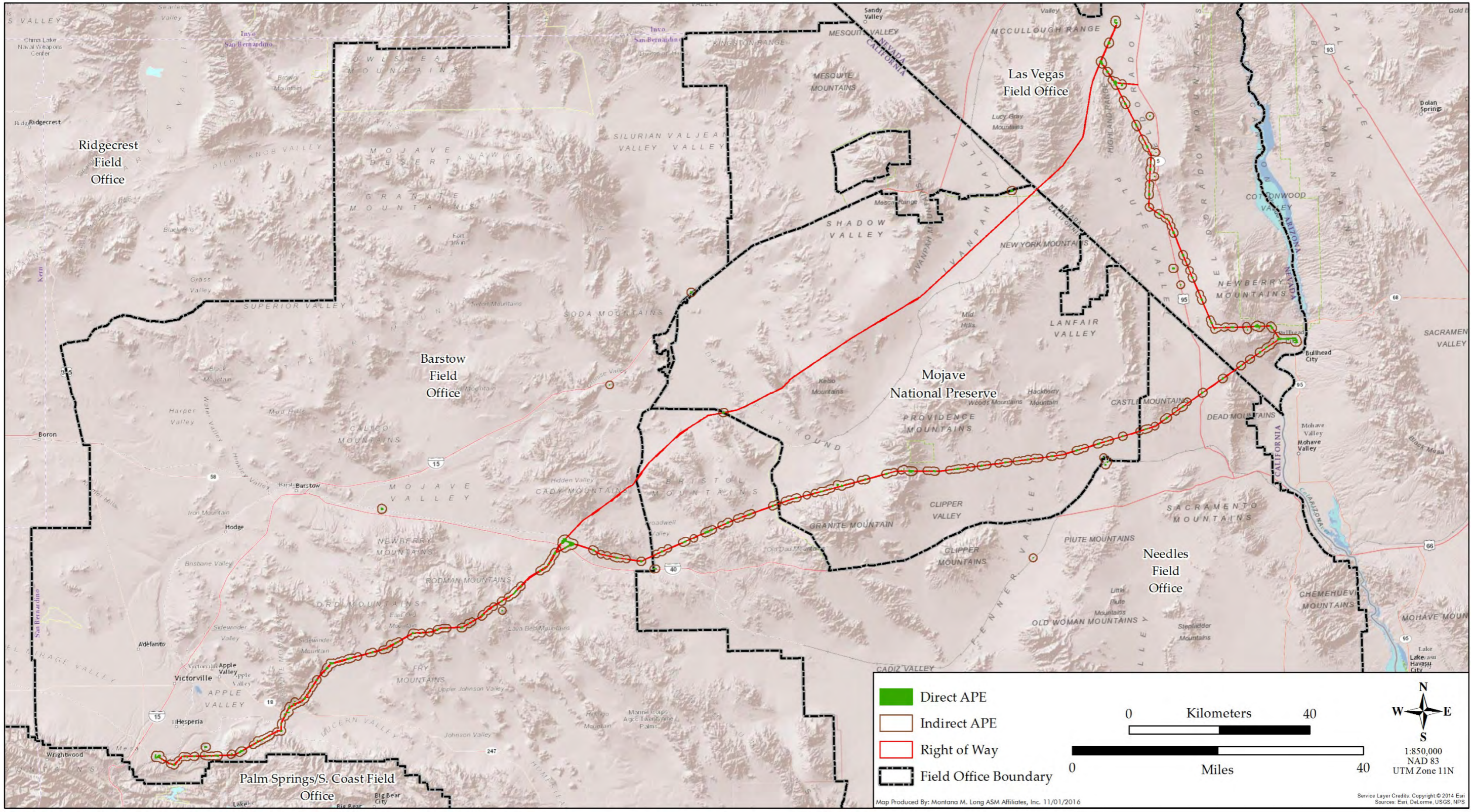
Township	Range	Section	Land Status
32S	65E	7	BLM Las Vegas
32S	65E	8	BLM Las Vegas
32S	65E	9	BLM Las Vegas
32S	65E	10	BLM Las Vegas
32S	65E	11	BLM Las Vegas
32S	65E	12	BLM Las Vegas
32S	65E	25	BLM Las Vegas
32S	65E	26	BLM Las Vegas
32S	65E	34	BLM Las Vegas
32S	65E	36	BLM Las Vegas
32S	66E	7	BLM Las Vegas
32S	66E	8	BLM Las Vegas
32S	66E	14	BLM Las Vegas
32S	66E	15	BLM Las Vegas
32S	66E	16	BLM Las Vegas
32S	66E	17	BLM Las Vegas
32S	66E	19	BLM Las Vegas
32S	66E	20	BLM Las Vegas
32S	66E	21	BLM Las Vegas
32S	66E	22	BLM Las Vegas
32S	66E	23	BLM Las Vegas
32S	66E	30	BLM Las Vegas
32S	64E	1	BLM Las Vegas
32S	64E	2	BLM Las Vegas
32S	64E	12	BLM Las Vegas
31S	64E	4	BLM Las Vegas
31S	64E	7	BLM Las Vegas
31S	64E	9	BLM Las Vegas
31S	64E	10	BLM Las Vegas
31S	64E	15	BLM Las Vegas
31S	64E	22	BLM Las Vegas
31S	64E	23	BLM Las Vegas
31S	64E	26	BLM Las Vegas
31S	64E	35	BLM Las Vegas
30S	64E	6	BLM Las Vegas
30S	64E	7	BLM Las Vegas
30S	64E	8	BLM Las Vegas
30S	64E	17	BLM Las Vegas
30S	64E	20	BLM Las Vegas
30S	64E	29	BLM Las Vegas

Township	Range	Section	Land Status
30S	64E	28	BLM Las Vegas
30S	64E	33	BLM Las Vegas
30S	63E	25	BLM Las Vegas/Private
30S	63E	30	BLM Las Vegas/Private
29S	63E	4	BLM Las Vegas
29S	63E	9	BLM Las Vegas
29S	63E	15	BLM Las Vegas
29S	63E	16	BLM Las Vegas
29S	63E	22	BLM Las Vegas
29S	63E	23	BLM Las Vegas
29S	63E	24	BLM Las Vegas
29S	63E	25	BLM Las Vegas
29S	63E	31	BLM Las Vegas
29S	63E	36	BLM Las Vegas
28S	63E	3	BLM Las Vegas
28S	63E	4	BLM Las Vegas
28S	63E	10	BLM Las Vegas
28S	63E	15	BLM Las Vegas
28S	63E	21	BLM Las Vegas
28S	63E	22	BLM Las Vegas/Private
28S	63E	28	BLM Las Vegas/Private
28S	63E	33	BLM Las Vegas
27S	63E	6	BLM Las Vegas
27S	63E	7	BLM Las Vegas
27S	63E	10	BLM Las Vegas
27S	63E	17	BLM Las Vegas
27S	63E	18	BLM Las Vegas
27S	63E	20	BLM Las Vegas
27S	63E	27	BLM Las Vegas
27S	63E	28	BLM Las Vegas
27S	63E	29	BLM Las Vegas
27S	63E	33	BLM Las Vegas
27S	62.5E	1	BLM Las Vegas
27S	62E	1	BLM Las Vegas
26S	62E	3	BLM Las Vegas
26S	62E	4	BLM Las Vegas
26S	62E	8	BLM Las Vegas
26S	62E	9	BLM Las Vegas
26S	62E	10	BLM Las Vegas
26S	62E	14	Private

Township	Range	Section	Land Status
26S	62E	15	BLM Las Vegas
26S	62E	16	BLM Las Vegas
26S	62E	17	BLM Las Vegas
26S	62E	20	BLM Las Vegas
26S	62E	21	BLM Las Vegas
26S	62E	22	BLM Las Vegas
26S	62E	23	BLM Las Vegas
26S	62E	24	BLM Las Vegas
26S	62E	29	BLM Las Vegas
26S	62E	30	BLM Las Vegas
26S	62E	31	BLM Las Vegas
26S	63E	19	BLM Las Vegas
26S	63E	20	BLM Las Vegas
25S	62E	1	Private
25S	62E	2	Private
25S	62E	11	Private
25S	62E	14	Private
25S	62E	22	Private
25S	62E	23	Private
25S	62E	27	Private
25S	62E	33	Private
25S	62E	34	Private
27S	62E	6	BLM Las Vegas
27S	62E	7	BLM Las Vegas
27S	62E	18	BLM Las Vegas
27S	62E	19	BLM Las Vegas
27S	62E	30	BLM Las Vegas
27S	61E	25	BLM Las Vegas
27S	61E	35	BLM Las Vegas
27S	61E	36	BLM Las Vegas
28S	61E	2	BLM Las Vegas
28S	61E	10	BLM Las Vegas
28S	61E	11	BLM Las Vegas
28S	61E	15	BLM Las Vegas
28S	61E	16	BLM Las Vegas
28S	61E	20	BLM Las Vegas
28S	61E	21	BLM Las Vegas
28S	61E	29	BLM Las Vegas
28S	61E	30	BLM Las Vegas
28S	60E	25	BLM Las Vegas

Township	Range	Section	Land Status
28S	60E	36	BLM Las Vegas
16N	16E	32	Private
16N	16E	35	NPS, Mojave National Preserve
16N	16E	36	NPS, Mojave National Preserve
15.5N	16E	22	NPS, Mojave National Preserve
15.5N	16E	23	NPS, Mojave National Preserve
15.5N	16E	26	NPS, Mojave National Preserve
15.5N	16E	27	NPS, Mojave National Preserve
15.5N	16E	33	NPS, Mojave National Preserve
15.5N	16E	34	NPS, Mojave National Preserve
15N	16E	4	NPS, Mojave National Preserve
15N	16E	5	NPS, Mojave National Preserve
15N	16E	7	NPS, Mojave National Preserve
15N	16E	8	NPS, Mojave National Preserve
15N	15E	13	NPS, Mojave National Preserve
15N	15E	23	NPS, Mojave National Preserve
15N	15E	24	NPS, Mojave National Preserve
15N	15E	27	NPS, Mojave National Preserve
15N	15E	32	NPS, Mojave National Preserve
15N	15E	33	NPS, Mojave National Preserve
14N	15E	5	NPS, Mojave National Preserve
14N	15E	6	NPS, Mojave National Preserve
14N	15E	7	NPS, Mojave National Preserve
14N	9E	30	BLM Barstow
14N	14E	12	NPS, Mojave National Preserve
14N	14E	13	NPS, Mojave National Preserve
14N	14E	14	NPS, Mojave National Preserve
14N	14E	22	NPS, Mojave National Preserve
14N	14E	23	NPS, Mojave National Preserve
14N	14E	27	NPS, Mojave National Preserve
14N	14E	28	NPS, Mojave National Preserve
14N	14E	29	NPS, Mojave National Preserve/Private
14N	14E	31	NPS, Mojave National Preserve
14N	14E	32	NPS, Mojave National Preserve/Private
13N	14E	6	NPS, Mojave National Preserve
13N	13E	1	NPS, Mojave National Preserve
13N	13E	2	NPS, Mojave National Preserve
13N	13E	10	NPS, Mojave National Preserve
13N	13E	11	NPS, Mojave National Preserve
13N	13E	15	NPS, Mojave National Preserve

Township	Range	Section	Land Status
13N	13E	16	NPS, Mojave National Preserve
13N	13E	17	NPS, Mojave National Preserve
13N	13E	19	NPS, Mojave National Preserve
13N	13E	20	NPS, Mojave National Preserve
13N	12E	24	NPS, Mojave National Preserve
13N	12E	25	NPS, Mojave National Preserve
13N	12E	26	NPS, Mojave National Preserve
13N	12E	27	NPS, Mojave National Preserve
13N	12E	33	NPS, Mojave National Preserve
13N	12E	34	NPS, Mojave National Preserve



Ridgecrest
Field
Office

Barstow
Field
Office

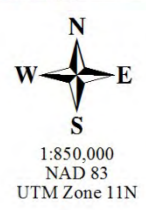
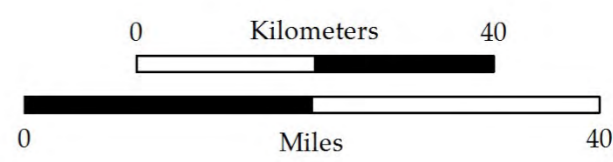
Las Vegas
Field Office

Mojave
National Preserve

Needles
Field
Office

Palm Springs/S. Coast
Office

- Direct APE
- Indirect APE
- Right of Way
- Field Office Boundary



NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 FAX



January 3, 2017

Diane L. Winslow, M.A., RPA, Director
ASM Affiliates

Sent by Email: dwinslow@asmaffiliates.com

RE: Proposed Southern California Edison – Lugo – Mojave Capacitor Series Project; Apple Valley South, Ash Hill, Baker, Bannock, Bighorn Basin, Blind Hills, Broadwell Lake, Budweiser Wash, Butler Peak, Cajon, Camp Rock Mine, Cave Mountain, Colton Well, Cowhole Mountain, Crescent Peak, Crucero Hill, Danby, Desert Spring, East of Broadwell Lake, East of Homer Mountain, Essex, Fair View Valley, Fenner, Fenner Hills, Fifteenmile Valley, Fountain Peak, Frys Mtns., Glasgow, Goffs, Grand View Mine, Hector, Hesperia, Homer, Homer Mountain, Iron Ridge, Kelso Dunes, Lake Arrowhead, Lavic Lake, Lucern Valley, Ludlow, Minneola, Nipton, Silver Bell Mine, Silverwood Lake, Sleeping Beauty, Soda Lake South, Sunshine Paek, Van Winkle Spring, West of Budweiser Wash, West of Glasgow, White Horse Mountain, and Yermo USGS Quadrangles, San Bernardino County, California

Dear Ms. Winslow:

Attached is a contact list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties.

Our records indicate that the lead agency for this project has not requested a Native American Consultation List for the purposes of formal consultation. Lists for cultural resource assessments are different than consultation lists. Please note that the intent of the referenced codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 require public agencies to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
 - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;

- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
 - If the probability is low, moderate, or high that cultural resources are located in the APE.
 - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
 - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archaeological inventory survey that was conducted, including:
- Any report that may contain site forms, site significance, and suggested mitigation measures.
- All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.
3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. Sites have been located within the APE (El Cajon Quadrangle) you provided that may be impacted by the project. Please immediately contact the Ewiiapaayp Band of Kumeyaay Indians by phone at (619) 445-6315 for more information about these sites. Please contact **ALL** of the tribes on the list as the Sacred Lands File is not exhaustive. A tribe may be the only source of information. Their contact information is included in the attached list.
4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,



Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

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**Native American Heritage Commission
Tribal Consultation List
San Bernardino County
1/3/2017**

<p>Chemehuevi Reservation Charles F. Wood, Chairperson P.O. Box 1976 Chemehuevi Valley, CA, 92363 Phone: (760)858-4219 Fax: (760)858-5400 chairman@cit-nsn.gov</p>	<p>Chemehuevi</p>	<p>San Manuel Band of Mission Indians Lee Clauss, Director of Cultural Resources 26569 Community Center Drive Highland, CA, 92348 Phone: (909) 864 - 8933 Fax: (909) 864-3370 lclauss@sanmanuel-nsn.gov</p>	<p>Serrano</p>
<p>Colorado River Indian Tribe Dennis Patch, Chairman 26600 Mojave Road Parker, AZ, 85344 Phone: (928)669-9211 Fax: (928)669-1925 crit.museum@yahoo.com</p>	<p>Chemehuevi Mojave</p>	<p>Serrano Nation of Mission Indians Goldie Walker, Chairperson P.O. Box 343 Patton, CA, 92369 Phone: (909)528-9027</p>	<p>Serrano</p>
<p>Fort Mojave Indian Tribe Timothy Williams, Chairperson 500 Merriman Ave Needles, CA, 92363 Phone: (760)629-4591 Fax: (760)629-5767</p>	<p>Mojave</p>	<p>Twenty-Nine Palms Band of Mission Indians Darrell Mike, Chairperson 46-200 Harrison Place Coachella, CA, 92236 Phone: (760) 863 - 2444 Fax: (760) 863-2449 29chairman@29palmsbomi-nsi.gov</p>	<p>Chemehuevi</p>
<p>Morongo Band of Mission Indians Denisa Torres, Cultural Resources Manager 12700 Pumarra Road Banning, CA, 92220 Phone: (951) 849 - 8807 Fax: (951) 922-8146 dtorres@morongo-nsn.gov</p>	<p>Cahuilla Serrano</p>	<p>Twenty-Nine Palms Band of Mission Indians Anthony Madrigal, Tribal Historic Preservation Officer 46-200 Harrison Place Coachella, CA, 92236 Phone: (760) 775 - 3259 Fax: (760) 863-2449 amadrigal@29palmsbomi-nsn.gov</p>	<p>Chemehuevi</p>
<p>Morongo Band of Mission Indians Robert Martin, Chairperson 12700 Pumarra Road Banning, CA, 92220 Phone: (951)849-8807 Fax: (951)922-8146</p>	<p>Cahuilla Serrano</p>		
<p>San Fernando Band of Mission Indians John Valenzuela, Chairperson P.O. Box 221838 Newhall, CA, 91322 Phone: (760)885-0955 tsen2u@hotmail.com</p>	<p>Kitanemuk Serrano Tataviam</p>		

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7060.5 of the Health and Safety Code, Section 6087.84 of the Public Resource Section 6087.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Southern California Edison Eldorado - Lugo - Mohave Capacitor Series Project, San Bernardino County.

Audry Williams

From: Lee Clauss <LClauss@sanmanuel-nsn.gov>
Sent: Sunday, July 09, 2017 10:05 PM
To: 'Jim Shearer (JShearer@blm.gov)'; Audry Williams; Brian McDonald
Cc: Ann Brierty
Subject: (External):Eldorado-Lugo-Mohave Capacitor Project (ELMCP) and Lugo-Victorville Transmission Line Special Protection Scheme (LVRAS)

Dear Jim,

Thank you for contacting the San Manuel Band of Mission Indians' (SMBMI) Cultural Resources Management (CRM) Department regarding the above-referenced projects last week. SMBMI received project documentation from the BLM-California Desert District on June 8, 2017, and SC Edison on July 3, 2017. Over the last thirty (30) days, the CRM Department staff has initiated their review of this information and internal discussions about project history and cultural landscapes within the proposed projects' APEs.

As you know from SMBMI's history with the Coolwater Lugo project and our conversation last week, the proposed project areas exists within Serrano ancestral territory and, due to the cultural sensitivity of significant portions of the projects' APEs, these proposed undertakings are of great interest, and concern, to the Tribe. As such, SMBMI does indeed request to enter into consultation with BLM, pursuant to NHPA and its implementing regulations, for both the ELMCP and LVRAS.

More specifically, I have personally reviewed the project description and maps, as well as the Class III Work Plan for the ELMCP and LVRAS. As the APE maps and Work Plan provided are final versions, it would appear that written edits are not warranted as they will not be incorporated. However, I would like to request that we schedule a time to either conduct a conference call or in-person meeting to discuss:

- (1) the LOE being applied in the field, specifically with regard to sub-surface testing;
- (2) the manner by which BLM intends to consult with SMBMI on the subject of NRHP-eligibility, assessment of effect, and avoidance/minimization/mitigation;
- (3) tribal monitoring and/or CRM staff visits during the conduct of the Class III survey and that survey's status;
- (4) draft report distribution and comment workflows/timelines; and
- (5) the development of a comprehensive discovery and monitoring (archaeological and tribal) plan to be implemented during project construction.

I have also completed a preliminary read of the Ethnographic and Ethnohistoric Overview for the ELMCP and LVRAS. That said, before providing comment on the adequacy and/or accuracy of this document, I will have Ann Brierty, CRM Field Specialist, conduct her own review--due to her in-depth institutional knowledge of past projects in this same area. It is my goal to coalesce the results of our separate reviews and be ready to provide comments on the EEO during the proposed call/meeting requested above.

To this end, if you would please indicate dates from July 24-August 11, 2017 that might work for you by which we can conduct a call or meeting, that would be most appreciated.

In the interim, if you should have any further questions with regard to SMBMI's interest in these undertakings, please do not hesitate to contact me at your convenience, as I will be your Point of Contact (POC) for SMBMI at this time with respect to these projects.

(FYI: I have included SCE representatives on this initial e-mail to note, for their administrative files, SMBMI's desire to consult pursuant to NHPA and CEQA on both projects.)

Respectfully,

Lee

Lee Clauss

DIRECTOR, CRM

O: (909) 864-8933 x3248

Internal: 50-3248

M: (909) 633-5851

26569 Community Center Drive, Highland California 92346



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TWENTY-NINE PALMS BAND OF MISSION INDIANS

46-200 Harrison Place . Coachella, California . 92236 . Ph. 760.863.2444 . Fax: 760.863.2449

July 25, 2017

**CERTIFIED MAIL # 7014 2870 0001 7379 0958
RETURN RECEIPT REQUESTED**

Audry Williams, Senior Archaeologist
Southern California Edison
2244 Walnut Grove Avenue
Rosemead, CA 91770

RE: Cultural Resources Inquiry for Southern California Edison Company's Eldorado-Lugo-Mohave Capacitor Project in San Bernardino County, California and Clark County Nevada

Dear Ms. Williams,

This letter is in regards to a cultural resources inquiry for the Southern California Edison Company's Eldorado-Lugo-Mohave Capacitor Project. This project entails the construction of two new 500 kV mid-line series capacitors. The Twenty-Nine Palms Band of Mission Indians ("Tribe"), are a Chemehuevi people who are a federally recognized tribe, with two reservations – one located near the cities of Coachella in Riverside County and the other located near the city of Twentynine Palms in San Bernardino County. The traditional territory of the Chemehuevi lies within a portion of the Project Area, and there are multiple places of cultural or religious significance within or near the undertaking that may be adversely affected by the undertaking. The THPO sent a letter to the Bureau of Land Management – California Desert District (BLM), who is acting as the lead Federal agency, on June 9, 2017, with an overview of specific areas of concern within or near this project. As stated in our letter sent to the BLM there are multiple culturally sensitive areas and culturally sensitives sites within the indirect or direct APE or viewshed of the undertaking.

There is an increased possibility of encountering cultural resources during the construction processes that may take place because the undertaking is located near or in a culturally sensitive area and site and it is within the Chemehuevi Traditional Use Area. Avoidance, if feasible, would negate adverse effects on the undertaking. As specified in our aforementioned letter, the tribe requests to review any of the cultural reports related to this undertaking and to review the Draft Built Environment Review and Evaluation Report and Site Forms for Review. Additional recommendations will be issued after review of all available cultural reports.

The Tribe and THPO look forward to continuing working with the Bureau of Land Management and Southern California Edison on this undertaking. If you have any questions, please do not hesitate to contact the Tribal Historic Preservation Office at (760) 775-3259 or by email: TNPConsultation@29palmsbomi-nsn.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'AMJ', written over the printed name.

Anthony Madrigal, Jr.
Tribal Historic Preservation Officer

cc: Darrell Mike, Twenty-Nine Palms Tribal Chairman
Sarah Bliss, Twenty-Nine Palms Tribal Cultural Specialist
Brian McDonald, Government Affairs Tribal Representative

From: Anita Flores [<mailto:anita.flores@crit-nsn.gov>]
Sent: Friday, August 04, 2017 3:09 PM
To: Brian McDonald <Brian.McDonald@sce.com>
Subject: (External):Eldorado-Lugo-Mohave Capacitor Project

Mr. Brian McDonald,

Please be advised that David Harper is no longer associated with the Colorado River Indian Tribes' Tribal Historic Preservation Office. Mr. Brian Etsitty has been appointed as the Acting Director and would like to schedule a date and time with you to go over the Eldorado-Lugo-Mohave Capacitor Project. Mr. Etsitty is available on either Monday, August 21st or Monday, August 28th for a teleconference call with your Office on this project.

You may contact Mr. Etsitty via email at bryan.etsitty@crit-nsn.gov or via phone, (928) 669-5822 to schedule the conference call.

Sincerely,
Anita L. Flores
Tribal Historic Preservation Office
13390 1st Avenue
(928) 669-5822
anita.flores@crit.nsn.gov