Appendix B AIR QUALITY

B.1 CALEEMOD OUTPUT ANNUAL REPORT, DAILY REPORT (SUMMER), AND DAILY REPORT (WINTER)

APPENDIX B.1

CALEEMOD OUTPUT ANNUAL REPORT

CALEEMOD DAILY REPORT (SUMMER)

CALEEMOD DAILY REPORT (WINTER)

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Biogas Renewable Generation Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.50	1000sqft	3.00	5,500.00	6

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2020
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	1115.33	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot Acreage and population were estimated.

Construction Phase - Construction schedule was estimated and provided by Stantec.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - This data was estimated and provided by Stantec.

Demolition -

Grading - This data was estimated and provided by Stantec.

Vehicle Trips - This data was estimated and provided by Stantec.

Construction Off-road Equipment Mitigation - Tier 2 or higher off-road equipment will be utilized for this construction project.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	10.00	12.00
tblConstructionPhase	NumDays	220.00	195.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	6.00	45.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	3.00	20.00
tblConstructionPhase	PhaseEndDate	1/14/2020	9/17/2019

tblConstructionPhase	PhaseEndDate	11/29/2019	8/30/2019
tblConstructionPhase	PhaseEndDate	3/1/2019	11/30/2018
tblConstructionPhase	PhaseEndDate	12/27/2019	8/28/2019
tblConstructionPhase	PhaseEndDate	11/30/2018	9/28/2018
tblConstructionPhase	PhaseStartDate	12/28/2019	9/1/2019
tblConstructionPhase	PhaseStartDate	3/2/2019	12/1/2018
tblConstructionPhase	PhaseStartDate	12/1/2018	10/1/2018
tblConstructionPhase	PhaseStartDate	11/30/2019	8/1/2019
tblGrading	AcresOfGrading	22.50	3.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	14,000.00
tblLandUse	LotAcreage	0.13	3.00
tblLandUse	Population	0.00	6.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	0.27
tblTripsAndVMT	HaulingTripNumber	0.00	875.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	1.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	2.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

tblVehicleTrips	ST_TR	1.32	0.06
tblVehicleTrips	SU_TR	0.68	0.06
tblVehicleTrips	WD_TR	6.97	0.24

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	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
Year	tons/yr										MT/yr					
2018	0.1854	1.9851	1.0900	2.0600e-003	0.3419	0.0993	0.4412	0.1788	0.0919	0.2708	0.0000	188.2741	188.2741	0.0493	0.0000	189.5074
2019	0.2543	2.0805	1.7022	2.9100e-003	0.0184	0.1210	0.1394	5.0200e-003	0.1137	0.1187	0.0000	256.7049	256.7049	0.0570	0.0000	258.1298
Maximum	**0.2543**	**2.0805**	**1.7022**	**2.9100e-003**	**0.3419**	**0.1210**	**0.4412**	**0.1788**	**0.1137**	**0.2708**	**0.0000**	**256.7049**	**256.7049**	**0.0570**	**0.0000**	**258.1298**

Mitigated Construction

	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
Year	tons/yr										MT/yr					
2018	0.0672	1.6781	1.1795	2.0600e-003	0.1395	0.0474	0.1869	0.0714	0.0474	0.1188	0.0000	188.2739	188.2739	0.0493	0.0000	189.5072
2019	0.1369	2.3322	1.7761	2.9100e-003	0.0184	0.0856	0.1040	5.0200e-003	0.0855	0.0906	0.0000	256.7047	256.7047	0.0570	0.0000	258.1296
Maximum	**0.1369**	**2.3322**	**1.7761**	**2.9100e-003**	**0.1395**	**0.0856**	**0.1869**	**0.0714**	**0.0855**	**0.1188**	**0.0000**	**256.7047**	**256.7047**	**0.0570**	**0.0000**	**258.1296**

	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**	**N20**	**CO2e**
Percent Reduction	**53.61**	**1.36**	**-5.85**	**0.00**	**56.16**	**39.63**	**49.89**	**58.42**	**35.35**	**46.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	8-1-2018	10-31-2018	1.4396	1.1033
2	11-1-2018	1-31-2019	0.9722	0.9036
3	2-1-2019	4-30-2019	0.7855	0.8235
4	5-1-2019	7-31-2019	0.8118	0.8510
5	8-1-2019	9-30-2019	0.4482	0.4913
		Highest	1.4396	1.1033

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	tons/yr										MT/yr					
Area	0.0224	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Energy	5.4000e-004	4.9000e-003	4.1100e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	36.7998	36.7998	9.2000e-004	2.7000e-004	36.9024
Mobile	4.0000e-004	2.3800e-003	6.0900e-003	2.0000e-005	1.7500e-003	2.0000e-005	1.7700e-003	4.7000e-004	2.0000e-005	4.9000e-004	0.0000	1.9951	1.9951	1.0000e-004	0.0000	1.9975
Waste						0.0000	0.0000		0.0000	0.0000	1.3844	0.0000	1.3844	0.0818	0.0000	3.4298
Water						0.0000	0.0000		0.0000	0.0000	0.4035	8.3783	8.7819	0.0417	1.0200e-003	10.1284
Total	**0.0234**	**7.2800e-003**	**0.0103**	**5.0000e-005**	**1.7500e-003**	**3.9000e-004**	**2.1400e-003**	**4.7000e-004**	**3.9000e-004**	**8.6000e-004**	**1.7879**	**47.1734**	**48.9613**	**0.1245**	**1.2900e-003**	**52.4583**

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	0.0224	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Energy	5.4000e-004	4.9000e-003	4.1100e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	36.7998	36.7998	9.2000e-004	2.7000e-004	36.9024
Mobile	4.0000e-004	2.3800e-003	6.0900e-003	2.0000e-005	1.7500e-003	2.0000e-005	1.7700e-003	4.7000e-004	2.0000e-005	4.9000e-004	0.0000	1.9951	1.9951	1.0000e-004	0.0000	1.9975
Waste						0.0000	0.0000		0.0000	0.0000	1.3844	0.0000	1.3844	0.0818	0.0000	3.4298
Water						0.0000	0.0000		0.0000	0.0000	0.4035	8.3783	8.7819	0.0417	1.0200e-003	10.1284
Total	**0.0234**	**7.2800e-003**	**0.0103**	**5.0000e-005**	**1.7500e-003**	**3.9000e-004**	**2.1400e-003**	**4.7000e-004**	**3.9000e-004**	**8.6000e-004**	**1.7879**	**47.1734**	**48.9613**	**0.1245**	**1.2900e-003**	**52.4583**

	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	N20	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	Demolition	Demolition	8/1/2018	8/31/2018	5	23	
2	Site Preparation	Site Preparation	9/1/2018	9/28/2018	5	20	
3	Grading	Grading	10/1/2018	11/30/2018	5	45	
4	Building Construction	Building Construction	12/1/2018	8/30/2019	5	195	
5	Paving	Paving	8/1/2019	8/28/2019	5	20	
6	Architectural Coating	Architectural Coating	9/1/2019	9/17/2019	5	12	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,250; Non-Residential Outdoor: 2,750; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Biogas Renewable Generation Project - South Coast AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

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
Architectural Coating	1	20.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	10.00	5.00	112.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	10.00	10.00	875.00	14.70	6.90	0.27	LD_Mix	HDT_Mix	HHDT
Paving	8	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	10.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

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	tons/yr										MT/yr					
Fugitive Dust					0.0121	0.0000	0.0121	1.8400e-003	0.0000	1.8400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0428	0.4407	0.2565	4.5000e-004		0.0223	0.0223		0.0208	0.0208	0.0000	40.3927	40.3927	0.0111	0.0000	40.6709
Total	**0.0428**	**0.4407**	**0.2565**	**4.5000e-004**	**0.0121**	**0.0223**	**0.0344**	**1.8400e-003**	**0.0208**	**0.0226**	**0.0000**	**40.3927**	**40.3927**	**0.0111**	**0.0000**	**40.6709**

3.2 Demolition - 2018

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	tons/yr										MT/yr					
Hauling	4.9000e-004	0.0178	3.3100e-003	4.0000e-005	9.6000e-004	7.0000e-005	1.0300e-003	2.6000e-004	6.0000e-005	3.3000e-004	0.0000	4.3199	4.3199	3.0000e-004	0.0000	4.3275
Vendor	2.5000e-004	7.1100e-003	1.8300e-003	1.0000e-005	3.6000e-004	5.0000e-005	4.1000e-004	1.0000e-004	5.0000e-005	1.5000e-004	0.0000	1.4363	1.4363	1.0000e-004	0.0000	1.4388
Worker	6.1000e-004	5.0000e-004	5.3700e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.2104	1.2104	4.0000e-005	0.0000	1.2114
Total	**1.3500e-003**	**0.0254**	**0.0105**	**6.0000e-005**	**2.5800e-003**	**1.3000e-004**	**2.7100e-003**	**7.0000e-004**	**1.2000e-004**	**8.2000e-004**	**0.0000**	**6.9665**	**6.9665**	**4.4000e-004**	**0.0000**	**6.9777**

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	tons/yr										MT/yr					
Fugitive Dust					4.7300e-003	0.0000	4.7300e-003	7.2000e-004	0.0000	7.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.3756	0.2838	4.5000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	40.3926	40.3926	0.0111	0.0000	40.6709
Total	**0.0145**	**0.3756**	**0.2838**	**4.5000e-004**	**4.7300e-003**	**0.0105**	**0.0152**	**7.2000e-004**	**0.0105**	**0.0112**	**0.0000**	**40.3926**	**40.3926**	**0.0111**	**0.0000**	**40.6709**

3.2 Demolition - 2018

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	4.9000e-004	0.0178	3.3100e-003	4.0000e-005	9.6000e-004	7.0000e-005	1.0300e-003	2.6000e-004	6.0000e-005	3.3000e-004	0.0000	4.3199	4.3199	3.0000e-004	0.0000	4.3275
Vendor	2.5000e-004	7.1100e-003	1.8300e-003	1.0000e-005	3.6000e-004	5.0000e-005	4.1000e-004	1.0000e-004	5.0000e-005	1.5000e-004	0.0000	1.4363	1.4363	1.0000e-004	0.0000	1.4388
Worker	6.1000e-004	5.0000e-004	5.3700e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2700e-003	3.4000e-004	1.0000e-005	3.4000e-004	0.0000	1.2104	1.2104	4.0000e-005	0.0000	1.2114
Total	**1.3500e-003**	**0.0254**	**0.0105**	**6.0000e-005**	**2.5800e-003**	**1.3000e-004**	**2.7100e-003**	**7.0000e-004**	**1.2000e-004**	**8.2000e-004**	**0.0000**	**6.9665**	**6.9665**	**4.4000e-004**	**0.0000**	**6.9777**

3.3 Site Preparation - 2018

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	tons/yr										MT/yr					
Fugitive Dust					0.1817	0.0000	0.1817	0.0994	0.0000	0.0994	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0456	0.4820	0.2248	3.8000e-004		0.0258	0.0258		0.0237	0.0237	0.0000	34.7599	34.7599	0.0108	0.0000	35.0304
Total	**0.0456**	**0.4820**	**0.2248**	**3.8000e-004**	**0.1817**	**0.0258**	**0.2075**	**0.0994**	**0.0237**	**0.1231**	**0.0000**	**34.7599**	**34.7599**	**0.0108**	**0.0000**	**35.0304**

3.3 Site Preparation - 2018

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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	4.3000e-004	0.0124	3.1900e-003	3.0000e-005	6.3000e-004	9.0000e-005	7.2000e-004	1.8000e-004	9.0000e-005	2.7000e-004	0.0000	2.4978	2.4978	1.8000e-004	0.0000	2.5023
Worker	5.3000e-004	4.3000e-004	4.6700e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0525	1.0525	4.0000e-005	0.0000	1.0534
Total	**9.6000e-004**	**0.0128**	**7.8600e-003**	**4.0000e-005**	**1.7300e-003**	**1.0000e-004**	**1.8300e-003**	**4.7000e-004**	**1.0000e-004**	**5.7000e-004**	**0.0000**	**3.5503**	**3.5503**	**2.2000e-004**	**0.0000**	**3.5557**

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	tons/yr										MT/yr					
Fugitive Dust					0.0709	0.0000	0.0709	0.0388	0.0000	0.0388	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.3372	0.2296	3.8000e-004		9.4600e-003	9.4600e-003		9.4600e-003	9.4600e-003	0.0000	34.7599	34.7599	0.0108	0.0000	35.0304
Total	**0.0121**	**0.3372**	**0.2296**	**3.8000e-004**	**0.0709**	**9.4600e-003**	**0.0803**	**0.0388**	**9.4600e-003**	**0.0482**	**0.0000**	**34.7599**	**34.7599**	**0.0108**	**0.0000**	**35.0304**

3.3 Site Preparation - 2018

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	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
Vendor	4.3000e-004	0.0124	3.1900e-003	3.0000e-005	6.3000e-004	9.0000e-005	7.2000e-004	1.8000e-004	9.0000e-005	2.7000e-004	0.0000	2.4978	2.4978	1.8000e-004	0.0000	2.5023
Worker	5.3000e-004	4.3000e-004	4.6700e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1100e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0525	1.0525	4.0000e-005	0.0000	1.0534
Total	**9.6000e-004**	**0.0128**	**7.8600e-003**	**4.0000e-005**	**1.7300e-003**	**1.0000e-004**	**1.8300e-003**	**4.7000e-004**	**1.0000e-004**	**5.7000e-004**	**0.0000**	**3.5503**	**3.5503**	**2.2000e-004**	**0.0000**	**3.5557**

3.4 Grading - 2018

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	tons/yr										MT/yr					
Fugitive Dust					0.1379	0.0000	0.1379	0.0748	0.0000	0.0748	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0624	0.6901	0.3730	6.7000e-004		0.0349	0.0349		0.0321	0.0321	0.0000	60.9905	60.9905	0.0190	0.0000	61.4652
Total	**0.0624**	**0.6901**	**0.3730**	**6.7000e-004**	**0.1379**	**0.0349**	**0.1728**	**0.0748**	**0.0321**	**0.1069**	**0.0000**	**60.9905**	**60.9905**	**0.0190**	**0.0000**	**61.4652**

3.4 Grading - 2018

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	tons/yr										MT/yr					
Hauling	9.9000e-004	0.0462	6.8600e-003	5.0000e-005	1.1000e-004	4.0000e-005	1.5000e-004	3.0000e-005	4.0000e-005	7.0000e-005	0.0000	4.9325	4.9325	9.1000e-004	0.0000	4.9553
Vendor	9.8000e-004	0.0278	7.1700e-003	6.0000e-005	1.4200e-003	2.0000e-004	1.6200e-003	4.1000e-004	1.9000e-004	6.0000e-004	0.0000	5.6201	5.6201	4.0000e-004	0.0000	5.6301
Worker	1.2000e-003	9.8000e-004	0.0105	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	2.3681	2.3681	8.0000e-005	0.0000	2.3702
Total	**3.1700e-003**	**0.0750**	**0.0245**	**1.4000e-004**	**4.0000e-003**	**2.6000e-004**	**4.2600e-003**	**1.1000e-003**	**2.5000e-004**	**1.3400e-003**	**0.0000**	**12.9208**	**12.9208**	**1.3900e-003**	**0.0000**	**12.9556**

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	tons/yr										MT/yr					
Fugitive Dust					0.0538	0.0000	0.0538	0.0292	0.0000	0.0292	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.5913	0.4273	6.7000e-004		0.0174	0.0174		0.0174	0.0174	0.0000	60.9904	60.9904	0.0190	0.0000	61.4651
Total	**0.0227**	**0.5913**	**0.4273**	**6.7000e-004**	**0.0538**	**0.0174**	**0.0712**	**0.0292**	**0.0174**	**0.0465**	**0.0000**	**60.9904**	**60.9904**	**0.0190**	**0.0000**	**61.4651**

3.4 Grading - 2018

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	9.9000e-004	0.0462	6.8600e-003	5.0000e-005	1.1000e-004	4.0000e-005	1.5000e-004	3.0000e-005	4.0000e-005	7.0000e-005	0.0000	4.9325	4.9325	9.1000e-004	0.0000	4.9553
Vendor	9.8000e-004	0.0278	7.1700e-003	6.0000e-005	1.4200e-003	2.0000e-004	1.6200e-003	4.1000e-004	1.9000e-004	6.0000e-004	0.0000	5.6201	5.6201	4.0000e-004	0.0000	5.6301
Worker	1.2000e-003	9.8000e-004	0.0105	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.6000e-004	2.0000e-005	6.7000e-004	0.0000	2.3681	2.3681	8.0000e-005	0.0000	2.3702
Total	**3.1700e-003**	**0.0750**	**0.0245**	**1.4000e-004**	**4.0000e-003**	**2.6000e-004**	**4.2600e-003**	**1.1000e-003**	**2.5000e-004**	**1.3400e-003**	**0.0000**	**12.9208**	**12.9208**	**1.3900e-003**	**0.0000**	**12.9556**

3.5 Building Construction - 2018

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	tons/yr										MT/yr					
Off-Road	0.0281	0.2456	0.1846	2.8000e-004		0.0158	0.0158		0.0148	0.0148	0.0000	24.9656	24.9656	6.1200e-003	0.0000	25.1185
Total	**0.0281**	**0.2456**	**0.1846**	**2.8000e-004**		**0.0158**	**0.0158**		**0.0148**	**0.0148**	**0.0000**	**24.9656**	**24.9656**	**6.1200e-003**	**0.0000**	**25.1185**

3.5 Building Construction - 2018

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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	4.6000e-004	0.0130	3.3400e-003	3.0000e-005	6.6000e-004	9.0000e-005	7.6000e-004	1.9000e-004	9.0000e-005	2.8000e-004	0.0000	2.6227	2.6227	1.9000e-004	0.0000	2.6274
Worker	5.6000e-004	4.6000e-004	4.9000e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	1.1051	1.1051	4.0000e-005	0.0000	1.1061
Total	**1.0200e-003**	**0.0134**	**8.2400e-003**	**4.0000e-005**	**1.8100e-003**	**1.0000e-004**	**1.9200e-003**	**5.0000e-004**	**1.0000e-004**	**5.9000e-004**	**0.0000**	**3.7279**	**3.7279**	**2.3000e-004**	**0.0000**	**3.7335**

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	tons/yr										MT/yr					
Off-Road	0.0114	0.2473	0.1877	2.8000e-004		9.4900e-003	9.4900e-003		9.4900e-003	9.4900e-003	0.0000	24.9655	24.9655	6.1200e-003	0.0000	25.1184
Total	**0.0114**	**0.2473**	**0.1877**	**2.8000e-004**		**9.4900e-003**	**9.4900e-003**		**9.4900e-003**	**9.4900e-003**	**0.0000**	**24.9655**	**24.9655**	**6.1200e-003**	**0.0000**	**25.1184**

3.5 Building Construction - 2018

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	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
Vendor	4.6000e-004	0.0130	3.3400e-003	3.0000e-005	6.6000e-004	9.0000e-005	7.6000e-004	1.9000e-004	9.0000e-005	2.8000e-004	0.0000	2.6227	2.6227	1.9000e-004	0.0000	2.6274
Worker	5.6000e-004	4.6000e-004	4.9000e-003	1.0000e-005	1.1500e-003	1.0000e-005	1.1600e-003	3.1000e-004	1.0000e-005	3.1000e-004	0.0000	1.1051	1.1051	4.0000e-005	0.0000	1.1061
Total	**1.0200e-003**	**0.0134**	**8.2400e-003**	**4.0000e-005**	**1.8100e-003**	**1.0000e-004**	**1.9200e-003**	**5.0000e-004**	**1.0000e-004**	**5.9000e-004**	**0.0000**	**3.7279**	**3.7279**	**2.3000e-004**	**0.0000**	**3.7335**

3.5 Building Construction - 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	tons/yr										MT/yr					
Off-Road	0.2054	1.8339	1.4933	2.3400e-003		0.1122	0.1122		0.1055	0.1055	0.0000	204.5407	204.5407	0.0498	0.0000	205.7864
Total	**0.2054**	**1.8339**	**1.4933**	**2.3400e-003**		**0.1122**	**0.1122**		**0.1055**	**0.1055**	**0.0000**	**204.5407**	**204.5407**	**0.0498**	**0.0000**	**205.7864**

3.5 Building Construction - 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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	3.4200e-003	0.1014	0.0254	2.2000e-004	5.4800e-003	6.6000e-004	6.1500e-003	1.5800e-003	6.3000e-004	2.2200e-003	0.0000	21.5387	21.5387	1.4900e-003	0.0000	21.5759
Worker	4.2000e-003	3.3400e-003	0.0363	1.0000e-004	9.5500e-003	8.0000e-005	9.6200e-003	2.5300e-003	7.0000e-005	2.6000e-003	0.0000	8.8678	8.8678	2.8000e-004	0.0000	8.8748
Total	**7.6200e-003**	**0.1048**	**0.0617**	**3.2000e-004**	**0.0150**	**7.4000e-004**	**0.0158**	**4.1100e-003**	**7.0000e-004**	**4.8200e-003**	**0.0000**	**30.4065**	**30.4065**	**1.7700e-003**	**0.0000**	**30.4507**

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	tons/yr										MT/yr					
Off-Road	0.0940	2.0492	1.5550	2.3400e-003		0.0786	0.0786		0.0786	0.0786	0.0000	204.5404	204.5404	0.0498	0.0000	205.7861
Total	**0.0940**	**2.0492**	**1.5550**	**2.3400e-003**		**0.0786**	**0.0786**		**0.0786**	**0.0786**	**0.0000**	**204.5404**	**204.5404**	**0.0498**	**0.0000**	**205.7861**

3.5 Building Construction - 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	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
Vendor	3.4200e-003	0.1014	0.0254	2.2000e-004	5.4800e-003	6.6000e-004	6.1500e-003	1.5800e-003	6.3000e-004	2.2200e-003	0.0000	21.5387	21.5387	1.4900e-003	0.0000	21.5759
Worker	4.2000e-003	3.3400e-003	0.0363	1.0000e-004	9.5500e-003	8.0000e-005	9.6200e-003	2.5300e-003	7.0000e-005	2.6000e-003	0.0000	8.8678	8.8678	2.8000e-004	0.0000	8.8748
Total	**7.6200e-003**	**0.1048**	**0.0617**	**3.2000e-004**	**0.0150**	**7.4000e-004**	**0.0158**	**4.1100e-003**	**7.0000e-004**	**4.8200e-003**	**0.0000**	**30.4065**	**30.4065**	**1.7700e-003**	**0.0000**	**30.4507**

3.6 Paving - 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	tons/yr										MT/yr					
Off-Road	0.0127	0.1276	0.1231	1.9000e-004		7.2000e-003	7.2000e-003		6.6400e-003	6.6400e-003	0.0000	16.7223	16.7223	5.1400e-003	0.0000	16.8509
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0127**	**0.1276**	**0.1231**	**1.9000e-004**		**7.2000e-003**	**7.2000e-003**		**6.6400e-003**	**6.6400e-003**	**0.0000**	**16.7223**	**16.7223**	**5.1400e-003**	**0.0000**	**16.8509**

3.6 Paving - 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	tons/yr										MT/yr					
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	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	0.0000	0.0000
Worker	8.7000e-004	6.9000e-004	7.5000e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.8347	1.8347	6.0000e-005	0.0000	1.8362
Total	**8.7000e-004**	**6.9000e-004**	**7.5000e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.8347**	**1.8347**	**6.0000e-005**	**0.0000**	**1.8362**

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	tons/yr										MT/yr					
Off-Road	7.5200e-003	0.1609	0.1353	1.9000e-004		5.6000e-003	5.6000e-003		5.6000e-003	5.6000e-003	0.0000	16.7223	16.7223	5.1400e-003	0.0000	16.8509
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.5200e-003**	**0.1609**	**0.1353**	**1.9000e-004**		**5.6000e-003**	**5.6000e-003**		**5.6000e-003**	**5.6000e-003**	**0.0000**	**16.7223**	**16.7223**	**5.1400e-003**	**0.0000**	**16.8509**

3.6 Paving - 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	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
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	8.7000e-004	6.9000e-004	7.5000e-003	2.0000e-005	1.9700e-003	2.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.8347	1.8347	6.0000e-005	0.0000	1.8362
Total	**8.7000e-004**	**6.9000e-004**	**7.5000e-003**	**2.0000e-005**	**1.9700e-003**	**2.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.8347**	**1.8347**	**6.0000e-005**	**0.0000**	**1.8362**

3.7 Architectural Coating - 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	tons/yr										MT/yr					
Archit. Coating	0.0255					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6000e-003	0.0110	0.0111	2.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	1.5320	1.5320	1.3000e-004	0.0000	1.5352
Total	**0.0271**	**0.0110**	**0.0111**	**2.0000e-005**		**7.7000e-004**	**7.7000e-004**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**1.5320**	**1.5320**	**1.3000e-004**	**0.0000**	**1.5352**

3.7 Architectural Coating - 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	tons/yr										MT/yr					
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	0.0000	0.0000
Vendor	7.0000e-005	2.1000e-003	5.3000e-004	0.0000	1.1000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4456	0.4456	3.0000e-005	0.0000	0.4464
Worker	5.8000e-004	4.6000e-004	5.0000e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.2232	1.2232	4.0000e-005	0.0000	1.2241
Total	**6.5000e-004**	**2.5600e-003**	**5.5300e-003**	**1.0000e-005**	**1.4300e-003**	**2.0000e-005**	**1.4600e-003**	**3.8000e-004**	**2.0000e-005**	**4.1000e-004**	**0.0000**	**1.6688**	**1.6688**	**7.0000e-005**	**0.0000**	**1.6705**

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	tons/yr										MT/yr					
Archit. Coating	0.0255					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-004	0.0141	0.0110	2.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	1.5320	1.5320	1.3000e-004	0.0000	1.5352
Total	**0.0262**	**0.0141**	**0.0110**	**2.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**1.5320**	**1.5320**	**1.3000e-004**	**0.0000**	**1.5352**

3.7 Architectural Coating - 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	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
Vendor	7.0000e-005	2.1000e-003	5.3000e-004	0.0000	1.1000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.4456	0.4456	3.0000e-005	0.0000	0.4464
Worker	5.8000e-004	4.6000e-004	5.0000e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.2232	1.2232	4.0000e-005	0.0000	1.2241
Total	**6.5000e-004**	**2.5600e-003**	**5.5300e-003**	**1.0000e-005**	**1.4300e-003**	**2.0000e-005**	**1.4600e-003**	**3.8000e-004**	**2.0000e-005**	**4.1000e-004**	**0.0000**	**1.6688**	**1.6688**	**7.0000e-005**	**0.0000**	**1.6705**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	4.0000e-004	2.3800e-003	6.0900e-003	2.0000e-005	1.7500e-003	2.0000e-005	1.7700e-003	4.7000e-004	2.0000e-005	4.9000e-004	0.0000	1.9951	1.9951	1.0000e-004	0.0000	1.9975
Unmitigated	4.0000e-004	2.3800e-003	6.0900e-003	2.0000e-005	1.7500e-003	2.0000e-005	1.7700e-003	4.7000e-004	2.0000e-005	4.9000e-004	0.0000	1.9951	1.9951	1.0000e-004	0.0000	1.9975

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.32	0.33	0.33	4,593	4,593
Total	1.32	0.33	0.33	4,593	4,593

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

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	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.4698	31.4698	8.2000e-004	1.7000e-004	31.5407
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.4698	31.4698	8.2000e-004	1.7000e-004	31.5407
NaturalGas Mitigated	5.4000e-004	4.9000e-003	4.1100e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3300	5.3300	1.0000e-004	1.0000e-004	5.3617
NaturalGas Unmitigated	5.4000e-004	4.9000e-003	4.1100e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3300	5.3300	1.0000e-004	1.0000e-004	5.3617

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	tons/yr										MT/yr					
General Light Industry	99880	5.4000e-004	4.9000e-003	4.1100e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3300	5.3300	1.0000e-004	1.0000e-004	5.3617
Total		**5.4000e-004**	**4.9000e-003**	**4.1100e-003**	**3.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**5.3300**	**5.3300**	**1.0000e-004**	**1.0000e-004**	**5.3617**

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	tons/yr										MT/yr					
General Light Industry	99880	5.4000e-004	4.9000e-003	4.1100e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3300	5.3300	1.0000e-004	1.0000e-004	5.3617
Total		**5.4000e-004**	**4.9000e-003**	**4.1100e-003**	**3.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**5.3300**	**5.3300**	**1.0000e-004**	**1.0000e-004**	**5.3617**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	62205	31.4698	8.2000e-004	1.7000e-004	31.5407
Total		**31.4698**	**8.2000e-004**	**1.7000e-004**	**31.5407**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	62205	31.4698	8.2000e-004	1.7000e-004	31.5407
Total		**31.4698**	**8.2000e-004**	**1.7000e-004**	**31.5407**

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	tons/yr										MT/yr					
Mitigated	0.0224	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Unmitigated	0.0224	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004

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	tons/yr										MT/yr					
Architectural Coating	2.5500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0199					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Total	**0.0224**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.0000**	**1.5000e-004**

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	2.5500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0199					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Total	**0.0224**	**0.0000**	**7.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**0.0000**	**1.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.7819	0.0417	1.0200e-003	10.1284
Unmitigated	8.7819	0.0417	1.0200e-003	10.1284

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.27188 / 0	8.7819	0.0417	1.0200e-003	10.1284
Total		**8.7819**	**0.0417**	**1.0200e-003**	**10.1284**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.27188 / 0	8.7819	0.0417	1.0200e-003	10.1284
Total		**8.7819**	**0.0417**	**1.0200e-003**	**10.1284**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.3844	0.0818	0.0000	3.4298
Unmitigated	1.3844	0.0818	0.0000	3.4298

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.82	1.3844	0.0818	0.0000	3.4298
Total		**1.3844**	**0.0818**	**0.0000**	**3.4298**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.82	1.3844	0.0818	0.0000	3.4298
Total		**1.3844**	**0.0818**	**0.0000**	**3.4298**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Biogas Renewable Generation Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.50	1000sqft	3.00	5,500.00	6

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2020
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	1115.33	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot Acreage and population were estimated.

Construction Phase - Construction schedule was estimated and provided by Stantec.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - This data was estimated and provided by Stantec.

Demolition -

Grading - This data was estimated and provided by Stantec.

Vehicle Trips - This data was estimated and provided by Stantec.

Construction Off-road Equipment Mitigation - Tier 2 or higher off-road equipment will be utilized for this construction project.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	10.00	12.00
tblConstructionPhase	NumDays	220.00	195.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	6.00	45.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	3.00	20.00
tblConstructionPhase	PhaseEndDate	1/14/2020	9/17/2019

tblConstructionPhase	PhaseEndDate	11/29/2019	8/30/2019
tblConstructionPhase	PhaseEndDate	3/1/2019	11/30/2018
tblConstructionPhase	PhaseEndDate	12/27/2019	8/28/2019
tblConstructionPhase	PhaseEndDate	11/30/2018	9/28/2018
tblConstructionPhase	PhaseStartDate	12/28/2019	9/1/2019
tblConstructionPhase	PhaseStartDate	3/2/2019	12/1/2018
tblConstructionPhase	PhaseStartDate	12/1/2018	10/1/2018
tblConstructionPhase	PhaseStartDate	11/30/2019	8/1/2019
tblGrading	AcresOfGrading	22.50	3.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	14,000.00
tblLandUse	LotAcreage	0.13	3.00
tblLandUse	Population	0.00	6.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	0.27
tblTripsAndVMT	HaulingTripNumber	0.00	875.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	1.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	2.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

tblVehicleTrips	ST_TR	1.32	0.06
tblVehicleTrips	SU_TR	0.68	0.06
tblVehicleTrips	WD_TR	6.97	0.24

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	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
Year	lb/day										lb/day					
2018	4.6591	49.4492	23.2799	0.0452	18.3481	2.5867	20.9348	9.9902	2.3801	12.3703	0.0000	4,550.2483	4,550.2483	1.2160	0.0000	4,577.9706
2019	4.6247	35.0788	31.0116	0.0518	0.3770	2.0195	2.3964	0.1014	1.8859	1.9874	0.0000	5,041.7959	5,041.7959	1.2271	0.0000	5,072.4722
Maximum	**4.6591**	**49.4492**	**31.0116**	**0.0518**	**18.3481**	**2.5867**	**20.9348**	**9.9902**	**2.3801**	**12.3703**	**0.0000**	**5,041.7959**	**5,041.7959**	**1.2271**	**0.0000**	**5,072.4722**

Mitigated Construction

	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
Year	lb/day										lb/day					
2018	1.3790	34.9719	25.6042	0.0452	7.2630	0.9559	8.2189	3.9255	0.9555	4.8810	0.0000	4,550.2483	4,550.2483	1.2160	0.0000	4,577.9706
2019	4.4722	40.8789	32.9408	0.0518	0.3770	1.4737	1.8507	0.1014	1.4732	1.5746	0.0000	5,041.7959	5,041.7959	1.2271	0.0000	5,072.4722
Maximum	**4.4722**	**40.8789**	**32.9408**	**0.0518**	**7.2630**	**1.4737**	**8.2189**	**3.9255**	**1.4732**	**4.8810**	**0.0000**	**5,041.7959**	**5,041.7959**	**1.2271**	**0.0000**	**5,072.4722**

	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**	**N20**	**CO2e**
Percent Reduction	**36.97**	**10.27**	**-7.83**	**0.00**	**59.20**	**47.25**	**56.84**	**60.10**	**43.07**	**55.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Mobile	3.0100e-003	0.0159	0.0451	1.6000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		16.0106	16.0106	7.7000e-004		16.0298
Total	**0.1289**	**0.0428**	**0.0682**	**3.2000e-004**	**0.0124**	**2.1900e-003**	**0.0146**	**3.3300e-003**	**2.1800e-003**	**5.5100e-003**		**48.2052**	**48.2052**	**1.3900e-003**	**5.9000e-004**	**48.4158**

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	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Mobile	3.0100e-003	0.0159	0.0451	1.6000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		16.0106	16.0106	7.7000e-004		16.0298
Total	**0.1289**	**0.0428**	**0.0682**	**3.2000e-004**	**0.0124**	**2.1900e-003**	**0.0146**	**3.3300e-003**	**2.1800e-003**	**5.5100e-003**		**48.2052**	**48.2052**	**1.3900e-003**	**5.9000e-004**	**48.4158**

	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	N20	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	Demolition	Demolition	8/1/2018	8/31/2018	5	23	
2	Site Preparation	Site Preparation	9/1/2018	9/28/2018	5	20	
3	Grading	Grading	10/1/2018	11/30/2018	5	45	
4	Building Construction	Building Construction	12/1/2018	8/30/2019	5	195	
5	Paving	Paving	8/1/2019	8/28/2019	5	20	
6	Architectural Coating	Architectural Coating	9/1/2019	9/17/2019	5	12	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,250; Non-Residential Outdoor: 2,750; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Biogas Renewable Generation Project - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

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
Architectural Coating	1	20.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	10.00	5.00	112.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	10.00	10.00	875.00	14.70	6.90	0.27	LD_Mix	HDT_Mix	HHDT
Paving	8	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	10.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

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					
Fugitive Dust					1.0556	0.0000	1.0556	0.1598	0.0000	0.1598			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**1.0556**	**1.9386**	**2.9941**	**0.1598**	**1.8048**	**1.9647**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

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	0.0422	1.4993	0.2777	3.8700e-003	0.0851	5.7600e-003	0.0909	0.0233	5.5200e-003	0.0288		417.2176	417.2176	0.0285		417.9310
Vendor	0.0213	0.6059	0.1509	1.3100e-003	0.0320	4.4300e-003	0.0364	9.2100e-003	4.2400e-003	0.0135		139.3290	139.3290	9.4800e-003		139.5661
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.1174**	**2.1439**	**0.9303**	**6.4100e-003**	**0.2289**	**0.0111**	**0.2400**	**0.0622**	**0.0106**	**0.0728**		**678.4818**	**678.4818**	**0.0422**		**679.5362**

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					
Fugitive Dust					0.4117	0.0000	0.4117	0.0623	0.0000	0.0623			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.4117**	**0.9135**	**1.3252**	**0.0623**	**0.9135**	**0.9759**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

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	0.0422	1.4993	0.2777	3.8700e-003	0.0851	5.7600e-003	0.0909	0.0233	5.5200e-003	0.0288		417.2176	417.2176	0.0285		417.9310
Vendor	0.0213	0.6059	0.1509	1.3100e-003	0.0320	4.4300e-003	0.0364	9.2100e-003	4.2400e-003	0.0135		139.3290	139.3290	9.4800e-003		139.5661
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.1174**	**2.1439**	**0.9303**	**6.4100e-003**	**0.2289**	**0.0111**	**0.2400**	**0.0622**	**0.0106**	**0.0728**		**678.4818**	**678.4818**	**0.0422**		**679.5362**

3.3 Site Preparation - 2018

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					
Fugitive Dust					18.1723	0.0000	18.1723	9.9421	0.0000	9.9421			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.1723**	**2.5769**	**20.7492**	**9.9421**	**2.3708**	**12.3129**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

3.3 Site Preparation - 2018

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	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0964**	**1.2505**	**0.8036**	**3.8500e-003**	**0.1758**	**9.7400e-003**	**0.1855**	**0.0481**	**9.2900e-003**	**0.0574**		**400.5932**	**400.5932**	**0.0231**		**401.1713**

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					
Fugitive Dust					7.0872	0.0000	7.0872	3.8774	0.0000	3.8774			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**7.0872**	**0.9462**	**8.0334**	**3.8774**	**0.9462**	**4.8236**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

3.3 Site Preparation - 2018

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	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0964**	**1.2505**	**0.8036**	**3.8500e-003**	**0.1758**	**9.7400e-003**	**0.1855**	**0.0481**	**9.2900e-003**	**0.0574**		**400.5932**	**400.5932**	**0.0231**		**401.1713**

3.4 Grading - 2018

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					
Fugitive Dust					6.1280	0.0000	6.1280	3.3232	0.0000	3.3232			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.1280**	**1.5513**	**7.6793**	**3.3232**	**1.4272**	**4.7504**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

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	0.0417	2.0858	0.2597	2.3700e-003	4.9900e-003	1.6900e-003	6.6800e-003	1.4000e-003	1.6100e-003	3.0200e-003		254.2018	254.2018	0.0423		255.2590
Vendor	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.1382**	**3.3363**	**1.0633**	**6.2200e-003**	**0.1808**	**0.0114**	**0.1922**	**0.0495**	**0.0109**	**0.0604**		**654.7950**	**654.7950**	**0.0654**		**656.4303**

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					
Fugitive Dust					2.3899	0.0000	2.3899	1.2960	0.0000	1.2960			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0297		0.7725	0.7725		0.7725	0.7725	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**1.0093**	**26.2791**	**18.9906**	**0.0297**	**2.3899**	**0.7725**	**3.1624**	**1.2960**	**0.7725**	**2.0685**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

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	0.0417	2.0858	0.2597	2.3700e-003	4.9900e-003	1.6900e-003	6.6800e-003	1.4000e-003	1.6100e-003	3.0200e-003		254.2018	254.2018	0.0423		255.2590
Vendor	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.1382**	**3.3363**	**1.0633**	**6.2200e-003**	**0.1808**	**0.0114**	**0.1922**	**0.0495**	**0.0109**	**0.0604**		**654.7950**	**654.7950**	**0.0654**		**656.4303**

3.5 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.5 Building Construction - 2018

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	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0964**	**1.2505**	**0.8036**	**3.8500e-003**	**0.1758**	**9.7400e-003**	**0.1855**	**0.0481**	**9.2900e-003**	**0.0574**		**400.5932**	**400.5932**	**0.0231**		**401.1713**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.5 Building Construction - 2018

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	0.0426	1.2118	0.3018	2.6200e-003	0.0640	8.8500e-003	0.0729	0.0184	8.4700e-003	0.0269		278.6580	278.6580	0.0190		279.1322
Worker	0.0539	0.0386	0.5018	1.2300e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		121.9352	121.9352	4.1600e-003		122.0391
Total	**0.0964**	**1.2505**	**0.8036**	**3.8500e-003**	**0.1758**	**9.7400e-003**	**0.1855**	**0.0481**	**9.2900e-003**	**0.0574**		**400.5932**	**400.5932**	**0.0231**		**401.1713**

3.5 Building Construction - 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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 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	0.0386	1.1442	0.2766	2.5900e-003	0.0640	7.5800e-003	0.0716	0.0184	7.2500e-003	0.0257		276.2197	276.2197	0.0183		276.6766
Worker	0.0490	0.0341	0.4493	1.1900e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		118.0989	118.0989	3.6900e-003		118.1912
Total	**0.0875**	**1.1783**	**0.7260**	**3.7800e-003**	**0.1758**	**8.4500e-003**	**0.1842**	**0.0481**	**8.0500e-003**	**0.0561**		**394.3186**	**394.3186**	**0.0220**		**394.8679**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 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	0.0386	1.1442	0.2766	2.5900e-003	0.0640	7.5800e-003	0.0716	0.0184	7.2500e-003	0.0257		276.2197	276.2197	0.0183		276.6766
Worker	0.0490	0.0341	0.4493	1.1900e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		118.0989	118.0989	3.6900e-003		118.1912
Total	**0.0875**	**1.1783**	**0.7260**	**3.7800e-003**	**0.1758**	**8.4500e-003**	**0.1842**	**0.0481**	**8.0500e-003**	**0.0561**		**394.3186**	**394.3186**	**0.0220**		**394.8679**

3.6 Paving - 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	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2679**	**12.7604**	**12.3130**	**0.0189**		**0.7196**	**0.7196**		**0.6637**	**0.6637**		**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 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	0.0882	0.0613	0.8088	2.1400e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		212.5780	212.5780	6.6500e-003		212.7442
Total	**0.0882**	**0.0613**	**0.8088**	**2.1400e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4400e-003**	**0.0548**		**212.5780**	**212.5780**	**6.6500e-003**		**212.7442**

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	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7524**	**16.0849**	**13.5323**	**0.0189**		**0.5601**	**0.5601**		**0.5601**	**0.5601**	**0.0000**	**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 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	0.0882	0.0613	0.8088	2.1400e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		212.5780	212.5780	6.6500e-003		212.7442
Total	**0.0882**	**0.0613**	**0.8088**	**2.1400e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4400e-003**	**0.0548**		**212.5780**	**212.5780**	**6.6500e-003**		**212.7442**

3.7 Architectural Coating - 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					
Archit. Coating	4.2488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**4.5152**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 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	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0980	0.0682	0.8987	2.3700e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		236.1978	236.1978	7.3900e-003		236.3825
Total	**0.1095**	**0.4114**	**0.9817**	**3.1500e-003**	**0.2428**	**4.0100e-003**	**0.2468**	**0.0648**	**3.7800e-003**	**0.0686**		**319.0637**	**319.0637**	**0.0129**		**319.3855**

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					
Archit. Coating	4.2488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**4.3627**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 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	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0980	0.0682	0.8987	2.3700e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		236.1978	236.1978	7.3900e-003		236.3825
Total	**0.1095**	**0.4114**	**0.9817**	**3.1500e-003**	**0.2428**	**4.0100e-003**	**0.2468**	**0.0648**	**3.7800e-003**	**0.0686**		**319.0637**	**319.0637**	**0.0129**		**319.3855**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	3.0100e-003	0.0159	0.0451	1.6000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		16.0106	16.0106	7.7000e-004		16.0298
Unmitigated	3.0100e-003	0.0159	0.0451	1.6000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		16.0106	16.0106	7.7000e-004		16.0298

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.32	0.33	0.33	4,593	4,593
Total	1.32	0.33	0.33	4,593	4,593

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

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	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
NaturalGas Unmitigated	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847

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					
General Light Industry	273.644	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Total		**2.9500e-003**	**0.0268**	**0.0225**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**		**32.1934**	**32.1934**	**6.2000e-004**	**5.9000e-004**	**32.3847**

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					
General Light Industry	0.273644	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Total		**2.9500e-003**	**0.0268**	**0.0225**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**		**32.1934**	**32.1934**	**6.2000e-004**	**5.9000e-004**	**32.3847**

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	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Unmitigated	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

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	0.0140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	**0.1229**	**1.0000e-005**	**5.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.2000e-003**	**1.2000e-003**	**0.0000**		**1.2800e-003**

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	0.0140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	**0.1229**	**1.0000e-005**	**5.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.2000e-003**	**1.2000e-003**	**0.0000**		**1.2800e-003**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Biogas Renewable Generation Project

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.50	1000sqft	3.00	5,500.00	6

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2020
Utility Company	Glendale Water & Power				
CO2 Intensity (lb/MWhr)	1115.33	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot Acreage and population were estimated.

Construction Phase - Construction schedule was estimated and provided by Stantec.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Trips and VMT - This data was estimated and provided by Stantec.

Demolition -

Grading - This data was estimated and provided by Stantec.

Vehicle Trips - This data was estimated and provided by Stantec.

Construction Off-road Equipment Mitigation - Tier 2 or higher off-road equipment will be utilized for this construction project.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	10.00	12.00
tblConstructionPhase	NumDays	220.00	195.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	6.00	45.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	3.00	20.00
tblConstructionPhase	PhaseEndDate	1/14/2020	9/17/2019

tblConstructionPhase	PhaseEndDate	11/29/2019	8/30/2019
tblConstructionPhase	PhaseEndDate	3/1/2019	11/30/2018
tblConstructionPhase	PhaseEndDate	12/27/2019	8/28/2019
tblConstructionPhase	PhaseEndDate	11/30/2018	9/28/2018
tblConstructionPhase	PhaseStartDate	12/28/2019	9/1/2019
tblConstructionPhase	PhaseStartDate	3/2/2019	12/1/2018
tblConstructionPhase	PhaseStartDate	12/1/2018	10/1/2018
tblConstructionPhase	PhaseStartDate	11/30/2019	8/1/2019
tblGrading	AcresOfGrading	22.50	3.00
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	14,000.00
tblLandUse	LotAcreage	0.13	3.00
tblLandUse	Population	0.00	6.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	HaulingTripLength	20.00	0.27
tblTripsAndVMT	HaulingTripNumber	0.00	875.00
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	10.00
tblTripsAndVMT	VendorTripNumber	1.00	10.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	2.00	10.00
tblTripsAndVMT	WorkerTripNumber	20.00	18.00
tblTripsAndVMT	WorkerTripNumber	0.00	20.00

tblVehicleTrips	ST_TR	1.32	0.06
tblVehicleTrips	SU_TR	0.68	0.06
tblVehicleTrips	WD_TR	6.97	0.24

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	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
Year	lb/day										lb/day					
2018	4.6657	49.4549	23.2654	0.0450	18.3481	2.5868	20.9349	9.9902	2.3802	12.3704	0.0000	4,530.9463	4,530.9463	1.2171	0.0000	4,558.7125
2019	4.6339	35.0887	30.9199	0.0515	0.3770	2.0196	2.3966	0.1014	1.8861	1.9875	0.0000	5,012.5191	5,012.5191	1.2277	0.0000	5,043.2125
Maximum	**4.6657**	**49.4549**	**30.9199**	**0.0515**	**18.3481**	**2.5868**	**20.9349**	**9.9902**	**2.3802**	**12.3704**	**0.0000**	**5,012.5191**	**5,012.5191**	**1.2277**	**0.0000**	**5,043.2125**

Mitigated Construction

	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
Year	lb/day										lb/day					
2018	1.3859	34.9776	25.5966	0.0450	7.2630	0.9561	8.2190	3.9255	0.9556	4.8811	0.0000	4,530.9463	4,530.9463	1.2171	0.0000	4,558.7125
2019	4.4814	40.8889	32.8492	0.0515	0.3770	1.4738	1.8508	0.1014	1.4733	1.5747	0.0000	5,012.5191	5,012.5191	1.2277	0.0000	5,043.2125
Maximum	**4.4814**	**40.8889**	**32.8492**	**0.0515**	**7.2630**	**1.4738**	**8.2190**	**3.9255**	**1.4733**	**4.8811**	**0.0000**	**5,012.5191**	**5,012.5191**	**1.2277**	**0.0000**	**5,043.2125**

	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	N20	CO2e
Percent Reduction	**36.91**	**10.26**	**-7.86**	**0.00**	**59.20**	**47.25**	**56.84**	**60.10**	**43.07**	**55.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Mobile	2.8800e-003	0.0164	0.0418	1.5000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		15.1661	15.1661	7.6000e-004		15.1851
Total	**0.1288**	**0.0432**	**0.0649**	**3.1000e-004**	**0.0124**	**2.1900e-003**	**0.0146**	**3.3300e-003**	**2.1800e-003**	**5.5100e-003**		**47.3607**	**47.3607**	**1.3800e-003**	**5.9000e-004**	**47.5711**

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	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Energy	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Mobile	2.8800e-003	0.0164	0.0418	1.5000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		15.1661	15.1661	7.6000e-004		15.1851
Total	**0.1288**	**0.0432**	**0.0649**	**3.1000e-004**	**0.0124**	**2.1900e-003**	**0.0146**	**3.3300e-003**	**2.1800e-003**	**5.5100e-003**		**47.3607**	**47.3607**	**1.3800e-003**	**5.9000e-004**	**47.5711**

	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	N20	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	Demolition	Demolition	8/1/2018	8/31/2018	5	23	
2	Site Preparation	Site Preparation	9/1/2018	9/28/2018	5	20	
3	Grading	Grading	10/1/2018	11/30/2018	5	45	
4	Building Construction	Building Construction	12/1/2018	8/30/2019	5	195	
5	Paving	Paving	8/1/2019	8/28/2019	5	20	
6	Architectural Coating	Architectural Coating	9/1/2019	9/17/2019	5	12	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 8,250; Non-Residential Outdoor: 2,750; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Biogas Renewable Generation Project - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

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
Architectural Coating	1	20.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	10.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	6	10.00	5.00	112.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	10.00	10.00	875.00	14.70	6.90	0.27	LD_Mix	HDT_Mix	HHDT
Paving	8	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	10.00	10.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2018

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					
Fugitive Dust					1.0556	0.0000	1.0556	0.1598	0.0000	0.1598			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**1.0556**	**1.9386**	**2.9941**	**0.1598**	**1.8048**	**1.9647**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

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	0.0435	1.5203	0.3011	3.8000e-003	0.0851	5.8800e-003	0.0910	0.0233	5.6200e-003	0.0289		409.7336	409.7336	0.0299		410.4799
Vendor	0.0222	0.6069	0.1675	1.2700e-003	0.0320	4.5000e-003	0.0365	9.2100e-003	4.3000e-003	0.0135		135.3782	135.3782	0.0102		135.6329
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1243**	**2.1695**	**0.9227**	**6.2200e-003**	**0.2289**	**0.0113**	**0.2401**	**0.0622**	**0.0107**	**0.0729**		**659.1798**	**659.1798**	**0.0439**		**660.2781**

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					
Fugitive Dust					0.4117	0.0000	0.4117	0.0623	0.0000	0.0623			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.4117**	**0.9135**	**1.3252**	**0.0623**	**0.9135**	**0.9759**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

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	0.0435	1.5203	0.3011	3.8000e-003	0.0851	5.8800e-003	0.0910	0.0233	5.6200e-003	0.0289		409.7336	409.7336	0.0299		410.4799
Vendor	0.0222	0.6069	0.1675	1.2700e-003	0.0320	4.5000e-003	0.0365	9.2100e-003	4.3000e-003	0.0135		135.3782	135.3782	0.0102		135.6329
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1243**	**2.1695**	**0.9227**	**6.2200e-003**	**0.2289**	**0.0113**	**0.2401**	**0.0622**	**0.0107**	**0.0729**		**659.1798**	**659.1798**	**0.0439**		**660.2781**

3.3 Site Preparation - 2018

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					
Fugitive Dust					18.1723	0.0000	18.1723	9.9421	0.0000	9.9421			0.0000			0.0000
Off-Road	4.5627	48.1988	22.4763	0.0380		2.5769	2.5769		2.3708	2.3708		3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**4.5627**	**48.1988**	**22.4763**	**0.0380**	**18.1723**	**2.5769**	**20.7492**	**9.9421**	**2.3708**	**12.3129**		**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

3.3 Site Preparation - 2018

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	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1030**	**1.2562**	**0.7891**	**3.6900e-003**	**0.1758**	**9.8800e-003**	**0.1857**	**0.0481**	**9.4200e-003**	**0.0575**		**384.8244**	**384.8244**	**0.0243**		**385.4310**

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					
Fugitive Dust					7.0872	0.0000	7.0872	3.8774	0.0000	3.8774			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,831.6239	3,831.6239	1.1928		3,861.4448
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**7.0872**	**0.9462**	**8.0334**	**3.8774**	**0.9462**	**4.8236**	**0.0000**	**3,831.6239**	**3,831.6239**	**1.1928**		**3,861.4448**

3.3 Site Preparation - 2018

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	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1030**	**1.2562**	**0.7891**	**3.6900e-003**	**0.1758**	**9.8800e-003**	**0.1857**	**0.0481**	**9.4200e-003**	**0.0575**		**384.8244**	**384.8244**	**0.0243**		**385.4310**

3.4 Grading - 2018

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					
Fugitive Dust					6.1280	0.0000	6.1280	3.3232	0.0000	3.3232			0.0000			0.0000
Off-Road	2.7733	30.6725	16.5770	0.0297		1.5513	1.5513		1.4272	1.4272		2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**2.7733**	**30.6725**	**16.5770**	**0.0297**	**6.1280**	**1.5513**	**7.6793**	**3.3232**	**1.4272**	**4.7504**		**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

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	0.0468	2.0044	0.3586	2.0900e-003	4.9900e-003	2.1400e-003	7.1300e-003	1.4000e-003	2.0400e-003	3.4500e-003		224.3178	224.3178	0.0476		225.5075
Vendor	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1498**	**3.2606**	**1.1477**	**5.7800e-003**	**0.1808**	**0.0120**	**0.1928**	**0.0495**	**0.0115**	**0.0609**		**609.1422**	**609.1422**	**0.0719**		**610.9386**

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					
Fugitive Dust					2.3899	0.0000	2.3899	1.2960	0.0000	1.2960			0.0000			0.0000
Off-Road	1.0093	26.2791	18.9906	0.0297		0.7725	0.7725		0.7725	0.7725	0.0000	2,988.0216	2,988.0216	0.9302		3,011.2769
Total	**1.0093**	**26.2791**	**18.9906**	**0.0297**	**2.3899**	**0.7725**	**3.1624**	**1.2960**	**0.7725**	**2.0685**	**0.0000**	**2,988.0216**	**2,988.0216**	**0.9302**		**3,011.2769**

3.4 Grading - 2018

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	0.0468	2.0044	0.3586	2.0900e-003	4.9900e-003	2.1400e-003	7.1300e-003	1.4000e-003	2.0400e-003	3.4500e-003		224.3178	224.3178	0.0476		225.5075
Vendor	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1498**	**3.2606**	**1.1477**	**5.7800e-003**	**0.1808**	**0.0120**	**0.1928**	**0.0495**	**0.0115**	**0.0609**		**609.1422**	**609.1422**	**0.0719**		**610.9386**

3.5 Building Construction - 2018

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	2.6795	23.3900	17.5804	0.0269		1.4999	1.4999		1.4099	1.4099		2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**2.6795**	**23.3900**	**17.5804**	**0.0269**		**1.4999**	**1.4999**		**1.4099**	**1.4099**		**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.5 Building Construction - 2018

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	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1030**	**1.2562**	**0.7891**	**3.6900e-003**	**0.1758**	**9.8800e-003**	**0.1857**	**0.0481**	**9.4200e-003**	**0.0575**		**384.8244**	**384.8244**	**0.0243**		**385.4310**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,620.9351	2,620.9351	0.6421		2,636.9883
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,620.9351**	**2,620.9351**	**0.6421**		**2,636.9883**

3.5 Building Construction - 2018

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	0.0444	1.2139	0.3350	2.5400e-003	0.0640	8.9900e-003	0.0730	0.0184	8.6000e-003	0.0270		270.7564	270.7564	0.0204		271.2658
Worker	0.0586	0.0423	0.4541	1.1500e-003	0.1118	8.9000e-004	0.1127	0.0296	8.2000e-004	0.0305		114.0679	114.0679	3.8900e-003		114.1652
Total	**0.1030**	**1.2562**	**0.7891**	**3.6900e-003**	**0.1758**	**9.8800e-003**	**0.1857**	**0.0481**	**9.4200e-003**	**0.0575**		**384.8244**	**384.8244**	**0.0243**		**385.4310**

3.5 Building Construction - 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	2.3612	21.0788	17.1638	0.0269		1.2899	1.2899		1.2127	1.2127		2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**2.3612**	**21.0788**	**17.1638**	**0.0269**		**1.2899**	**1.2899**		**1.2127**	**1.2127**		**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 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	0.0403	1.1451	0.3081	2.5200e-003	0.0640	7.7000e-003	0.0717	0.0184	7.3600e-003	0.0258		268.3163	268.3163	0.0196		268.8073
Worker	0.0533	0.0373	0.4054	1.1100e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		110.4656	110.4656	3.4500e-003		110.5519
Total	**0.0936**	**1.1824**	**0.7134**	**3.6300e-003**	**0.1758**	**8.5700e-003**	**0.1844**	**0.0481**	**8.1600e-003**	**0.0562**		**378.7818**	**378.7818**	**0.0231**		**379.3591**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,591.5802	2,591.5802	0.6313		2,607.3635
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,591.5802**	**2,591.5802**	**0.6313**		**2,607.3635**

3.5 Building Construction - 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	0.0403	1.1451	0.3081	2.5200e-003	0.0640	7.7000e-003	0.0717	0.0184	7.3600e-003	0.0258		268.3163	268.3163	0.0196		268.8073
Worker	0.0533	0.0373	0.4054	1.1100e-003	0.1118	8.7000e-004	0.1127	0.0296	8.0000e-004	0.0305		110.4656	110.4656	3.4500e-003		110.5519
Total	**0.0936**	**1.1824**	**0.7134**	**3.6300e-003**	**0.1758**	**8.5700e-003**	**0.1844**	**0.0481**	**8.1600e-003**	**0.0562**		**378.7818**	**378.7818**	**0.0231**		**379.3591**

3.6 Paving - 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	1.2679	12.7604	12.3130	0.0189		0.7196	0.7196		0.6637	0.6637		1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2679**	**12.7604**	**12.3130**	**0.0189**		**0.7196**	**0.7196**		**0.6637**	**0.6637**		**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 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	0.0960	0.0672	0.7297	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		198.8380	198.8380	6.2100e-003		198.9933
Total	**0.0960**	**0.0672**	**0.7297**	**2.0000e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4400e-003**	**0.0548**		**198.8380**	**198.8380**	**6.2100e-003**		**198.9933**

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	0.7524	16.0849	13.5323	0.0189		0.5601	0.5601		0.5601	0.5601	0.0000	1,843.3191	1,843.3191	0.5671		1,857.4966
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7524**	**16.0849**	**13.5323**	**0.0189**		**0.5601**	**0.5601**		**0.5601**	**0.5601**	**0.0000**	**1,843.3191**	**1,843.3191**	**0.5671**		**1,857.4966**

3.6 Paving - 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	0.0960	0.0672	0.7297	2.0000e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4400e-003	0.0548		198.8380	198.8380	6.2100e-003		198.9933
Total	**0.0960**	**0.0672**	**0.7297**	**2.0000e-003**	**0.2012**	**1.5700e-003**	**0.2028**	**0.0534**	**1.4400e-003**	**0.0548**		**198.8380**	**198.8380**	**6.2100e-003**		**198.9933**

3.7 Architectural Coating - 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					
Archit. Coating	4.2488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288		281.4481	281.4481	0.0238		282.0423
Total	**4.5152**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**		**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 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	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.1067	0.0747	0.8108	2.2200e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		220.9312	220.9312	6.9000e-003		221.1037
Total	**0.1187**	**0.4182**	**0.9032**	**2.9800e-003**	**0.2428**	**4.0500e-003**	**0.2468**	**0.0648**	**3.8100e-003**	**0.0686**		**301.4260**	**301.4260**	**0.0128**		**301.7459**

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					
Archit. Coating	4.2488					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0238		282.0423
Total	**4.3627**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0238**		**282.0423**

3.7 Architectural Coating - 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	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.1067	0.0747	0.8108	2.2200e-003	0.2236	1.7400e-003	0.2253	0.0593	1.6000e-003	0.0609		220.9312	220.9312	6.9000e-003		221.1037
Total	**0.1187**	**0.4182**	**0.9032**	**2.9800e-003**	**0.2428**	**4.0500e-003**	**0.2468**	**0.0648**	**3.8100e-003**	**0.0686**		**301.4260**	**301.4260**	**0.0128**		**301.7459**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	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	2.8800e-003	0.0164	0.0418	1.5000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		15.1661	15.1661	7.6000e-004		15.1851
Unmitigated	2.8800e-003	0.0164	0.0418	1.5000e-004	0.0124	1.5000e-004	0.0126	3.3300e-003	1.4000e-004	3.4700e-003		15.1661	15.1661	7.6000e-004		15.1851

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1.32	0.33	0.33	4,593	4,593
Total	1.32	0.33	0.33	4,593	4,593

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.547828	0.043645	0.199892	0.122290	0.016774	0.005862	0.020637	0.032653	0.002037	0.001944	0.004777	0.000705	0.000956

5.0 Energy Detail

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	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
NaturalGas Unmitigated	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847

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					
General Light Industry	273.644	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Total		**2.9500e-003**	**0.0268**	**0.0225**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**		**32.1934**	**32.1934**	**6.2000e-004**	**5.9000e-004**	**32.3847**

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					
General Light Industry	0.273644	2.9500e-003	0.0268	0.0225	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.1934	32.1934	6.2000e-004	5.9000e-004	32.3847
Total		**2.9500e-003**	**0.0268**	**0.0225**	**1.6000e-004**		**2.0400e-003**	**2.0400e-003**		**2.0400e-003**	**2.0400e-003**		**32.1934**	**32.1934**	**6.2000e-004**	**5.9000e-004**	**32.3847**

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	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Unmitigated	0.1229	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003

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	0.0140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	**0.1229**	**1.0000e-005**	**5.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.2000e-003**	**1.2000e-003**	**0.0000**		**1.2800e-003**

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	0.0140					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1089					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	1.0000e-005	5.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.2000e-003	1.2000e-003	0.0000		1.2800e-003
Total	**0.1229**	**1.0000e-005**	**5.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.2000e-003**	**1.2000e-003**	**0.0000**		**1.2800e-003**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

B.2 CRITERIA POLLUTANT EMISSION INVENTORY

APPENDIX B.2

CRITERIA POLLUTANT EMISSION INVENTORY

APPENDIX B.2.1
CRITERIA POLLUTANT EMISSION INVENTORY FOR RECIPROCATING IC ENGINE
(PROJECT OPERATION IMPACT)

APPENDIX B.2.2
CRITERIA POLLUTANT EMISSION INVENTORY FOR FLARE SYSTEM
CRITERIA POLLUTANT EMISSION INVENTORY FOR EXISTING BOILERS
(PROJECT CONSTRUCTION IMPACT)

APPENDIX B.2.3
EMISSION FACTORS AND ITS SUPPORTING DOCUMENTATION:

- **GE J 620 GS-F21 MANUFACTURER EMISSIONS GUARANTEE AND OTHER ENGINE PARAMETERS**
- **GE J 620 GS-F21 EQUIPMENT SPECIFICATION**
- **SCAQMD ANNUAL REPORTING REPORT FOR 2010 THROUGH 2014**
- **SOURCE TEST REPORT OF THE EXISTING FLARE SYSTEM CONDUCTED ON MAY 2015**
- **LANDFILL GAS LAB RESULT COLLECTED ON 01/06/2016**

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APPENDIX B.2.1

CRITERIA POLLUTANT EMISSION INVENTORY FOR RECIPROCATING IC ENGINE (PROJECT OPERATION IMPACT)

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APPENDIX A.2.1
EMISSION INVENTORY FOR THE PROPOSED ENGINES
BIOGAS RENEWABLE GENERATION PROJECT

GE J 620 GS-F21 **30 MINUTES STARTUP, 8 MINUTES SHUTDOWN**

Pollutant	No. of Normal Operating Hours per Day	Normal Operating Hour Emission Rate	No. of Startups Per Day	Uncontrolled Emission lb / Startup	No. of Shutdowns Per Day	Uncontrolled Emission lb / Shutdown	No. of Maintenance Operating Hours per Day	Maintenance Operating Hour Emission Rate	Number of Startups/ Shutdowns per Month	Number of Normal Operating Hours Per Month	Number of Startups/ Shutdowns per Year	Number of Normal Operating Hours Per Year
NO_X	12.73	1.22	2	23.50	2.00	7.40	10	7.34	10	704	120	8674
CO	12.73	8.80	2	24.00	2.00	29.20	10	16.92	10	704	120	8674
VOC	12.73	1.16	2	1.20	2.00	0.46	10	2.17	10	704	120	8674
PM10	12.73	0.61	2	0.30	2.00	0.08	10	0.61	10	704	120	8674
SO_X	12.73	0.84	2	0.42	2.00	0.11	10	0.84	10	704	120	8674

Starts/stops =	1.27	hours/day per engine	6.33	hours/month per engine	76.00	Hours / year per engine
Maintenance =	10	hours/day per engine	10	hours/month per engine	10	Hours / year per engine

Daily = 24 hours with 2 startS Monthly = 720 hours with 10 starts

GE J 620 GS-F21 **EMISSIONS OF 1 ENGINE** **EMISSIONS OF 4 ENGINES**

Pollutant	Daily Maximum Emissions (Lbs)	Monthly Maximum Emissions (Lbs)	30-Day Average Emissions (lbs)	Annual PTE (Lbs)	Annual PTE (Tons)	Daily Maximum Emissions (Lbs)	Monthly Maximum Emissions (Lbs)	30-Day Average Emissions (lbs)	Annual PTE (Lbs)	Annual PTE (Tons)
NO_X	150.73	1,241	41	14,364	7.18	419.34	4,963	165	57,455	28.73
CO	387.65	6,893	230	82,884	41.44	1131.81	27,574	919	331,538	165.77
VOC	39.79	855	28	10,283	5.14	126.10	3,418	114	41,131	20.57
PM10	14.61	438	15	5,332	2.67	57.94	1,753	58	21,327	10.66
SO_X	20.16	605	20	7,358	3.68	79.97	2,419	81	29,434	14.72

*Maximum 1 Engine per day in the maintenance operation

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APPENDIX B.2.2

CRITERIA POLLUTANT EMISSION INVENTORY FOR FLARE SYSTEM AND BOILERS (PROJECT CONSTRUCTION IMPACT)

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APPENDIX A.2.2
EMISSION INVENTORY DURING CONSTRUCTION ACTIVITIES (FLARES)
BIOGAS RENEWABLE GENERATION PROJECT

DURING CONSTRUCTION, ALL LFG ARE COMBUSTED IN THE EXISTING FLARES
LFG COMBUSTED: 0.3 MMSCF/HR 5000 SCF/MIN
ANNUAL OPERATING HOURS: 8760

FLARE SYSTEM

Pollutant	No. of Normal Operating Hours per Day	Emission Factor, lbs/mmscf	Number of Normal Operating Hours Per Month	Number of Normal Operating Hours Per Year
NO_X	24.00	13.27	720	8760
CO	24.00	1.19	720	8760
VOC	24.00	1.30	720	8760
PM10	24.00	6.40	720	8760
SO_X	24.00	5.21	720	8760

FLARE SYSTEM

Pollutant	Daily Maximum Emissions (Lbs)	Monthly Maximum Emissions (Lbs)	30-Day Average Emissions (lbs)	Annual PTE (Lbs)	Annual PTE (tons)
NO_X	95.54	2,866	96	34,874	17.44
CO	8.57	257	9	3,127	1.56
VOC	9.36	281	9	3,416	1.71
PM10	46.08	1,382	46	16,819	8.41
SO_X	37.51	1,125	38	13,692	6.85

APPENDIX A.2.2
EMISSION INVENTORY DURING CONSTRUCTION ACTIVITIES (BOILERS)
BIOGAS RENEWABLE GENERATION PROJECT

			SCAQMD AER EMISSIONS ,LBS/YEAR					SCAQMD AER EMISSIONS ,LBS/DAYS				
Year	Unit	LFG usage, MMCF	NOX	CO	VOC	PM10/2.5	SOX	NOX	CO	VOC	PM10/2.5	SOX
2011	Boiler #3	0.89	556	6	4	7	1	1.52	0.02	0.01	0.02	0.00
	Boiler #4	515.24	8,141	3,658	2,061	4,122	747	22.30	10.02	5.65	11.29	2.05
	Boiler #5	2753.91	26,465	19,553	11,016	22,031	3,993	72.51	53.57	30.18	60.36	10.94
2012	Boiler #3	285.65	3,208	2,028	1,143	2,285	414	8.79	5.56	3.13	6.26	1.13
	Boiler #4	1856.66	16,784	13,182	7,427	14,853	2,692	45.98	36.12	20.35	40.69	7.38
	Boiler #5	1268.04	13,314	9,003	5,072	10,144	1,839	36.48	24.67	13.90	27.79	5.04
2013	Boiler #3	242.8	3,433	1,724	971	1,942	352	9.41	4.72	2.66	5.32	0.96
	Boiler #4	1510.66	12,478	10,726	6,043	12,085	2,190	34.19	29.39	16.56	33.11	6.00
	Boiler #5	1409.84	15,311	10,010	5,639	11,279	2,044	41.95	27.42	15.45	30.90	5.60
2014	Boiler #3	433.59	4,175	3,078	1,734	3,469	629	11.44	8.43	4.75	9.50	1.72
	Boiler #4	1153.06	9,916	8,187	4,612	9,224	1,672	27.17	22.43	12.64	25.27	4.58
	Boiler #5	1535.7	15,971	10,903	6,143	12,286	2,227	43.76	29.87	16.83	33.66	6.10
2015	Boiler #3	322.427	3,211	2,289	1,290	2,579	468	8.80	6.27	3.53	7.07	1.28
	Boiler #4	649.937	3,854	4,615	2,600	5,200	942	10.56	12.64	7.12	14.25	2.58
	Boiler #5	1564.606	16,898	11,109	6,258	12,517	2,269	46.30	30.43	17.15	34.29	6.22
5-YR AVG	Boiler #3		3,693	2,684	1,512	3,024	548	7.99	5.00	2.82	5.63	1.02
	Boiler #4		6,885	6,401	3,606	7,212	1,307	28.04	22.12	12.46	24.92	4.52
	Boiler #5		16,435	11,006	6,201	12,401	2,248	48.20	33.19	18.70	37.40	6.78
							TOTAL:	84.23	60.31	33.98	67.96	12.32

Note:
The daily average emissions were calculated by assuming 365 operating days.

APPENDIX B.2.3

EMISSION FACTORS AND ITS SUPPORTING DOCUMENTATION:

- **GE J 620 GS-F21 MANUFACTURER EMISSIONS GUARANTEE AND OTHER ENGINE PARAMETERS**

- **GE J 620 GS-F21 EQUIPMENT SPECIFICATION**

- **SCAQMD ANNUAL REPORTING REPORT FOR 2010 THROUGH 2014**

- **SOURCE TEST REPORT OF THE EXISTING FLARE SYSTEM CONDUCTED ON MAY 2015**

- **LANDFILL GAS LAB RESULT COLLECTED ON 01/06/2016**

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APPENDIX A.2.3
EMISSION FACTORS OF THE PROPOSED ENGINES
BIOGAS RENEWABLE GENERATION PROJECT

	CONTROLLED EMISSION RATES														
Equipment Type	NO_X		CO		VOC		PM10/2.5		SO_X		NO_X, LBS/HR	CO, LBS/HR	VOC, LBS/HR	PM10/2.5, LBS/HR	SO_X, LBS/HR
GE J 620 GS-F21 (Engine)	11	PPMV	130.1	PPMV	30	PPMV	0.066	g/bhp-hr	10.13	LBS/MMCF	1.22	8.8	1.16	0.61	0.84
Existing Flare System	13.27	LBS/MMCF	1.19	LBS/MMCF	1.3	LBS/MMCF	6.4	LBS/MMCF	5.21	LBS/MMCF					
	UNCONTROLLED EMISSION RATES														
GE J 620 GS-F21 (Engine)	66	PPMV	250	PPMV	56	PPMV	0.066	g/bhp-hr	10.13	LBS/MMCF	7.34	16.92	2.17	0.61	0.84

Equipment Type	Electric Output, $KW_{(GROSS)}$	Fuel Type	Fuel LHV, Btu/SCF	Fuel HHV, Btu/SCF	Dry Fuel Factor (Fd), dscf/mmbtu	Fuel Consumption MMBtu/hr	Fuel Flow MMCF/hr	Fuel Flow SCFM
GE J 620 GS-F21 (Engine)	3,018	Landfill Gas		317.14	9835	26.34	0.083	1383

NOTES:

GE J 620 GS-F21 Engine:
- NO_X and VOC emission concentration based on Rule 1110.2 Emission Limits (SCAQMD BACT/LAER).
- CO emission based on manufacturer emission guarantee.
- PM10 emission factor is based on SCAQMD BACT/LAER emission limit.
- SO_X emission factor based on 60 ppmv of sulfur content measured in H2S for Landfill gas (SCAQMD BACT/LAER).
- Enigne parameter is based provided by the manufacturer.
- Landfill gas HHV is estimated based on the landfill gas sampling on 01/06/2016.

Existing Flare System:
- Emission factors is the average of calculated emission factors reported in SCAQMD Annual Emission Report (AER) for the reporting year 2010 through 2014 and Source test concducted on May, 2015.

Landfill gas property:
-Landfill gas HHV is estimated based on the landfill gas sampling on 01/06/2016.
-Dry Fuel Factor is estimated based on the average heating values from the lab results sampled from 2010 through May, 2015.

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Stantec

City of Glendale Water & Power
Your Trusted Community Utility

Scholl Canyon Landfill Power Project
Power Island and Major Equipment Request for Proposals
Attachment 2.11.2 – Recip. Engine Generator Air Emissions Data

REG AIR EMISSIONS DATA – PROPOSAL FORM

A. Instructions

This section is for information requested if you are proposing Reciprocating Engine Generators only. All engine generators shall be identical.

Please provide the information and data requested below.

Number of identical Engine Generators Proposed: 4

Each engine's exhaust stack diameter and height: 24"

Maximum total heat input per engine (MMBTUH- HHV): 26.34

Maximum gross electrical output of each generator (MW): 3018 @ 0.85pf

Maximum brake horsepower rating of the engine (bhp): 4183

B. Catalyst Information Request

Describe SCR Proposed, (Make, model, catalyst type and material, module size, total volume, other pertinent information): **Johnson Matthey SCR10x10, two (2) layers of extruded SW55. Each layer consists of 25 modules and each module's dimensions are 12" x 12" x 12". The total volume is 47 ft3.**

Describe Oxidation Catalyst Proposed, (Make, model, catalyst type and material, module size, total volume, other pertinent information): **Johnson Matthey Oxidation Catalyst, one layer of coated metallic SC09 Oxidation Catalyst. Layer consists 25 modules and each module's dimensions are 12" x 12" x 3.5". The total volume is 7.3 ft3.**

Guaranteed Ammonia Concentration at the outlet of the SCR Unit (Ammonia Slip) (PPMV, @ 15% O2): **Johnson Matthey SCR system ammonia slip will be less than 10 ppmvd corrected to 15% oxygen**

Performance Guarantee (% Reduction) on NO_X, CO, and VOC: **Johnson Matthey SCR system will meet SCAQMD Rule 1110.2, NOx = 11 ppmvd, CO = 250 ppmvd. VOC = 30 ppmvd, all corrected to 15% oxygen**

Ammonia Storage Information (Dimension, capacity, pressure): By Others

C. Exhaust Parameters Guarantees for Full Load Operation (each engine)

Maximum Exit Exhaust Flow (ACFM): 479,000
Maximum Exit Exhaust Flow (SCFM): 481,020
Exit Exhaust Temp (°F): 797
Exit Pressure (inc. H_2O): not to exceed 20.068 (0.725psi)

*Per engine specs, exhaust gas volume (wet) is 481,020 scfh

D. Emissions Rates Guarantees for each Engine

For engines operating at all loads, minimum to maximum, please provide the following guarantee information for all design conditions listed in Attachment 3 Site Design Condition.

Contaminants	PPMV and Fuel Use MMBTUH HHV	Standard PPMV
CO (PPMV, @ 15% O2, dry) :	≤ 250 @ 23,842 MBTU/hr	250
NOx (PPMV, @ 15% O2, dry):	≤ 11 @ 23,842 MBTU/hr	11
NMNEHC (PPMV,@ 15% O2, dry):	≤ 30 @ 23,842 MBTU/hr	30
Formaldehyde (PPMV,@ 15% O2):	≤ 59 @ 23,842 MBTU/hr	n/a
SOx (PPMV, @ 15% O2, dry):	Per GEJ Emissions Data Attached	n/a

Landfill Gas CH4 Destruction Efficiency (%,): **Not Applicable**
Landfill Gas NMOC Destruction Efficiency (%,): **98**

	Lbs/MMBTU-HHV
PM 10 (Lbs/MMBTU - HHV):	0.061 lbs/Mwe/Hr = 7.76×10^{-6} lbs/MBTU

E. Emissions Guarantees for Start Up & Shut down for each Engine

Cold Start Event

Define Cold Start: Catalyst at ambient temperature
Duration (Minutes): 30 minutes -

Scholl Canyon Landfill Power Project
Power Island and Major Equipment Request for Proposals
Attachment 2.11.2 – Recip. Engine Generator Air Emissions Data

Contaminants	Lbm /Event & Lbm/MMBtu HHV During Event	
CO (@ 15% O2, dry) :	24 lbm/event	0.0013 lbm/MBTU
NOx (@ 15% O2, dry):	23.5 lbm/event	0.00127 lbm/MBTU
NMNEHC (as hexane @ 3% O2, dry):	1.2 lbm/event	6.3×10^{-5} lbm/MBTU
Formaldehyde (@ 15% O2):	2.1 lbm/event	1.2×10^{-4} lbm/MBTU
SOx (@ 15% O2, dry):	Per Jenbacher Engine Emissions Data Attached	
PM 10	0.12 lbm/event	6.6×10^{-6} lbm/MBTU

Warm Start Event

Define Warm Start: Catalyst at 325 Deg F
Duration (Minutes): 15 Minutes

Contaminants	Lbm /Event & Lbm/MMBtu HHV During Event	
CO (@ 15% O2, dry):	19.6 lbm/event	0.0011 lbm/MBTU
NOx (@ 15% O2, dry):	18.1 lbm/event	0.001 lbm/MBTU
NMNEHC (as Hexane @ 3% O2, dry):	0.68 lbm/event	3.7×10^{-5} lbm/MBTU
Formaldehyde (@ 15% O2):	1.65 lbm/event	9.0×10^{-5} lbm/MBTU
SOx (@ 15% O2, dry):	Per Jenbacher Engine Emissions Data Attached	
PM 10	0.07 lbm/event	3.3×10^{-6} lbm/MBTU

Hot Start Event

Define Hot Start: Catalyst at 650 Deg F
Duration (Minutes): 0 minutes

Contaminants	Lbm /Event & Lbm/MMBtu HHV During Event	
CO (@ 15% O2, dry):	5.8 lbm/event	3.2×10^{-4} lbm/MBTU
NOx (@ 15% O2, dry):	5.1 lbm/event	2.8×10^{-4} lbm/MBTU
NMNEHC (@ 3% O2, dry):	0.63 lbm/event	3.5×10^{-5} lbm/MBTU
Formaldehyde (@ 15% O2):	1.5 lbm/event	8.2×10^{-5} lbm/MBTU
SOx (@ 15% O2, dry):	Per Jenbacher Engine Emissions Data Attached	
PM 10	0.06 lbm/event	3.3×10^{-6} lbm/MBTU

Scholl Canyon Landfill Power Project

Power Island and Major Equipment Request for Proposals

Attachment 2.11.2 – Recip. Engine Generator Air Emissions Data

Shut Down Event

Define shut down: Not Applicable
Duration (Minutes): 8 min

Contaminants	Lbm /Event & Lbm/MMBtu HHV During Event	
CO (@ 15% O2, dry):	29.2 lbm/event	0.0045 lbm/MBTU
NOx (@ 15% O2, dry):	7.4 lbm/event	0.0012 lbm/MBTU
NMNEHC (@ 15% O2, dry):	0.46 lbm/event	7.0×10^{-5} lbm/MBTU
Formaldehyde (@ 15% O2):	0.57 lbm/event	8.8×10^{-5} lbm/MBTU
SOx (@ 15% O2, dry):	Per Jenbacher Engine Emissions Data Attached	
PM 10	0.06 lbm/event	9.3×10^{-6} lbm/MBTU

30 November 2016

GE Distributed Power– GE Gas Engines confirms that the pollutants, in the amounts listed below, are confirmed as valid "NOT TO EXCEED" values, for stationary applications per engine, and based on site gas composition that meets TI 1000-0300 standards for the:

Scholl Canyon: J620 F21/F01

Pollutant	Emission Limit per Engine (Untreated Raw Exhaust)
• NOx	**1.1 g/bhp-hr (NO_2)** **66 ppm (@ 15% O_2)** Evaluated using EPA method 7E
• CO	**2.5 g/bhp-hr** **250 ppm (@ 15% O_2)** Evaluated using EPA method 10
• NMHC	**0.35 g/bhp-hr** **93 ppm (@ 15% O_2)** Evaluated using EPA method 18 (non-aldehydes, non-methane hydrocarbons, all CxHy with x>1)
• NMNEHC	**0.25 g/bhp-hr** **56 ppm (@ 15% O_2)** Evaluated using EPA method 18 (non-aldehydes, non-methane, non-ethane hydrocarbons, all CxHy with x>1)
• PM10	**0.02 g/bhp-hr** **10 mg/Nm^3 (5% O_2)**
• SO_2	**No Guarantee, (See Note 4)**

The following criteria apply for demonstration purposes:

(1) Operation will be on **Natural Gas** and/or in combination with **Landfill**, both of which must meet the GE Gas Engines gas quality requirements stated in the Technical Instruction 1000-0300.

(2) A minimum content of 80% CH4 (air free) is required to ensure a stable combustion in our engines when run in Natural gas. A minimum content of 40% CH4 (air free) is required to ensure a stable combustion in our engines when run on Landfill gas.

(3) **Formaldehyde** – GE Gas Engines has done a significant amount of research studying formaldehyde (CH_2O) concentrations in our engine exhaust streams. The results of this research find that formaldehyde is in itself a difficult quantity to measure accurately and consistently, however, what can be stated from our studies is that typically, the range of formaldehyde in raw exhaust can go from 50 to 150 mg/Nm3 at 5% O2 (0.14 TO 0.45 g/bhp-hr).

If a unit is running on Biogas or Landfill Gas (LFG), formaldehyde (CH_2O) is then even more difficult to maintain and measure since Biogas/LFG are high in moisture and sulfur concentrations, which make the use of catalysts very difficult due to the potential of catalyst poisoning.

GE Gas Engines can only guarantee formaldehyde values with an Oxidation Catalyst when we run a GE Gas Engines Standard Natural Gas. In this case, we could achieve levels of 60~70 mg/Nm^3 @ 5% O2 (0.18 to 0.22 g/bhp-hr) on the measurement method VDI 3862.

(4) SO2 and other Sulfur based exhaust elements found in the exhaust stream are introduced to the combustion process through both fuel and combustion air and are not generated by the engine itself. The engine has therefore no control over the amount of Sulfur introduced, thus a guaranteed "Not to Exceed" value cannot be made by GE Gas Engines. Through GE Gas Engines experience however, an exhaust SO_2 value of < 20 ppm @ 15% O_2 can be expected provided fuel and combustion air sulfur compound content (H_2S, COS, CS_2, etc.) is held at < 150 ppm @ 15% O_2.

(5) Based on nominal mass flow as provided by the project specific data sheets or mass flow calculations according EPA method 19.

(6) For emissions shown in units of **g/bhp-hr**, values are valid between 80% and 100% rated stable load (not for island mode).

(7) For emissions shown in units of **mg/Nm^3**, values are valid between 50% and 100% rated stable load (not for island mode).

(8) Please note that the CO and NMHC levels are for start-up only and are expected to drift slowly upwards as deposits build up in the engine and as the engine experiences normal wear. CO drift can be decreased by following GE Gas Engines specific maintenance and repair schedules along with the use of genuine GE Gas Engines parts and components.

(9) Please note that the NOx level is expected to drift slowly upwards as deposits caused by contaminations in the gas build up in the engine and as the engine experiences normal wear. NOx drift can be compensated up to a certain extent, by calibrations to engine operating parameters in the Diane XT controls system. Excessive deposits resulting from gas contamination may require the cleaning of the combustion chamber and turbochargers depending on gas quality and the severity of gas contaminations.

(10) Maintenance and component repairs for the GE Gas Engines equipment is carried out by qualified personnel strictly according to the schedules and repair requirements set by GE Gas Engines along with the use of genuine GE Gas Engines parts and components.

(11) Testing to determine compliance with this commitment will be at the expense of the customer and accomplished by a certified laboratory chosen by the customer. The engine/installation is to be in good working order consistent with GE Gas Engines recommended maintenance practices prior to any testing. GE Gas Engines reserves the right to participate and/or challenge the results of any testing.

If the engine fails to meet the emissions representations the customer must provide the following supporting documentation to GE Gas Engines:

(1) Fuel gas samples

(2) Complete maintenance records

(3) A full report including the calculations and results of any emissions testing.

GE Gas Engines will be given a reasonable amount of time to take any or all of the following actions:

- Perform additional testing in an effort demonstrate the emissions representations. If this testing demonstrates compliance with no adjustments required to the engine, customer will pay for added testing. If testing fails to demonstrate compliance with the emissions representations, the testing will be paid for by GE Gas Engines.

- Make such adjustments to the engine so as to bring the engine into compliance with the emissions limits provided in this letter.

Conformity Declaration (acc. ISO/IEC 17050-1:2004)

We hereby confirm that stationary Jenbacher Gas Engines comply with 40 CFR Part 60, subpart JJJJ and be labelled as follows:

"THIS ENGINE IS EXCLUDED FROM THE REQUIREMENT OF 40 CFR PART 1048 AS A "STATIONARY ENGINE". INSTALLING OR USING THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECTED TO CIVIL PENALTY AND THE OWNER/OPERATOR MUST COMPLY WITH THE REQUIREMENT OF CFR PART 60. THIS ENGINE IS NOT PART OF A REQUIRED OR VOLUNTARY CERTIFICATION PROGRAM AND IS CLASSIFIED AS NON-CERTIFIED PER 40 CFR PART 60, SUBPART JJJJ".

GE Distributed Power
GE Gas Engines
11330 Clay Road
Houston, TX 77041

Johnson Matthey Catalysts
Stationary Source Emission Control
900 Forge Avenue; Audubon, PA 19403
T:484-320-2116; F:484-320-2152

Johnson Matthey
Catalysts

C O N F I D E N T I A L

To: 2G Energy, Inc.
205 Commercial Drive, St. Augustine, FL 32092

June 27, 2017

Re: Confirmation of Scholl Canyon Emission Discharge Levels on Proposal 400-16-238

The Johnson Matthey proposal 400-16-238 written on 11/04/2016 for the Scholl Canyon Project stated that the proposed emission system being offered would guarantee a CO discharge level of 250 ppmvd @ 15%, and an ammonia slip discharge guarantee of 10 ppmvd @ 15 %. We did not show the actual design values that could be guaranteed because, at the time, we thought the values mentioned above would be sufficient and did not want to overstate or guarantee more than what was needed.

The emission system offered in proposal 400-16-238 is however much more capable in regards to a lower CO and a lower ammonia slip guarantee. The system recommended in the 400-16-238 proposal can and will meet a 5 ppmvd@15% ammonia slip limit and will guarantee a CO discharge of less than 130 ppmvd @15%. I have revised this original proposal to reflect these changes.

Please let me know if you need anything further in regards to these guaranteed discharge levels.

Sincerely,

Robert Bono

Robert Bono
Western Sales Manager
Johnson Matthey Stationary Engine Emissions, LLC,
949-307-1265 mobile

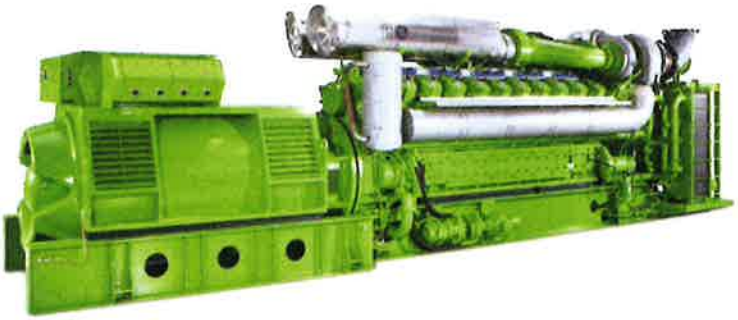
Technical Description

Genset

JGS 620 GS-L.L

Scholl Canyon
JGS 620 F21/F01, 12470V Dual Fuel

The ratings in the specification are valid for full load operation at a site installation of 1640 ft (500 m) and an air intake temperature of T1 < 86F (30C). At T1 > 86F (30C), an output deration of 0.55%/F (1.0%/C) will occur to an intake temperature of T1 < 95 F (35 C). At T1 > 95F (35 C), and output deration of 1.11%/F (2.0%/C) will occur.



Electrical output (PF = 1.0 / 0.85) 3026 / 3018 kWe

Emission values

NOx < 1.1 g/bhp.hr (NO2)

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0.01a Technical Data on Landfill Gas (at genset)

Data at:				Full load	Part Load	
Fuel gas LHV		BTU/scft		300		
				100%	75%	50%
Energy input		MBTU/hr	[2]	23,948	18,506	13,063
Gas volume		scfhr	*)	79,827	61,687	43,543
Mechanical output		bhp	[1]	4,183	3,137	2,091
Electrical output		kW el.	[4]	3,026	2,256	1,483
Heat to be dissipated			[5]			
~ Intercooler 1st stage (Engine jacket water cooling circuit)		MBTU/hr	[9]	2,549	1,383	491
~ Intercooler 2nd stage (Low Temperature circuit)		MBTU/hr		454	321	201
~ Lube oil (with gearbox) (Engine jacket water cooling circuit)		MBTU/hr		1,147	988	875
~ Jacket water		MBTU/hr		1,614	1,317	1,085
~ Surface heat	ca.	MBTU/hr	[7]	591	~	~
Spec. fuel consumption of engine electric		BTU/kWel.hr	[2]	7,914	8,202	8,808
Spec. fuel consumption of engine		BTU/bhp.hr	[2]	5,726	5,900	6,248
Lube oil consumption	ca.	gal/hr	[3]	0.29	~	~
Electrical efficiency		%		43.1%	41.6%	38.7%

*) approximate value for pipework dimensioning
[_] Explanations: see 0.10 - Technical parameters

All heat data is based on standard conditions according to attachment 0.10. Deviations from the standard conditions can result in a change of values within the heat balance, and must be taken into consideration in the layout of the cooling circuit/equipment (intercooler; emergency cooling; ...). In the specifications in addition to the general tolerance of ±8 % on the thermal output a further reserve of +5 % is recommended for the dimensioning of the cooling requirements.

0.01b Technical Data on Natural Gas (at genset)

Data at:				Full load	Part Load	
Fuel gas LHV		BTU/scft		917		
				100%	75%	50%
Energy input		MBTU/hr	[2]	23,118	17,766	12,417
Gas volume		scfhr	*)	25,210	19,374	13,541
Mechanical output		bhp	[1]	4,183	3,137	2,091
Electrical output		kW el.	[4]	3,026	2,256	1,483
Heat to be dissipated			[5]			
~ Intercooler 1st stage (Engine jacket water cooling circuit)		MBTU/hr	[9]	2,522	1,407	497
~ Intercooler 2nd stage (Low Temperature circuit)		MBTU/hr		584	346	204
~ Lube oil (with gearbox) (Engine jacket water cooling circuit)		MBTU/hr		1,053	970	830
~ Jacket water		MBTU/hr		1,684	1,468	1,238
~ Surface heat	ca.	MBTU/hr	[7]	719	~	~
Spec. fuel consumption of engine electric		BTU/kWel.hr	[2]	7,639	7,874	8,372
Spec. fuel consumption of engine		BTU/bhp.hr	[2]	5,527	5,664	5,939
Lube oil consumption	ca.	gal/hr	[3]	0.29	~	~
Electrical efficiency		%		44.7%	43.3%	40.8%

*) approximate value for pipework dimensioning
[_] Explanations: see 0.10 - Technical parameters

All heat data is based on standard conditions according to attachment 0.10. Deviations from the standard conditions can result in a change of values within the heat balance, and must be taken into consideration in the layout of the cooling circuit/equipment (intercooler; emergency cooling; ...). In the specifications in addition to the general tolerance of ±8 % on the thermal output a further reserve of +5 % is recommended for the dimensioning of the cooling requirements.

Main dimensions and weights (at genset)(with gearbox)

Length	in	~ 420
Width	in	~ 90
Height	in	~ 110
Weight empty	lbs	~ 84,110
Weight filled	lbs	~ 86,430

Connections

Jacket water inlet and outlet	in/lbs	4"/145
Exhaust gas outlet	in/lbs	25"/145
Fuel Gas (at genset)	in/lbs	4"/145
Water drain ISO 228	G	½"
Condensate drain	in	0.7
Safety valve - jacket water ISO 228	in/lbs	2x1½"/2.5
Lube oil replenishing (pipe)	in	1.1
Lube oil drain (pipe)	in	1.1
Jacket water - filling (flex pipe)	in	0.5
Intercooler water-Inlet/Outlet 1st stage	in/lbs	4"/145
Intercooler water-Inlet/Outlet 2nd stage	in/lbs	2½"/145

Output / fuel consumption

ISO standard fuel stop power ICFN	bhp	4,183 | 4.183
Mean effe. press. at stand. power and nom. speed	psi	290 | 290
Fuel gas type		Landfill gas | Natural gas
Based on methane number | Min. methane number	MN d)	135 | 100 | 94 | 80
Compression ratio	Epsilon	12.5
Min. fuel gas pressure for the pre chamber	psi	48.73268064
Min./Max. fuel gas pressure at inlet to gas train	psi	1.74 - 2.9 c)
Allowed Fluctuation of fuel gas pressure	%	± 10
Max. rate of gas pressure fluctuation	psi/sec	0.145
Maximum Intercooler 2nd stage inlet water temperature	°F	122
Spec. fuel consumption of engine	BTU/bhp.hr	5,726 | 5,527
Specific lube oil consumption	g/bhp.hr	0.22
Max. Oil temperature	°F	176
Jacket-water temperature max.	°F	203
Filling capacity lube oil (refill)	gal	~ 202

c) Lower gas pressures upon inquiry
d) based on methane number calculation software AVL 3.2

0.02 Technical data of engine

Manufacturer		GE Jenbacher
Engine type		J 620 GS-F21
Working principle		4-Stroke
Configuration		V 60°
No. of cylinders		20
Bore	in	7.48
Stroke	in	8.66
Piston displacement	cu.in	7,613
Nominal speed	rpm	1,500
Mean piston speed	in/s	433
Length	in	218
Width	in	75
Height	in	100
Weight dry	lbs	33,069
Weight filled	lbs	35,274
Moment of inertia	lbs-ft²	1642.63
Direction of rotation (from flywheel view)		left
Radio interference level to VDE 0875		N
Starter motor output	kW	20
Starter motor voltage	V	24

Thermal energy balance

Energy input	MBTU/hr	23,948 | 23,118
Intercooler	MBTU/hr	3,003 | 3,106
Lube oil (with gearbox)	MBTU/hr	1,147 | 1,053
Jacket water	MBTU/hr	1,614 | 1,684
Exhaust gas cooled to 356 °F	MBTU/hr	4,555 | 3,604
Exhaust gas cooled to 212 °F	MBTU/hr	5,985 | 4,982
Surface heat	MBTU/hr	305 | 433

Exhaust gas data

Exhaust gas temperature at full load	°F [8]	797 | 721
Exhaust gas mass flow rate, wet	lbs/hr	38,838 | 37,286
Exhaust gas mass flow rate, dry	lbs/hr	36,410 | 34,946
Exhaust gas volume, wet	scfhr	481,020 | 472,560
Exhaust gas volume, dry	scfhr	432,660 | 425,940
Max.admissible exhaust back pressure after engine	psi	0.725

Combustion air data

Combustion air mass flow rate	lbs/hr	33,929 | 36,244
Combustion air volume	SCFM	7,009 | 7,488
Max. admissible pressure drop at air-intake filter	psi	0.145

Sound pressure level

Aggregate a)	dB(A) re 20µPa	101
31,5 Hz	dB	88
63 Hz	dB	95
125 Hz	dB	101
250 Hz	dB	99
500 Hz	dB	94
1000 Hz	dB	93
2000 Hz	dB	92
4000 Hz	dB	94
8000 Hz	dB	95
Exhaust gas b)	dB(A) re 20µPa	123
31,5 Hz	dB	112
63 Hz	dB	121
125 Hz	dB	131
250 Hz	dB	119
500 Hz	dB	117
1000 Hz	dB	118
2000 Hz	dB	117
4000 Hz	dB	112
8000 Hz	dB	98

Sound power level

Aggregate	dB(A) re 1pW	122
Measurement surface	ft²	1,345
Exhaust gas	dB(A) re 1pW	131
Measurement surface	ft²	67.60

a) average sound pressure level on measurement surface in a distance of 3.28ft (converted to free field) according to DIN 45635, precision class 3.
b) average sound pressure level on measurement surface in a distance of 3.28ft according to DIN 45635, precision class 2.
The spectra are valid for aggregates up to bmep=319.083028 psi. (for higher bmep add safety margin of 1dB to all values per increase of 15 PSI pressure).
Engine tolerance ± 3 dB

0.02.01 Technical data of gearbox

Manufacturer		EISENBEISS
Type		~
Gearbox ratio		1:1.2
Efficiency	%	99.51
Mass	lbs	3,748

0.03 Technical data of generator (Special Rating)

Manufacturer		AVK e)
Type		DIG 142 g/4 e)
Type rating	kVA	4,264
Driving power	bhp	4,162
Ratings at p.f.= 1.0	kW	3,026
Ratings at p.f. = 0.85	kW	3,018
Rated output at p.f. = 0.85	kVA	3,551
Rated reactive power at p.f. = 0.85	kVAr	1,871
Rated current at p.f. = 0.85	A	164.4
Frequency	Hz	60
Voltage	kV	12.47
Speed	rpm	1,800
Permissible overspeed	rpm	2,250
Power factor (lagging - leading)		0,8 - 1,0
Efficiency at p.f.= 1.0	%	97.5%
Efficiency at p.f.= 0.85	%	97.2%
Efficiency at p.f. = 0.8	%	97.3%
Moment of inertia	lbs-ft²	4936.67
Mass	lbs	26,345
Radio interference level to EN 55011 Class A (EN 61000-6-4)		N
Ik" Initial symmetrical short-circuit current	kA	1.44
Is Peak current	kA	3.67
Insulation class		F
Temperature rise (at driving power)		B
Maximum ambient temperature	°F	110.

Reactance and time constants (saturated)

xd direct axis synchronous reactance	p.u.	1.82
xd' direct axis transient reactance	p.u.	0.17
xd" direct axis sub transient reactance	p.u.	0.12
x2 negative sequence reactance	p.u.	0.13
Td" sub transient reactance time constant	ms	20
Ta Time constant direct-current	ms	120
Tdo' open circuit field time constant	s	4.00

e) GE Jenbacher reserves the right to change the generator supplier and the generator type. The contractual data of the generator may thereby change slightly. The contractual produced electrical power will not change.

100% Natural Gas Connection Variant 1K

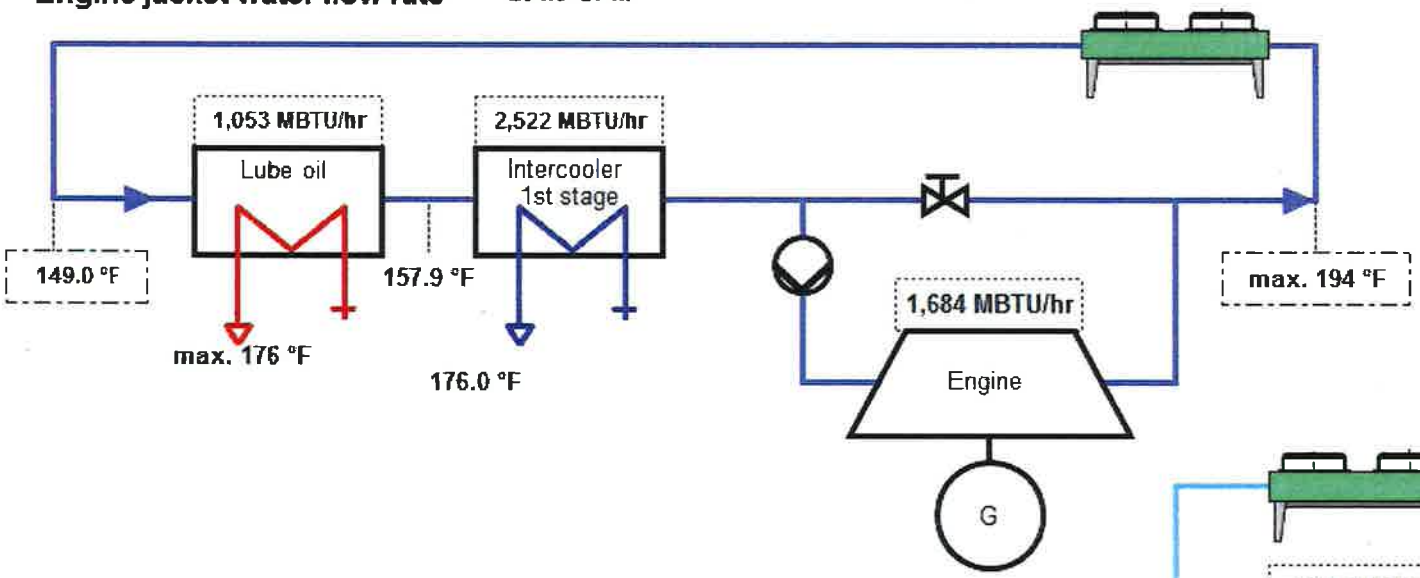
Scholl Canyon J 620 GS-F21

* Engine jacket water cooling circuit (calculated with Glykol 37%)

Heat to be dissipated = 5,259 MBTU/hr

(±8 % tolerance +5 % reserve for cooling requirements)

Engine jacket water flow rate = 264.3 GPM

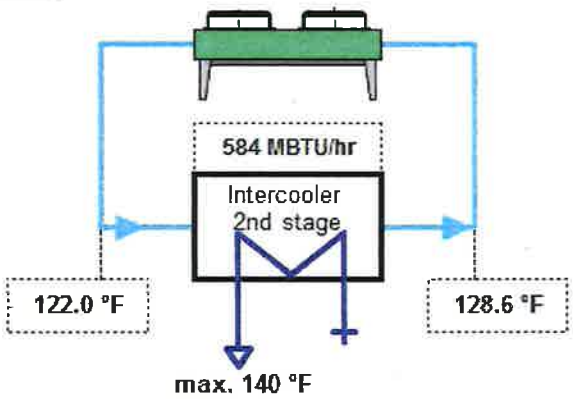


* Low Temperature circuit (calculated with Glykol 37%)

Heat to be dissipated = 584 MBTU/hr

(±8 % tolerance +5 % reserve for cooling requirements)

Cooling water flow rate = 198.1 GPM



100% Landfill Gas Connection Variant 1K

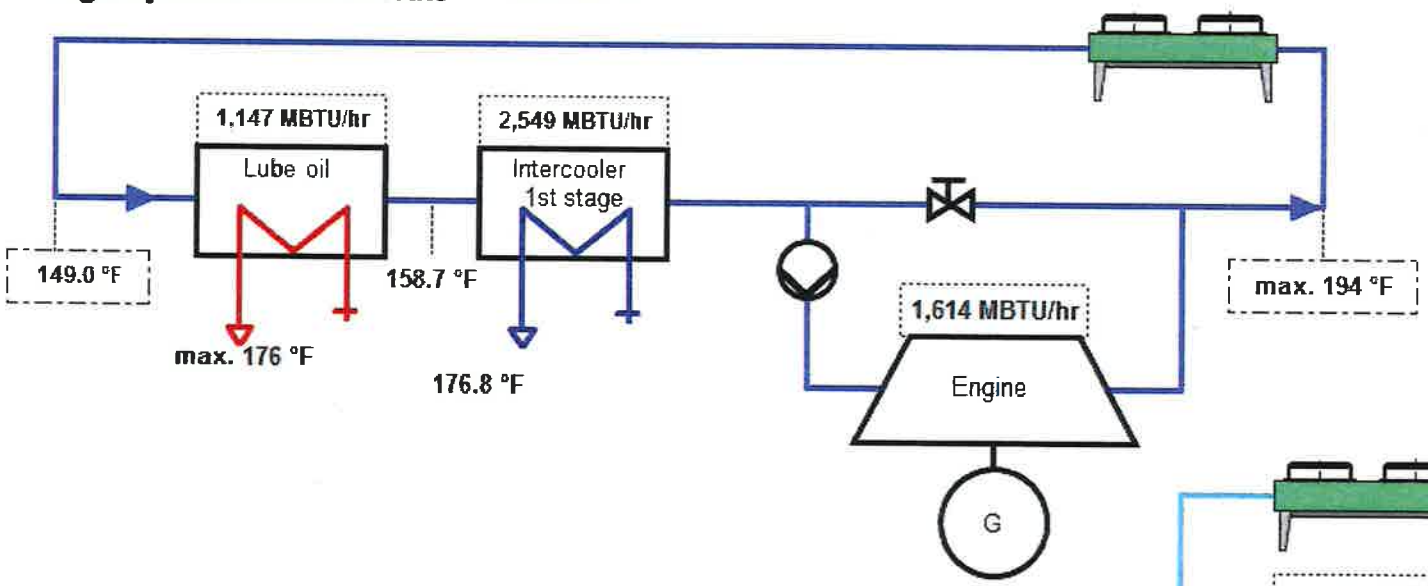
Scholl Canyon J 620 GS-F21

Engine jacket water cooling circuit (calculated with Glykol 37%)

Heat to be dissipated = 5,310 MBTU/hr

(±8 % tolerance +5 % reserve for cooling requirements)

Engine jacket water flow rate = 264.5 GPM

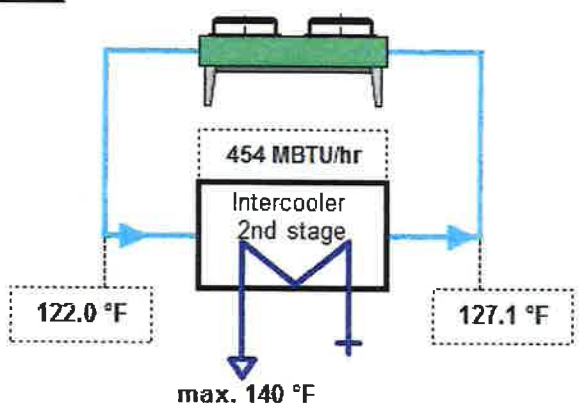


Low Temperature circuit (calculated with Glykol 37%)

Heat to be dissipated = 454 MBTU/hr

(±8 % tolerance +5 % reserve for cooling requirements)

Cooling water flow rate = 198.1 GPM



0.05 Cooling water circuit

Oil - heat (Engine jacket water cooling circuit)

Nominal output	MBTU/hr	1,147 | 1,053
Max. Oil temperature	°F	176
Loss of nominal pressure of engine jacket water	psi	5.80
Safety valve - max press. set point	psi	50.76

Engine jacket water - heat (Engine jacket water cooling circuit)

Nominal output	MBTU/hr	1,614 | 1,684
Max. engine jacket water temperature (outlet engine)	°F	194
Engine jacket water flow rate	GPM	264.5
Safety valve - max press. set point	psi	50.76

Mixture Intercooler (1st stage) (Engine jacket water cooling circuit)

Nominal output	MBTU/hr	2,549 | 2,522
Max. inlet cooling water temp. (intercooler)	°F	158.7
Design pressure of cooling water / (max. operating pressure)	lbs	145
Loss of nominal pressure of engine jacket water	psi	7.25
Safety valve - max press. set point	psi	50.76

Mixture Intercooler (2nd stage) (Low Temperature circuit)

Nominal output	MBTU/hr	454 | 584
Max. inlet cooling water temp. (intercooler)	°F	122
Aftercooler water flow rate	GPM	198.1
Design pressure of cooling water / (max. operating pressure)	lbs	145
Intercooler water pressure drop	psi	8.70
Safety valve - max press. set point	psi	50.76

The final pressure drop will be given after final order clarification and must be taken from the P&ID order documentation.

0.10 Technical parameters

The following "Technical Instruction (TI) of GE JENBACHER" form an integral part of the contract and must be strictly observed:

TI 1100-0110 – Boundary Conditions for GE Jenbacher Gas Engines
TI 1100-0111 – General Conditions – Operation and Maintenance
TI 1100-0112 – Installation of GE Jenbacher Units

These Technical Instructions reference other guides and instructions which can be provided upon request. These should be reviewed carefully by all personnel involved with the application, installation, and maintenance of any GE Jenbacher gas engine.

All data in the technical specification are based on engine full load (unless stated otherwise) at specified temperatures as well as the methane number and subject to technical development and modifications. For isolated operation an output reduction may apply according to the block load diagram. Before being able to provide exact output numbers, a detailed site load profile needs to be provided (motor starting curves, etc.).

All pressure indications are to be measured and read with pressure gauges (psig).

(1) At nominal speed and standard reference conditions ICFN according to DIN-ISO 3046 and DIN 6271, respectively
(2) According to DIN-ISO 3046 and DIN 6271, respectively, with a tolerance of + 5 %.
Efficiency performance is based on a new unit (immediately upon commissioning).Effects of degradation during normal operation can be mitigated through regular service and maintenance work.
(3) Average value between oil change intervals according to maintenance schedule, without oil change amount
(4) At p. f. = 1.0 according to VDE 0530 REM / IEC 34.1 with relative tolerances
(5) Total output with a tolerance of +/- 8 %
(6) According to above parameters (1) through (5)
(7) Only valid for engine and generator; module and peripheral equipment not considered (at p. f. = 0.8)
(8) Exhaust temperature with a tolerance of +/- 8 %
(9) Intercooler heat on:
*** standard conditions (Vxx)** - If the turbocharger design is done for air intake temperature > 86°F w/o de-rating, the intercooler heat of the 1st stage need to be increased by 2%/K starting from 77°F. Deviations between 77 – 86°F will be covered with the standard tolerance.
*** Hot Country application (Vxxx)** - If the turbocharger design is done for air intake temperature > 104°F w/o de-rating, the intercooler heat of the 1st stage need to be increased by 2%/K starting from 95°F. Deviations between 95 – 104°F will be covered with the standard tolerance.

Definition of output

- ISO-ICFN continuous rated power:
  Net break power that the engine manufacturer declares an engine is capable of delivering continuously, at stated speed, between the normal maintenance intervals and overhauls as required by the manufacturer.

Power determined under the operating conditions of the manufacturer's test bench and adjusted to the standard reference conditions.

- Standard reference conditions:

Barometric pressure:	14.5 psi (1000 mbar) or 328 ft (100 m) above sea level
Air temperature:	77°F (25°C) or 298 K
Relative humidity:	30 %

- Volume values at standard conditions (fuel gas, combustion air, exhaust gas)

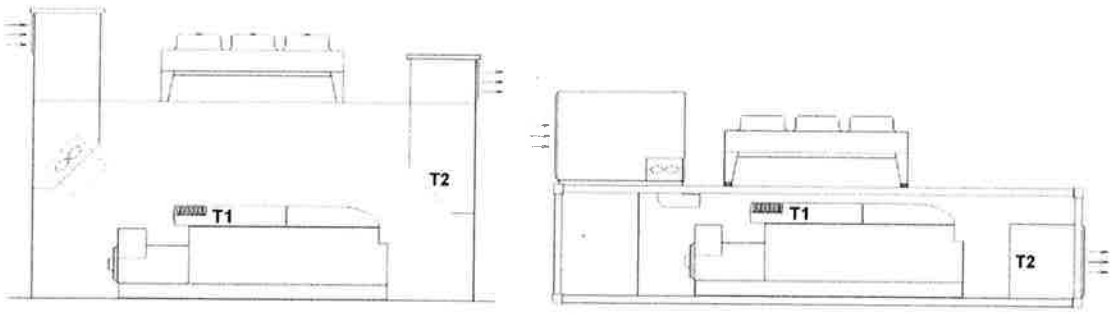
Pressure:	1 atmosphere (1013.25 mbar)
Temperature:	32°F (0°C)

Output adjustment for turbo charged engines
The ratings in the specification are valid for full load operation at a site installation of 1640 ft (500 m) and an air intake temperature of T1 < 86F (30C). At T1 > 86F (30C), an output deration of 0.55%/F (1.0%/C) will occur to an air intake temperature of T1 < 95 F (35C). At T1 > 95 F (35 C), an output deration of 1.11%/F (2.0%/C) will occur.

Radio interference level
The ignition system of the gas engines complies the radio interference levels of CISPR 12 and EN 55011 class B, (30-75 MHz, 75-400 MHz, 400-1000 MHz) and (30-230 MHz, 230-1000 MHz), respectively.

Parameters for the operation of GE Jenbacher gas engines

Maximum room temperature: **122°F** (T2) -> engine stop



If the actual methane number is lower than the specified, the knock control responds. First the ignition timing is changed at full rated power. Secondly the rated power is reduced. These functions are carried out by the engine management.

Operation of Voltage and frequency outside of stated limits for the generator as per IEC 60034-1 Zone A will result in a power de-rate up to and including tripping of the equipment.

The generator set fulfills the limits for mechanical vibrations according to ISO 8528-9.

If possible, railway trucks must not be used for transport (**TI 1000-0046**).

Parameters for the operation of control unit and the electrical equipment

Relative humidity: 50%
Maximum temperature: 104°F.
Altitude: <2000m above the sea level.

The gas quantity indicated under the technical data refers to standard conditions with the given calorific value. The actual volume flow (under operating conditions) has to be considered for dimensioning the gas compressor and each gas feeding component – it will be affected by:

- Actual gas temperature (limiting temperature according to **TI 1000-0300**)
- Gas humidity (limiting value according to **TI 1000-0300**)
- Gas Pressure
- Landfill Gas is assumed to be 32% CH_4, 27% CO_2

1.00 Scope of supply - Genset

Design:
The genset is built as a compact package.
Engine and generator are connected through coupling and gearbox and are mounted to the base frame. To provide the best possible isolation from the transmission of vibrations the engine is mounted to the frame by means of anti-vibrational mounts. The remaining vibrations are eliminated by mounting the module on isolating pads (e.g. Sylomer). This, in principle, allows for placing of the genset to be directly on any floor capable of carrying the static load. No special foundation is required. Prevention of sound conducted through solids has to be provided locally. Prevention of sound conducted through solids has to be provided locally.

1.01 Spark ignited gas engine

Four-stroke, air/gas mixture turbocharged, after-cooled, with high performance ignition system and electronically controlled air/gas mixture system.
The engine is equipped with the most advanced

LEANOX® LEAN-BURN COMBUSTION SYSTEM

developed by GE JENBACHER.

1.01.01 Engine design

Engine block
Single-piece crankcase and cylinder block made of special casting; crank case covers for engine inspection, welded steel oil pan.

Crankshaft and main bearings
Drop-forged, precision ground, surface hardened, statically and dynamically balanced; main bearings (upper bearing shell: grooved bearing / lower bearing shell: sputter bearing) arranged between crank pins, drilled oil passages for forced-feed lubrication of connecting rods.

Vibration damper
Maintenance free viscous damper

Flywheel
With ring gear for starter motor and additionally screwed on.

Pistons
Single-piece made of steel, with piston ring carrier and oil passages for cooling; piston rings made of high quality material, main combustion chamber specially designed for lean burn operation.

Connecting rods
Drop-forged, heat-treated, big end diagonally split and toothed. Big end bearings (upper bearing shell: sputter bearing / lower bearing shell: sputter bearing) and connecting rod bushing for piston pin.

Cylinder liner
Chromium alloy gray cast iron, wet, individually replaceable.

Cylinder head
Specially designed and developed for GE JENBACHER-lean burn engines with optimized fuel consumption and emissions; water cooled, made of special casting, individually replaceable; Valve seats and valve guides and spark plug sleeves individually replaceable; exhaust and inlet valve made of high quality material; Pre-chamber with check-valve.

Crankcase breather
Connected to combustion air intake system

Valve train
Camshaft, with replaceable bushings, driven by crankshaft through intermediate gears, valve lubrication by splash oil through rocker arms.

Combustion air/fuel gas system
Motorized carburetor for automatic adjustment according fuel gas characteristic. Exhaust driven turbocharger, mixture manifold with bellows, water-cooled intercooler, throttle valve and distribution manifolds to cylinders.

Ignition system
Most advanced, fully electronic high performance ignition system, external ignition control.
MORIS: Automatically, cylinder selective registration and control of the current needed ignition voltage.

Lubricating system
Gear-type lube oil pump to supply all moving parts with filtered lube oil, pressure control valve, pressure relief valve and full-flow filter cartridges. Cooling of the lube oil is arranged by a heat exchanger.

Engine cooling system
Jacket water pump complete with distribution pipework and manifolds.

Exhaust system
Turbocharger and exhaust manifold

Exhaust gas temperature measuring
Thermocouple for each cylinder

Electric actuator
For electronic speed and output control

Electronic speed monitoring for speed and output control
By magnetic inductive pick up over ring gear on flywheel

Starter motor
Engine mounted electric starter motor

1.01.02 Additional equipment for the engine (spares for commissioning)

The initial set of equipment with the essential spare parts for operation after commissioning is included in the scope of supply.

1.01.03 Engine accessories

Insulation of exhaust manifold:
Insulation of exhaust manifold is easily installed and removed

Sensors at the engine:
- Jacket water temperature sensor
- Jacket water pressure sensor
- Lube oil temperature sensor
- Lube oil pressure sensor
- Mixture temperature sensor
- Charge pressure sensor
- Minimum and maximum lube oil level switch
- Exhaust gas thermocouple for each cylinder
- Knock sensors
- Gas mixer / gas dosing valve position reporting.

Actuator at the engine:
- Actuator - throttle valve
- Bypass-valve for turbocharger
- Control of the gas mixer / gas dosing valve

1.01.04 Standard tools (per installation)

The tools required for carrying out the most important maintenance work are included in the scope of supply and delivered in a toolbox.

1.02 Generator-medium voltage (Special)

The 2 bearing generator consists of the main generator (built as rotating field machine), the exciter machine (built as rotating armature machine) and the digital excitation system.
The digital regulator is powered by an auxiliary winding at the main stator or a PMG system

Main components:

- Enclosure of welded steel construction
- Stator core consist of thin insulated electrical sheet metal with integrated cooling channels.
- Stator winding with 5/6 Pitch
- Rotor consist of shaft with shrunken laminated poles, Exciter rotor, PMG (depending on Type) and fan.
- Damper cage
- Excitation unit with rotating rectifier diodes and overvoltage protection
- Dynamically balanced as per ISO 1940, Balance quality G2,5
- Drive end bracket with re greaseable antifriction bearing
- Non-drive end bracket with re grease antifriction bearing
- Cooling IC01 - open ventilated, air entry at non-drive end , air outlet at the drive end side
- Main terminal box includes main terminals for power cables
- Regulator terminal box with auxiliary terminals for thermistor connection and regulator.
- Anti-condensation heater
- 3 PT100 for winding temperature monitoring+3 PT100 Spare
- 2 PT100 for bearing temperature monitoring
- Current transformer for protection and measuring in the star point
  xx/1A, 10P10 15VA , xx/1A, 1FS5, 15VA

Electrical data and features:

- Standards: IEC 60034, EN 60034, VDE 0530, ISO 8528-3, ISO 8528-9
- Voltage adjustment range: +/- 10 % of rated voltage (continuous)
- Frequency: -6/+4% of rated frequency
- Overload capacity: 10% for one hour within 6 hours, 50% for 30 seconds
- Asymmetric load: max. 8% I2 continuous, in case of fault I2 x t=20
- Altitude: < 1000m
- Max permitted generator intake air temperature: 5°C - 43°C
- Max. relative air humidity: 90%
- Voltage curve THD Ph-Ph: <3% at idle operation and <3% at full load operation with linear symmetrical load
- Generator suitable for parallel operating with the grid and other generators
- Sustained short circuit current at 3-pole terminal short circuit: minimum 3 times rated current for 5 seconds.
- Over speed test with 1.2 times of rated speed for 2 minutes according to IEC 60034

Digital Excitation system ABB Unitrol 1010 mounted within the AVR Terminal box with following features:

- Compact and robust Digital Excitation system for Continuous output current up to 10 A (20A Overload current 10s)
- Fast AVR response combined with high excitation voltage improves the transient stability during LVRT events.
- The system has free configurable measurement and analog or digital I/Os. The configuration is done via the local human machine interface or CMT1000
- Power Terminals
  3 phase excitation power input from PMG or auxiliary windings
  Auxiliary power input 24VDC
- Excitation output
- Measurement terminals: 3 phase machine voltage, 1 phase network voltage, 1 phase machine current
- Analog I/Os: 2 outputs / 3 inputs (configurable), +10 V / -10 V
- Digital I/O: 4 inputs only (configurable), 8 inputs / outputs (configurable)
- Serial fieldbus: RS485 for Modbus RTU or VDC (Reactive power load sharing for up to 31 GEJ engines in island operation), CAN-Bus for dual channel communication
- Regulator Control modes: Bump less transfer between all modes
  Automatic Voltage Regulator (AVR) accuracy 0,1% at 25°C ambient temperature
  Field Current Regulator (FCR)
  Power Factor Regulator (PF)
  Reactive Power Regulator (VAR)
- Limiters: Keeping synchronous machines in a safe and stable operation area
  Excitation current limiter (UEL min / OEL max)
  PQ minimum limiter
  Machine current limiter
  V / Hz limiter
  Machine voltage limiter
- Voltage matching during synchronization
- Rotating diode monitoring
- Dual channel / monitoring: Enables the dual channel operation based on self-diagnostics and setpoint follow up over CAN communication. As Option available
- Power System Stabilizer (PSS) is available as option. Compliant with the standard IEEE 421.5-2005 2A / 2B, the PSS improves the stability of the generator over the highest possible operation range.
- Computer representation for power system stability studies: ABB 3BHS354059 E01
- Certifications: CE, cUL certification according UL 508c (compliant with CSA), DNV Class B,

- **Commissioning and maintenance Tool CMT1000** (for trained commissioning/ maintenance personal)
- With this tool the technician can setup all parameters and tune the PID to guarantee stable operation. The CMT1000 software allows an extensive supervision of the system, which helps the user to identify and locate problems during commissioning on site. The CMT1000 is connected to the target over USB or Ethernet port, where Ethernet connection allows remote access over 100 m.
- Main window
  - Indication of access mode and device information.
  - Change of parameter is only possible in CONTROL access mode.
  - LED symbol indicates that all parameter are stored on none volatile memory.
- Setpoint adjust window
  - Overview of all control modes, generator status, active limiters status and alarms.
  - Adjust set point and apply steps for tuning of the PID.
- Oscilloscope
- 4 signals can be selected out of 20 recorded channels. The time resolution is 50 ms. Save files to your PC for further investigation.
- Measurement
  - All measurements on one screen.

Routine Test

Following routine tests will be carried out by the generator manufacturer

- Measuring of the DC-resistance of stator and rotor windings
- Check of the function of the fitted components (e.g. RTDs, space heater etc.)
- Insulation resistance of the following components
  Stator winding, rotor winding
  Stator winding RTDs
  Bearing RTDs
  Space heater
- No Load saturation characteristic (residual voltage)
- Stator voltage unbalance
- Direction of rotation, phase sequence
- High voltage test of the stator windings (2 x Unom. + 1000 V) and the rotor windings (min. 1500 V)

1.03 Module Accessories

Base frame
Split Base Frame fabricated with welded structural steel. First frame to mount the engine, jacket water heat exchangers, pumps and engine auxiliaries, the second to mount the gearbox and generator.

Coupling #1
Engine to Gearbox coupling is provided. The coupling isolates the major sub-harmonics of engine alternating torque from gear box.

Coupling #2
Gearbox to Generator Coupling is provided. This coupling is designed with a torque limiter to couple gear box with alternator.

Coupling housings
Provided for both Couplings

Anti-vibration mounts
2 sets of isolation, one is arranged between engine block assembly and base frame. The second is via insulating pads (SYLOMER) for placement between base frame and foundation, delivered loose.

Gear box:
A Single-stage spur gear with overhead shaft and closed loop lube oil system, completely mounted on the gearbox/generator base frame. The lube oil heat exchanger is integrated with the warm/cooling water circuit. The gear transmission ratio is 1:1.2. Oil volume is approximately 52 gals (196 liters).

Exhaust gas connection
A flanged connection is provided that collects the exhaust gas turbocharger output flows, includes flexible pipe connections (compensators) to compensate for heat expansions and vibrations.

Combustion air filter
A Dry type air filter with replaceable filter cartridges is fitted. The assembly includes flexible connections to the fuel mixer/carburetor and service indicator.

Interface panel (M1 cabinet)
Totally enclosed sheet steel cubicle with hinged doors, pre-wired to terminals, ready to operate. All Cable entry will be via bottom mounted cable gland plates.

Painting: RAL 7035

Protection: External NEMA 3 (IP 54), Internal IP 20 (protection against direct contact with live parts)

Cabinet design is according to IEC 439-1 (EN 60 439-1/1990) and DIN VDE 0660 part 500, respectively.
Ambient temperature 41 - 104 °F (5 - 40 °C), Relative humidity 70%

Dimensions:

- Height: 51 in - 82 in (1300 mm-2100 mm)
- Width: 40 in - 47 in (1000 mm -1200 mm)
- Depth: 16 in - 24 in (400 mm-600 mm)

Control Power Source: The starter batteries and the cabinet mounted battery chargers will provide the power source for this enclosure.

Interface Panel contents and control functions:

- The cabinet houses the unit Battery Charger and primary 24VDC Control Power Distribution (breakers, fuses, and terminals) from the unit Batteries
- Distributed PLC Input and Output cards, located in the cabinet, gather all Engine, Gearbox and Generator Control I/O. These cards transmit data via data bus interface to the central engine control of the module control panel located in the A1 cabinet. Data bus is via CAN and B&R Proprietary Data Highway (Data Cables provided by GE)
- Speed monitoring relays for protection are provided.
- Gas Train I/O Collection, including interface relays and terminals for gas train shutoff valves.
- Transducer for generator functions, such as excitation voltage.
- Door Mounted Emergency Stop Switch with associated Emergency Stop Loop interface relays.
- Miscellaneous control relays, contacts, fuses, etc. for additional control valves, and auxiliaries.
- Interface Terminal Strips

Skid Mounted 3 Phase Devices are Powered by 3 x **480/277** V, **60** Hz, 50 A

AC Power for engine mounted auxiliaries (heater, pumps, etc.) are routed through a separate J-box mounted on the side M1 cabinet (Box E1). This is done to maintain signal segregation (AC from control)

NOTE: Generator Current Transformer wiring is connected directly to the Generator and does NOT pass through the M1 cabinet.

Exhaust gas scavenging blower

An exhaust gas scavenging blower is used to scavenge the remaining exhaust gas out of the exhaust gas pipe work, to prevent the appearance of deflagrations.

Function:

Before each start scavenging by blower is done for app. 1 minute (except at black out – start)

Supervisions:

- Scavenging air fan failure
- Scavenging air flap failure

Consisting of:

- Fan
- Exhaust gas flap
- Temperature switch
- Compensator and pipe work

1.03.01 Engine jacket water system

Engine jacket water system
Closed cooling circuit, consisting of:
- Expansion tank
- Filling device (check and pressure reducing valves, pressure gauge)
- Safety valve(s)
- Thermostatic valve
- Required pipework on module
- Vents and drains
- Electrical jacket water pump, including check valve
- Jacket water preheat device

1.03.02 Automatic lube oil replenishing system incl. extension tank

Automatic lube oil replenishing system:
Includes float valve in lube oil feed line, including inspection glass. Electric monitoring system will be provided for engine shut-down at lube oil levels "MINIMUM" and "MAXIMUM". Solenoid valve in oil feed line is only activated during engine operation. Manual override of the solenoid valve, for filling procedure during oil changes is included.

Oil drain
By set mounted cock

Oil sump extension tank (delivered loose) 79.3 gal
To increase the time between oil changes

Pre-lubrication- and after-cooling oil pump:
Mounted on the module base frame; it is used for pre-lubrication and after-cooling of the turbochargers.
Period of operation: Pre-lubrication: 1 minute both pumps
After-cooling: 15 minutes from engine stop only the **480/277** V pump

Consisting of:
- 1 piece oil pump 1500 W, **480/277** V
- 1 piece oil pump 1500 W, 24 V
- All necessary vents
- Necessary pipework

1.05a Gas train (Landfill)

Pre-assembled, delivered loose, for installation into gas pipework to the engine.

Consisting of:

- Main Biogas gas train:
  - Manual shut off valve
  - Gas filter, filter to <3 µm
  - Adapter with dismount to the pre-chamber gas train
  - Gas admission pressure regulator
  - Pressure gauge with push button valve; 0-7.25 psi (0-500 mbar)
  - Solenoid valves
  - Gas pressure switch (min.)
  - Leakage detector
  - Gas pressure regulator
  - TEC JET (has to be implemented horizontal)

The gas train complies with DIN - DVGW regulations.

Maximum distance from TEC JET outlet to gas entry on engine, including flexible connections, is 39.37 in (1 m). Reference GE Jenbacher Technical Instruction TI 1510-0064 for Tec Jet and Gas Train installation details

1.05b Gas train (Natural Gas)

Pre-assembled, delivered loose, for installation into gas pipework to the engine.

Consisting of:

- Main Natural Gas train:
  - Manual shut off valve
  - Gas filter, filter to <3 µm
  - Adapter with dismount to the pre-chamber gas train
  - Gas admission pressure regulator
  - Pressure gauge with push button valve; 0-7.25 psi (0-500 mbar)
  - Solenoid valves
  - Gas pressure switch (min.)
  - Leakage detector
  - Gas pressure regulator
  - TEC JET (has to be implemented horizontal)

The gas train complies with DIN - DVGW regulations.

Maximum distance from TEC JET outlet to gas entry on engine, including flexible connections, is 39.37 in (1 m). Reference GE Jenbacher Technical Instruction TI 1510-0064 for Tec Jet and Gas Train installation details

1.05c Pre-chamber Gas train (Natural Gas)

Pre-assembled, delivered loose, for installation into gas pipework to the engine.

Consisting of:

- Pre-chamber gas train:
  - Manual shut off valve
  - Gas filter, filter fineness <3 µm
  - Solenoid valves
  - Pressure regulator
  - Calming distance with reducer
  - Pressure gauge with push button valve; 0-72.5 psi (1-5 bar)

Pre chamber gas pressure regulator (incl. stabilization section) assembled at the flexible connection pre chamber gas.

Use of fuel other than Natural Gas in Prechamber to be noted.

1.07 Painting

• Quality:	Oil resistant prime layer Synthetic resin varnish finishing coat	
• Color:	Engine:	RAL 6018 (green)
	Base frame:	RAL 6018 (green)
	Generator:	RAL 6018 (green)
Module interface panel: RAL 7035 (light grey)		
	Control panel:	RAL 7035 (light grey)

1.11 Engine generator control panel per module- Dia.ne XT4 incl. Single synchronization of the generator breaker

Dimensions:

- Height: 87 in (including 8 in pedestal *)
- Width: 32-48 in*)
- Depth: 24 in *)

Protection class:

- external IP42
- Internal IP 20 (protection again direct contact with live parts)

*) Control panels will be dimensioned on a project specific basis. Actual dimensions will be provided in the preliminary documentation for the project.

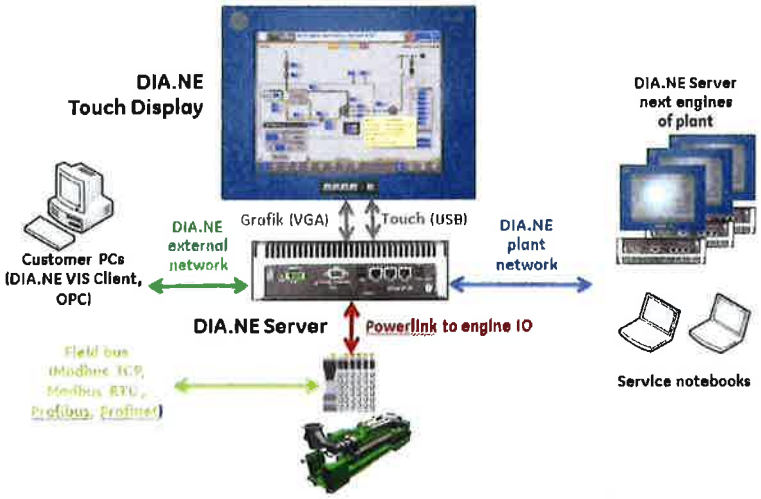
Control supply voltage from starter and control panel batteries: 24V DC

Auxiliaries power supply: (from provider of the auxiliary supply)
3 x **480/277** V, **60** Hz

Consisting of:
Motor - Management - System DIA.NE

Setup:

- a) Touch display visualization
- b) Central engine and unit control



Touch Display Screen:

15" Industrial color graphic display with resistive touch.

Interfaces:

- 24V voltage supply
- VGA display connection
- USB interface for resistive touch

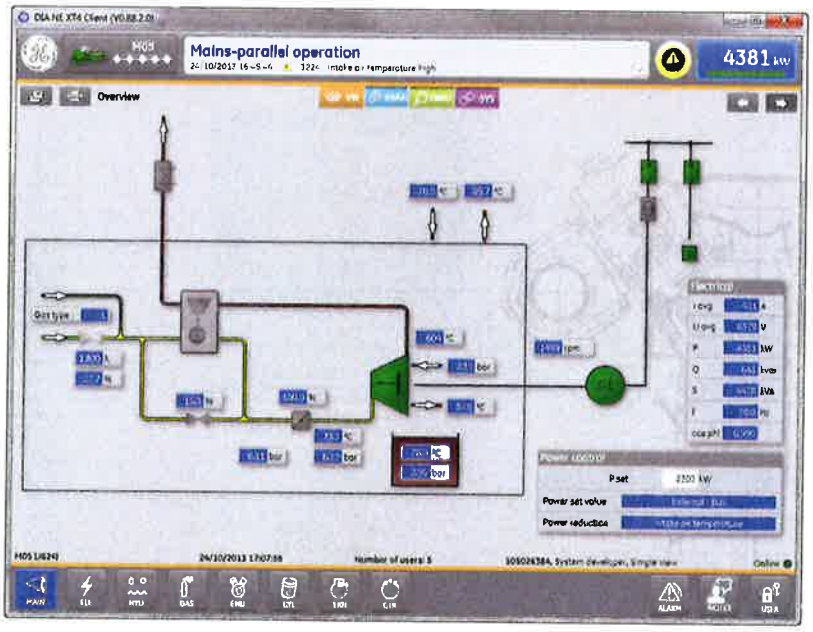
Protection class of DIA.NE XT panel front: IP 65
Dimensions: W x H x D = approx. 16x12x3in

The screen shows a clear and functional summary of the measurement values and simultaneously shows a graphical summary.

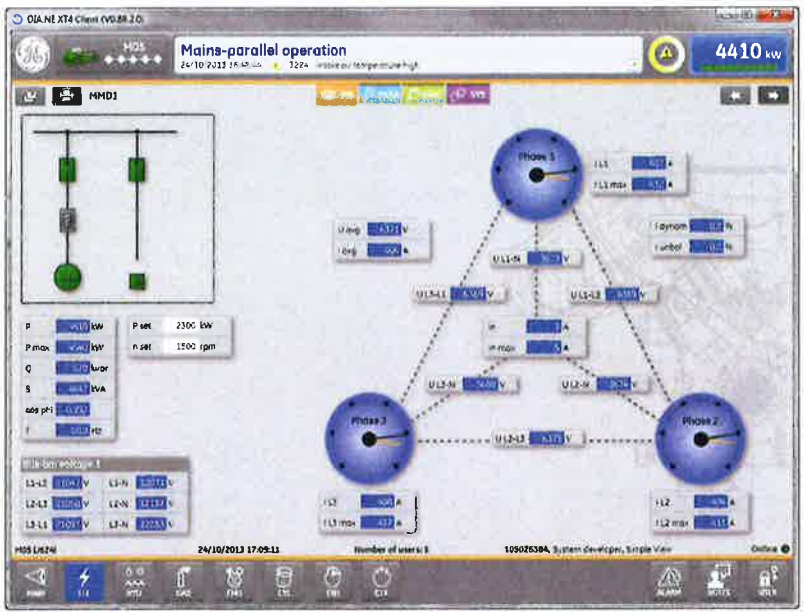
Operation is via the screen buttons on the touch screen
Numeric entries (set point values, parameters...) are entered on the touch numeric pad or via a scroll bar.
Determination of the operation mode and the method of synchronization via a permanently displayed button panel on the touch screen.

Main screens (examples):

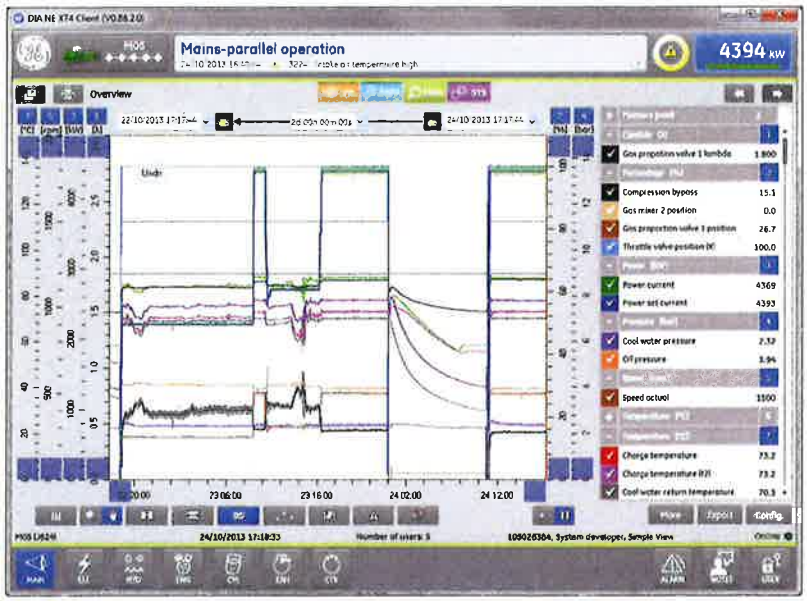
Main: Display of the overview, auxiliaries status, engine start and operating data.



ELE: Display of the generator connection with electrical measurement values and synchronization status



OPTION: Generator winding and bearing temperature
Trending
Trend with 100ms resolution



Measurement values:

- 510 data points are stored
- Measurement interval = 100ms
- Raw data availability with 100ms resolution: 24 hours + max. 5.000.000 changes in value at shut down (60 mins per shut down)
- Compression level 1: min, max, and average values with 1000ms resolution: 3 days
- Compression level 2: min, max, and average values with 30s resolution: 32 days
- Compression level 3: min, max, and average values with 10min resolution: 10 years

Messages:
10.000.000 message events

Actions (operator control actions):
1.000.000 Actions

System messages:
100.000 system messages

Central engine and module control:

An industrial PC- based modular industrial control system for module and engine sequencing control (start preparation, start, stop, after-cooling and control of auxiliaries) as well as all control functions.

Interfaces:

- Ethernet (twisted pair) for remote monitoring access
- Ethernet (twisted pair) for connection between engines
- Ethernet (twisted pair) for the Powerlink connection to the control input and output modules.
- USB interface for software updates

Connection to the local building management system according to the GE Jenbacher option list (OPTION)

- MODBUS-RTU Slave
- MODBUS-TCP Slave,
- PROFIBUS-DP Slave (160 words),
- PROFIBUS-DP Slave (190 words),
- ProfiNet
- OPC

Control functions:

- Speed control in idle and in island mode
- Power output control in grid parallel operation, or according to an internal or external set point value on a case by case basis
- LEANOX control system which controls boost pressure according to the power at the generator terminals, and controls the mixture temperature according to the engine driven air-gas mixer

- Knocking control: in the event of knocking detection, ignition timing adjustment, power reduction and mixture temperature reduction (if this feature is installed)
- Load sharing between engines in island mode operation (option)
- Linear power reduction in the event of excessive mixture temperature and misfiring
- Linear power reduction according to CH4 signal (if available)
- Linear power reduction according to gas pressure (option)
- Linear power reduction according to air intake temperature (option)

Multi-transducer to record the following alternator electrical values:

- Phase current (with slave pointer))
- Neutral conductor current
- Voltages Ph/Ph and Ph/N
- Active power (with slave pointer)
- Reactive power
- Apparent power
- Power factor
- Frequency
- Active and reactive energy counter

Additional 0 (4) - 20 mA interface for active power as well as a pulse signal for active energy

The following alternator monitoring functions are integrated in the multi-measuring device:

- Overload/short-circuit [51], [50]
- Over voltage [59]
- Under voltage [27]
- Asymmetric voltage [64], [59N]
- Unbalance current [46]
- Excitation failure [40]
- Over frequency [81>]
- Under frequency [81<]

Lockable operation modes selectable via touch screen:

- "OFF" operation is not possible, running units will shut down immediately;
- "MANUAL" manual operation (start, stop) possible, unit is not available for fully automatic operation.
- "AUTOMATIC" fully automatic operation according to external demand signal:

Demand modes selectable via touch screen:

- external demand off („OFF")
- external demand on („REMOTE")
- override external demand („ON")

Malfunction Notice list:

Shut down functions e.g.:

- Low lube oil pressure
- Low lube oil level
- High lube oil level
- High lube oil temperature
- Low jacket water pressure
- High jacket water pressure
- High jacket water temperature
- Overspeed
- Emergency stop/safety loop
- Gas train failure
- Start failure
- Stop failure
- Engine start blocked
- Engine operation blocked
- Misfiring
- High mixture temperature
- Measuring signal failure
- Overload/output signal failure
- Generator overload/short circuit
- Generator over/under voltage
- Generator over/under frequency
- Generator asymmetric voltage
- Generator unbalanced load
- Generator reverse power
- High generator winding temperature
- Synchronizing failure
- Cylinder selective Knocking failure

Warning functions e.g.:

- Cooling water temperature min.
- Cooling water pressure min.
- Generator winding temperature max.

Remote signals:

(volt free contacts)
1NO = 1 normally open
1NC = 1 normally closed
1COC = 1 change over contact

• Ready for automatic start (to Master control)	1NO
• Operation (engine running)	1NO
• Demand auxiliaries	1NO
• Collective signal "shut down"	1NC

• Collective signal "warning"	1NC

External (by others) provided command/status signals:

• Engine demand (from Master control)	1S
• Auxiliaries demanded and released	1S

Single synchronizing Automatic

For automatic synchronizing of the module with the generator circuit breaker to the grid by PLC- technology, integrated within the module control panel.

Consisting of:

- Hardware extension of the programmable control for fully automatic synchronization selection and synchronization of the module and for monitoring of the generator circuit breaker closed signal.
- Lockable synchronization selection via touch screen with the following selection modes:
  - "MANUAL" Manual initiation of synchronization via touch screen button followed by fully automatic synchronization of the module
  - "AUTOMATIC" Automatic module synchronization, after synchronizing release from the module control
  - "OFF" Selection and synchronization disabled
    Control of the generator circuit breaker according to the synchronization mode selected via touch screen.
  - "Generator circuit breaker CLOSED/ Select" Touch-button on DIA.NE XT
  - "Generator circuit breaker OPEN" Touch-button on DIA.NE XT

Status signals:
Generator circuit breaker closed
Generator circuit breaker open

Remote signals:
(volt free contacts)

Generator circuit breaker closed	1 NO

The following reference and status signals must be provided by the switchgear supplier:

• Generator circuit breaker CLOSED	1 NO
• Generator circuit breaker OPEN	1 NO
• Generator circuit breaker READY TO CLOSE	1 NO
• Mains circuit breaker CLOSED	1 NO
• Mains circuit breaker OPEN	1 NO

Mains voltage 3 x 12470V or 3x 110V/v3 other measurement voltages available on request
Bus bar voltage 3 x 12470 V or 3x 110V/v3 – other measurement voltages available on request
Generator voltage 3 x 12470 or 3x 110V/v3 – other measurement voltages available on request

Voltage transformer in the star point with minimum 50VA and Class 0,5

The following volt free interface-signals will be provided by GE Jenbacher to be incorporated in switchgear:

• CLOSING/OPENING command for generator circuit breaker (permanent contact)	1 NO + 1 NC
• Signal for circuit breaker undervoltage trip	1 NO

Maximum distance between module control panel and engine/interface panel:	99ft
Maximum distance between module control panel and power panel:	164ft
Maximum distance between module control panel and master control panel:	164ft
Maximum distance between alternator and generator circuit breaker:	99ft

1.11.01 Remote messaging over MODBUS-TCP

Data transfer from the Jenbacher module control system to the customer's on-site central control system via MODBUS TCP using the ETHERNET 10 BASE-T/100BASE-TX protocol TCP/IP.

The Jenbacher module control system operates as a SLAVE unit.
The data transfer via the customer's MASTER must be carried out in cycles.

Data transmitted:
Individual error messages, operational messages, measured values for generator power, oil pressure, oil temperature, cooling water pressure, cooling water temperature, cylinder and collective exhaust gas temperatures.

GE Jenbacher limit of supply:
RJ45 socket at the interface module in the module control cabinet

1.11.06 Remote Data-Transfer with DIA.NE XT4

General
DIA.NE XT4 offers remote connection with Ethernet.

Applications:

1.) DIA.NE XT4 HMI
DIA.NE XT4 HMI is the human-machine-interface of DIA.NE XT4 engine control and visualization system for GE Jenbacher gas engines.
The system offers extensive facilities for commissioning, monitoring, servicing and analysis of the site.
By installation of the DIA.NE XT4 HMI client program it can be used to establish connection to site, if connected to a network and access rights are provided.
The system runs on Microsoft Windows Operating systems (Windows XP, Windows 7, Windows 8)

Function
Functions of the visualization system at the engine control panel can be used remotely. These are among others control and monitoring, trend indications, alarm management, parameter management, and access to long term data recording. By providing access to multiple systems, also with multiple clients in parallel, additional useful functions are available like multi-user system, remote control, print and export functions and data backup.DIA.NE XT4 is available in several languages.

Option - Remote demand/blocking

If the service selectors switch at the module control panel is in pos."Automatic" and the demand-selector switch in pos."Remote", it is possible to enable (demanded) or disable (demand off) the module with a control button at the DIA.NE XT4 HMI
Note:
With this option it makes no sense to have an additional clients demand (via hardware or data bus) or a self-guided operation (via GE Jenbacher master control, grid import /export etc.).

Option - Remote - reset (see TA-No. 1100-0111 chapter 1.7 an d1.9)

Scope of supply
- Software package DIA.NE XT4 HMI Client Setup (Download)
- Number of DIA.NE XT4 HMI - Client user license (Simultaneous right to access of one user to the engine control)

Nr. of license	Access
1	1 Users can be logged in at the same time with a PC (Workplace, control room or at home).
2 - "n" (Optional)	2- "n" Users can be logged in at the same time with a PC (Workplace, control room or at home). If 2- "n" users are locally connected at Computers from office or control room, then it is not possible to log in from home.

Caution! This option includes the DIA.NE XT4 HMI client application and its license only – NO secured, encrypted connection will be provided by GE Jenbacher! A secured, encrypted connection – which is mandatory – has to be provided by the customer (via LAN connection or customer-side VPN), or can be realized by using option myPlant™.

Customer requirements

- Broad band network connection via Ethernet(100/1000BASE-TX) at RJ45 Connector (ETH3) at DIA.NE XT4 server inside module control panel
- Standard PC with keyboard, mouse or touch and monitor (min. resolution 1024*768)
- Operating system Windows XP, Windows 7, Windows 8
- DirectX 9.0 c compatible or newer 3D display adapter with 64 MB or higher memory

2.) myPlant™

myPlant™ is the GE Jenbacher remote monitoring and diagnostic (RM&D) service

	Offering Feature	Connect	Protect
Asset Management	Online data transfer	✓	✓
	Big Data cloud storage	✓	✓
	Engine status visibility	✓	✓
	Control alarms visibility	✓	✓
	Basic data trends	✓	✓
	Remote access to DIA.NE HMI	-	✓
	Unlimited data trending	-	✓
	Advanced diagnostics	-	✓
	WINSERVER Protection Plan	-	✓
Fleet Management	Fleet status on world map	-	✓
	Fleet summaries and reporting	-	✓
Mobility	SMS/Email notifications	-	✓
	Smartphone app	✓	✓

Web application with following features:

- Visualization of the current state of the engine (available, in operation, fault)
- View of various readings of the Gen-set
- Visualization of counts as a trend graph (if plant available online, or by manually entering of the counter readings)
- Trend graph of the performance value (low resolution; only if system available online)

myPlant™ Connect is free of charge for registered customers
myPlant™ Protect is free of charge within the warranty period and is also included as part of any contractual service agreement (CSA).

Scope of supply

- Access to myPlant™ Discovery version for up to 4 users
- Connection between plant server and myPlant™ system

Customer requirements

- Permanent Internet line (wired or mobile, (see option 4))
- See technical instruction TA 2300-0008
- Outbound data connectivity (from plant server to Internet) ONLY – INBOUND connections must NOT be allowed!

CAUTION!
It is in the responsibility of the customer to prevent direct access from the Internet to the plant server using technical equipment like firewalls.
GE Jenbacher does not provide such security devices and services as part of this option!

3.) myPlant™ notification service

Automatic alarm notification system for myPlant™ - enabled DIA.NE XT systems (all versions).

Function

- Automatic transfer of engine messages to the customer via email or SMS in case of engine trip, engine start/stop or connectivity loss.

Scope of supply

- Feature of myPlant™ web portal

Customer requirements

- Engine must be connected to the myPlant™ system via Internet connection

myPlant™ notification is free of charge within the warranty period and is also included as part of any contractual service agreement (CSA).

4.) Mobile Internet (OPTION)
Connection Plant - Customer via secured Internet - connection
See also technical instruction **TA 2300 - 0006**

Scope of delivery

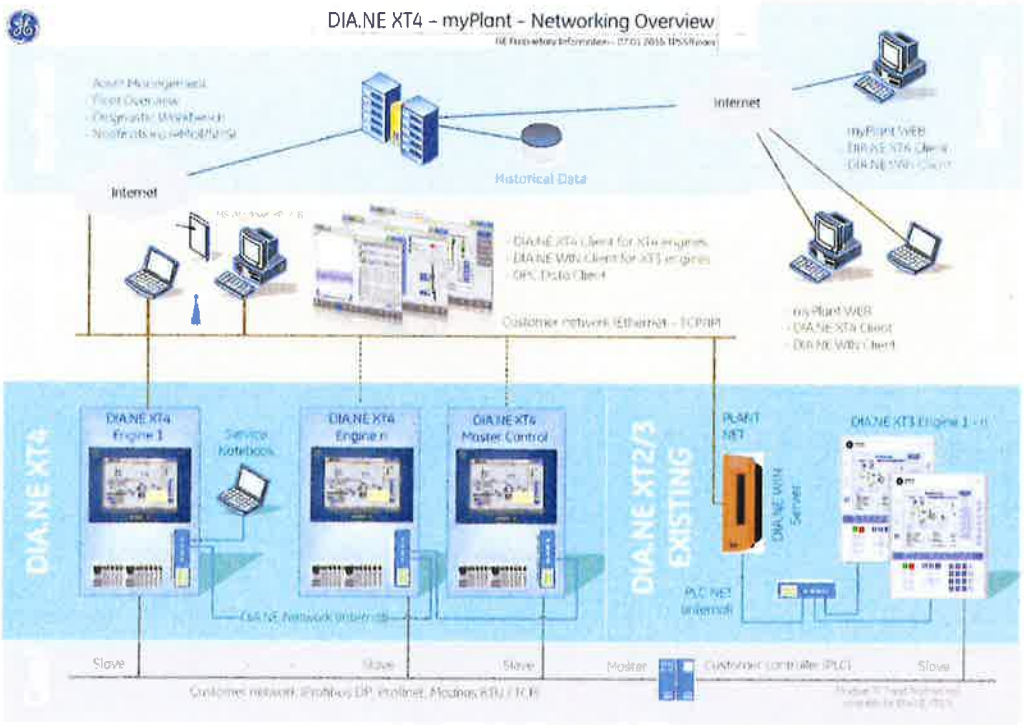
- Mobile Internet router with antenna to connect to the DIA.NE Server XT4

Customer requirements

- SIM card for 3G / 4G

5.) Network overview

For information only!



1.11.14 Generator Overload / Short Circuit Protection

ANSI Function Code 50/51

Digital protection relay, 3-phase, integrated into the module control panel.
Connected to the protective current transformers in the generator star point
Acting on the generator circuit breaker and on the generator de-excitation
Alarm message on the DIA.NE screen

Characteristics / settings:

- Setting for overload: to 1,1 times of the generating set rated current,
- Dependent time characteristic acc. to IEC 60255-151: very inverse, time multiplier setting 0,6.
- Setting for short circuit: to 2,0 times of generating set rated current,
- Independent time characteristic: 300 ms (800 ms when dynamic network support).

1.11.15 Generator Differential Protection

ANSI function code 87

Digital protection relay, 3-phase, integrated into the module control panel.
Connected to the protective current transformers in the generator star point (GEJ scope of supply) and to the protective current transformers in the generator circuit breaker panel (current transformers by client, secondary 1A, optionally: 5A).
Acting on the generator circuit breaker and on the generator de-excitation
Alarm message on the DIA.NE screen

In plants with a unit generator-transformer configuration the protection is realized as generator/transformer differential protection.

1.11.16 Generator Earth Fault Protection (non-directional)

Digital protection relay, integrated into the module control panel.
Acting on the generator circuit breaker and on the generator de-excitation
Alarm message on the DIA.NE screen

Dependent on the generator grounding method one of the following protection functions is applied:

1) ANSI function code 50N/G
   Detection of the earth fault current e.g. by means of a window-type current transformer (Current transformer by client, secondary 1A, optionally: 5A).
2) ANSI function code 59N/G
   Detection of the residual voltage e.g. by means of the voltage measured across the broken-delta secondary windings of grounded voltage transformers (voltage transformers by client)

1.20.03 Starting system

Starter battery (is not included in GE Jenbacher scope):
4 piece 12 V Pb battery, 200 Ah (according to DIN 72311), complete with cover plate, terminals and acid tester.

Battery voltage monitoring:
Monitoring by an under voltage relay.

Battery charging equipment:
Capable for charging the starter battery with I/U characteristic and for the supply of all connected D.C. consumers.
Charging device is mounted inside of the module interface panel or module control panel.

- **General data:**

• Power supply	**3 x 320 - 550 V, 47 - 63 Hz**
• max. power consumption	2120 W
• Nominal D.C. voltage	24 V(+/-1%)
• Voltage setting range	24V to 28,8V (adjustable)
• Nominal current (max.)	2 x 40 A
• Dimensions	ca. 10 x 5 x 5 inch (240 x 125 x 125 mm)
• Degree of protection	IP20 to IEC 529
• Operating temperature	32 °F – 140 °F (0 °C - 60 °C)
• Protection class	1
• Humidity class	3K3, no condensation.
• Natural air convection	
• Standards	EN60950,EN50178 UL/cUL (UL508/CSA 22.2)

Signalling:

Green Led:	Output voltage > 20,5V
Yellow Led:	Overload, Output Voltage < 20,5V
Red Led:	shutdown

Control accumulator:
- Pb battery 24 VDC/18 Ah

1.20.05 Electric jacket water preheating

Installed in the jacket water cooling circuit, consisting of:
- Heating elements
- Water circulating pump

The jacket water temperature of a stopped engine is maintained between 133 °F (56°C) and 140°F (60°C), to allow for immediate loading after engine start.

1.20.08 Flexible connections

Following flexible connections per module are included in the GE Jenbacher -scope of supply:

No. Connection	Unit	Dimension	Material
2 Warm water in-/outlet	**in/lbs**	**4"/145**	Stainless steel
1 Exhaust gas outlet	**in/lbs**	**25"/145**	Stainless steel
1 Fuel gas inlet	**in/lbs**	**6"/232**	Stainless steel
2 Intercooler in-/outlet	**in/lbs**	**4"/145**	Stainless steel
2 Lube oil connection	**in**	**1.1**	Hose

Seals and flanges for all flexible connections are included.

1.20.45 Fuel Blending

As a prerequisite to any discussions regarding on online fuel blending, both gases must comply with GE Jenbacher TI 1000-0300.

Physically, the engine must be installed with two Tec Jet based gas train systems sized as required. To function properly, each individual gas train should be able to provide the full fuel flow required to maintain rated load of the engine generator set. If 0-100% blending on each fuel is specified, the technician must have the capability to operate the engine on each fuel (from Start to Full Load) independently. Intermediate or partial blending can be done by request.

From a controls perspective, the customer must provide the following Dual Fuel Blending signals (at a minimum)

1) ***Fuel Gas Selection*** - Discrete Contact Input to the Diane Control System that represents the fuel that the unit will start with (1 = High Btu (Gas1), 0 = Low Btu (Gas2)).
2) ***Release for Gas Mixing*** – Discrete contact input to the Diane Control System that represents a release of the fuel delivery system to operate in mixing mode. This signal is used in conjunction with ***Mixing Percentage*** in order to establish the amount of fuel to mix.
3) ***Mixing Percentage*** – An Analog (4-20mA) input to the Diane Control System representing the percentage of Gas 2 fuel to mix.

As prerequisite for blending, the following permissive conditions must be met

1) Breaker is Closed
2) Unit is operating in Leanox control (No Island Mode)
3) No Gas Train 1 Low Pressure
4) Gas Train 1 READY (internal health signal)
5) No Gas Train 2 Low Pressure
6) Gas Train 2 Ready (internal health signal)

7) ***Mixing Percentage*** signal healthy

Fuel Transfers are not permitted as long as the health of each gas train is not clear or if Gas Pressure of the other train is Low. Diane Warning alarm signals 3221 (Gas Train 1 Low Pressure) or 3222 (Gas Train 2 Low Pressure) will be displayed if this is the case.

Provided the above permissive conditions are met, to activate mixing, ***Release for Gas Mixing*** must be enabled. Once enabled, the engine will ramp to the mixing percentage specified by ***Mixing Percentage***. The transfer rate is 1.7% per second, or if the transfer is to 100% of the other fuel, expect a ramp time of 60 seconds to get from one fuel to the other. The mixing percentage can be adjusted at any time during mixing operations (***Release for Gas Mixing*** = 1). Should a fault occur, the fuel system will default to the gas selected at start (based on ***Fuel Gas Selection*** contact status).

This percentage will be maintained throughout the load profile of the engine, provided there is sufficient capacity of the second fuel to maintain the load setpoint. Should there be insufficient fuel to maintain the KW setpoint, a Low Pressure Alarm will occur and the unit will transfer back to the base fuel as dictated by the position of the ***Fuel Gas Selection*** contact.

2.00 Electrical equipment

Totally enclosed floor mounted sheet steel cubicle with front door wired to terminals. Ready to operate, with cable entry at bottom. Naturally ventilated.

Protection:	IP 42 external, NEMA 12 IP 20 internal (protection against direct contact with live parts)

Design according to EN 61439-2 / IEC 61439-2 and ISO 8528-4.
Ambient temperature 41 - 104 °F (5 - 40 °C), 70 % Relative humidity

Standard painting:	Panel:	RAL 7035
	Pedestal:	RAL 7020

2.02 Grid monitoring device

Standard without static Grid - 60Hz alternator

Function:
For immediate disconnection of the generator from the grid in case of grid failures.

Consisting of:
- High/low voltage monitoring
- High/low frequency monitoring
- Specially adjustable independent time for voltage and frequency monitoring

- Vector jump monitoring or df/dt monitoring for immediate disconnection of the generator from the grid for example at short interruptions
- Indication of all reference dimensions for normal operation and at the case of disturbance over LCD and LED
- Adjusting authority through password protection against adjusting of strangers

Scope of supply:
Digital grid protection relay with storage of defect data, indication of reference dimensions as well as monitoring by itself.

Grid protection values:

Parameter	Parameter limit	Max time delay[s]	**Comments**
59-61Hz			Do work normal
f<[ANSI 81U]	59Hz	0,5	Load reduction with 10%/HZ below 59Hz!
f<<[ANSI 81U]	58.5Hz	0,1	
f>[ANSI 81O]	61,5Hz	0,1	Load reduction with 30%/HZ above 61Hz!
U<[ANSI 27]	90%	1	Load reduction with 1%P /%U below 95%
U<<[ANSI 27]	80%	0,2	Load reduction with 1%P /%U below 95%
U>[ANSI 59]	110%	30	Load reduction with 1%P /%U above 105%
U>>[ANSI 59]	115%	0,2	Load reduction with 1% P/%U above 105%
Df/dt [ANSI 81R] **Or** **Vector shift** [ANSI 78]	2Hz/s, 5 Periods Or 8° -3pol		Cos phi range: 0,8ind (overexcited) - 1

3.71 Vibration Sensor

A structural Vibration Sensor will be installed on the package base frame to detect excessive vibrations. A signal we will sent to the control panel to indicate an alarm condition.

3.72 Seismic Protection

The main base will be supplied with pre-drilled holes to accommodate customer furnished bolts to act as retaining elements in the event of an earthquake. These customer foundation mounted bolts cannot come into contact with the unit base frame, as these bolts are for retention only, not mounting.

Details will be provided at first drawing submittal.

3.75 Penn Control Strategy and Options (Type 6)

Control Strategy – The following control modes will be available in the Diane Control

- Grid Parallel with KW Control – Real Power Load Control of the Generator set will be either via a 4-20mA input from the customer representing a unit KW load setpoint or a KW load setpoint entered on the Diane XT4 screen. Upon breaker closure, the unit will ramp to the setpoint at a maximum rate of (Rated Unit KW) / 180 seconds.

- Grid Parallel with PF Control – Reactive Power Load Control of the Generator set will be either via a 4-20mA input from the customer representing a unit Power Factory setpoint or a Power Factor setpoint entered on the Diane XT4 screen. Upon breaker closure, the unit will maintain the setpoint.

- Grid Parallel with Import/Export Control - Load Control via an Import/Export KW level entered on the Diane XT4 screen. Required will be a customer 4-20mA signal representing the Site KW (Imported and/or Exported Power) that is to be controlled. Upon breaker closure, the unit will ramp to a load that will drive the KW value represented by the 4-20mA input signal to the level entered on Customer Import/Export Setpoint entered in the Diane XT4 screen. Once at the setpoint, the unit will raise and lower load to maintain this value. If the generator load required to maintain this setpoint drops below the minimum load level of the generator set, the unit 52G circuit breaker will be opened.

- Island Mode Operations with Blackout Starting – Island Operations with Black start capability will allow the engine to start and run without utility being present. The engine will be able to start the engine on battery power, close the generator breaker against a dead bus, and operate independently of a utility power source. The customer must ensure that there is sufficient fuel gas and pre-chamber gas at pressure in the event of a Type 6 engine so configured. The engine will start without the normal confirmation of engine block temperature or operation of a circulating AC water pump. It will be required of the operators that once the engine is connected to the generator bus, power to the engine auxiliaries be restored. Load Management is expected to be limited by the operators to the limits of the engine, as per GE Jenbacher TI 2108-0031. This system will work in conjunction with a GE Jenbacher Master Synchronizing Control (see appropriate Spec Section) if so equipped. If this is a single unit and synchronization with the utility after assuming operations is required, a *Grid Parallel with Single Unit Island Operations* option will be required.

Per Unit Hot Water Loop Controls - Hot Water Loop Panel Controls and Software to include:

- Hot Water Pump (Panel Control Parts and SW Only) - The option will add specific contact output and feedback input to/from an MCC for the Hot Water Pump. This will include relays and software.

- Hot Water Monitoring (Panel Control Parts and SW Only) - This option will monitor 3 hot water loop switches, flow, pressure and temperature. This option includes hardwired relays added to the trip loop, and internal software

- Hot Water Return Temperature Control (Panel Parts and SW Only) - This feature will provide all necessary controls to operate a 3 Way temperature control valve. The customer will provide a PT100 as a feedback signal and the Diane will provide a 4-20mA Analog Output to a customer provided valve. Control and Display Software are also provided.

- Emergency Hot Water Temperature Control (Panel Parts and SW Only) - This feature will provide all necessary controls to operate a 3 Way temperature control valve. The customer will provide a PT100 as a feedback signal and the Diane will provide a 4-20mA Analog Output to a customer provided valve. Control and Display Software are also provided.

Per Unit Intercooler Loop Controls - Intercooler Loop Panel Controls and Software to include:

- IC Temperature Control (Panel Parts and SW Only) - This feature will provide all necessary controls to operate a 3 Way temperature control valve in the IC Loop if Not Required by Site Conditions. The Diane will provide a 4-20mA Analog Output to a customer provided valve and will utilize mixture temperature as a feedback input. Control and Display Software are also provided.

- Intercooler Pump Control (Panel Control Parts and SW Only) - The option will add specific contact output and feedback input to/from an MCC for the Intercooler Water Pump. This will include relays and software.

- Intercooler Loop Pressure (Panel Parts and SW Only) - This feature will provide an discrete input and associated software for the Intercooler Loop system pressure.

Per Unit Radiator Controls - Radiator Panel Controls and Software to include:

- Single Circuit High Temperature Loop Radiator Fan Control (Panel Parts and SW Only) - This feature will provide controls for a customer provided single circuit High Temperature Loop radiator (4 fan). The MCC control signals (DO/DI) will be provided, along with the necessary software

- Single Circuit Low Temperature Loop Radiator Fan Control (Panel Parts and SW Only) - This feature will provide controls for a customer provided single circuit Low Temperature Loop radiator (4 fan). The MCC control signals (DO/DI) will be provided, along with the necessary software

Per Unit Ventilation Related Controls - Diane XT4 System will be provided with the following additional features to operate a customer enclosure

- Ventilation Fan control Option 1 - Customer Ventilation Fan control based on container internal temperature. Signal is based on a customer provide PT100 inside the container. A 4-20mA signal is provided for use by a customer provided VFD. Discrete IO is provided for starting and feedback signals to the VFD. It is assumed that the customer MCC will provide starter motor protection.

- Ventilation System Louver Control - Electrical and Control features are provided for louver opening and closing based on engine operation and compartment temperature. 4 Louver driver contacts are provided

- Discrete Input for Air Filter Differential Pressure – Additional Discrete Input and associated software for control

Per Unit Miscellaneous Controls - Diane XT4 System will be provided with the following additional features to operate a customer enclosure

- Additional Emergency Stop Signals - Additional Terminals for customer Estop switches

- Audible and Visual Alarm Indications - Hardware and software to drive a customer provided horn and strobe. Power for these devices is provided from the control system and is 24VDC

- SCR Control Signals – 2 additional discrete inputs and 1 analog will be required:
    - Discrete In 1 - Unit Operation/Engine Running (SSL20) to start the unit
    - Discrete In 2 - SCR Alarm (SS69) for display on the alarm Diane XT screen.
    - Analog Out 1 – Generator Power (0-100% = 4-20mA) for control of the SCR spray mechanism.

- Gas Flow Meter Trending - Gas Flowmeter Trending and Display (Flowmeter not included). Option includes a 4-20mA input that will accept the pressure and temperature corrected gas flow from a customer provided flow meter computer and will incorporate the signal into trending and displays in the Diane system.

- Gas Flow Meter Correction - Gas Flowmeter temperature and pressure compensation. Option includes three (3) 4-20mA inputs that will represent actual measured flow, pressure and temperature. Along with a customer provided flow meter calibration sheet, these 3 signals will be input to a calculation that will compensate the flowmeter flow signal to current gas conditions. The results will be incorporated into trending and displays in the Diane system.

4.00 Delivery, installation and commissioning

4.01 Carriage
According to contract.

4.02 Unloading
Unloading, moving of equipment to point of installation, mounting and adjustment of delivered equipment on intended foundations is not included in GE Jenbacher scope of supply.

4.03 Assembly and installation
Assembly and installation of all GE Jenbacher -components is not included in GE Jenbacher scope of supply.

4.04 Storage
The customer is responsible for secure and appropriate storage of all delivered equipment.

4.05 Emission measurement (exhaust gas analyzer)
Emission measurement by GE Jenbacher personnel, to verify that the guaranteed toxic agent emissions have been achieved (costs for measurement by an independent agency will be an extra charge).

5.01 Limits of delivery - Genset

Electrical:
- Genset:
  - At terminals of genset interface panel
  - At terminals of generator terminal box
    (screwed glands to be provided locally)
- Genset control panel:
  At terminal strips
- Auxiliaries:
  At terminals of equipment which is supplied separately

Cooling water
At inlet and outlet flanges on genset

Exhaust gas
At the exhaust gas exit of the engine

Combustion air
The air filters are set mounted

Fuel gas
- At inlet and outlet flange of gas train
- At inlet flange of gas pipework on genset

- At outlet flange of the pre-chamber gas train
- At inlet flange of pre-chamber gas pipework on genset
- At connection for boost pressure compensation on genset
- At connection for boost pressure compensation on gas pressure regulator of the pre-chamber gas train

Lube oil
At lube oil connections on genset

Draining connections and pressure relief
At genset

Insulation
Insulation of heat exchangers, pipework and exhaust gas silencer is not included in our scope of supply and must be provided locally.

First filling
The first filling of genset, (lube oil, engine jacket water, anti-freeze, anti-corrosive agent, battery acid) is not included in our scope of supply.

The composition and quality of the used consumables are to be strictly monitored in accordance with the "Technical Instructions" of GE JENBACHER.

Suitable bellows and flexible connections **must be provided locally** for all connections.
Cables from the genset must be flexible.

5.02 Factory tests and inspections

The individual module components shall undergo the following tests and inspections:

5.02.01 Engine tests

Carried out as combined Engine- and Module test according to DIN ISO 3046 at GE Jenbacher test bench.
The following tests are made at 100%, 75% and 50% load, and the results are reported in a test certificate:
- Engine output
- Fuel consumption
- Jacket water temperatures
- Lube oil pressure
- Lube oil temperatures
- Boost pressure
- Exhaust gas temperatures, for each cylinder

5.02.02 Generator tests

Carried out on the premises of the generator supplier.

5.02.03 Module tests

The engine will be tested with natural gas (methane number 94). The performance data achieved at the test bench may therefore vary from the data as defined in the technical specification due to differences in fuel gas quality.
Carried out as combined Engine- and Module test commonly with module control panel at GE Jenbacher test bench, according to ISO 8528, DIN 6280. The following tests are made and the results are reported in a test certificate:
Visual inspection of scope of supply per specifications.

- Functional tests per technical specification of control system.
  - Starting in manual and automatic mode of operation
  - Power control in manual and automatic mode of operation
  - Function of all safety systems on module
- Measurements at 100%, 75% and 50% load:
  - Frequency
  - Voltage
  - Current
  - Generator output
  - Power factor
  - Fuel consumption
  - Lube oil pressure
  - Jacket water temperature
  - Boost pressure
  - Mixture temperature
  - Exhaust emission (NOx)

The module test for operating frequenzy 50 Hz and 6,3-6,6kV / 10,5kV-11kV will be carried out with the original generator, except it is not possible because of the delivery date. Then a test generator will be used for the module test.
To prove characteristics of the above components, which are not tested on the test bench by GE JENBACHER, the manufacturers' certificate will be provided.

5.03 Documentation

Preliminary documentation 60 days after receipt of a technically and commercially clarified order:

- Module drawing 1)
- Technical diagram 1)
- Drawing of control panel 3)
- List of electrical interfaces 2)
- Technical specification of control system 2)
- Technical drawing auxiliaries (if included in GE Jenbacher-limit of delivery) 1)

At delivery:

- Wiring diagrams 3)
- Cable list 3)

At start-up and commissioning (or on clients request):

- Operating and maintenance manual 4)
- Spare parts manual 4)
- Operation report log 4)

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South Coast

AQMD

Annual Emission Report

Reporting Year: **2010**

Print Date: **10/24/2014**

Facility ID: **45262**

Facility Name: **LA COUNTY SANITATION DIST SCHOLL CANYON**

Facility Type:

B1 - Permitted Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters

Device Description	Application Number	Equipment Code& Description	Fuel Code Description	Annual Usage	Organic Gases		Nitrogen Oxides		Sulfur Oxides		Carbon Monoxide		Particulate Matter	
					Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions
Flare (Non-Refinery)	162689	6. Flare (Non-Refinery)	5. Landfill Gas (mmscf).	132.20	1.4800	195.52	14.3800	1,900.90	5.9600	787.91	0.9100	120.04	3.5500	469.84
Heater <10MMBTU/HR	322458	5a. Heater <10 MMBTU/HR	3. Diesel/Distillate Oil (1000 gals).	0.52	1.3200	0.69	20.0000	10.40	7.1000	3.69	5.0000	2.60	2.0000	1.04

Total Emissions in Pounds:	**196.21**	**1,911.30**	**791.60**	**122.64**	**470.88**
Total Emissions in Tons:	**0.10**	**0.96**	**0.40**	**0.06**	**0.24**

South Coast

AQMD

Annual Emission Report

Reporting Year: **2011**

Print Date: **10/24/2014**

Facility ID: **45262**

Facility Name: **LA COUNTY SANITATION DIST SCHOLL CANYON**

Facility Type:

B1 - Permitted Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters

Device Description	Application Number	Equipment Code& Description	Fuel Code Description	Annual Usage	Organic Gases		Nitrogen Oxides		Sulfur Oxides		Carbon Monoxide		Particulate Matter	
					Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions
Flare (Non-Refinery)	162689	6. Flare (Non-Refinery)	5. Landfill Gas (mmscf).	101.50	1.8400	186.86	13.2600	1,345.59	6.0700	615.75	0.8000	81.61	4.3900	445.99
Heater, <10 MMbtu/hr	322458	5a. Heater <10 MMBTU/HR	3. Diesel/Distillate Oil (1000 gals).	0.52	1.3200	0.69	20.0000	10.40	7.1000	3.69	5.0000	2.60	2.0000	1.04

Total Emissions in Pounds:	**187.55**	**1,355.99**	**619.44**	**84.21**	**447.03**
Total Emissions in Tons:	**0.09**	**0.68**	**0.31**	**0.04**	**0.22**

South Coast

AQMD

Annual Emission Report

Reporting Year: **2012**

Print Date: **10/24/2014**

Facility ID: **45262**

Facility Name: **LA COUNTY SANITATION DIST SCHOLL CANYON**

Facility Type:

B1 - Permitted Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters

Device Description	Application Number	Equipment Code& Description	Fuel Code Description	Annual Usage	Organic Gases		Nitrogen Oxides		Sulfur Oxides		Carbon Monoxide		Particulate Matter	
					Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions
Flare (Non-Refinery)	162689	6. Flare (Non-Refinery)	5. Landfill Gas (mmscf).	92.90	1.5800	146.41	13.3700	1,242.26	6.0200	559.26	0.8400	78.04	6.0400	561.12
Heater, <10 MMbtu/hr	322458	5a. Heater <10 MMBTU/HR	3. Diesel/Distillate Oil (1000 gals).	0.52	1.3200	0.69	20.0000	10.40	0.2100	0.11	5.0000	2.60	2.0000	1.04

Total Emissions in Pounds:	**147.10**	**1,252.66**	**559.37**	**80.64**	**562.16**
Total Emissions in Tons:	**0.07**	**0.63**	**0.28**	**0.04**	**0.28**

South Coast

AQMD

Annual Emission Report

Reporting Year: **2013**

Print Date: **10/24/2014**

Facility ID: **45262**

Facility Name: **LA COUNTY SANITATION DIST SCHOLL CANYON**

Facility Type:

B1 - Permitted Emissions from Fuel Combustion in Boilers, Ovens, Furnaces, and Heaters

Device Description	Application Number	Equipment Code& Description	Fuel Code Description	Annual Usage	Organic Gases		Nitrogen Oxides		Sulfur Oxides		Carbon Monoxide		Particulate Matter	
					Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions	Emission Factor	Emissions
Flare (Non-Refinery)	162689	6. Flare (Non-Refinery)	5. Landfill Gas (mmscf).	188.64	1.5800	297.30	13.3700	2,522.49	2.9600	558.75	0.8400	158.46	6.0400	1,139.01
Heater, <10 MMbtu/hr	322458	5a. Heater <10 MMBTU/HR	3. Diesel/Distillate Oil (1000 gals).	0.52	1.3200	0.69	20.0000	10.40	0.2100	0.11	5.0000	2.60	2.0000	1.04

Total Emissions in Pounds:	**297.98**	**2,532.89**	**558.86**	**161.06**	**1,140.05**
Total Emissions in Tons:	**0.15**	**1.27**	**0.28**	**0.08**	**0.57**

South Coast

AQMD

Annual Emission Report

Reporting Year: **2014**

Print Date: **10/01/2015**

Facility Id: **45262**

Facility Name **LA COUNTY SANITATION DIST SCHOLL CANYON**

Facility Type: **Landfill - Municipal Solid Waste**

Criteria Pollutants Permitted Emissions Summary

	VOC (tons)	SPOG (tons)	NOx (tons)	NOx RECLAIM (tons)	SOx (tons)	SOx RECLAIM (tons)	CO (tons)	PM (tons)
External Combustion	0.07	0.00	1.37	0.00	0.54	0.00	0.28	0.69
Internal Combustion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spray Coating/ Spray Booth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Use of Organics	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Storage Tanks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fugitive Components	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Process Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Shutdown/Startup/Turnaround and Upsets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Permitted Emissions	**0.07**	**0.00**	**1.37**	**0.00**	**0.54**	**0.00**	**0.28**	**0.69**

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ANNUAL RULE 1150.1 SOURCE TEST
FLARE NO's. 8 AND 10
SCHOLL CANYON LANDFILL
MAY 2015

PREPARED FOR:
County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, California 90601

FOR SUBMITTAL TO:
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, California 91765

TEST DATE:
May 20, 2015

ISSUE DATE:
June 23, 2015

TESTED BY:
Mr. Joe Adamiak, QSTI
SCEC
1631 E. Saint Andrew Place
Santa Ana, California 92705

Report No: 2025.5003.rpt1

Prepared By: _____
Joe Adamiak, Senior Project Manager

Reviewed By: _____
Rudy Nunez, District Manager

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1.0 INTRODUCTION

SCEC was contracted by Los Angeles County Sanitation District (LACSD) to perform the 2015 annual source testing on two landfill gas fired flares located at the Scholl Canyon Landfill. The landfill is operated by LACSD. The annual testing was performed to satisfy requirements delineated by the Permit to Operate (PTO) No. G15467 and South Coast Air Quality District (SCAQMD) Rule 1150.1.

Measurements of the flare emissions and operating parameters were conducted at the flares exhaust and at the inlets (raw landfill gas) of each flare. Table 1-1 provides a test matrix of the parameters tested at each sample location. The test methodology, duration, and number of samples are in compliance with the normally requested SCAQMD test protocol.

The tests were conducted on May 20, 2015. Joe Adamiak and Jason DeBerg of SCEC performed the testing. Vikram Reddy of LACSD coordinated the source test program.

The results of the emission tests are summarized in Table 1-2 and 1-3. Detailed test results are presented in Section 4.0. All raw data, laboratory results, calculations and QA/QC data can be found in the Appendices.

Table 1-1
TEST MATRIX
SCHOLL CANYON LANDFILL GAS FLARES 8 AND 10
May 20, 2015

Parameter	Inlet	Exhaust
Oxygen (O_2)	X	X
Carbon Dioxide (CO_2)	X	X
Nitrogen (N_2)	X	X
Carbon Monoxide (CO)		X
Nitrogen Oxides (NO_x)		X
Moisture (H_2O)	X	X
Flow Rate (dscfm)	X	X
Temperature (^oF)	X	X
Total Particulate Matter (PM) as PM_{10}		X
Methane (CH_4)	X	X
Total Gaseous Non-Methane Organics (TGNMO)	X	X
Trace Volatile Organics (VOCs)	X	X
Hydrogen Sulfide (H_2S)	X	
Reduced Sulfur Compounds (TRS)	X	
Calorific Value (Btu/scf)	X	

1.0 INTRODUCTION (Continued)

TABLE 1-2
SUMMARY OF TEST RESULTS
LACSD Scholl Canyon
Flare 8
May 20, 2015

PARAMETER	INLET		EXHAUST As Found	EXHAUST Defaulted[1]	PERMIT LIMIT
O_2, %	6.30		11.48		
CO_2, %	27.08		8.46		
N_2, %	33.56		80.05		
H_2O, %	5.3		11.4		
Flow Rate, wscfm	741		5,890		LFG Flow 860
Flow Rate, dscfm	702		5,216		
Temperature, °F (as measured at sampling ports)	145		1,537		
Temperature, °F (as measured at by set thermocouple)			1,438		
Btu/scf	320				
NOx:					
ppm			14.75		
ppm @ 3% O_2			28.03		
lb/hr (as NO_2)			0.56		0.71
lb/MMBtu (as NO_2)			0.039		0.06
CO:					
ppm			4.4	20	2000 (Rule 407)
ppm @ 3% O_2			8.3	38.0	
lb/hr			0.10	0.46	0.67
Hydrocarbons:					
CH_4, ppm	314,000	<	10		
CH_4, lb/hr	558	<	0.13		
Destruction Eff. % CH_4		>	99.98		99
TGNMO, ppm (as CH_4) [2]	3,016		1.7		
TGNMO, lb/hr (as CH_4)	5.4		0.02		0.21
TGNMO, ppm (as hexane)			0.28		
TGNMO, ppm @ 3% O_2 (as hexane)			0.54		20 [3]
Destruction Eff. % (DRE)			99.6		98 [3]
Particulate (as PM_{10}):					
gr/dscf			0.0076		0.100
lb/hr			0.565		0.60
Total Sulfur Compounds,					
Total Reduced Sulfur Inlet, ppm	27.6				150 (Rule 431.1)
SOx Exhaust, lb/hr (as SO_2)[4]			0.20		0.36

Notes:
The results in this table are the averages of all measurements.
(1) Values presented reflect 20% of the selected analyzer range.
(2) TGNMO value based on the most conservative value from the sample tray. Results did not meet the precision criteria test.
(3) SCAQMD Rule 1150.1 and NSPS require that a flare meet the concentration standard or DRE.
(4) The exhaust SOx lb/hr and lb/day results are calculated from inlet reduced sulfur concentrations.

1.0 INTRODUCTION (Continued)

TABLE 1-3
SUMMARY OF TEST RESULTS
LACSD Scholl Canyon
Flare 10
May 20, 2015

PARAMETER	INLET		EXHAUST As Found	EXHAUST Defaulted [1]	PERMIT LIMIT
O_2, %	5.89		11.16		
CO_2, %	28.46		8.77		
N_2, %	31.71		80.07		
H_20, %	5.6		11.5		
Flow Rate, wscfm	727		5,807		LFG Flow 860
Flow Rate, dscfm	686		5,140		
Temperature, °F (as measured at sampling ports)	145		1,292		
Temperature, °F (as measured at by set thermocouple)			1,427		
Btu/scf	335				
NOx:					
ppm			13.89		
ppm @ 3% O_2			25.54		
lb/hr (as NO_2)			0.52		0.71
lb/MMBtu (as NO_2)			0.036		0.06
CO:					
ppm			0.0	20	2000 (Rule 407)
ppm @ 3% O_2			0.0	36.8	
lb/hr			0.00	0.46	0.67
Hydrocarbons:					
CH_4, ppm	329,000	<	10		
CH_4, lb/hr	572	<	0.13		
Destruction Eff. % CH_4		>	99.98		99
TGNMO, ppm (as CH_4) [2]	3,091		3.1		
TGNMO, lb/hr (as CH_4)	5.4		0.04		0.21
TGNMO, ppm (as hexane)			0.52		
TGNMO, ppm @ 3% O_2 (as hexane)			0.95		20 [3]
Destruction Eff. % (DRE)			99.2		98 [3]
Particulate (as PM_{10}):					
gr/dscf			0.0060		0.100
lb/hr			0.480		0.60
Total Sulfur Compounds,					
Total Reduced Sulfur Inlet, ppm	36.1				150 (Rule 431.1)
SOx Exhaust, lb/hr (as SO_2) [4]			0.25		0.36

Notes:
The results in this table are the averages of all measurements.
(1) Values presented reflect 20% of the selected analyzer range.
(2) TGNMO value based on the most conservative value from the sample tray. Results did not meet the precision criteria test.
(3) SCAQMD Rule 1150.1 and NSPS require that a flare meet the concentration standard or DRE.
(4) The exhaust SOx lb/hr and lb/day results are calculated from inlet reduced sulfur concentrations.

American Analytics Landfill Gas Analysis For Sample Collected On 01/06/16

Analyte	Concentration	Method	Reporting Limit	Results	Sampling Media	Notes
Hydrogen	0-0.5 Mol%	EPA 3C (Mod)	0.1%	<0.1%	Polymer Bag	subcontracted
Carbon Dioxide	25-35 Mol%	EPA 3C (Mod)	0.1%	**28%**	Polymer Bag	
Oxygen/Argon	3-10 Mol%	EPA 3C (Mod)	0.1%	**4.5%**	Polymer Bag	
Nitrogen	20-50 Mol%	EPA 3C (Mod)	0.1%	**36.0%**	Polymer Bag	
Methane	30-60 Mol%	EPA 3C (Mod)	0.1%	**32.0%**	Polymer Bag	
Ethane	0-0.5 Mol%	GC/FID	20 ppmV	<100000 ppmV	Polymer Bag	
Propane	0-0.5 Mol%	GC/FID	20 ppmV	**18 ppmV**	Polymer Bag	
Pentane	0-0.5 Mol%	GC/FID	20 ppmV	<10 ppmV	Polymer Bag	
Hexane	0-0.5 Mol%	GC/FID	20 ppmV	<10 ppmV	Polymer Bag	
Benzene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**0.97 ppmV**	Polymer Bag	
Toluene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**3.2 ppmV**	Polymer Bag	
Ethylbenzene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**1.1 ppmV**	Polymer Bag	
m,p-Xylene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**1.5 ppmV**	Polymer Bag	
o-Xylene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	0.48 ppmV	Polymer Bag	
Styrene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	<0.23 ppmV	Polymer Bag	
C3 Benzenes	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	<0.4 ppmV	Polymer Bag	
Naphthalene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	<0.38 ppmV	Polymer Bag	
C1 Naphthalene	0-0.01 Mol%	EPA 8260B (Mod)	TIC*	not found	Polymer Bag	
C2 Naphthalene	0-0.01 Mol%	EPA 8260B (Mod)	TIC*	not found	Polymer Bag	
Hydrogen Sulfide	0-50 ppmv	ASTM D 5540-12	0.05 ppmV	**39 ppmV**	Polymer Bag	subcontracted
Carbonyl Sulfide	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**0.053 ppmV**	Polymer Bag	subcontracted
Carbon Disulfide	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**0.032 ppmV**	Polymer Bag	subcontracted
Methyl Mercaptan	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**1.0 ppmV**	Polymer Bag	subcontracted
Dimethyl Sulfide	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**1.5 ppmV**	Polymer Bag	subcontracted
Total Sulfur**	0-50 ppmv	ASTM D 5540-12	0.05 ppmV	**42 ppmV**	Polymer Bag	subcontracted
1,1,3,3-tetramethyldisiloxane	0-10 mg/m3	GC/MS (ALS AQL111)	TIC*	not found	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
pentamethyldisiloxane	0-10 mg/m3	GC/MS (ALS AQL111)	TIC*	not found	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
hexamethyldisilane	0-10 mg/m3	GC/MS (ALS AQL111)	TIC*	not found	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
hexamethyldisiloxane (L2)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**580 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Octamethyltrisiloxane (L3)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.27 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Decamethyltetrasiloxane (L4)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.28 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Dodecamethylpentasiloxane (L5)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.28 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Hexamethylcyclotetrasiloxane (D3)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**63 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Octamethylcyclotetrasiloxane (D4)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**120 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Decamethylcyclopentasiloxane (D5)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**52 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Dodecamethylcyclohexasiloxane (D6)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.28 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Trimethylsilanol	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**3500 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Total Silicon	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**1400 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Mercury	0-10 µg/m3	EPA 7471B (Mod)	0.5 ug/m3	<0.5 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Arsenic	0-50 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Beryllium	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Cadmium	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Copper	0-500 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Molybdenum	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Lead	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Antimony	0-50 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Selenium	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Zinc	0-500 µg/m3	EPA 6020B (Mod)	2 ug/m3	**7.4 ug/m3**	Filter Cassette; 4 hours @ 2L/min	

*: Tentatively Identified Compound

**: Total Reduced Sulfur as Hydrogen Sulfide

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B.3 AMBIENT AIR QUALITY MODELING RESULTS

APPENDIX B.3.1
AMBIENT AIR QUALITY ANALYSIS

APPENDIX B.3.1
MODELING PROTOCOL

APPENDIX B.3.2
AERMOD INPUT SUMMARY

APPENDIX B.3.3
AERMOD OUTPUT SUMMARY

(COMPLETE MODELING FILES ARE AVAILABLE IN ELECTRONIC FORMATS)

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Air Quality Impact Analysis (AQIA) Report
Glendale Water and Power
Biogas Renewable Generation Project

This report describes the air quality modeling results of estimated ground level concentrations resulting from the proposed emissions profile of Biogas Renewable Generation Project. Maximum modeled concentrations were added to the maximum background concentrations to calculate the total impacts of the proposed Project for comparison to the applicable and most stringent of state and national ambient air quality standards (AAQS). For pollutants that are non-attainment at the South Coast Air Basin, the impact of the proposed Project were compared with the State significance increase threshold.

Potential air quality impacts were evaluated based on air quality dispersion modeling using the Providence BEEST AERMOD software (version 16216r). A modeling protocol, provided in Appendix 3.1, was submitted and approved by the SCAQMD staff. All input and output modeling files are contained on a flash drive provided with this permit application.

The models were run for various criteria pollutants and averaging periods. NO_2, PM_{10} and $PM_{2.5}$ were modeled for comparison to the respective annual average AAQS. Short term air quality impacts were also evaluated, including 1-hour and 8-hour CO; 1-hour NO_2; 1-hour and 24-hour SO_2; and 24-hour PM_{10} and $PM_{2.5}$.

In accordance with SCAQMD AERMOD implementation guide, the models were run with flat terrain option on receptors located at lower elevations than the emission sources base elevation. The models were run with complex terrain options on the receptors located at higher elevations than the emission sources base elevation. The highest values from the models were selected as the overall project impact.

Table 1 presents the applicable AAQS for each of these pollutants, for each averaging period.

Table 1
Applicable Ambient Air Quality Standards
Grayson Power Plant Repowering Project

Pollutants	Averaging Periods	Most Stringent AAQS	Form	National or State Standard?
NO_2	1-Hour	100 ppb	98th Percentile of one-hour daily maximum concentrations, averaged over three years. [A]	National
	1-Hour	0.18 ppm	Not to be exceeded	California
	Annual	0.03 ppm	Annual Arithmetic Mean.	California
CO	1-Hour	20 ppm	Not to be exceeded more than once per year.	California
	8-Hour	9 ppm	Not to be exceeded more than once per year.	National
SO_2	1-Hour	75 ppb	99th Percentile of one-hour daily maximum concentrations, averaged over three years. [B]	National
	1-Hour	0.25 ppm	Not to be exceeded	California
	24-Hour	0.04 ppm	Not to be exceeded.	California
PM_{10}	24-Hour	2.5 $\mu g/m^3$	Allowable increase	California
	24-Hour	150 $\mu g/m^3$	The 6th highest of daily maximum concentrations, averaged over three years.	National
	Annual	1.0 $\mu g/m^3$	Allowable increase	California
$PM_{2.5}$	24-Hour	2.5 $\mu g/m^3$	Allowable increase	California
	24-Hour	35 $\mu g/m^3$	98th Percentile of daily maximum concentrations, averaged over three years.	National
	Annual	1.0 $\mu g/m^3$	Allowable increase	California
	Annual	12.0 $\mu g/m^3$	Annual mean, averaged over 3 years	National

A.) 8th highest of 1-hour maximum concentrations (NO_2) or 24-hour maximum concentrations ($PM_{2.5}$), averaged over a 5-year period for modeling.
B.) 4th highest of 1-hour maximum concentrations, averaged over a 5-year period for modeling.

In each modeling run, the regulatory default options were used with the exception of allowing flat terrain mode for the receptors below the emission sources base elevation. Additionally, the urban modeling option was selected to allow the model to incorporate the effects of increased surface

heating from the surrounding urban area on pollutant dispersion under stable atmospheric conditions. The urban area population was updated to reflect current approximate density in Los Angeles County (9,862,049 based on 2016 estimates from the U.S. Census Bureau). The equipment parameters, such as stack height and diameter, exhaust temperature and exit velocity, and elevation, are required for the AERMOD input, which is provided in the Appendix A.3.2.

For NO_2 modeling, the Ambient Ratio Method (ARM) was used in modeling the annual and 1-hour concentrations.

Modeling Scenarios

Table 2 shows the scenarios where the equipment produces the potential highest emissions for a 1-hour, 8-hour, 24-hour, and annual basis.

Table 2 – Air Dispersion Modeling Scenarios

Pollutant	Average Time	The Basis of Emission Rate
NO_2, CO, SO_2	1-hour Average	One engine operates one hour, which consists of startup, controlled, and shutdown emissions. Each of the remaining three engines operate one hour of controlled emissions without any startups or shutdowns.
CO	8-hour Average	One engine operates eight hours, which consists of six hours of uncontrolled emissions and two hours of startups, controlled emissions, and shutdowns. Each of the remaining three engines operate eight hours of controlled emissions without any startups or shutdowns.
PM10, PM2.5, SO_2	24-hour Average	One engine operates twenty four hours, which consists of ten hours of uncontrolled emissions, and fourteen hours of two startup and shutdowns and controlled emissions. Each of the remaining three engines operate twenty four hours of controlled emissions without any startups or shutdowns.
NO_2, PM10, PM2.5	Annual Average	Maximum Annual Emissions[1]

Note:

[1]The maximum annual emission of the engines includes the allowable 10 startups/shutdowns and 10 maintenance hours (uncontrolled emissions) for the whole year.

Modeling Results

Table 3 shows the modeling emission rates used for each pollutant and averaging period for the proposed Project, including air quality impact during commissioning period.

Table 3
Ambient Air Quality Impact Analysis Result
Scholl Canyon Repowering Generation Project

Pollutant	Avg. Period	Project Impact	Background[a]	New Ambient	Limiting Standard	Type of Standard
NO_2[b]	1-HR	0.030 ppm	0.09 ppm	0.12 ppm	0.18 ppm	CAAQS
NO_2[b]	1-HR (98th %)	0.014 ppm	0.073 ppm	0.086 ppm	0.10 ppm	NAAQS
NO_2[c]	Annual	0.00015 ppm	0.022 ppm	0.022 ppm	0.03 ppm	CAAQS
CO	1-HR	0. 145 ppm	3.10 ppm	3.24 ppm	20 ppm	CAAQS
CO	8-HR	0.0344 ppm	2.20 ppm	2.23 ppm	9 ppm	CAAQS
PM10	24-HR	1.07 ug/m^3	88 ug/m^3	89.07 ug/m^3	Allowable increase of 2.5 ug/m^3	CAAQS / SCAQMD Allowable Increase
PM10[d]	24-HR (6th highest over 5 years)	0.65 ug/m^3	88 ug/m^3	88.65 ug/m^3	150 ug/m^3	NAAQS
PM10	Annual	0.118 ug/m^3	35.4 ug/m^3	35.52 ug/m^3	Allowable increase of 1.0 ug/m^3	CAAQS / SCAQMD Allowable Increase
PM2.5	24-HR	1.07 ug/m^3	48.5 ug/m^3	49.57 ug/m3	Allowable increase of 2.5 ug/m^3	CAAQS / SCAQMD Allowable Increase

Pollutant	Avg. Period	Project Impact	Background[a]	New Ambient	Limiting Standard	Type of Standard
PM2.5[e]	24-HR (8th highest)	0.35 ug/m^3	29.80 ug/m^3	30.15 ug/m3	35 ug/m^3 Below SIL of 1.2 ug/m^3	NAAQS EPA Significant Impact Level (SIL)
PM2.5	Annual	0.118 ug/m^3	11.95 ug/m^3	12.07 ug/m^3	Below SIL of 0.3 ug/m^3 Allowable increase of 1.0 ug/m^3	EPA Significant Impact Level (SIL) CAAQS / SCAQMD Allowable Increase
SO_2	1-HR	0.0026 ppm	0.0126 ppm	0.0152 ppm	0.25 ppm	CAAQS
SO_2[f]	1-HR (99th %)	0.0014 ppm	0.0063 ppm	0.0077 ppm	0.075 ppm	NAAQS
SO_2	24-HR	0.0006 ppm	0.0054 ppm	0.0060 ppm	0.04 ppm	CAAQS

Notes:

a) The background values are based on the highest concentrations monitored during 2011 through 2015, except the year 2013, at West San Gabriel Valley (Pasadena) monitoring station. In 2013, the higher readings between Pasadena and Central Los Angeles monitoring station (Station No. 087) were used because the 2013 Pasadena background data were marked incomplete. Additionally, the background values of PM10 and SO_2 were based on the readings from the Central Los Angeles monitoring station since the Pasadena monitoring station did not record any background data for those pollutants.

b) The NO_2 1-hour modeling was refined using the AERMOD Ambient Ratio Method (ARM) option, which assumes an 80% conversion factor of NO_X to NO_2

c) The NO_2 annual modeling was refined using the AERMOD ARM option, which assumed a 75% conversion factor of NO_X to NO_2.

d) The PM10 24-hour modeled values were based on the maximum 6th highest concentration over 5 years period.

e) The PM2.5 24-hour modeled values were based on the 8th highest concentration averaged over 5 years period with the background concentrations of 98th percentile of 24-hour data averaged over 5 years period.

f) The SO_2 1-hour modeled values were based on the 4th highest concentration averaged over 5 years period with the background concentrations of 99th percentile of 1-hour data averaged over 5 years period.

g) There are receptors surrounding the facility at lower and higher elevations than the emission sources. The model was run on non-default option (flat terrain) on all receptors at lower elevations; and a default option (complex terrain) was selected to on receptors above the emission sources base elevation. The project impact values shown in the table above is the highest values from both model runs.

As shown in Table 3, the modeled highest concentration of NO_2, CO, and SO_2 plus the applicable background concentration did not result in any exceedances of the federal and state AAQS. For

PM10 and PM2.5, the modeled maximum concentrations from the Project did not cause any exceedances of the state significant thresholds. Appendix A.3.3 include additional information on the model files.

Additionally, the complete modeling files are provided in electronic copies.

APPENDIX B.3.1

MODELING PROTOCOL

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SCEC

October 2, 2015

Ms. Jillian Wong, Ph.D.
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Protocol for Air Dispersion Modeling (CEQA, AQIA, and HRA)
City of Glendale – Scholl Canyon Landfill Project

Dear Ms. Wong,

SCEC is submitting this protocol for air dispersion modeling on behalf of the City of Glendale ("Glendale"). The purpose of this document is to propose methodology by which dispersion modeling is set up and executed in support of a project for the Scholl Canyon Landfill ("landfill"). The project will include construction and operation of new power generation equipment that will burn landfill gas generated by the facility. The proposed modeling program will be used to estimate direct project operational impacts only, including a California Environmental Quality Act ("CEQA") analysis, an air quality impact analysis ("AQIA"), and a health risk assessment. SCEC is seeking South Coast Air Quality Management District ("SCAQMD") approval of the proposed modeling methodology to ensure that the model is prepared and executed in accordance with SCAQMD Modeling Guidance and standards. Once approved, SCEC will perform the required dispersion modeling pursuant to the methods outlined in this protocol.

Generally, SCEC proposes to use the latest version of the Trinity Consultants BREEZE AERMOD software to build and execute the required dispersion modeling. The model will be run in accordance with *SCAQMD Modeling Guidance for AERMOD*. This includes use of the regulatory default option (with one exception as explained in the following methodology discussion), AERMAP preprocessor, urban modeling option, BPIP for building downwash, SCAQMD-provided AERMOD meteorological data, appropriate averaging times and receptor grid spacing, and any other required options. The proposed model will not utilize the OLM or PVMRM options. More detailed modeling methodology can be found in following sections of this protocol.

Proposed Modeling Methodology

The landfill is located at 3001 Scholl Canyon Road in Glendale. SCEC will utilize a modeling projection in terms of Universal Transverse Mercator (UTM) with the World Geodetic System 1984 datum. The UTM zone and hemisphere selected for the modeling will reflect the physical location of the facility as follows:

- UTM zone: 11
- Hemisphere: Northern

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Glendale is proposing to construct and operate new power generation equipment at the site and is considering two possible options for the technology. The first option includes the use of two (2) combustion turbines, while the second option will include four (4) reciprocating internal combustion engines. There are twelve (12) existing enclosed flares at the facility today, operated by another entity; however, due to the expectation that excess landfill gas not combusted in the proposed new power generation equipment would be sent to these devices, the flares will be included in the modeling for both scenarios as a matter of completeness. Separate models will be prepared to cover the two possible equipment scenarios, but the same general methodology will be used for both.

Each model will use the current AERMOD executable from EPA, Version 15181. Generally, the models will be executed using the urban model option in accordance with SCAQMD modeling guidelines. All sources will be modeled with urban effects using the population of Los Angeles County. SCAQMD suggests the Los Angeles County population to be 9,862,049, so this value will be used to characterize the urban area surrounding the proposed project.

Since exhaust from the combustion turbines or engines would be vented to dedicated vertical stacks, all of these sources will be categorized and modeled as point sources. Additionally, since the flares will be incorporated into the model and because they are not "candlestick" type flares, these will also be modeled as point sources. Source information such as exhaust exit temperature, flow rate, stack height, and stack diameter will be entered using manufacturer's literature or another reliable source. The emission rate for each source will be included as appropriate for each model to be run, both in terms of the pollutant and averaging period of interest. Each emissions source will be assigned to its own source group and flagged as an urban source. An additional urban source group will be created that includes all emission sources.

Buildings and significant permanent structures that are located within 5*L of a stack ("L" is the building/structure height above the stack base) can cause wake effects and must be incorporated into the model. Each building/structure that meets the criteria will be built into the model using actual dimensions (or reasonable estimates).

The facility boundary will be defined as the footprint of the entire landfill. Although SCAQMD modeling guidelines require that fenceline receptor spacing be based on the acreage of a facility, the proposed modeling will conservatively use the most refined spacing, placing fenceline receptors no more than 20 meters apart.

In addition to fenceline receptors, a uniform Cartesian receptor grid will be created to cover the extent of the modeling domain. The grid will cover an approximate area of 36 square kilometers with 50 meter spacing between receptors. Discrete receptors will be established for nearby sensitive and off-site worker receptor locations. No flagpole receptors will be included in the model.

Because the landfill is situated on a hilltop, most of the surrounding receptors are located below the base elevation of the sources being modeled. EPA's AERMOD Implementation Guide (rev.

8/3/2015), Section 4.1 suggests that AERMOD may underestimate concentrations in cases of terrain-following plumes and down-sloping terrain. In these cases, EPA suggests that it may be reasonable to assume flat, level terrain. In this case, the model will include some receptors that are lower and some that are higher than the base elevations of the sources. Pursuant to the SCAQMD Guidelines, the proposed modeling will be conducted using two types of model runs – one run will utilize the regulatory default option and complex terrain, and the second will use the non-regulatory default option and flat terrain. In accordance with the SCAQMD Guidelines, the results for both models will be presented.

For the flat terrain model run, AERMAP does not need to be run since no terrain data will be needed to execute the model. However, for the complex terrain model run, terrain data will be used in conjunction with the AERMAP preprocessor.

Terrain files for the area will be pulled down from the California Air Resources Board ("CARB") website at the following address: http://www.arb.ca.gov/toxics/harp/dems.htm. Based on the project location and availability of digital elevation model ("DEM") files, the "Pasadena" terrain file should provide adequate coverage for the proposed modeling domain. With the source, surrounding qualifying structures, and all receptors situated, the terrain file will be used to run AERMAP. In addition to applying terrain elevation information to the model, this process will apply base elevations to each of the sources, buildings, and receptors. AERMAP will be rerun to establish new base elevations if any objects in the model are subsequently moved, or added.

BPIP will be run to create a file of 36 direction-specific building widths, heights, and distances (one for each of the 36 10-degree sectors) that will be automatically imported into BREEZE AERMOD. This will allow the model to properly compute the plume downwash (i.e., adjusted plume center line and turbulent dispersion) downwind of tier influenced stacks. BPIP will be rerun prior to model execution if source and/or building coordinates are changed; source and/or building heights are changed; base elevations are changed; or buildings are added to the model. BPIP is not affected by meteorological data.

Meteorological data files for both surface and upper air characteristics are provided by SCAQMD. The files used for any particular model run should be selected based on the representativeness of the underlying data with respect to meteorological conditions at the proposed facility location. For this project, the SCAQMD Central LA (CELA) and Burbank (BURK) meteorological stations are both situated at approximately the same distance from the facility; however, historical prevailing wind direction is quite a bit different between the two stations. The Central LA station has a prevailing northeasterly wind, while Burbank appears to predominantly experience northwesterly winds. Since the site is between these two station locations and because it is unclear which wind pattern is more representative of actual site conditions, SCEC has elected to use the Burbank files. This is based on the inference that airflow at the proposed facility will be more similar to that experienced at the Burbank monitoring station than the Central LA station. Furthermore, the Burbank meteorological data is provided for the years 2008 through 2012, which is both more current than the data coverage period from Central LA, and includes five consecutive years of data.

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In order to fully address the needs of the CEQA analysis and the AQIA, which both call for a determination of the operational impacts a project will have on ambient air quality, the proposed model will include runs for nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO2), and particulate matter (both PM10 and PM2.5). Proposed operational impacts will be determined by modeling for each applicable pollutant and averaging period and comparing the results to SCAQMD air quality significance thresholds, California ambient air quality standards ("CAAQS") and/or National ambient air quality standards ("NAAQS"). The following pollutants and averaging periods will be evaluated to estimate the potential direct operational impacts on ambient air quality, based on emissions from <u>all</u> modeled sources:

- NO_2 : 1-hour[1,2,3] & annual[1,2,3]
- CO : 1-hour[1,2,3] & 8-hour[1,2,3]
- SO_2 : 1-hour[1,2,3], 3-hour[2], 24-hour[1,3]
- $PM_{2.5}$: 24-hour[2,3] & Annual[1,2]
- PM_{10} : 24-hour[1,2,3] & Annual[1,3]

For comparison to:

1.) CAAQS
2.) NAAQS
3.) SCAQMD ambient air quality standards

The appropriate output tables and plot files will be generated by AERMOD during each model run. The applicable ground level concentration data will be extracted from these files and utilized for comparison with the associated standards.

Ambient background emissions data for each criteria pollutant and averaging period has been provided by SCAQMD and CARB, and is based on monitoring data taken from SCAQMD monitoring stations 88 (West San Gabriel Valley) and 87 (Central LA) for the years of 2010 through 2014. The data from Station No. 88 is considered more appropriate for the proposed project location; however, because data from 2013 was incomplete and not provided by SCAQMD or CARB, the 2013 data from Station No. 87 will be used instead. For the purposes of determining the applicable background concentration to be used in the CEQA analysis and AQIA, SCEC will conservatively select the highest concentration from the 5 years of monitoring data for each pollutant and averaging period.

For the CEQA analysis, SCEC will compare selected ambient background concentrations plus modeled concentrations (or just the modeled concentrations in the case of PM2.5 and PM10) to the respective threshold of significance presented in the table below. In cases where the significance threshold is in-line with either a CAAQS or NAAQS, the expectation is that the resulting combined background plus modeled concentration does not cause a violation of the standard. For PM2.5 and PM10, the CEQA significance thresholds reflect maximum allowable increases, so only the modeled concentration will be compared to the threshold in these cases.

SCAQMD Air Quality Significance Thresholds for CEQA

Pollutant and Averaging Period	Standard / Threshold
NO2	
- 1-hour average	0.18 ppm (CAAQS)
- Annual arithmetic mean	0.03 ppm (CAAQS) & 0.0534 ppm (NAAQS)
CO	
- 1-hour average	20 ppm (CAAQS) & 35 ppm (NAAQS)
- 8-hour average	9.0 ppm (CAAQS/NAAQS)
SO2	
- 1-hour average	0.25 ppm (CAAQS) & 0.075 ppm (NAAQS – 99th percentile)
- 24-hour average	0.04 ppm (CAAQS)
PM2.5	
- 24-hour	2.5 µg/m^3
PM10	
- 24-hour	2.5 µg/m^3
- Annual average	1.0 µg/m^3

For the AQIA, the methodology for determining compliance will be very similar to that of the CEQA analysis. For any pollutants that ambient background concentrations are below a particular emissions standard, the modeled increase to concentration resulting from the project will be added to the background. As long as the sum of background and modeled concentration does not cause an exceedance of the standard, then the project will be in compliance. If there are cases where the ambient background concentration is already above the applicable standard, the modeled concentration for the project will be compared to the respective significance threshold in Rule 1303, Table A-2.

The HRA for this project will be completed in accordance with the updated Risk Assessment Guidelines from the Office of Environmental Health Hazard Assessment ("OEHHA") that were released in 2015. This includes using the latest version of CARB's Hotspots Analysis and Reporting Program software ("HARP 2") in conjunction with the derived OEHHA methodology for risk assessment and dispersion modeling plot files generated by AERMOD.

More specifically, two additional dispersion model runs will be executed as described in this protocol (i.e., one for flat terrain and a second for complex terrain), except that the "Other" pollutant will be selected in the model options and a "unit emission rate" will be used for each point source (i.e., one gram per second). By normalizing the emission rate for all model sources in this manner, the maximum 1-hour and period ground level concentrations generated by AERMOD will act as scalers with which a program like HARP 2 can estimate ground level concentrations of toxic air contaminants ("TACs"). Two sets of plot files for the modeled "1-hour" and "Period"

concentrations will be loaded into HARP 2. In conjunction with a complete inventory of TACs estimated for the proposed project, HARP 2 will use the AERMOD plot files to predict ground level concentrations of each TAC. HARP 2 will automatically assign health risk values to each TAC, such as cancer potency ("CP") for carcinogens and reference exposure levels ("RELs") for compounds that may cause chronic or acute health conditions. Using the concentration of TACs at each receptor location, the assigned CPs and RELs associated with each TAC, receptor type, exposure pathways, and exposure duration, HARP 2 will calculate potential health risk. This includes an estimate of cancer risk, non-cancer chronic risk, and non-cancer acute risk. If necessary, the Cancer Burden will also be calculated.

SCAQMD Rule 1401 and the Agency's CEQA Guidelines require that a proposed project not exceed the following health risk levels for each risk category:

Risk Category	**Threshold**
Maximum Individual Cancer Risk ("MICR")	1×10^{-5}
Non-Cancer Acute Hazard Index	1.0
Non-Cancer Chronic Hazard Index	1.0
Cancer Burden*	0.5

*Calculation of cancer burden is only required if MICR $\geq 1 \times 10^{-5}$.

The risk assessment model will need to be run twice for each set of dispersion model results – once to evaluate sensitive and residential receptor risk levels and again for off-site worker risk. The following HRA modeling scenarios will be run in HARP 2:

To analyze risk for residential and sensitive receptors the following options will be used:

Analysis Type:	Cancer, Chronic, and Acute Risk
Receptor Type:	Individual Resident
Exposure Duration:	30 years
Intake Rate Percentile:	OEHHA derived method
Pathways to Evaluate (*):	Inhalation; Soil Ingestion; Dermal; and Mother's Milk

(*) The selected pathways reflect "mandatory minimum" pathways for residential/sensitive receptors.

To analyze risk for off-site worker receptors the following options will be used:

Analysis Type:	Cancer, Chronic, and Acute Risk
Receptor Type:	Worker
Exposure Duration:	25 years
Intake Rate Percentile:	OEHHA derived method
Pathways to Evaluate (*):	Inhalation; Soil Ingestion; and Dermal

(*) The selected pathways reflect all required "worker" pathways

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Once both HARP 2 runs are completed, the model outputs will be evaluated to determine whether the project will comply with SCAQMD requirements. For both models, SCEC will determine risk levels for the maximally exposed individual ("MEI"). The MEI represents an actual receptor location where risk levels are the highest for one or more risk categories. The location of the MEI may vary depending on the risk category being analyzed and may not necessarily reflect the point of maximum impact ("PMI") for that risk category. In cases where the PMI is also the MEI, the PMI will be used to compare with the applicable risk threshold. When the PMI for a particular risk category does not reflect an actual receptor location, the MEI will be used with justification as to why it is more representative than the PMI.

Should it be required, cancer burden will be calculated manually in accordance with the instructions outlined in the SCAQMD Risk Assessment Procedures (Version 8.0, 6/5/2015). Since dispersion modeling and a refined HRA are being conducted for the project, SCEC will be able to use output files generated by HARP 2 to visualize risk level isopleths and easily determine the greatest downwind distance at which a potential receptor may be exposed to a MICR of one in one-million. By using this downwind distance as the radius (r), a circular area will be defined (using $\pi*r^2$) that will theoretically reflect the zone of impact for the project. If the actual population within the area is known then that value will be used in conjunction with the MICR to determine cancer burden. If the actual population is not known, then a conservative estimate of 7,000 people per square kilometer will be used.

We appreciate the expedited review of this protocol as SCEC is ready to begin the modeling and other analyses in support of the project immediately upon approval. Should SCAQMD have any questions or concerns regarding the modeling and analysis methodology proposed herein, please contact me directly at (714) 282-8240 (ext. 8609) or bwinchester@montrose-env.com.

Sincerely,
SCEC
An affiliate of Montrose Environmental Group, Inc.

MONTROSE ENVIRONMENTAL

Bill D. Winchester, C.P.P.
Senior Project Manager
Regulatory Compliance Services

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APPENDIX B.3.2

AERMOD INPUT SUMMARY

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Point Sources - 1 Hour Model

Model ID	Source Description	UTME (m)	UTMN (m)	Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Dia. (m)	NOx Emission (g/s)	CO Emission (g/s)	SO2 Emission (g/s)	PM Emission (g/s)
ENGINE1	Generator 1	390140.0	3779830.2	434.04	12.192	698.150	32.712	0.6096	3.94968	7.10960	0.10584	
ENGINE2	Generator 2	390147.2	3779828.8	434.04	12.192	698.150	32.712	0.6096	0.15372	1.10878	0.10584	
ENGINE3	Generator 3	390154.5	3779827.5	434.04	12.192	698.150	32.712	0.6096	0.15372	1.10878	0.10584	
ENGINE4	Generator 4	390161.7	3779827.4	434.04	12.192	698.150	32.712	0.6096	0.15372	1.10878	0.10584	

Point Sources - 8 Hour Model

Model ID	Source Description	UTME (m)	UTMN (m)	Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Dia. (m)	NOx Emission (g/s)	CO Emission (g/s)	SO2 Emission (g/s)	PM Emission (g/s)
ENGINE1	Generator 1	390140.0	3779830.2	434.04	12.192	698.150	32.712	0.6096		3.37631		
ENGINE2	Generator 2	390147.2	3779828.8	434.04	12.192	698.150	32.712	0.6096		1.10878		
ENGINE3	Generator 3	390154.5	3779827.5	434.04	12.192	698.150	32.712	0.6096		1.10878		
ENGINE4	Generator 4	390161.7	3779827.4	434.04	12.192	698.150	32.712	0.6096		1.10878		

Point Sources - 24 Hour Model

Model ID	Source Description	UTME (m)	UTMN (m)	Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Dia. (m)	NOx Emission (g/s)	CO Emission (g/s)	SO2 Emission (g/s)	PM Emission (g/s)
ENGINE1	Generator 1	390140.0	3779830.2	434.04	12.192	698.150	32.712	0.6096			0.10584	0.07669
ENGINE2	Generator 2	390147.2	3779828.8	434.04	12.192	698.150	32.712	0.6096			0.10584	0.07669
ENGINE3	Generator 3	390154.5	3779827.5	434.04	12.192	698.150	32.712	0.6096			0.10584	0.07669
ENGINE4	Generator 4	390161.7	3779827.4	434.04	12.192	698.150	32.712	0.6096			0.10584	0.07669

Point Sources - Annual Model

Model ID	Source Description	UTME (m)	UTMN (m)	Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Dia. (m)	NOx Emission (g/s)	CO Emission (g/s)	SO2 Emission (g/s)	PM Emission (g/s)
ENGINE1	Generator 1	389968.2	3779779.5	434.04	12.192	698.150	32.712	0.6096	0.20660			0.07669
ENGINE2	Generator 2	389967.3	3779788.2	434.04	12.192	698.150	32.712	0.6096	0.20660			0.07669
ENGINE3	Generator 3	389966.6	3779796.9	434.04	12.192	698.150	32.712	0.6096	0.20660			0.07669
ENGINE4	Generator 4	389965.8	3779805.4	434.04	12.192	698.150	32.712	0.6096	0.20660			0.07669

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APPENDIX B.3.3

AERMOD OUTPUT SUMMARY

(COMPLETE MODELING FILES ARE AVAILABLE IN ELECTRONIC FORMATS)

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Description	Pollutant	Averaging Period	Highest	Source Group	Conc (ug/m3)	UTME	UTMN	Conc Date mm/dd/yy/hh	Conc (ppm)	Background	Unit	Total	Unit	NAAQS	Unit	SCAQMD	Unit
CO State Standard/NAAQS																	
Scholl Canyon ICE 1hr COElevation_5yrs_CO	CO	1-HR	1ST	ALL	159.72	390407.0	3779876.0	10/25/12/20	0.14505	3.1	PPM	3.2451	PPM	35	PPM	20	PPM
Scholl Canyon ICE 1hr COElevation_5yrs_CO				ENGINE1	108.18	390407.0	3779876.0	10/25/12/20	0.09825			3.1982	PPM				
Scholl Canyon ICE 1hr COElevation_5yrs_CO				ENGINE2	17.01	390407.0	3779876.0	10/25/12/20	0.01545			3.1155	PPM				
Scholl Canyon ICE 1hr COElevation_5yrs_CO				ENGINE3	17.13	390407.0	3779876.0	10/25/12/20	0.01556			3.1156	PPM				
Scholl Canyon ICE 1hr COElevation_5yrs_CO				ENGINE4	17.39	390407.0	3779876.0	10/25/12/20	0.01580			3.1158	PPM				
Scholl Canyon ICE 8hr_5yrs_CO	CO	8-HR	1ST	ALL	37.86	390444.8	3779750.6	01/07/08/16	0.03438	2.2	PPM	2.2344	PPM	9	PPM	9	PPM
Scholl Canyon ICE 8hr_5yrs_CO				ENGINE1	18.47	390444.8	3779750.6	01/07/08/16	0.01677			2.2168	PPM				
Scholl Canyon ICE 8hr_5yrs_CO				ENGINE2	6.26	390444.8	3779750.6	01/07/08/16	0.00568			2.2057	PPM				
Scholl Canyon ICE 8hr_5yrs_CO				ENGINE3	6.46	390444.8	3779750.6	01/07/08/16	0.00587			2.2059	PPM				
Scholl Canyon ICE 8hr_5yrs_CO				ENGINE4	6.67	390444.8	3779750.6	01/07/08/16	0.00606			2.2061	PPM				
NO_2 State Standard - ARM																	
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_NO2	NO2	1-HR	1ST	ALL	53.80	390407.0	3779876.0	10/25/12/20	0.02974	0.09	PPM	0.1197	PPM		PPM	0.18	PPM
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_NO2				ENGINE1	48.08	390407.0	3779876.0	10/25/12/20	0.02658			0.1166	PPM				
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_NO2				ENGINE2	1.89	390407.0	3779876.0	10/25/12/20	0.00104			0.0910	PPM				
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_NO2				ENGINE3	1.90	390407.0	3779876.0	10/25/12/20	0.00105			0.0911	PPM				
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_NO2				ENGINE4	1.93	390407.0	3779876.0	10/25/12/20	0.00107			0.0911	PPM				
NO_2 NAAQS - ARM																	
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_NO2	NO2	8TH-HIGHEST MAX DAILY 1-HR	1ST	ALL	24.56	390407.0	3779876.0	5 YEARS	0.01357	0.0728	PPM	0.0864	PPM	0.10	PPM		PPM
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_NO2				ENGINE1	21.87	390407.0	3779876.0	5 YEARS	0.01209			0.0849	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_NO2				ENGINE2	0.87	390407.0	3779876.0	5 YEARS	0.00048			0.0733	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_NO2				ENGINE3	0.89	390407.0	3779876.0	5 YEARS	0.00049			0.0733	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_NO2				ENGINE4	0.92	390407.0	3779876.0	5 YEARS	0.00051			0.0733	PPM				
PM10/PM2.5 State Standard																	
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10	PM10/PM2.5	24-HR	1ST	ALL	1.07	390473.0	3779600.0	12/30/12/24			UG/M3	1.070	UG/M3		UG/M3	Threshold PM10 - 2.5 PM2.5 - 2.5	UG/M3
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE1	0.26	390473.0	3779600.0	12/30/12/24				0.256	UG/M3				
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE2	0.26	390473.0	3779600.0	12/30/12/24				0.265	UG/M3				
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE3	0.27	390473.0	3779600.0	12/30/12/24				0.271	UG/M3				
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE4	0.28	390473.0	3779600.0	12/30/12/24				0.278	UG/M3				
PM10 NAAQS Standard																	
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10	PM10	24-HR	6TH	ALL	0.65	390457.4	3779708.8	12/27/12/24		88	UG/M3	88.65	UG/M3	150	UG/M3		UG/M3
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE1	0.16	390457.4	3779708.8	12/27/12/24				88.16	UG/M3				
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE2	0.16	390457.4	3779708.8	12/27/12/24				88.16	UG/M3				
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE3	0.17	390457.4	3779708.8	12/27/12/24				88.17	UG/M3				
Scholl Canyon ICE 24hr PM10 SO2_5yrs_PM10				ENGINE4	0.17	390471.5	3779633.5	12/27/12/24				88.17	UG/M3				
PM2.5 NAAQS Standard																	
Scholl Canyon ICE 24hr PM25Elevation_5yrs_PM25	PM2.5	24-HR	8TH	ALL	0.354	389750.0	3780450.0	5 YEARS		32.4		32.75	UG/M3	35	UG/M3		UG/M3
Scholl Canyon ICE 24hr PM25Elevation_5yrs_PM25				ENGINE1	0.088	389750.0	3780450.0	5 YEARS				32.49	UG/M3				
Scholl Canyon ICE 24hr PM25Elevation_5yrs_PM25				ENGINE2	0.088	389750.0	3780450.0	5 YEARS				32.49	UG/M3				
Scholl Canyon ICE 24hr PM25Elevation_5yrs_PM25				ENGINE3	0.089	389750.0	3780450.0	5 YEARS				32.49	UG/M3				
Scholl Canyon ICE 24hr PM25Elevation_5yrs_PM25				ENGINE4	0.089	389750.0	3780450.0	5 YEARS				32.49	UG/M3				
SO_2 State Standard																	
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_SO2	SO2	1-HR	1ST	ALL	6.52	390407.0	3779876.0	10/25/12/20	0.00259	0.0126	PPM	0.0152	PPM		PPM	0.25	PPM
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_SO2				ENGINE1	1.61	390407.0	3779876.0	10/25/12/20	0.00064			0.0132	PPM				
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_SO2				ENGINE2	1.62	390407.0	3779876.0	10/25/12/20	0.00064			0.0132	PPM				
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_SO2				ENGINE3	1.63	390407.0	3779876.0	10/25/12/20	0.00065			0.0132	PPM				
Scholl Canyon ICE 1hr NO2 SO2StateElevation_5yrs_SO2				ENGINE4	1.66	390407.0	3779876.0	10/25/12/20	0.00066			0.0133	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2	SO2	3-HR	1ST	ALL	4.112	390471.5	3779633.5	11/04/08/24	0.00163	0.0054	PPM	0.0214	PPM		PPM	0.04	PPM
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE1	1.000	390471.5	3779633.5	11/04/08/24	0.00040			0.0202	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE2	1.019	390471.5	3779633.5	11/04/08/24	0.00040			0.0202	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE3	1.037	390471.5	3779633.5	11/04/08/24	0.00041			0.0202	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE4	1.056	390471.5	3779633.5	11/04/08/24	0.00042			0.0202	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2	SO2	24-HR	1ST	ALL	1.48	390473.0	3779600.0	12/30/10/24	0.00059	0.0198	PPM	0.0204	PPM	0.5	PPM	0.04	PPM
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE1	0.35	390473.0	3779600.0	12/30/10/24	0.00014			0.0199	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE2	0.37	390473.0	3779600.0	12/30/10/24	0.00015			0.0199	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE3	0.37	390473.0	3779600.0	12/30/10/24	0.00015			0.0199	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE4	0.38	390473.0	3779600.0	12/30/10/24	0.00015			0.0200	PPM				

Description	Pollutant	Averaging Period	Highest	Source Group	Conc (ug/m3)	UTME	UTMN	Conc Date mm/dd/yy/hh	Conc (ppm)	Background	Unit	Total	Unit	NAAQS	Unit	SCAQMD	Unit
SO_2 NAAQS																	
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2	SO2	4TH-HIGHEST MAX DAILY 1-HR	4TH	ALL	3.53	390407.0	3779876.0	5 YEARS	0.00140	0.0063	PPM	0.0077	PPM	0.075	PPM		PPM
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE1	0.84	390407.0	3779876.0	5 YEARS	0.00033			0.0066	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE2	0.87	390407.0	3779876.0	5 YEARS	0.00035			0.0066	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE3	0.90	390407.0	3779876.0	5 YEARS	0.00036			0.0067	PPM				
Scholl Canyon ICE 1hr NO2 SO2NAAQSElevation_5yrs_SO2				ENGINE4	0.92	390407.0	3779876.0	5 YEARS	0.00037			0.0067	PPM				

CO 1 Hour NAAQS = Not to be exceeded more than once per year. Design values based on highest 1 hour model result over 5 years and highest 1 hour monitored background 2011 - 2015.

CO 1 Hour SCAQMD = Not to be exceeded. Design values based on highest 1 hour model result over 5 years and highest 1 hour monitored background 2011 - 2015.

CO 8 Hour NAAQS = Not to be exceeded more than once per year. Design values based on highest 8 hour model result over 5 years and highest 8 hour monitored background 2011 - 2015.

CO 8 Hour SCAQMD = Not to be exceeded. Design values based on highest 8 hour model result over 5 years and highest 8 hour monitored background 2011 - 2015.

NO2 1 Hour NAAQS = 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years (approx 8th highest). Design value based on 98th percentile of 1-hour daily maximum concentrations, averaged over 5 years and the highest 98th percentile monitored concentration for years 2011-2015. ARM Method = 75%.

NO2 1 Hour SCAQMD = Not to be exceeded. Design values based on highest 1 hour model result over 5 years and highest 1 hour monitored background 2011 - 2015. ARM Method = 75%.

PM10/PM2.5 24 Hour SCAQMD = Not to exceeded significant threshold. Design value based on 1st highest max 5 year model result.

PM10 24 Hour NAAQS = Not to be exceeded more than once per year on average over 3 years (2nd Highest). Design value based on 6th highest max 5 year model result and highest monitored background 2011-2015.

PM2.5 24 Hour NAAQS = 98th percentile, averaged over 3 years (8th highest not including secondary). Design value based on 98th percentile, averaged over 5 years, and the highest 98th percentile 24 hour monitored background 2011 - 2015. No secondary emissions included.

SO2 1 Hour NAAQS = 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years (approx 4th highest). Design value based on 99th percentile of 1-hour daily maximum concentrations, averaged over 5 years and the highest 99th percentile 1 hour monitored background 2011 - 2015.

SO2 1 Hour SCAQMD = Not to be exceeded. Design values based on highest 1 hour model result over 5 years and highest 1 hour monitored background 2011 - 2015.

SO2 24 Hour SCAQMD = Not to be exceeded. Design values based on highest 24 hour model result over 5 years and highest 24 hour monitored background 2011 - 2015.

B.4 TOXIC EMISSION INVENTORY

APPENDIX B.4.

TOXIC EMISSION INVENTORY

APPENDIX B.4.1
TOXIC EMISSION INVENTORY FOR THE PROPOSED ENGINES (OPERATIONAL IMPACT) AND THE EXISTING FLARE SYSTEM (CONSTRUCTION IMPACT)

APPENDIX B.4.2
TOXIC EMISSION FACTORS AND ITS SUPPORTING DOCUMENTATION:

- **HYDROGEN CHLORIDE EMISSION FACTORS CALCULATION**
- **SCHOLL CANYON LANDFILL GAS LAB ANALYSIS (2013 – 2016)**
- **USEPA AP-42 TABLE 2.4-1: DEFAULT CONCENTRATIONS FOR LFG CONSTITUENTS**
- **FORMALEDHYDE EMISSION FACTORS FROM CATEF CLERAING HOUSE REPORT FOR ENGINE; SCAQMD AB2588 SUPPLEMENTAL INSTRUCATION FOR FLARE SYSTEM**
- **USEPA AP-42 TABLE 2.4-3: CONTROL EFFICIENCIES FOR LFG CONSTITUENTS**

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APPENDIX B.4.1

TOXIC EMISSION INVENTORY FOR THE PROPOSED ENGINES (OPERATIONAL IMPACT) AND THE EXISTING FLARE SYSTEM (CONSTRUCTION IMPACT)

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APPENDIX A.4.1
TOXIC EMISSION INVENTORY FOR THE ENGINES (OPERATIONAL IMPACT) AND FLARES (CONSTRUCTION IMPACT)
BIOGAS RENEWABLE GENERATION PROJECT

										RECIP ENGINE SCENARIO GE JGS620 GS-L.L (4 UNITS)		FLARES FLARES SYSTEM	
TAC Code	TAC Compounds	CAS	MW	Concentration, ppmv	Data Source	ICE Total Control Efficiency (% wt)[6]	ICE Controlled Emission Rate (lbs/mmscf)	Flare Destruction Efficiency (% wt)[5]	Flare Controlled Emission Rate (lbs/mmscf)	Hourly Emission (lbs/hr)	Yearly Emission (lbs/yr)	Hourly Emission (lbs/hr)	Yearly Emission (lbs/yr)
M8	1,1,1 - Trichloroethane	71-55-6	133.41	0.021	Note 1	99.8%	1.17E-05	98%	1.45E-04	3.87E-06	0.0339	4.34E-05	0.3805
T1	1,1,2,2 - Tetrachloroethane	79-34-5	167.85	1.11	Note 2	99.8%	7.75E-04	98%	9.63E-03	2.57E-04	2.2542	2.89E-03	25.3040
E5	1,2 - Dibromoethane	106-93-4	187.86	0.041	Note 1	99.8%	3.20E-05	98%	3.98E-04	1.06E-05	0.0932	1.19E-04	1.0461
D6	1,1 - Dichloroethane	75-34-3	98.97	0.039	Note 1	99.8%	1.61E-05	98%	1.99E-04	5.33E-06	0.0467	5.98E-05	0.5242
V5	1,1 - Dichloroethene	75-35-4	96.94	0.019	Note 1	99.8%	7.66E-06	98%	9.52E-05	2.54E-06	0.0223	2.86E-05	0.2502
E6	1,2 - Dichloroethane	107-06-2	98.96	0.102	Note 1	99.8%	4.20E-05	98%	5.22E-04	1.39E-05	0.1221	1.56E-04	1.3709
	1,2 - Dichloropropane	78-87-5	112.99	0.18	Note 2	99.8%	8.46E-05	98%	1.05E-03	2.81E-05	0.2461	3.15E-04	2.7622
I2	2 - Propanol	67-63-0	60.11	50.1	Note 2	99.7%	2.49E-02	98%	1.56E-01	8.26E-03	72.3533	4.67E-02	409.0052
	Acetonitrile	75-05-8	58.08	0.665	Note 1	99.7%	3.19E-04	98%	2.00E-03	1.06E-04	0.9279	5.99E-04	5.2456
A6	Acrylonitrile	107-31-1	53.06	6.33	Note 2	99.7%	2.77E-03	98%	1.74E-02	9.21E-04	8.0695	5.21E-03	45.6158
A9	Ammonia	7664-41-7	17.03	5	Note 7					2.70E-01	2365.2000	0.00E+00	0.0000
B1	Benzene	71-43-2	78.11	1.71	Note 1	99.7%	1.10E-03	98%	6.90E-03	3.66E-04	3.2091	2.07E-03	18.1404
B7	Benzyl chloride	100-44-7	126.58	0.13	Note 1	99.8%	6.85E-05	98%	8.50E-04	2.27E-05	0.1991	2.55E-04	2.2349
C3	Carbon disulfide	75-15-0	76.13	0.58	Note 1	99.7%	3.65E-04	98%	2.28E-03	1.21E-04	1.0609	6.85E-04	5.9969
C5	Carbon tetrachloride	56-23-5	153.84	0.021	Note 1	99.8%	1.34E-05	98%	1.67E-04	4.46E-06	0.0391	5.01E-05	0.4388
	Carbonyl sulfide	463-58-1	60.07	0.49	Note 1	99.7%	2.43E-04	98%	1.52E-03	8.07E-05	0.7072	4.56E-04	3.9976
C10	Chlorobenzene	108-90-7	112.56	0.159	Note 1	99.8%	7.45E-05	98%	9.25E-04	2.47E-05	0.2165	2.77E-04	2.4307
	Chlorodifluoromethane	75-45-6	86.47	1.3	Note 2	99.8%	4.68E-04	98%	5.81E-03	1.55E-04	1.3601	1.74E-03	15.2670
E4	Chloroethane	75-00-3	64.52	1.25	Note 2	99.8%	3.36E-04	98%	4.17E-03	1.11E-04	0.9758	1.25E-03	10.9534
C11	Chloroform	67-66-3	119.39	0.02	Note 1	99.8%	9.93E-06	98%	1.23E-04	3.30E-06	0.0289	3.70E-05	0.3243
	Chloromethane	74-87-3	50.49	1.21	Note 2	99.8%	2.54E-04	98%	3.16E-03	8.44E-05	0.7392	9.47E-04	8.2973
D4	Dichlorobenzene	106-46-7	147	0.82	Note 1	99.8%	5.01E-04	98%	6.23E-03	1.66E-04	1.4584	1.87E-03	16.3710
	Dichlorodifluoromethane	75-71-8	120.91	15.7	Note 2	99.8%	7.90E-03	98%	9.81E-02	2.62E-03	22.9678	2.94E-02	257.8139
	Dichlorofluoromethane	75-43-4	102.92	2.62	Note 2	99.8%	1.12E-03	98%	1.39E-02	3.72E-04	3.2626	4.18E-03	36.6223
M13	Dichloromethane (methylene chloride)	74-87-3	84.94	0.119	Note 1	99.8%	4.21E-05	98%	5.22E-04	1.40E-05	0.1223	1.57E-04	1.3728
E3	Ethylbenzene	100-41-4	106.16	2.748	Note 2	99.7%	2.41E-03	98%	1.51E-02	8.00E-04	7.0089	4.52E-03	39.6207
E5	Ethylene dibromide	106-93-4	187.88	0.001	Note 2	99.8%	7.82E-07	98%	9.71E-06	2.59E-07	0.0023	2.91E-06	0.0255
F2	Formaldehyde	50-00-0	NA	NA	Note 4	97.7%	2.97E-02		1.17E+00	9.85E-03	86.2899	3.51E-01	3072.1320
	Fluorotrichloromethane	75-69-4	137.38	0.76	Note 2	99.8%	4.34E-04	98%	5.40E-03	1.44E-04	1.2633	1.62E-03	14.1802
H6	Hexane, n-	110-54-3	86.18	6.57	Note 2	99.7%	4.68E-03	98%	2.93E-02	1.55E-03	13.6033	8.78E-03	76.8982
H9	Hydrogen chloride	7647-01-0	36.46	NA	Note 3	NA	5.35E+00	NA	5.35E+00	1.78E+00	15559.5	1.61E+00	14059.8
H12	Hydrogen sulfide	7783-06-4	34.08	33.65	Note 1	99.7%	9.47E-03	98%	5.93E-02	3.15E-03	27.5523	1.78E-02	155.7504
M3	Mercury (total)	7439-97-6	200.61	0.000292	Note 2	0.0%	1.51E-04	0%	1.51E-04	5.03E-05	0.4402	4.54E-05	0.3978
M9	Methyl ethyl ketone	78-93-3	72.11	7.09	Note 2	99.7%	4.22E-03	98%	2.64E-02	1.40E-03	12.2833	7.93E-03	69.4362

APPENDIX A.4.1
TOXIC EMISSION INVENTORY FOR THE ENGINES (OPERATIONAL IMPACT) AND FLARES (CONSTRUCTION IMPACT)
BIOGAS RENEWABLE GENERATION PROJECT

										RECIP ENGINE SCENARIO			FLARES	
										GE JGS620 GS-L.L (4 UNITS)			FLARES SYSTEM	
TAC Code	TAC Compounds	CAS	MW	Concentration, ppmv	Data Source	ICE Total Control Efficiency (% wt)[6]	ICE Controlled Emission Rate (lbs/mmscf)	Flare Destruction Efficiency (% wt)[5]	Flare Controlled Emission Rate (lbs/mmscf)	Hourly Emission (lbs/hr)	Yearly Emission (lbs/yr)		Hourly Emission (lbs/hr)	Yearly Emission (lbs/yr)
	Methyl isobutyl ketone	108-10-1	100.16	1.87	Note 2	99.7%	1.55E-03	98%	9.68E-03	5.14E-04	4.5000		2.90E-03	25.4378
P2	Tetrachloroethylene	127-18-4	165.83	0.154	Note 1	99.8%	1.06E-04	98%	1.32E-03	3.53E-05	0.3090		3.96E-04	3.4684
T3	Toluene	108-88-3	92.14	5.436	Note 1	99.7%	4.14E-03	98%	2.59E-02	1.37E-03	12.0338		7.77E-03	68.0255
T8	Trichloroethylene	79-01-6	131.4	0.089	Note 1	99.8%	4.87E-05	98%	6.04E-04	1.62E-05	0.1415		1.81E-04	1.5883
V4	Vinyl chloride	75-01-4	62.5	0.093	Note 1	99.8%	2.42E-05	98%	3.00E-04	8.03E-06	0.0703		9.01E-05	0.7894
X1	Xylenes	1330-20-7	106.16	4.828	Note 1	99.7%	4.23E-03	98%	2.65E-02	1.41E-03	12.3141		7.95E-03	69.6101

Notes:
1. Average analytical results from Scholl Canyon LFG Sampling 2013 - 2016
2. Based on USEPA default value from *AP-42, Table 2.4-1, Default Concentrations for LFG Constituents* .
3. Calculated based on chlorinated compounds in the average samplings and USEPA AP-42 default value, Table 2.4-1
4. Formaldehyde emission factors for tubine and engine are based on the CATEF Clearing house Report; Formaldehyde emission factor for flare is based on SCAQMD AB2588 Supplemental Instruction.
5. 98% Destruction efficiency of NMOC pursuant to SCAQMD rule 1150.1/NSPS Subpart WWW
6. ICE Control efficiency is calculated based on 97.7% control efficiency of catalyst (default value of SCAQMD Rule 1401 Calculator) and 86.1% or 93.0% control efficiency of ICE (USEPA AP-42, Table 2.4-3). The overall control efficiency is calculated as follow: Overall Control Efficiency = 1-(1-CE of catalyst)*(1-CE of ICE).
7. Ammonia emissions occur in operating IC Engines due to SCR. Concentration of ammonia is based on BACT/LAER limit.

APPENDIX B.4.2

TOXIC EMISSION FACTORS AND ITS SUPPORTING DOCUMENTATION:

- HYDROGEN CHLORIDE EMISSION FACTORS CALCULATION
- SCHOLL CANYON LANDFILL GAS LAB ANALYSIS (2013 – 2016)
- USEPA AP-42 TABLE 2.4-1: DEFAULT CONCENTRATIONS FOR LFG CONSTITUENTS
- FORMALEDHYDE EMISSION FACTORS FROM CATEF CLERAING HOUSE REPORT FOR TURBINE AND ENGINE; SCAQMD AB2588 SUPPLEMENTAL INSTRUCATION FOR FLARE SYSTEM
- USEPA AP-42 TABLE 2.4-3: CONTROL EFFICIENCIES FOR LFG CONSTITUENTS

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APPENDIX A.4.2
EMISSION FACTOR FOR HYDROGEN CHLORIDE EMISSIONS
SCHOLL CANYON LANDFILL GAS FACILITY

Hydrogen Chloride Emission Factor	5.35	lbs/mmcf
Hydrogen Chloride Molecular Weight	36.46	lb/mol

LFG Influent Chlorinated Compound	CAS	No. of Cl Atoms	Concentration, ppmv	Conversion Eff, (%Wt)	HCL Conversion, lb/mmcf
1,1,1 - Trichloroethane	71-55-6	3	0.021	100%	0.005935349
1,1,2,2 - Tetrachloroethane	79-34-5	4	1.11	100%	0.418300775
1,1 - Dichloroethane	75-34-3	2	0.039	100%	0.007348527
1,1 - Dichloroethene	75-35-4	2	0.019	100%	0.003580052
1,2 - Dichloroethane	107-06-2	2	0.102	100%	0.019219225
1,2 - Dichloropropane	78-87-5	2	0.18	100%	0.033916279
Benzyl chloride	100-44-7	1	0.13	100%	0.012247545
Carbon tetrachloride	56-23-5	4	0.021	100%	0.007913798
Chlorobenzene	108-90-7	1	0.159	100%	0.01497969
Chlorodifluoromethane	75-45-6	1	1.3	100%	0.122475452
Chloroethane	75-00-3	1	1.25	100%	0.117764858
Chloroform	67-66-3	3	0.02	100%	0.005652713
Chloromethane	74-87-3	1	1.21	100%	0.113996382
Dichlorobenzene	106-46-7	2	0.82	100%	0.154507494
Dichlorodifluoromethane	75-71-8	2	15.7	100%	2.95825323
Dichlorofluoromethane	75-43-4	2	2.62	100%	0.493670284
Dichloromethane (methylene chloride)	74-87-3	2	0.119	100%	0.022422429
Fluorotrichloromethane	75-69-4	3	0.76	100%	0.214803101
t-1,2-dichloroethene	156-59-2	2	2.84	100%	0.535123514
Tetrachloroethylene	127-18-4	4	0.154	100%	0.058034522
Trichloroethylene	79-01-6	3	0.089	100%	0.025154574
Vinyl chloride	75-01-4	1	0.093	100%	0.008761705

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APPENDIX A.4.2
TOXIC LAB ANALYSIS FOR LANDFILL GAS CONDUCTED FROM 2013 THROUGH 2016.
SCHOLL CANYON LANDFILL GAS FACILITY

LFG LAB ANALYSIS		7/16/2013		11/4/2013		3/10/2014			6/11/2014			7/23/2014		11/18/2014		1/26/2015		4/20/2015			5/20/2015		1/16/2016	
		North	South	North	South	North	South	South	North	North	South	North	South	North	South	North	South	North	North	South	Flare 8	Flare 10	Flare	AVG
Toxic Compounds	CAS	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
Hydrogen sulfide	7783-06-4	28000	36000	37000	34000	37000	34000	24000	42000	46000	30000	28000	29000	22000	34000	23000	38000	36000	37000	39000	---	---	39000	33650
Carbonyl sulfide	463-58-1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	53	53
Carbon disulfide	75-15-0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	32	32
Dimethyl sulfide	67-68-5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1500	1500
Methylene chloride	74-87-3	62	140	98	140	68	220	150	71	72	130	63	150	86	160	170	170	97	99	130	110	110	---	119
Chloroform	**67-66-3**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**40**	**40**	**40**	**40**	**20**	**20**	**20**	**40**	**40**	---	**20**
1,1,1 - Trichloroethane	**71-55-6**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**41**	**41**	**41**	**41**	**21**	**21**	**21**	**40**	**40**	---	**21**
Carbon tetrachloride	**56-23-5**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**40**	**40**	**40**	**40**	**21**	**21**	**21**	**40**	**40**	---	**21**
1,1 - Dichloroethene	**75-35-4**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**41**	**41**	**41**	**41**	**19**	**19**	**19**	**43**	**43**	---	**19**
Trichloroethylene	79-01-6	100	81	110	84	110	89	65	100	110	84	98	84	91	78	89	90	90	97	70	75	77	---	89
Tetrachloroethylene	127-18-4	190	150	180	150	180	150	110	170	190	150	180	140	180	130	150	140	160	170	110	125	125	---	154
Chlorobenzene	108-90-7	230	120	220	120	230	110	79	170	200	120	230	100	220	110	190	140	170	190	110	135	145	---	159
Vinyl Chloride	75-01-4	170	56	170	78	160	66	42	150	120	57	130	54	140	56	110	49.5	100	110	20	54	61	---	93
1,1 - Dichloroethane	75-34-3	40	32	44	35	46	36	26	44	41	31	38	24	46	41	50	35	49	49	28	41	41	---	39
1,2 - Dichloroethane	107-06-2	100	100	100	100	100	100	100	100	100	100	100	100	100	120	100	130	100	100	100	100	100	---	102
Benzene	71-43-2	4000	1500	1100	1500	2400	1600	1100	3000	3000	1400	1700	1200	1300	3700	1100	1300	990	1000	1400	1200	1150	970	1710
Toluene	108-88-3	7400	4700	6200	4600	6500	4600	3300	6000	6500	4700	6200	4100	6700	5600	6200	5400	6400	6700	4700	4850	5050	3200	5436
Ethylbenzene	100-41-4	5000	2200	3100	2000	4200	2100	1500	3400	4100	2300	3800	2000	3700	2700	2900	2000	2900	3200	1900	2150	2200	1100	2748
Acetonitrile	75-05-8	760	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	660	---	665
1,2 - Dibromoethane	**106-93-4**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**19**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	**41**	---	**41**
Benzyl Chloride	**100-44-7**	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**130**	**170**	**170**	**210**	**210**	**520**	**520**	**520**	**520**	**520**	---	**130**
Xylenes	1330-20-7	6700	3710	6600	3810	7100	3780	2760	5200	6400	3840	6900	3550	6800	3110	5600	3650	5900	6700	3610	4160	4360	1980	4828
Dichlorobenzene	**106-46-7**	**820**	**820**	**820**	**820**	**820**	**820**	**820**	**820**	**820**	**820**	**820**	**820**	**930**	**930**	**820**	**820**	**820**	**820**	**820**	**940**	**940**	---	**820**

NOTES:
1. All readings for chloroform, 1,1,1-trichloroethane, carbon tetrachloride, and 1,1-dichloroethene are non-detect. Concentration is estimated based on detection Limit. Most samples used detection limit of 20 ppb for Chloroform, 21 ppb for 1,1,1-Trichloroethane, 21 ppb for Carbon tetrachloride, and 19 ppb for 1,1 - Dichloroethene.
2. All readings for 1,2-Dibromoethane are non-detect. Concentration is estimated based on detection Limit. Most samples used detection limit of 41 ppb.

4. All readings for Dichlorobenzene are non-detect. Concentration is estimated based on detection Limit. Most samples used detection limit of 820 ppb.

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American Analytics Landfill Gas Analysis For Sample Collected On 01/06/16

Analyte	Concentration	Method	Reporting Limit	Results	Sampling Media	Notes
Hydrogen	0-0.5 Mol%	EPA 3C (Mod)	0.1%	<0.1%	Polymer Bag	subcontracted
Carbon Dioxide	25-35 Mol%	EPA 3C (Mod)	0.1%	**28%**	Polymer Bag	
Oxygen/Argon	3-10 Mol%	EPA 3C (Mod)	0.1%	**4.5%**	Polymer Bag	
Nitrogen	20-50 Mol%	EPA 3C (Mod)	0.1%	**36.0%**	Polymer Bag	
Methane	30-60 Mol%	EPA 3C (Mod)	0.1%	**32.0%**	Polymer Bag	
Ethane	0-0.5 Mol%	GC/FID	20 ppmV	<100000 ppmV	Polymer Bag	
Propane	0-0.5 Mol%	GC/FID	20 ppmV	**18 ppmV**	Polymer Bag	
Pentane	0-0.5 Mol%	GC/FID	20 ppmV	<10 ppmV	Polymer Bag	
Hexane	0-0.5 Mol%	GC/FID	20 ppmV	<10 ppmV	Polymer Bag	
Benzene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**0.97 ppmV**	Polymer Bag	
Toluene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**3.2 ppmV**	Polymer Bag	
Ethylbenzene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**1.1 ppmV**	Polymer Bag	
m,p-Xylene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	**1.5 ppmV**	Polymer Bag	
o-Xylene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	0.48 ppmV	Polymer Bag	
Styrene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	<0.23 ppmV	Polymer Bag	
C3 Benzenes	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	<0.4 ppmV	Polymer Bag	
Naphthalene	0-0.01 Mol%	EPA 8260B (Mod)	1 ppmV	<0.38 ppmV	Polymer Bag	
C1 Naphthalene	0-0.01 Mol%	EPA 8260B (Mod)	TIC*	not found	Polymer Bag	
C2 Naphthalene	0-0.01 Mol%	EPA 8260B (Mod)	TIC*	not found	Polymer Bag	
Hydrogen Sulfide	0-50 ppmv	ASTM D 5540-12	0.05 ppmV	**39 ppmV**	Polymer Bag	subcontracted
Carbonyl Sulfide	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**0.053 ppmV**	Polymer Bag	subcontracted
Carbon Disulfide	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**0.032 ppmV**	Polymer Bag	subcontracted
Methyl Mercaptan	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**1.0 ppmV**	Polymer Bag	subcontracted
Dimethyl Sulfide	0-5 ppmv	ASTM D 5540-12	0.05 ppmV	**1.5 ppmV**	Polymer Bag	subcontracted
Total Sulfur**	0-50 ppmv	ASTM D 5540-12	0.05 ppmV	**42 ppmV**	Polymer Bag	subcontracted
1,1,3,3-tetramethyldisiloxane	0-10 mg/m3	GC/MS (ALS AQL111)	TIC*	not found	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
pentamethyldisiloxane	0-10 mg/m3	GC/MS (ALS AQL111)	TIC*	not found	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
hexamethyldisilane	0-10 mg/m3	GC/MS (ALS AQL111)	TIC*	not found	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
hexamethyldisiloxane (L2)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**580 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Octamethyltrisiloxane (L3)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.27 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Decamethyltetrasiloxane (L4)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.28 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Dodecamethylpentasiloxane (L5)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.28 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Hexamethylcyclotetrasiloxane (D3)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**63 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Octamethylcyclotetrasiloxane (D4)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**120 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Decamethylcyclopentasiloxane (D5)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**52 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Dodecamethylcyclohexasiloxane (D6)	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	<0.28 ug/m3	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Trimethylsilanol	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**3500 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Total Silicon	0-10 mg/m3	GC/MS (ALS AQL111)	200 ug/m3	**1400 ug/m3**	Sorbent Tube; 30 min @ 0.2L/min	subcontracted
Mercury	0-10 µg/m3	EPA 7471B (Mod)	0.5 ug/m3	<0.5 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Arsenic	0-50 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Beryllium	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Cadmium	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Copper	0-500 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Molybdenum	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Lead	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Antimony	0-50 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Selenium	0-10 µg/m3	EPA 6020B (Mod)	2 ug/m3	<2 ug/m3	Filter Cassette; 4 hours @ 2L/min	
Zinc	0-500 µg/m3	EPA 6020B (Mod)	2 ug/m3	**7.4 ug/m3**	Filter Cassette; 4 hours @ 2L/min	

*: Tentatively Identified Compound

**: Total Reduced Sulfur as Hydrogen Sulfide

ANNUAL RULE 1150.1 SOURCE TEST
FLARE NO's. 8 AND 10
SCHOLL CANYON LANDFILL
MAY 2015

PREPARED FOR:
County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, California 90601

FOR SUBMITTAL TO:
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, California 91765

TEST DATE:
May 20, 2015

ISSUE DATE:
June 23, 2015

TESTED BY:
Mr. Joe Adamiak, QSTI
SCEC
1631 E. Saint Andrew Place
Santa Ana, California 92705

Report No: 2025.5003.rpt1

Prepared By: _____
Joe Adamiak, Senior Project Manager

Reviewed By: _____
Rudy Nunez, District Manager

4.0 RESULTS (Continued)

TABLE 4-3
TRACE ORGANIC SPECIES DESTRUCTION EFFICIENCY RESULTS
LACSD Scholl Canyon
Flare 8
May 20, 2015

Sample Location:	INLET		EXHAUST		
Test No.:	VOC - AVG 1 & 2		VOC - AVG 1, 2 & 3		Flare Destruction Efficiency
Time:					
Flow Rate, dscfm:	702		5,216		
Species	**ppb**	**lb/hr**	**ppb**	**lb/hr**	**%**
1,1,1-Trichloroethane	ND< 40	< 5.93E-04	ND< 0.10	< 1.10E-05	NA
1,1-Dichloroethane	ND< 41	< 4.51E-04	ND< 0.10	< 8.17E-06	NA
1,1-Dichloroethene	ND< 43	< 4.63E-04	ND< 0.11	< 8.80E-06	NA
1,2-Dibromoethane	ND< 41	< 8.56E-04	ND< 0.10	< 1.55E-05	NA
1,2-Dichlorobenzene	ND< 400	< 6.53E-03	ND< 1.0	< 1.21E-04	NA
1,2-Dichloroethane	ND< 100	< 1.10E-03	ND< 0.1	< 8.17E-06	NA
1,3-Butadiene	ND< 96	< 5.77E-04	ND< 0.24	< 1.07E-05	NA
1,3-Dichlorobenzene	ND< 210	< 3.43E-03	ND< 0.53	< 6.43E-05	NA
1,4-Dichlorobenzene	ND< 330	< 5.39E-03	ND< 0.49	< 5.95E-05	NA
Acetonitrile	ND< 660	< 3.01E-03	ND< 1.6	< 5.42E-05	NA
Benzene	1,200	1.04E-02	12.9	8.29E-04	92.04%
Benzyl chloride	ND< 520	< 7.31E-03	ND< 1.3	< 1.36E-04	NA
Carbon Tetrachloride	ND< 40	< 6.84E-04	ND< 0.10	< 1.27E-05	NA
Chlorobenzene	135	1.69E-03	0.13	1.24E-05	99.27%
Chloroform	ND< 40	< 5.31E-04	ND< 0.10	< 9.86E-06	NA
Ethylbenzene	2,150	2.54E-02	0.13	1.14E-05	99.96%
Methylene Chloride	110	1.04E-03	ND< 0.10	< 7.01E-06	> 99.3%
Tetrachloroethene	125	1.37E-03	ND< 0.10	< 8.17E-06	> 99.41%
Toluene	4,850	4.96E-02	0.78	5.91E-05	99.88%
Trichloroethene	75	8.25E-04	ND< 0.10	< 8.17E-06	> 99.01%
Trichlorofluoromethane	45	6.87E-04	ND< 0.09	< 1.02E-05	> 98.51%
Vinyl Chloride	54	3.72E-04	ND< 0.10	< 5.16E-06	> 98.61%
cis-1,2-Dichloroethene	170	1.83E-03	ND< 0.10	< 8.00E-06	> 99.56%
m+p-Xylenes	3,100	3.66E-02	ND< 0.52	< 4.56E-05	> 99.88%
o-Xylene	1,060	1.25E-02	ND< 0.23	< 2.02E-05	> 99.84%
tert-Butyl methyl ether (MTBE)	ND< 200	< 1.96E-03	ND< 0.49	< 3.57E-05	NA
Total Trace Organics:		< 1.75E-01		< 1.58E-03	> 99.10%

ND< - indicates that the species was not detected in the sample above the analytical detection limit for this species.
The values reported is this table are the detection limit for this species and the actual concentration is lower.
NA - indicates that the destruction efficiency cannot be calculated because the inlet concentration is below the detection limit.

4.0 RESULTS (Continued)

TABLE 4-4
TRACE ORGANIC SPECIES DESTRUCTION EFFICIENCY RESULTS
LACSD Scholl Canyon
Flare 10
May 20, 2015

Sample Location:	INLET		EXHAUST		Flare Destruction Efficiency
Test No.:	VOC - AVG 1 & 2		VOC - AVG 1, 2 & 3		
Time:					
Flow Rate, dscfm:	686		5,140		
Species	**ppb**	**lb/hr**	**ppb**	**lb/hr**	**%**
1,1,1-Trichloroethane	ND< 40	< 5.80E-04	ND< 0.10	< 1.09E-05	NA
1,1-Dichloroethane	ND< 41	< 4.41E-04	ND< 0.10	< 8.05E-06	NA
1,1-Dichloroethene	ND< 43	< 4.53E-04	ND< 0.11	< 8.68E-06	NA
1,2-Dibromoethane	ND< 41	< 8.37E-04	ND< 0.10	< 1.53E-05	NA
1,2-Dichlorobenzene	ND< 400	< 6.39E-03	ND< 1	< 1.20E-04	NA
1,2-Dichloroethane	ND< 100	< 1.07E-03	ND< 0.10	< 8.05E-06	NA
1,3-Butadiene	ND< 96	< 5.64E-04	ND< 0.24	< 1.06E-05	NA
1,3-Dichlorobenzene	ND< 210	< 3.35E-03	ND< 0.53	< 6.34E-05	NA
1,4-Dichlorobenzene	ND< 330	< 5.27E-03	ND< 0.49	< 5.86E-05	NA
Acetonitrile	ND< 660	< 2.94E-03	4.8	1.59E-04	NA
Benzene	1,150	9.76E-03	2.3	1.47E-04	98.50%
Benzyl chloride	ND< 520	< 7.15E-03	ND< 1.3	< 1.34E-04	NA
Carbon Tetrachloride	ND< 40	< 6.68E-04	ND< 0.10	< 1.25E-05	NA
Chlorobenzene	145	1.77E-03	ND< 0.10	< 9.16E-06	> 99.48%
Chloroform	ND< 40	< 5.19E-04	ND< 0.10	< 9.71E-06	NA
Ethylbenzene	2,200	2.54E-02	0.11	9.79E-06	99.96%
Methylene Chloride	110	1.01E-03	ND< 0.1	< 6.91E-06	> 99.3%
Tetrachloroethene	125	1.34E-03	ND< 0.1	< 8.05E-06	> 99.40%
Toluene	5,050	5.05E-02	0.59	4.42E-05	99.91%
Trichloroethene	77	8.22E-04	ND< 0.10	< 8.05E-06	99.02%
Trichlorofluoromethane	48	7.16E-04	ND< 0.09	< 1.01E-05	98.60%
Vinyl Chloride	61	4.14E-04	ND< 0.10	< 5.08E-06	98.77%
cis-1,2-Dichloroethene	175	1.84E-03	ND< 0.10	< 7.89E-06	99.57%
m+p-Xylenes	3,250	3.75E-02	ND< 0.52	< 4.49E-05	99.88%
o-Xylene	1,110	1.28E-02	ND< 0.23	< 1.99E-05	99.84%
tert-Butyl methyl ether (MTBE)	ND< 200	< 1.91E-03	ND< 0.49	< 3.51E-05	NA
Total Trace Organics:		< 1.76E-01		< 9.74E-04	> 99.45%

ND< - indicates that the species was not detected in the sample above the analytical detection limit for this species.
The values reported is this table are the detection limit for this species and the actual concentration is lower.
NA - indicates that the destruction efficiency cannot be calculated because the inlet concentration is below the detection limit.

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
January 26, 2015

Compounds	North Header	South Header
Hydrogen Sulfide, ppm	23	38
Permanent Gases, %	97.5	97.9
Oxygen, %	5.6	5.1
Argon, %	0.33	0.35
Nitrogen, %	29.2	31.4
Methane, %	33.9	32.2
Carbon Dioxide, %	28.4	28.9
Methylene Chloride, ppb	170	170
Chloroform, ppb	< 40	< 40
1,1,1-Trichloroethane, ppb	< 20	< 20
Carbon Tetrachloride, ppb	< 21	< 21
1,1-Dichloroethene, ppb	< 21	< 21
Trichloroethylene, ppb	89	90
Tetrachloroethylene, ppb	150	140
Chlorobenzene, ppb	190	140
Vinyl Chloride, ppb	110	< 99
1,1-Dichloroethane, ppb	50	35
1,2-Dichloroethane, ppb	< 100	130
Benzene, ppb	1100	1300
Toluene, ppb	6200	5400
Ethylbenzene, ppb	2900	2000
Acetonitrile, ppb	< 660	< 660
1,2-Dibromoethane, ppb	< 41	< 41
Benzyl Chloride, ppb	< 210	< 210
Xylene, ppb	5600	3650
Dichlorobenzene, ppb	< 820	< 820

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
April 20, 2015

Compounds	North Header	North Header (Duplicate)	South Header
Hydrogen Sulfide, ppm	36	37	39
Permanent Gases, %	97.9	98.5	98
Oxygen, %	3.7	3.7	6.1
Argon, %	0.24	0.25	0.37
Nitrogen, %	24	22.7	32.6
Methane, %	38.1	39.1	31.5
Carbon Dioxide, %	31.9	32.7	27.5
Methylene Chloride, ppb	97	99	130
Chloroform, ppb	< 20	< 20	< 20
1,1,1-Trichloroethane, ppb	< 20	< 20	< 20
Carbon Tetrachloride, ppb	< 21	< 21	< 21
1,1-Dichloroethene, ppb	< 21	< 21	< 21
Trichloroethylene, ppb	90	97	70
Tetrachloroethylene, ppb	160	170	110
Chlorobenzene, ppb	170	190	110
Vinyl Chloride, ppb	100	110	< 40
1,1-Dichloroethane, ppb	49	49	28
1,2-Dichloroethane, ppb	< 100	< 100	< 100
Benzene, ppb	990	1000	1400
Toluene, ppb	6400	6700	4700
Ethylbenzene, ppb	2900	3200	1900
Acetonitrile, ppb	< 660	< 660	< 660
1,2-Dibromoethane, ppb	< 41	< 41	< 41
Benzyl Chloride, ppb	< 520	< 520	< 520
Xylene, ppb	5900	6700	3610
Dichlorobenzene, ppb	< 820	< 820	< 820

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
November 18, 2014

Compounds	North Header	South Header
Hydrogen Sulfide, ppm	22	34
Permanent Gases, %	98	98
Oxygen, %	5	5.8
Argon, %	0.32	0.41
Nitrogen, %	28.9	36.5
Methane, %	34.4	28.5
Carbon Dioxide, %	29.4	26.7
Methylene Chloride, ppb	86	160
Chloroform, ppb	< 40	< 40
1,1,1-Trichloroethane, ppb	< 41	< 41
Carbon Tetrachloride, ppb	< 40	< 40
1,1-Dichloroethene, ppb	< 41	< 41
Trichloroethylene, ppb	91	78
Tetrachloroethylene, ppb	180	130
Chlorobenzene, ppb	220	110
Vinyl Chloride, ppb	140	56
1,1-Dichloroethane, ppb	46	< 41
1,2-Dichloroethane, ppb	< 100	120
Benzene, ppb	1300	3700
Toluene, ppb	6700	5600
Ethylbenzene, ppb	3700	2700
Acetonitrile, ppb	< 660	1300
1,2-Dibromoethane, ppb	< 41	< 41
Benzyl Chloride, ppb	< 170	< 170
Xylene, ppb	6800	3110
Dichlorobenzene, ppb	< 930	< 930

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
July 23, 2014

Compounds	North Header	South Header
Hydrogen Sulfide, ppm	28	29
Permanent Gases, %	98.1	97.7
Oxygen, %	4.2	7.5
Argon, %	0.29	0.43
Nitrogen, %	26	38.3
Methane, %	36.6	27
Carbon Dioxide, %	31	24.4
Methylene Chloride, ppb	63	150
Chloroform, ppb	< 20	< 20
1,1,1-Trichloroethane, ppb	< 21	< 21
Carbon Tetrachloride, ppb	< 21	< 21
1,1-Dichloroethene, ppb	< 19	< 19
Trichloroethylene, ppb	98	84
Tetrachloroethylene, ppb	180	140
Chlorobenzene, ppb	230	100
Vinyl Chloride, ppb	130	54
1,1-Dichloroethane, ppb	38	24
1,2-Dichloroethane, ppb	< 100	< 100
Benzene, ppb	1700	1200
Toluene, ppb	6200	4100
Ethylbenzene, ppb	3800	2000
Acetonitrile, ppb	< 660	< 660
1,2-Dibromoethane, ppb	< 19	< 19
Benzyl Chloride, ppb	< 130	< 130
Xylene, ppb	6900	3550
Dichlorobenzene, ppb	< 820	< 820

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
June 11, 2014

Compounds	North Header	North Header (Duplicate)	South Header
Hydrogen Sulfide, ppm	42	46	30
Permanent Gases, %	97.8	97.8	97.7
Oxygen, %	4.9	4.8	5.4
Argon, %	0.34	0.34	0.37
Nitrogen, %	30.5	30.1	33.5
Methane, %	33.1	33.4	30.5
Carbon Dioxide, %	28.9	29.2	27.9
Methylene Chloride, ppb	71	72	130
Chloroform, ppb	< 20	< 20	< 20
1,1,1-Trichloroethane, ppb	< 21	< 21	< 21
Carbon Tetrachloride, ppb	< 21	< 21	< 21
1,1-Dichloroethene, ppb	< 19	< 19	< 19
Trichloroethylene, ppb	100	110	84
Tetrachloroethylene, ppb	170	190	150
Chlorobenzene, ppb	170	200	120
Vinyl Chloride, ppb	150	120	57
1,1-Dichloroethane, ppb	44	41	31
1,2-Dichloroethane, ppb	< 100	< 100	< 100
Benzene, ppb	3000	3000	1400
Toluene, ppb	6000	6500	4700
Ethylbenzene, ppb	3400	4100	2300
Acetonitrile, ppb	< 660	< 660	< 660
1,2-Dibromoethane, ppb	< 19	< 19	< 19
Benzyl Chloride, ppb	< 130	< 130	< 130
Xylene, ppb	5200	6400	3840
Dichlorobenzene, ppb	< 820	< 820	< 820

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
March 10, 2014

Compounds	North Header	South Header	South Header (Duplicate)
Hydrogen Sulfide, ppm	37	34	24
Permanent Gases, %	98.1	98.3	98.2
Oxygen, %	4.2	4.9	10.2
Argon, %	0.29	0.37	0.54
Nitrogen, %	26.4	32.7	47.2
Methane, %	36.3	31.3	21
Carbon Dioxide, %	31	29.1	19.3
Methylene Chloride, ppb	68	220	150
Chloroform, ppb	< 20	< 20	< 20
1,1,1-Trichloroethane, ppb	< 21	< 21	< 21
Carbon Tetrachloride, ppb	< 21	< 21	< 21
1,1-Dichloroethene, ppb	< 19	< 19	< 19
Trichloroethylene, ppb	110	89	65
Tetrachloroethylene, ppb	180	150	110
Chlorobenzene, ppb	230	110	79
Vinyl Chloride, ppb	160	66	42
1,1-Dichloroethane, ppb	46	36	26
1,2-Dichloroethane, ppb	< 100	< 100	< 100
Benzene, ppb	2400	1600	1100
Toluene, ppb	6500	4600	3300
Ethylbenzene, ppb	4200	2100	1500
Acetonitrile, ppb	< 660	< 660	< 660
1,2-Dibromoethane, ppb	< 19	< 19	< 19
Benzyl Chloride, ppb	< 130	< 130	< 130
Xylene, ppb	7100	3780	2760
Dichlorobenzene, ppb	< 820	< 820	< 820

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
November 4, 2013

Compounds	North Header	South Header
Hydrogen Sulfide, ppm	37	34
Permanent Gases, %	98.1	98.2
Oxygen, %	4.4	5.8
Argon, %	0.28	0.37
Nitrogen, %	25.4	33.2
Methane, %	36.9	31
Carbon Dioxide, %	31.2	27.8
Methylene Chloride, ppb	98	140
Chloroform, ppb	< 20	< 20
1,1,1-Trichloroethane, ppb	< 21	< 21
Carbon Tetrachloride, ppb	< 21	< 21
1,1-Dichloroethene, ppb	< 19	< 19
Trichloroethylene, ppb	110	84
Tetrachloroethylene, ppb	180	150
Chlorobenzene, ppb	220	120
Vinyl Chloride, ppb	170	78
1,1-Dichloroethane, ppb	44	35
1,2-Dichloroethane, ppb	< 100	< 100
Benzene, ppb	1100	1500
Toluene, ppb	6200	4600
Ethylbenzene, ppb	3100	2000
Acetonitrile, ppb	< 660	< 660
1,2-Dibromoethane, ppb	< 19	< 19
Benzyl Chloride, ppb	< 130	< 130
Xylene, ppb	6600	3810
Dichlorobenzene, ppb	< 820	< 820

TABLE D

LANDFILL GAS MONITORING
SCHOLL CANYON LANDFILL
July 16, 2013

Compounds	North Header	South Header
Hydrogen Sulfide, ppm	28	36
Permanent Gases, %	97	96.8
Oxygen, %	4.4	5.3
Argon, %	0.28	0.34
Nitrogen, %	25.2	30.4
Methane, %	36.4	32.2
Carbon Dioxide, %	30.7	28.5
Methylene Chloride, ppb	62	140
Chloroform, ppb	< 20	< 20
1,1,1-Trichloroethane, ppb	< 21	< 21
Carbon Tetrachloride, ppb	< 21	< 21
1,1-Dichloroethene, ppb	< 19	< 19
Trichloroethylene, ppb	100	81
Tetrachloroethylene, ppb	190	150
Chlorobenzene, ppb	230	120
Vinyl Chloride, ppb	170	56
1,1-Dichloroethane, ppb	40	32
1,2-Dichloroethane, ppb	< 100	< 100
Benzene, ppb	4000	1500
Toluene, ppb	7400	4700
Ethylbenzene, ppb	5000	2200
Acetonitrile, ppb	760	< 660
1,2-Dibromoethane, ppb	< 19	< 19
Benzyl Chloride, ppb	< 130	< 130
Xylene, ppb	6700	3710
Dichlorobenzene, ppb	< 820	< 820

Table 2.4-1. DEFAULT CONCENTRATIONS FOR LFG CONSTITUENTS[a]

(SCC 50100402, 50300603)

Compound	Molecular Weight	Default Concentration (ppmv)	Emission Factor Rating
1,1,1-Trichloroethane (methyl chloroform)[a]	133.41	0.48	B
1,1,2,2-Tetrachloroethane[a]	167.85	1.11	C
1,1-Dichloroethane (ethylidene dichloride)[a]	98.97	2.35	B
1,1-Dichloroethene (vinylidene chloride)[a]	96.94	0.20	B
1,2-Dichloroethane (ethylene dichloride)[a]	98.96	0.41	B
1,2-Dichloropropane (propylene dichloride)[a]	112.99	0.18	D
2-Propanol (isopropyl alcohol)	60.11	50.1	E
Acetone	58.08	7.01	B
Acrylonitrile[a]	53.06	6.33	D
Bromodichloromethane	163.83	3.13	C
Butane	58.12	5.03	C
Carbon disulfide[a]	76.13	0.58	C
Carbon monoxide[b]	28.01	141	E
Carbon tetrachloride[a]	153.84	0.004	B
Carbonyl sulfide[a]	60.07	0.49	D
Chlorobenzene[a]	112.56	0.25	C
Chlorodifluoromethane	86.47	1.30	C
Chloroethane (ethyl chloride)[a]	64.52	1.25	B
Chloroform[a]	119.39	0.03	B
Chloromethane	50.49	1.21	B
Dichlorobenzene[c]	147	0.21	E
Dichlorodifluoromethane	120.91	15.7	A
Dichlorofluoromethane	102.92	2.62	D
Dichloromethane (methylene chloride)[a]	84.94	14.3	A
Dimethyl sulfide (methyl sulfide)	62.13	7.82	C
Ethane	30.07	889	C
Ethanol	46.08	27.2	E
Ethyl mercaptan (ethanethiol)	62.13	2.28	D
Ethylbenzene[a]	106.16	4.61	B
Ethylene dibromide	187.88	0.001	E
Fluorotrichloromethane	137.38	0.76	B
Hexane[a]	86.18	6.57	B
Hydrogen sulfide	34.08	35.5	B
Mercury (total)[a,d]	200.61	2.92×10^{-4}	E

Table 2.4-1. (Concluded)

Compound	Molecular Weight	Default Concentration (ppmv)	Emission Factor Rating
Methyl ethyl ketone[a]	72.11	7.09	A
Methyl isobutyl ketone[a]	100.16	1.87	B
Methyl mercaptan	48.11	2.49	C
Pentane	72.15	3.29	C
Perchloroethylene (tetrachloroethylene)[a]	165.83	3.73	B
Propane	44.09	11.1	B
t-1,2-dichloroethene	96.94	2.84	B
Trichloroethylene (trichloroethene)[a]	131.40	2.82	B
Vinyl chloride[a]	62.50	7.34	B
Xylenes[a]	106.16	12.1	B

NOTE: This is not an all-inclusive list of potential LFG constituents, only those for which test data were available at multiple sites. References 10-67. Source Classification Codes in parentheses.

[a] Hazardous Air Pollutants listed in Title III of the 1990 Clean Air Act Amendments.

[b] Carbon monoxide is not a typical constituent of LFG, but does exist in instances involving landfill (underground) combustion. Therefore, this default value should be used with caution. Of 18 sites where CO was measured, only 2 showed detectable levels of CO.

[c] Source tests did not indicate whether this compound was the para- or ortho- isomer. The para isomer is a Title III-listed HAP.

[d] No data were available to speciate total Hg into the elemental and organic forms.

APPENDIX A.4.2
EMISSION FACTOR FOR HYDROGEN CHLORIDE EMISSIONS
SCHOLL CANYON LANDFILL GAS FACILITY

Hydrogen Chloride Emission Factor	5.35	lbs/mmcf
Hydrogen Chloride Molecular Weight	36.46	lb/mol

LFG Influent Chlorinated Compound	CAS	No. of Cl Atoms	Concentration, ppmv	Conversion Eff, (%Wt)	HCL Conversion, lb/mmcf
1,1,1 - Trichloroethane	71-55-6	3	0.021	100%	0.005935349
1,1,2,2 - Tetrachloroethane	79-34-5	4	1.11	100%	0.418300775
1,1 - Dichloroethane	75-34-3	2	0.039	100%	0.007348527
1,1 - Dichloroethene	75-35-4	2	0.019	100%	0.003580052
1,2 - Dichloroethane	107-06-2	2	0.102	100%	0.019219225
1,2 - Dichloropropane	78-87-5	2	0.18	100%	0.033916279
Benzyl chloride	100-44-7	1	0.13	100%	0.012247545
Carbon tetrachloride	56-23-5	4	0.021	100%	0.007913798
Chlorobenzene	108-90-7	1	0.159	100%	0.01497969
Chlorodifluoromethane	75-45-6	1	1.3	100%	0.122475452
Chloroethane	75-00-3	1	1.25	100%	0.117764858
Chloroform	67-66-3	3	0.02	100%	0.005652713
Chloromethane	74-87-3	1	1.21	100%	0.113996382
Dichlorobenzene	106-46-7	2	0.82	100%	0.154507494
Dichlorodifluoromethane	75-71-8	2	15.7	100%	2.95825323
Dichlorofluoromethane	75-43-4	2	2.62	100%	0.493670284
Dichloromethane (methylene chloride)	74-87-3	2	0.119	100%	0.022422429
Fluorotrichloromethane	75-69-4	3	0.76	100%	0.214803101
t-1,2-dichloroethene	156-59-2	2	2.84	100%	0.535123514
Tetrachloroethylene	127-18-4	4	0.154	100%	0.058034522
Trichloroethylene	79-01-6	3	0.089	100%	0.025154574
Vinyl chloride	75-01-4	1	0.093	100%	0.008761705

California Air Toxics Emission Factors - Detail Report

System

System Type:	Internal Combustion Engine
Material Type:	Landfill gas
APC Device:	None
Other Description:	None

Codes

SIC:	4959
SCC:	20100802
SCC Description 1:	INTERNLCOMBUSTION
SCC Description 2:	ELECTRIC GENERATN
SCC Description 3:	LANDFILL GAS
SCC Description 4:	RECIPROCATING

Substance

Substance Category:	VOC
Substance:	Formaldehyde
CAS:	50-00-0

Ratings

Method Rating:	C
Population Rating:	3
ARB Rating:	C3-v2
EPA Rating:	E

Factor

Mean:	1.29E+00	lbs/MMcf
Median:	6.95E-01	lbs/MMcf
Maximum:	4.47E+00	lbs/MMcf
Minimum:	5.70E-02	lbs/MMcf

Stats

Number of Sources:	2
RSD,%:	127.39
Uncertainty, %:	133.69
Detection Ratio:	1.00

Table B-6: DEFAULT EF FOR LANDFILL GAS COMBUSTION (LB / MMSCF)

(continued)

SOURCE: Flare, Non-Refinery

TAC Code	POLLUTANT	CAS NO.	ALL SIZES
2	Benzene	71432	0.159
12	Formaldehyde	50000	1.169
19	Total PAHs (excluding Naphthalene)	1151	0.003
19	Naphthalene	91203	0.011
29	Acetaldehyde	75070	0.043
30	Acrolein	107028	0.010
40	Ethyl benzene	100414	1.444
44	Hexane	110543	0.029
68	Toluene	108883	0.058
70	Xylene	1330207	0.029

SOURCE: Stationary and Portable Internal Combustion Engines (ICE) and Turbines

TAC Code	POLLUTANT	CAS NO.	ALL SIZES
2	Benzene	71432	0.00840
6	Carbon tetrachloride	56235	0.000720
16	Methylene chloride	75092	0.000920
18	Perchloroethylene	127184	0.00100
20	Trichloroethylene	79016	0.000760
21	Vinyl chloride	75014	0.000640
35	Chloroform	67663	0.000560
68	Toluene	108883	0.0440
70	Xylenes	1330207	0.0124

Table 2.4-3. CONTROL EFFICIENCIES FOR LFG CONSTITUENTS[a]

Control Device	Constituent[b]	Control Efficiency (%)		
		Typical	Range	Rating
Boiler/Steam Turbine (50100423)	NMOC	98.0	96-99+	D
	Halogenated Species	99.6	87-99+	D
	Non-Halogenated Species	99.8	67-99+	D
Flare[c] (50100410) (50300601)	NMOC	99.2	90-99+	B
	Halogenated Species	98.0	91-99+	C
	Non-Halogenated Species	99.7	38-99+	C
Gas Turbine (50100420)	NMOC	94.4	90-99+	E
	Halogenated Species	99.7	98-99+	E
	Non-Halogenated Species	98.2	97-99+	E
IC Engine (50100421)	NMOC	97.2	94-99+	E
	Halogenated Species	93.0	90-99+	E
	Non-Halogenated Species	86.1	25-99+	E

[a] References 10-67. Source Classification Codes in parentheses.
[b] Halogenated species are those containing atoms of chlorine, bromine, fluorine, or iodine. For any equipment, the control efficiency for mercury should be assumed to be 0. See section 2.4.4.2 for methods to estimate emissions of SO_2, CO_2, and HCl.
[c] Where information on equipment was given in the reference, test data were taken from enclosed flares. Control efficiencies are assumed to be equally representative of open flares.

B.5 HARP2 MODEL RESULTS

APPENDIX B.5

HAPR2 MODEL RESULTS

APPENDIX B.5.1
HARP2 OUTPUT SUMMARY

(COMPLETE MODELING FILES ARE AVAILABLE IN ELECTRONIC FORMAT)

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Health Risk Assessment
Glendale Water and Power
Biogas Renewable Generation Project

A detailed (Tier 4 level) health risk assessment (HRA) was performed to evaluate the potential cancer, chronic, and acute health impacts related to the Biogas Renewable Generation Project (Project). The HRA was prepared in accordance with Office of Environmental Health Hazard Assessment (OEHHA) guideline dated February 2015 and SCAQMD Risk Assessment Procedure for Rule 1401, 1401.1, and 212 Version 8.0 dated June 5, 2015. Two software programs, AERMOD and HARP2, were utilized for the HRA. AERMOD is an air dispersion model to estimate the ground level TAC concentrations and the Hotspots Analysis and Reporting Program (HARP2) is the software to estimate the cancer and non-cancer health impacts for individual receptors using ground level concentration data for multiple pollutants through multiple pathways.

The following Table 1 summarizes the maximum MICR, HIA, and HIC values at any receptors outside the facility boundary.

TABLE 1
HEALTH RISK ASSESSMENT RESULT

Equipment[a]	Residential MICR	Residential Acute HI	Residential Chronic HI	Worker MICR	Worker Acute HI	Worker Chronic HI
IC Engines[a]	4.74E-08	2.16E-03	9.52E-03	3.32E-09	2.16E-03	9.52E-03
Flares (construction phase)[a,b]	1.24E-07	1.23E-02	1.22E-03	1.86E-09	1.23E-03	1.22E-03

Note:
a) The MICR, HIA, and HIC values are the highest values of any receptors outside the landfill boundary. Since the values are already below the significance thresholds, no further analysis was conducted to obtain readings at the nearest residential or worker receptors.
b) The cancer risk of the flares was based on 2 years exposure duration for both residential and worker receptors to reflect impact during construction activities.

As shown in the above Table 1, the highest values of MICR are below the Rule 1401 threshold of 1.00E-06 and the highest values of HIA and HIC are also below the Rule 1401 threshold of 1.00. Additionally, cancer burden analysis is not conducted because MICR values at any receptor is below 1.00E-06. The complete modeling and HARP2 files are provided in electronic copies.

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APPENDIX B.5.1

HARP2 OUTPUT SUMMARY

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Appendix A.5.1 - Biogas Renewable Generation Project - Engines HARP2 Output Summary - Residential MICR - Top 50

*HARP - HRACalc v17023 6/22/2017 2:38:21 PM - Cancer Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\SCHOLL CANYON\hra\res_HRAInput.hra

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
85	ALL		390407	3779876	4.74E-08	30YrCancerDerived_Inh	4.74E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8535	ALL		389700	3780450	4.56E-08	30YrCancerDerived_Inh	4.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8536	ALL		389750	3780450	4.53E-08	30YrCancerDerived_Inh	4.53E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	ALL		389759	3780447	4.39E-08	30YrCancerDerived_Inh	4.39E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8638	ALL		389750	3780500	4.22E-08	30YrCancerDerived_Inh	4.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	ALL		390419.6	3779834.2	4.17E-08	30YrCancerDerived_Inh	4.17E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	ALL		390432.2	3779792.4	4.09E-08	30YrCancerDerived_Inh	4.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8637	ALL		389700	3780500	4.08E-08	30YrCancerDerived_Inh	4.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	ALL		389767.5	3780482.5	4.04E-08	30YrCancerDerived_Inh	4.04E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	ALL		390438.3	3779909.3	3.91E-08	30YrCancerDerived_Inh	3.91E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8433	ALL		389650	3780400	3.86E-08	30YrCancerDerived_Inh	3.86E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8739	ALL		389750	3780550	3.85E-08	30YrCancerDerived_Inh	3.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7285	ALL		390450	3779800	3.78E-08	30YrCancerDerived_Inh	3.78E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	ALL		389721	3780420.2	3.74E-08	30YrCancerDerived_Inh	3.74E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7477	ALL		390450	3779900	3.74E-08	30YrCancerDerived_Inh	3.74E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	ALL		390444.8	3779750.6	3.72E-08	30YrCancerDerived_Inh	3.72E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7381	ALL		390450	3779850	3.70E-08	30YrCancerDerived_Inh	3.70E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7187	ALL		390450	3779750	3.64E-08	30YrCancerDerived_Inh	3.64E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	ALL		389776	3780518	3.54E-08	30YrCancerDerived_Inh	3.54E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	ALL		390469.7	3779942.7	3.51E-08	30YrCancerDerived_Inh	3.51E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8843	ALL		389800	3780600	3.43E-08	30YrCancerDerived_Inh	3.43E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8432	ALL		389600	3780400	3.43E-08	30YrCancerDerived_Inh	3.43E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8948	ALL		389850	3780650	3.42E-08	30YrCancerDerived_Inh	3.42E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8332	ALL		389600	3780350	3.40E-08	30YrCancerDerived_Inh	3.40E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8738	ALL		389700	3780550	3.38E-08	30YrCancerDerived_Inh	3.38E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	ALL		389869.7	3780642	3.36E-08	30YrCancerDerived_Inh	3.36E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
89	ALL		390457.4	3779708.8	3.36E-08	30YrCancerDerived_Inh	3.36E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	ALL		389855.3	3780676	3.35E-08	30YrCancerDerived_Inh	3.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8534	ALL		389650	3780450	3.30E-08	30YrCancerDerived_Inh	3.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	ALL		389607	3780339.8	3.27E-08	30YrCancerDerived_Inh	3.27E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	ALL		389645	3780366.6	3.25E-08	30YrCancerDerived_Inh	3.25E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	ALL		389683	3780393.4	3.24E-08	30YrCancerDerived_Inh	3.24E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	ALL		389874.5	3780717.5	3.23E-08	30YrCancerDerived_Inh	3.23E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	ALL		389908	3780725	3.22E-08	30YrCancerDerived_Inh	3.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	ALL		389569	3780313	3.22E-08	30YrCancerDerived_Inh	3.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	ALL		389539.5	3780308.5	3.19E-08	30YrCancerDerived_Inh	3.19E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	ALL		389482.5	3780271.8	3.18E-08	30YrCancerDerived_Inh	3.18E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	ALL		390501	3779976	3.17E-08	30YrCancerDerived_Inh	3.17E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	ALL		389455	3780239.5	3.16E-08	30YrCancerDerived_Inh	3.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9044	ALL		389450	3780700	3.16E-08	30YrCancerDerived_Inh	3.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7572	ALL		390500	3779950	3.16E-08	30YrCancerDerived_Inh	3.16E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	ALL		389510	3780304	3.15E-08	30YrCancerDerived_Inh	3.15E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8231	ALL		389500	3780300	3.14E-08	30YrCancerDerived_Inh	3.14E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8132	ALL		389450	3780250	3.14E-08	30YrCancerDerived_Inh	3.14E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	ALL		390511	3780015	3.11E-08	30YrCancerDerived_Inh	3.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8844	ALL		389850	3780600	3.11E-08	30YrCancerDerived_Inh	3.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	ALL		389427.5	3780207.2	3.11E-08	30YrCancerDerived_Inh	3.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8740	ALL		389800	3780550	3.10E-08	30YrCancerDerived_Inh	3.10E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7382	ALL		390500	3779850	3.08E-08	30YrCancerDerived_Inh	3.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9148	ALL		389500	3780750	3.07E-08	30YrCancerDerived_Inh	3.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Appendix A.5.1 - Biogas Renewable Generation Project - Engines HARP2 Output Summary - Residential HIA - Top 50

*HARP - HRACalc v17023 6/22/2017 2:38:21 PM - Acute Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\SCHOLL CANYON\hra\res_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
85	ALL		390407	3779876	NonCancerAcute	0.00E+00	3.09E-04	2.64E-05	0.00E+00	4.58E-09	1.90E-04	1.81E-03	0.00E+00	2.16E-03	0.00E+00	0.00E+00	2.64E-05	0.00E+00	0.00E+00	2.16E-03
86	ALL		390419.6	3779834.2	NonCancerAcute	0.00E+00	2.65E-04	2.26E-05	0.00E+00	3.93E-09	1.63E-04	1.55E-03	0.00E+00	1.85E-03	0.00E+00	0.00E+00	2.26E-05	0.00E+00	0.00E+00	1.85E-03
87	ALL		390432.2	3779792.4	NonCancerAcute	0.00E+00	2.62E-04	2.24E-05	0.00E+00	3.89E-09	1.61E-04	1.54E-03	0.00E+00	1.83E-03	0.00E+00	0.00E+00	2.24E-05	0.00E+00	0.00E+00	1.83E-03
7381	ALL		390450	3779850	NonCancerAcute	0.00E+00	2.59E-04	2.21E-05	0.00E+00	3.84E-09	1.59E-04	1.52E-03	0.00E+00	1.81E-03	0.00E+00	0.00E+00	2.21E-05	0.00E+00	0.00E+00	1.81E-03
7285	ALL		390450	3779800	NonCancerAcute	0.00E+00	2.51E-04	2.14E-05	0.00E+00	3.73E-09	1.54E-04	1.47E-03	0.00E+00	1.76E-03	0.00E+00	0.00E+00	2.14E-05	0.00E+00	0.00E+00	1.76E-03
88	ALL		390444.8	3779750.6	NonCancerAcute	0.00E+00	2.41E-04	2.06E-05	0.00E+00	3.58E-09	1.48E-04	1.42E-03	0.00E+00	1.69E-03	0.00E+00	0.00E+00	2.06E-05	0.00E+00	0.00E+00	1.69E-03
7187	ALL		390450	3779750	NonCancerAcute	0.00E+00	2.38E-04	2.03E-05	0.00E+00	3.53E-09	1.46E-04	1.40E-03	0.00E+00	1.67E-03	0.00E+00	0.00E+00	2.03E-05	0.00E+00	0.00E+00	1.67E-03
7477	ALL		390450	3779900	NonCancerAcute	0.00E+00	2.37E-04	2.02E-05	0.00E+00	3.51E-09	1.45E-04	1.39E-03	0.00E+00	1.65E-03	0.00E+00	0.00E+00	2.02E-05	0.00E+00	0.00E+00	1.65E-03
89	ALL		390457.4	3779708.8	NonCancerAcute	0.00E+00	2.36E-04	2.02E-05	0.00E+00	3.50E-09	1.45E-04	1.39E-03	0.00E+00	1.65E-03	0.00E+00	0.00E+00	2.02E-05	0.00E+00	0.00E+00	1.65E-03
7382	ALL		390500	3779850	NonCancerAcute	0.00E+00	2.30E-04	1.97E-05	0.00E+00	3.41E-09	1.41E-04	1.35E-03	0.00E+00	1.61E-03	0.00E+00	0.00E+00	1.97E-05	0.00E+00	0.00E+00	1.61E-03
84	ALL		390438.3	3779909.3	NonCancerAcute	0.00E+00	2.23E-04	1.90E-05	0.00E+00	3.31E-09	1.37E-04	1.31E-03	0.00E+00	1.56E-03	0.00E+00	0.00E+00	1.90E-05	0.00E+00	0.00E+00	1.56E-03
7286	ALL		390500	3779800	NonCancerAcute	0.00E+00	2.23E-04	1.90E-05	0.00E+00	3.30E-09	1.37E-04	1.31E-03	0.00E+00	1.56E-03	0.00E+00	0.00E+00	1.90E-05	0.00E+00	0.00E+00	1.56E-03
83	ALL		390469.7	3779942.7	NonCancerAcute	0.00E+00	2.19E-04	1.87E-05	0.00E+00	3.24E-09	1.34E-04	1.28E-03	0.00E+00	1.53E-03	0.00E+00	0.00E+00	1.87E-05	0.00E+00	0.00E+00	1.53E-03
7478	ALL		390500	3779900	NonCancerAcute	0.00E+00	2.17E-04	1.85E-05	0.00E+00	3.22E-09	1.33E-04	1.27E-03	0.00E+00	1.52E-03	0.00E+00	0.00E+00	1.85E-05	0.00E+00	0.00E+00	1.52E-03
90	ALL		390470	3779667	NonCancerAcute	0.00E+00	2.17E-04	1.85E-05	0.00E+00	3.22E-09	1.33E-04	1.27E-03	0.00E+00	1.52E-03	0.00E+00	0.00E+00	1.85E-05	0.00E+00	0.00E+00	1.52E-03
7188	ALL		390500	3779750	NonCancerAcute	0.00E+00	2.15E-04	1.84E-05	0.00E+00	3.19E-09	1.32E-04	1.26E-03	0.00E+00	1.51E-03	0.00E+00	0.00E+00	1.84E-05	0.00E+00	0.00E+00	1.51E-03
7089	ALL		390500	3779700	NonCancerAcute	0.00E+00	2.14E-04	1.82E-05	0.00E+00	3.17E-09	1.31E-04	1.25E-03	0.00E+00	1.49E-03	0.00E+00	0.00E+00	1.82E-05	0.00E+00	0.00E+00	1.49E-03
91	ALL		390471.5	3779633.5	NonCancerAcute	0.00E+00	2.13E-04	1.82E-05	0.00E+00	3.17E-09	1.31E-04	1.25E-03	0.00E+00	1.49E-03	0.00E+00	0.00E+00	1.82E-05	0.00E+00	0.00E+00	1.49E-03
92	ALL		390473	3779600	NonCancerAcute	0.00E+00	2.03E-04	1.74E-05	0.00E+00	3.02E-09	1.25E-04	1.19E-03	0.00E+00	1.42E-03	0.00E+00	0.00E+00	1.74E-05	0.00E+00	0.00E+00	1.42E-03
7572	ALL		390500	3779950	NonCancerAcute	0.00E+00	2.03E-04	1.73E-05	0.00E+00	3.01E-09	1.25E-04	1.19E-03	0.00E+00	1.42E-03	0.00E+00	0.00E+00	1.73E-05	0.00E+00	0.00E+00	1.42E-03
7383	ALL		390550	3779850	NonCancerAcute	0.00E+00	2.02E-04	1.73E-05	0.00E+00	3.00E-09	1.24E-04	1.19E-03	0.00E+00	1.41E-03	0.00E+00	0.00E+00	1.73E-05	0.00E+00	0.00E+00	1.41E-03
6990	ALL		390500	3779650	NonCancerAcute	0.00E+00	1.98E-04	1.69E-05	0.00E+00	2.94E-09	1.22E-04	1.16E-03	0.00E+00	1.39E-03	0.00E+00	0.00E+00	1.69E-05	0.00E+00	0.00E+00	1.39E-03
7287	ALL		390550	3779800	NonCancerAcute	0.00E+00	1.96E-04	1.67E-05	0.00E+00	2.90E-09	1.20E-04	1.15E-03	0.00E+00	1.37E-03	0.00E+00	0.00E+00	1.67E-05	0.00E+00	0.00E+00	1.37E-03
7189	ALL		390550	3779750	NonCancerAcute	0.00E+00	1.94E-04	1.66E-05	0.00E+00	2.88E-09	1.19E-04	1.14E-03	0.00E+00	1.36E-03	0.00E+00	0.00E+00	1.66E-05	0.00E+00	0.00E+00	1.36E-03
7479	ALL		390550	3779900	NonCancerAcute	0.00E+00	1.93E-04	1.65E-05	0.00E+00	2.86E-09	1.19E-04	1.13E-03	0.00E+00	1.35E-03	0.00E+00	0.00E+00	1.65E-05	0.00E+00	0.00E+00	1.35E-03
6891	ALL		390500	3779600	NonCancerAcute	0.00E+00	1.92E-04	1.64E-05	0.00E+00	2.85E-09	1.18E-04	1.13E-03	0.00E+00	1.34E-03	0.00E+00	0.00E+00	1.64E-05	0.00E+00	0.00E+00	1.34E-03
81	ALL		390511	3780015	NonCancerAcute	0.00E+00	1.90E-04	1.62E-05	0.00E+00	2.81E-09	1.16E-04	1.11E-03	0.00E+00	1.33E-03	0.00E+00	0.00E+00	1.62E-05	0.00E+00	0.00E+00	1.33E-03
7090	ALL		390550	3779700	NonCancerAcute	0.00E+00	1.89E-04	1.61E-05	0.00E+00	2.80E-09	1.16E-04	1.11E-03	0.00E+00	1.32E-03	0.00E+00	0.00E+00	1.61E-05	0.00E+00	0.00E+00	1.32E-03
80	ALL		390521	3780054	NonCancerAcute	0.00E+00	1.88E-04	1.60E-05	0.00E+00	2.78E-09	1.15E-04	1.10E-03	0.00E+00	1.31E-03	0.00E+00	0.00E+00	1.60E-05	0.00E+00	0.00E+00	1.31E-03
82	ALL		390501	3779976	NonCancerAcute	0.00E+00	1.86E-04	1.59E-05	0.00E+00	2.76E-09	1.14E-04	1.09E-03	0.00E+00	1.30E-03	0.00E+00	0.00E+00	1.59E-05	0.00E+00	0.00E+00	1.30E-03
93	ALL		390497	3779559	NonCancerAcute	0.00E+00	1.82E-04	1.55E-05	0.00E+00	2.69E-09	1.11E-04	1.07E-03	0.00E+00	1.27E-03	0.00E+00	0.00E+00	1.55E-05	0.00E+00	0.00E+00	1.27E-03
6991	ALL		390550	3779650	NonCancerAcute	0.00E+00	1.79E-04	1.53E-05	0.00E+00	2.65E-09	1.10E-04	1.05E-03	0.00E+00	1.25E-03	0.00E+00	0.00E+00	1.53E-05	0.00E+00	0.00E+00	1.25E-03
7384	ALL		390600	3779850	NonCancerAcute	0.00E+00	1.78E-04	1.52E-05	0.00E+00	2.64E-09	1.09E-04	1.04E-03	0.00E+00	1.24E-03	0.00E+00	0.00E+00	1.52E-05	0.00E+00	0.00E+00	1.24E-03
7190	ALL		390600	3779750	NonCancerAcute	0.00E+00	1.73E-04	1.48E-05	0.00E+00	2.57E-09	1.06E-04	1.02E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.48E-05	0.00E+00	0.00E+00	1.21E-03
7480	ALL		390600	3779900	NonCancerAcute	0.00E+00	1.73E-04	1.47E-05	0.00E+00	2.56E-09	1.06E-04	1.01E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.21E-03
6892	ALL		390550	3779600	NonCancerAcute	0.00E+00	1.73E-04	1.47E-05	0.00E+00	2.56E-09	1.06E-04	1.01E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.21E-03
79	ALL		390542	3780084	NonCancerAcute	0.00E+00	1.72E-04	1.47E-05	0.00E+00	2.55E-09	1.06E-04	1.01E-03	0.00E+00	1.20E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.20E-03
7288	ALL		390600	3779800	NonCancerAcute	0.00E+00	1.72E-04	1.47E-05	0.00E+00	2.55E-09	1.06E-04	1.01E-03	0.00E+00	1.20E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.20E-03
7091	ALL		390600	3779700	NonCancerAcute	0.00E+00	1.68E-04	1.44E-05	0.00E+00	2.50E-09	1.03E-04	9.87E-04	0.00E+00	1.18E-03	0.00E+00	0.00E+00	1.44E-05	0.00E+00	0.00E+00	1.18E-03
110	ALL		390115.5	3779357	NonCancerAcute	0.00E+00	1.68E-04	1.43E-05	0.00E+00	2.49E-09	1.03E-04	9.84E-04	0.00E+00	1.17E-03	0.00E+00	0.00E+00	1.43E-05	0.00E+00	0.00E+00	1.17E-03
109	ALL		390163.8	3779355.7	NonCancerAcute	0.00E+00	1.66E-04	1.42E-05	0.00E+00	2.47E-09	1.02E-04	9.76E-04	0.00E+00	1.16E-03	0.00E+00	0.00E+00	1.42E-05	0.00E+00	0.00E+00	1.16E-03
6793	ALL		390550	3779550	NonCancerAcute	0.00E+00	1.66E-04	1.42E-05	0.00E+00	2.46E-09	1.02E-04	9.73E-04	0.00E+00	1.16E-03	0.00E+00	0.00E+00	1.42E-05	0.00E+00	0.00E+00	1.16E-03
7758	ALL		390550	3780050	NonCancerAcute	0.00E+00	1.65E-04	1.41E-05	0.00E+00	2.45E-09	1.01E-04	9.68E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00	0.00E+00	1.15E-03
94	ALL		390521	3779518	NonCancerAcute	0.00E+00	1.65E-04	1.41E-05	0.00E+00	2.44E-09	1.01E-04	9.66E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00	0.00E+00	1.15E-03
108	ALL		390212.1	3779354.5	NonCancerAcute	0.00E+00	1.65E-04	1.41E-05	0.00E+00	2.44E-09	1.01E-04	9.66E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00	0.00E+00	1.15E-03
6385	ALL		390100	3779350	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.63E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
6992	ALL		390600	3779650	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.62E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
6386	ALL		390150	3779350	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.61E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
6387	ALL		390200	3779350	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.61E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
107	ALL		390260.5	3779353.2	NonCancerAcute	0.00E+00	1.61E-04	1.38E-05	0.00E+00	2.39E-09	9.90E-05	9.46E-04	0.00E+00	1.13E-03	0.00E+00	0.00E+00	1.38E-05	0.00E+00	0.00E+00	1.13E-03

Appendix A.5.1 - Biogas Renewable Generation Project - Engines HARP2 Output Summary - Residential HIC - Top 50

*HARP - HRACalc v17023 6/22/2017 2:38:21 PM - Chronic Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\SCHOLL CANYON\hra\res_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
85	ALL		390407	3779876	NonCancerChronicDerived_Inh	0.00E+00	7.99E-05	0.00E+00	7.97E-05	8.73E-08	8.05E-05	9.51E-03	0.00E+00	9.67E-08	0.00E+00	1.90E-08	5.80E-06	0.00E+00	0.00E+00	9.51E-03
8535	ALL		389700	3780450	NonCancerChronicDerived_Inh	0.00E+00	7.70E-05	0.00E+00	7.68E-05	8.41E-08	7.76E-05	9.16E-03	0.00E+00	9.31E-08	0.00E+00	1.83E-08	5.59E-06	0.00E+00	0.00E+00	9.16E-03
8536	ALL		389750	3780450	NonCancerChronicDerived_Inh	0.00E+00	7.65E-05	0.00E+00	7.63E-05	8.35E-08	7.71E-05	9.10E-03	0.00E+00	9.25E-08	0.00E+00	1.82E-08	5.55E-06	0.00E+00	0.00E+00	9.10E-03
20	ALL		389759	3780447	NonCancerChronicDerived_Inh	0.00E+00	7.41E-05	0.00E+00	7.39E-05	8.09E-08	7.47E-05	8.82E-03	0.00E+00	8.96E-08	0.00E+00	1.76E-08	5.38E-06	0.00E+00	0.00E+00	8.82E-03
8638	ALL		389750	3780500	NonCancerChronicDerived_Inh	0.00E+00	7.12E-05	0.00E+00	7.10E-05	7.77E-08	7.17E-05	8.47E-03	0.00E+00	8.60E-08	0.00E+00	1.69E-08	5.16E-06	0.00E+00	0.00E+00	8.47E-03
86	ALL		390419.6	3779834.2	NonCancerChronicDerived_Inh	0.00E+00	7.04E-05	0.00E+00	7.02E-05	7.68E-08	7.09E-05	8.37E-03	0.00E+00	8.51E-08	0.00E+00	1.67E-08	5.10E-06	0.00E+00	0.00E+00	8.37E-03
87	ALL		390432.2	3779792.4	NonCancerChronicDerived_Inh	0.00E+00	6.89E-05	0.00E+00	6.87E-05	7.53E-08	6.94E-05	8.20E-03	0.00E+00	8.33E-08	0.00E+00	1.64E-08	5.00E-06	0.00E+00	0.00E+00	8.20E-03
8637	ALL		389700	3780500	NonCancerChronicDerived_Inh	0.00E+00	6.89E-05	0.00E+00	6.87E-05	7.52E-08	6.94E-05	8.19E-03	0.00E+00	8.32E-08	0.00E+00	1.64E-08	5.00E-06	0.00E+00	0.00E+00	8.19E-03
21	ALL		389767.5	3780482.5	NonCancerChronicDerived_Inh	0.00E+00	6.82E-05	0.00E+00	6.80E-05	7.45E-08	6.87E-05	8.12E-03	0.00E+00	8.25E-08	0.00E+00	1.62E-08	4.95E-06	0.00E+00	0.00E+00	8.12E-03
84	ALL		390438.3	3779909.3	NonCancerChronicDerived_Inh	0.00E+00	6.60E-05	0.00E+00	6.58E-05	7.21E-08	6.65E-05	7.86E-03	0.00E+00	7.98E-08	0.00E+00	1.57E-08	4.79E-06	0.00E+00	0.00E+00	7.86E-03
8433	ALL		389650	3780400	NonCancerChronicDerived_Inh	0.00E+00	6.51E-05	0.00E+00	6.49E-05	7.11E-08	6.56E-05	7.75E-03	0.00E+00	7.87E-08	0.00E+00	1.55E-08	4.72E-06	0.00E+00	0.00E+00	7.75E-03
8739	ALL		389750	3780550	NonCancerChronicDerived_Inh	0.00E+00	6.49E-05	0.00E+00	6.48E-05	7.09E-08	6.54E-05	7.73E-03	0.00E+00	7.85E-08	0.00E+00	1.54E-08	4.71E-06	0.00E+00	0.00E+00	7.73E-03
7285	ALL		390450	3779800	NonCancerChronicDerived_Inh	0.00E+00	6.37E-05	0.00E+00	6.35E-05	6.96E-08	6.42E-05	7.58E-03	0.00E+00	7.70E-08	0.00E+00	1.51E-08	4.62E-06	0.00E+00	0.00E+00	7.58E-03
19	ALL		389721	3780420.2	NonCancerChronicDerived_Inh	0.00E+00	6.31E-05	0.00E+00	6.30E-05	6.89E-08	6.36E-05	7.51E-03	0.00E+00	7.63E-08	0.00E+00	1.50E-08	4.58E-06	0.00E+00	0.00E+00	7.51E-03
7477	ALL		390450	3779900	NonCancerChronicDerived_Inh	0.00E+00	6.31E-05	0.00E+00	6.29E-05	6.89E-08	6.36E-05	7.51E-03	0.00E+00	7.63E-08	0.00E+00	1.50E-08	4.58E-06	0.00E+00	0.00E+00	7.51E-03
88	ALL		390444.8	3779750.6	NonCancerChronicDerived_Inh	0.00E+00	6.28E-05	0.00E+00	6.26E-05	6.86E-08	6.33E-05	7.47E-03	0.00E+00	7.59E-08	0.00E+00	1.49E-08	4.56E-06	0.00E+00	0.00E+00	7.47E-03
7381	ALL		390450	3779850	NonCancerChronicDerived_Inh	0.00E+00	6.24E-05	0.00E+00	6.23E-05	6.82E-08	6.29E-05	7.43E-03	0.00E+00	7.55E-08	0.00E+00	1.48E-08	4.53E-06	0.00E+00	0.00E+00	7.43E-03
7187	ALL		390450	3779750	NonCancerChronicDerived_Inh	0.00E+00	6.14E-05	0.00E+00	6.12E-05	6.70E-08	6.19E-05	7.31E-03	0.00E+00	7.42E-08	0.00E+00	1.46E-08	4.45E-06	0.00E+00	0.00E+00	7.31E-03
22	ALL		389776	3780518	NonCancerChronicDerived_Inh	0.00E+00	5.98E-05	0.00E+00	5.96E-05	6.53E-08	6.02E-05	7.11E-03	0.00E+00	7.23E-08	0.00E+00	1.42E-08	4.34E-06	0.00E+00	0.00E+00	7.11E-03
83	ALL		390469.7	3779942.7	NonCancerChronicDerived_Inh	0.00E+00	5.92E-05	0.00E+00	5.91E-05	6.47E-08	5.97E-05	7.05E-03	0.00E+00	7.16E-08	0.00E+00	1.41E-08	4.30E-06	0.00E+00	0.00E+00	7.05E-03
8843	ALL		389800	3780600	NonCancerChronicDerived_Inh	0.00E+00	5.79E-05	0.00E+00	5.77E-05	6.32E-08	5.83E-05	6.89E-03	0.00E+00	7.00E-08	0.00E+00	1.38E-08	4.20E-06	0.00E+00	0.00E+00	6.89E-03
8432	ALL		389600	3780400	NonCancerChronicDerived_Inh	0.00E+00	5.79E-05	0.00E+00	5.77E-05	6.32E-08	5.83E-05	6.89E-03	0.00E+00	7.00E-08	0.00E+00	1.38E-08	4.20E-06	0.00E+00	0.00E+00	6.89E-03
8948	ALL		389850	3780650	NonCancerChronicDerived_Inh	0.00E+00	5.77E-05	0.00E+00	5.75E-05	6.30E-08	5.81E-05	6.86E-03	0.00E+00	6.97E-08	0.00E+00	1.37E-08	4.18E-06	0.00E+00	0.00E+00	6.86E-03
8332	ALL		389600	3780350	NonCancerChronicDerived_Inh	0.00E+00	5.74E-05	0.00E+00	5.73E-05	6.27E-08	5.78E-05	6.83E-03	0.00E+00	6.94E-08	0.00E+00	1.36E-08	4.17E-06	0.00E+00	0.00E+00	6.83E-03
8738	ALL		389700	3780550	NonCancerChronicDerived_Inh	0.00E+00	5.70E-05	0.00E+00	5.69E-05	6.23E-08	5.74E-05	6.79E-03	0.00E+00	6.89E-08	0.00E+00	1.36E-08	4.14E-06	0.00E+00	0.00E+00	6.79E-03
26	ALL		389869.7	3780642	NonCancerChronicDerived_Inh	0.00E+00	5.67E-05	0.00E+00	5.66E-05	6.20E-08	5.72E-05	6.75E-03	0.00E+00	6.86E-08	0.00E+00	1.35E-08	4.12E-06	0.00E+00	0.00E+00	6.75E-03
89	ALL		390457.4	3779708.8	NonCancerChronicDerived_Inh	0.00E+00	5.66E-05	0.00E+00	5.65E-05	6.18E-08	5.70E-05	6.74E-03	0.00E+00	6.84E-08	0.00E+00	1.35E-08	4.11E-06	0.00E+00	0.00E+00	6.74E-03
27	ALL		389855.3	3780676	NonCancerChronicDerived_Inh	0.00E+00	5.64E-05	0.00E+00	5.63E-05	6.16E-08	5.69E-05	6.72E-03	0.00E+00	6.82E-08	0.00E+00	1.34E-08	4.10E-06	0.00E+00	0.00E+00	6.72E-03
8534	ALL		389650	3780450	NonCancerChronicDerived_Inh	0.00E+00	5.57E-05	0.00E+00	5.55E-05	6.08E-08	5.61E-05	6.63E-03	0.00E+00	6.73E-08	0.00E+00	1.32E-08	4.04E-06	0.00E+00	0.00E+00	6.63E-03
16	ALL		389607	3780339.8	NonCancerChronicDerived_Inh	0.00E+00	5.52E-05	0.00E+00	5.50E-05	6.02E-08	5.56E-05	6.57E-03	0.00E+00	6.67E-08	0.00E+00	1.31E-08	4.00E-06	0.00E+00	0.00E+00	6.57E-03
17	ALL		389645	3780366.6	NonCancerChronicDerived_Inh	0.00E+00	5.49E-05	0.00E+00	5.48E-05	6.00E-08	5.53E-05	6.53E-03	0.00E+00	6.64E-08	0.00E+00	1.31E-08	3.98E-06	0.00E+00	0.00E+00	6.53E-03
18	ALL		389683	3780393.4	NonCancerChronicDerived_Inh	0.00E+00	5.47E-05	0.00E+00	5.45E-05	5.97E-08	5.51E-05	6.51E-03	0.00E+00	6.61E-08	0.00E+00	1.30E-08	3.97E-06	0.00E+00	0.00E+00	6.51E-03
29	ALL		389874.5	3780717.5	NonCancerChronicDerived_Inh	0.00E+00	5.45E-05	0.00E+00	5.44E-05	5.95E-08	5.49E-05	6.49E-03	0.00E+00	6.59E-08	0.00E+00	1.30E-08	3.95E-06	0.00E+00	0.00E+00	6.49E-03
30	ALL		389908	3780725	NonCancerChronicDerived_Inh	0.00E+00	5.44E-05	0.00E+00	5.42E-05	5.94E-08	5.48E-05	6.47E-03	0.00E+00	6.58E-08	0.00E+00	1.29E-08	3.95E-06	0.00E+00	0.00E+00	6.47E-03
15	ALL		389569	3780313	NonCancerChronicDerived_Inh	0.00E+00	5.43E-05	0.00E+00	5.42E-05	5.93E-08	5.47E-05	6.47E-03	0.00E+00	6.57E-08	0.00E+00	1.29E-08	3.94E-06	0.00E+00	0.00E+00	6.47E-03
14	ALL		389539.5	3780308.5	NonCancerChronicDerived_Inh	0.00E+00	5.38E-05	0.00E+00	5.36E-05	5.87E-08	5.42E-05	6.40E-03	0.00E+00	6.50E-08	0.00E+00	1.28E-08	3.90E-06	0.00E+00	0.00E+00	6.40E-03
12	ALL		389482.5	3780271.8	NonCancerChronicDerived_Inh	0.00E+00	5.36E-05	0.00E+00	5.35E-05	5.85E-08	5.40E-05	6.38E-03	0.00E+00	6.48E-08	0.00E+00	1.27E-08	3.89E-06	0.00E+00	0.00E+00	6.38E-03
82	ALL		390501	3779976	NonCancerChronicDerived_Inh	0.00E+00	5.34E-05	0.00E+00	5.33E-05	5.83E-08	5.38E-05	6.36E-03	0.00E+00	6.46E-08	0.00E+00	1.27E-08	3.87E-06	0.00E+00	0.00E+00	6.36E-03
11	ALL		389455	3780239.5	NonCancerChronicDerived_Inh	0.00E+00	5.34E-05	0.00E+00	5.32E-05	5.83E-08	5.38E-05	6.35E-03	0.00E+00	6.45E-08	0.00E+00	1.27E-08	3.87E-06	0.00E+00	0.00E+00	6.35E-03
9044	ALL		389450	3780700	NonCancerChronicDerived_Inh	0.00E+00	5.33E-05	0.00E+00	5.31E-05	5.82E-08	5.37E-05	6.34E-03	0.00E+00	6.44E-08	0.00E+00	1.27E-08	3.87E-06	0.00E+00	0.00E+00	6.34E-03
7572	ALL		390500	3779950	NonCancerChronicDerived_Inh	0.00E+00	5.33E-05	0.00E+00	5.31E-05	5.82E-08	5.37E-05	6.34E-03	0.00E+00	6.44E-08	0.00E+00	1.27E-08	3.86E-06	0.00E+00	0.00E+00	6.34E-03
13	ALL		389510	3780304	NonCancerChronicDerived_Inh	0.00E+00	5.31E-05	0.00E+00	5.30E-05	5.80E-08	5.35E-05	6.32E-03	0.00E+00	6.42E-08	0.00E+00	1.26E-08	3.85E-06	0.00E+00	0.00E+00	6.32E-03
8231	ALL		389500	3780300	NonCancerChronicDerived_Inh	0.00E+00	5.30E-05	0.00E+00	5.29E-05	5.79E-08	5.34E-05	6.31E-03	0.00E+00	6.41E-08	0.00E+00	1.26E-08	3.85E-06	0.00E+00	0.00E+00	6.31E-03
8132	ALL		389450	3780250	NonCancerChronicDerived_Inh	0.00E+00	5.29E-05	0.00E+00	5.28E-05	5.78E-08	5.33E-05	6.30E-03	0.00E+00	6.40E-08	0.00E+00	1.26E-08	3.84E-06	0.00E+00	0.00E+00	6.30E-03
81	ALL		390511	3780015	NonCancerChronicDerived_Inh	0.00E+00	5.25E-05	0.00E+00	5.23E-05	5.73E-08	5.29E-05	6.24E-03	0.00E+00	6.34E-08	0.00E+00	1.25E-08	3.81E-06	0.00E+00	0.00E+00	6.24E-03
8844	ALL		389850	3780600	NonCancerChronicDerived_Inh	0.00E+00	5.24E-05	0.00E+00	5.23E-05	5.73E-08	5.28E-05	6.24E-03	0.00E+00	6.34E-08	0.00E+00	1.25E-08	3.81E-06	0.00E+00	0.00E+00	6.24E-03
10	ALL		389427.5	3780207.2	NonCancerChronicDerived_Inh	0.00E+00	5.24E-05	0.00E+00	5.23E-05	5.73E-08	5.28E-05	6.24E-03	0.00E+00	6.34E-08	0.00E+00	1.25E-08	3.80E-06	0.00E+00	0.00E+00	6.24E-03
8740	ALL		389800	3780550	NonCancerChronicDerived_Inh	0.00E+00	5.23E-05	0.00E+00	5.22E-05	5.71E-08	5.27E-05	6.23E-03	0.00E+00	6.33E-08	0.00E+00	1.24E-08	3.80E-06	0.00E+00	0.00E+00	6.23E-03
7382	ALL		390500	3779850	NonCancerChronicDerived_Inh	0.00E+00	5.20E-05	0.00E+00	5.18E-05	5.67E-08	5.24E-05	6.18E-03	0.00E+00	6.28E-08	0.00E+00	1.23E-08	3.77E-06	0.00E+00	0.00E+00	6.18E-03
9148	ALL		389500	3780750	NonCancerChronicDerived_Inh	0.00E+00	5.18E-05	0.00E+00	5.17E-05	5.66E-08	5.22E-05	6.17E-03	0.00E+00	6.27E-08	0.00E+00	1.23E-08	3.76E-06	0.00E+00	0.00E+00	6.17E-03

Appendix A.5.1 - Biogas Renewable Generation Project - Engines HARP2 Output Summary - Worker MICR - Top 50

*HARP - HRACalc v17023 6/22/2017 2:45:32 PM - Cancer Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\SCHOLL CANYON\hra\work_HRAInput.hra

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
85	ALL		390407	3779876	3.32E-09	25YrCancerDerived_InhSoilDerm	3.32E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8535	ALL		389700	3780450	3.19E-09	25YrCancerDerived_InhSoilDerm	3.19E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8536	ALL		389750	3780450	3.17E-09	25YrCancerDerived_InhSoilDerm	3.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	ALL		389759	3780447	3.07E-09	25YrCancerDerived_InhSoilDerm	3.07E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8638	ALL		389750	3780500	2.95E-09	25YrCancerDerived_InhSoilDerm	2.95E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
86	ALL		390419.6	3779834.2	2.92E-09	25YrCancerDerived_InhSoilDerm	2.92E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
87	ALL		390432.2	3779792.4	2.86E-09	25YrCancerDerived_InhSoilDerm	2.86E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8637	ALL		389700	3780500	2.86E-09	25YrCancerDerived_InhSoilDerm	2.86E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	ALL		389767.5	3780482.5	2.83E-09	25YrCancerDerived_InhSoilDerm	2.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
84	ALL		390438.3	3779909.3	2.74E-09	25YrCancerDerived_InhSoilDerm	2.74E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8433	ALL		389650	3780400	2.70E-09	25YrCancerDerived_InhSoilDerm	2.70E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8739	ALL		389750	3780550	2.69E-09	25YrCancerDerived_InhSoilDerm	2.69E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7285	ALL		390450	3779800	2.64E-09	25YrCancerDerived_InhSoilDerm	2.64E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	ALL		389721	3780420.2	2.62E-09	25YrCancerDerived_InhSoilDerm	2.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7477	ALL		390450	3779900	2.62E-09	25YrCancerDerived_InhSoilDerm	2.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
88	ALL		390444.8	3779750.6	2.61E-09	25YrCancerDerived_InhSoilDerm	2.61E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7381	ALL		390450	3779850	2.59E-09	25YrCancerDerived_InhSoilDerm	2.59E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7187	ALL		390450	3779750	2.55E-09	25YrCancerDerived_InhSoilDerm	2.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	ALL		389776	3780518	2.48E-09	25YrCancerDerived_InhSoilDerm	2.48E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
83	ALL		390469.7	3779942.7	2.46E-09	25YrCancerDerived_InhSoilDerm	2.46E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8843	ALL		389800	3780600	2.40E-09	25YrCancerDerived_InhSoilDerm	2.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8432	ALL		389600	3780400	2.40E-09	25YrCancerDerived_InhSoilDerm	2.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8948	ALL		389850	3780650	2.39E-09	25YrCancerDerived_InhSoilDerm	2.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8332	ALL		389600	3780350	2.38E-09	25YrCancerDerived_InhSoilDerm	2.38E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8738	ALL		389700	3780550	2.37E-09	25YrCancerDerived_InhSoilDerm	2.37E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	ALL		389869.7	3780642	2.35E-09	25YrCancerDerived_InhSoilDerm	2.35E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
89	ALL		390457.4	3779708.8	2.35E-09	25YrCancerDerived_InhSoilDerm	2.35E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	ALL		389855.3	3780676	2.34E-09	25YrCancerDerived_InhSoilDerm	2.34E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8534	ALL		389650	3780450	2.31E-09	25YrCancerDerived_InhSoilDerm	2.31E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	ALL		389607	3780339.8	2.29E-09	25YrCancerDerived_InhSoilDerm	2.29E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	ALL		389645	3780366.6	2.28E-09	25YrCancerDerived_InhSoilDerm	2.28E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	ALL		389683	3780393.4	2.27E-09	25YrCancerDerived_InhSoilDerm	2.27E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	ALL		389874.5	3780717.5	2.26E-09	25YrCancerDerived_InhSoilDerm	2.26E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	ALL		389908	3780725	2.26E-09	25YrCancerDerived_InhSoilDerm	2.26E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	ALL		389569	3780313	2.25E-09	25YrCancerDerived_InhSoilDerm	2.25E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	ALL		389539.5	3780308.5	2.23E-09	25YrCancerDerived_InhSoilDerm	2.23E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	ALL		389482.5	3780271.8	2.22E-09	25YrCancerDerived_InhSoilDerm	2.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
82	ALL		390501	3779976	2.22E-09	25YrCancerDerived_InhSoilDerm	2.22E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	ALL		389455	3780239.5	2.21E-09	25YrCancerDerived_InhSoilDerm	2.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9044	ALL		389450	3780700	2.21E-09	25YrCancerDerived_InhSoilDerm	2.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7572	ALL		390500	3779950	2.21E-09	25YrCancerDerived_InhSoilDerm	2.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	ALL		389510	3780304	2.20E-09	25YrCancerDerived_InhSoilDerm	2.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8231	ALL		389500	3780300	2.20E-09	25YrCancerDerived_InhSoilDerm	2.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8132	ALL		389450	3780250	2.20E-09	25YrCancerDerived_InhSoilDerm	2.20E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
81	ALL		390511	3780015	2.18E-09	25YrCancerDerived_InhSoilDerm	2.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8844	ALL		389850	3780600	2.18E-09	25YrCancerDerived_InhSoilDerm	2.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	ALL		389427.5	3780207.2	2.18E-09	25YrCancerDerived_InhSoilDerm	2.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8740	ALL		389800	3780550	2.17E-09	25YrCancerDerived_InhSoilDerm	2.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7382	ALL		390500	3779850	2.16E-09	25YrCancerDerived_InhSoilDerm	2.16E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9148	ALL		389500	3780750	2.15E-09	25YrCancerDerived_InhSoilDerm	2.15E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Appendix A.5.1 - Biogas Renewable Generation Project - Engines HARP2 Output Summary - Worker HIA - Top 50

*HARP - HRACalc v17023 6/22/2017 2:45:32 PM - Acute Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\SCHOLL CANYON\hra\work_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
85	ALL		390407	3779876	NonCancerAcute	0.00E+00	3.09E-04	2.64E-05	0.00E+00	4.58E-09	1.90E-04	1.81E-03	0.00E+00	2.16E-03	0.00E+00	0.00E+00	2.64E-05	0.00E+00	0.00E+00	2.16E-03
86	ALL		390419.6	3779834.2	NonCancerAcute	0.00E+00	2.65E-04	2.26E-05	0.00E+00	3.93E-09	1.63E-04	1.55E-03	0.00E+00	1.85E-03	0.00E+00	0.00E+00	2.26E-05	0.00E+00	0.00E+00	1.85E-03
87	ALL		390432.2	3779792.4	NonCancerAcute	0.00E+00	2.62E-04	2.24E-05	0.00E+00	3.89E-09	1.61E-04	1.54E-03	0.00E+00	1.83E-03	0.00E+00	0.00E+00	2.24E-05	0.00E+00	0.00E+00	1.83E-03
7381	ALL		390450	3779850	NonCancerAcute	0.00E+00	2.59E-04	2.21E-05	0.00E+00	3.84E-09	1.59E-04	1.52E-03	0.00E+00	1.81E-03	0.00E+00	0.00E+00	2.21E-05	0.00E+00	0.00E+00	1.81E-03
7285	ALL		390450	3779800	NonCancerAcute	0.00E+00	2.51E-04	2.14E-05	0.00E+00	3.73E-09	1.54E-04	1.47E-03	0.00E+00	1.76E-03	0.00E+00	0.00E+00	2.14E-05	0.00E+00	0.00E+00	1.76E-03
88	ALL		390444.8	3779750.6	NonCancerAcute	0.00E+00	2.41E-04	2.06E-05	0.00E+00	3.58E-09	1.48E-04	1.42E-03	0.00E+00	1.69E-03	0.00E+00	0.00E+00	2.06E-05	0.00E+00	0.00E+00	1.69E-03
7187	ALL		390450	3779750	NonCancerAcute	0.00E+00	2.38E-04	2.03E-05	0.00E+00	3.53E-09	1.46E-04	1.40E-03	0.00E+00	1.67E-03	0.00E+00	0.00E+00	2.03E-05	0.00E+00	0.00E+00	1.67E-03
7477	ALL		390450	3779900	NonCancerAcute	0.00E+00	2.37E-04	2.02E-05	0.00E+00	3.51E-09	1.45E-04	1.39E-03	0.00E+00	1.65E-03	0.00E+00	0.00E+00	2.02E-05	0.00E+00	0.00E+00	1.65E-03
89	ALL		390457.4	3779708.8	NonCancerAcute	0.00E+00	2.36E-04	2.02E-05	0.00E+00	3.50E-09	1.45E-04	1.39E-03	0.00E+00	1.65E-03	0.00E+00	0.00E+00	2.02E-05	0.00E+00	0.00E+00	1.65E-03
7382	ALL		390500	3779850	NonCancerAcute	0.00E+00	2.30E-04	1.97E-05	0.00E+00	3.41E-09	1.41E-04	1.35E-03	0.00E+00	1.61E-03	0.00E+00	0.00E+00	1.97E-05	0.00E+00	0.00E+00	1.61E-03
84	ALL		390438.3	3779909.3	NonCancerAcute	0.00E+00	2.23E-04	1.90E-05	0.00E+00	3.31E-09	1.37E-04	1.31E-03	0.00E+00	1.56E-03	0.00E+00	0.00E+00	1.90E-05	0.00E+00	0.00E+00	1.56E-03
7286	ALL		390500	3779800	NonCancerAcute	0.00E+00	2.23E-04	1.90E-05	0.00E+00	3.30E-09	1.37E-04	1.31E-03	0.00E+00	1.56E-03	0.00E+00	0.00E+00	1.90E-05	0.00E+00	0.00E+00	1.56E-03
83	ALL		390469.7	3779942.7	NonCancerAcute	0.00E+00	2.19E-04	1.87E-05	0.00E+00	3.24E-09	1.34E-04	1.28E-03	0.00E+00	1.53E-03	0.00E+00	0.00E+00	1.87E-05	0.00E+00	0.00E+00	1.53E-03
7478	ALL		390500	3779900	NonCancerAcute	0.00E+00	2.17E-04	1.85E-05	0.00E+00	3.22E-09	1.33E-04	1.27E-03	0.00E+00	1.52E-03	0.00E+00	0.00E+00	1.85E-05	0.00E+00	0.00E+00	1.52E-03
90	ALL		390470	3779667	NonCancerAcute	0.00E+00	2.17E-04	1.85E-05	0.00E+00	3.22E-09	1.33E-04	1.27E-03	0.00E+00	1.52E-03	0.00E+00	0.00E+00	1.85E-05	0.00E+00	0.00E+00	1.52E-03
7188	ALL		390500	3779750	NonCancerAcute	0.00E+00	2.15E-04	1.84E-05	0.00E+00	3.19E-09	1.32E-04	1.26E-03	0.00E+00	1.51E-03	0.00E+00	0.00E+00	1.84E-05	0.00E+00	0.00E+00	1.51E-03
7089	ALL		390500	3779700	NonCancerAcute	0.00E+00	2.14E-04	1.82E-05	0.00E+00	3.17E-09	1.31E-04	1.25E-03	0.00E+00	1.49E-03	0.00E+00	0.00E+00	1.82E-05	0.00E+00	0.00E+00	1.49E-03
91	ALL		390471.5	3779633.5	NonCancerAcute	0.00E+00	2.13E-04	1.82E-05	0.00E+00	3.17E-09	1.31E-04	1.25E-03	0.00E+00	1.49E-03	0.00E+00	0.00E+00	1.82E-05	0.00E+00	0.00E+00	1.49E-03
92	ALL		390473	3779600	NonCancerAcute	0.00E+00	2.03E-04	1.74E-05	0.00E+00	3.02E-09	1.25E-04	1.19E-03	0.00E+00	1.42E-03	0.00E+00	0.00E+00	1.74E-05	0.00E+00	0.00E+00	1.42E-03
7572	ALL		390500	3779950	NonCancerAcute	0.00E+00	2.03E-04	1.73E-05	0.00E+00	3.01E-09	1.25E-04	1.19E-03	0.00E+00	1.42E-03	0.00E+00	0.00E+00	1.73E-05	0.00E+00	0.00E+00	1.42E-03
7383	ALL		390550	3779850	NonCancerAcute	0.00E+00	2.02E-04	1.73E-05	0.00E+00	3.00E-09	1.24E-04	1.19E-03	0.00E+00	1.41E-03	0.00E+00	0.00E+00	1.73E-05	0.00E+00	0.00E+00	1.41E-03
6990	ALL		390500	3779650	NonCancerAcute	0.00E+00	1.98E-04	1.69E-05	0.00E+00	2.94E-09	1.22E-04	1.16E-03	0.00E+00	1.39E-03	0.00E+00	0.00E+00	1.69E-05	0.00E+00	0.00E+00	1.39E-03
7287	ALL		390550	3779800	NonCancerAcute	0.00E+00	1.96E-04	1.67E-05	0.00E+00	2.90E-09	1.20E-04	1.15E-03	0.00E+00	1.37E-03	0.00E+00	0.00E+00	1.67E-05	0.00E+00	0.00E+00	1.37E-03
7189	ALL		390550	3779750	NonCancerAcute	0.00E+00	1.94E-04	1.66E-05	0.00E+00	2.88E-09	1.19E-04	1.14E-03	0.00E+00	1.36E-03	0.00E+00	0.00E+00	1.66E-05	0.00E+00	0.00E+00	1.36E-03
7479	ALL		390550	3779900	NonCancerAcute	0.00E+00	1.93E-04	1.65E-05	0.00E+00	2.86E-09	1.19E-04	1.13E-03	0.00E+00	1.35E-03	0.00E+00	0.00E+00	1.65E-05	0.00E+00	0.00E+00	1.35E-03
6891	ALL		390500	3779600	NonCancerAcute	0.00E+00	1.92E-04	1.64E-05	0.00E+00	2.85E-09	1.18E-04	1.13E-03	0.00E+00	1.34E-03	0.00E+00	0.00E+00	1.64E-05	0.00E+00	0.00E+00	1.34E-03
81	ALL		390511	3780015	NonCancerAcute	0.00E+00	1.90E-04	1.62E-05	0.00E+00	2.81E-09	1.16E-04	1.11E-03	0.00E+00	1.33E-03	0.00E+00	0.00E+00	1.62E-05	0.00E+00	0.00E+00	1.33E-03
7090	ALL		390550	3779700	NonCancerAcute	0.00E+00	1.89E-04	1.61E-05	0.00E+00	2.80E-09	1.16E-04	1.11E-03	0.00E+00	1.32E-03	0.00E+00	0.00E+00	1.61E-05	0.00E+00	0.00E+00	1.32E-03
80	ALL		390521	3780054	NonCancerAcute	0.00E+00	1.88E-04	1.60E-05	0.00E+00	2.78E-09	1.15E-04	1.10E-03	0.00E+00	1.31E-03	0.00E+00	0.00E+00	1.60E-05	0.00E+00	0.00E+00	1.31E-03
82	ALL		390501	3779976	NonCancerAcute	0.00E+00	1.86E-04	1.59E-05	0.00E+00	2.76E-09	1.14E-04	1.09E-03	0.00E+00	1.30E-03	0.00E+00	0.00E+00	1.59E-05	0.00E+00	0.00E+00	1.30E-03
93	ALL		390497	3779559	NonCancerAcute	0.00E+00	1.82E-04	1.55E-05	0.00E+00	2.69E-09	1.11E-04	1.07E-03	0.00E+00	1.27E-03	0.00E+00	0.00E+00	1.55E-05	0.00E+00	0.00E+00	1.27E-03
6991	ALL		390550	3779650	NonCancerAcute	0.00E+00	1.79E-04	1.53E-05	0.00E+00	2.65E-09	1.10E-04	1.05E-03	0.00E+00	1.25E-03	0.00E+00	0.00E+00	1.53E-05	0.00E+00	0.00E+00	1.25E-03
7384	ALL		390600	3779850	NonCancerAcute	0.00E+00	1.78E-04	1.52E-05	0.00E+00	2.64E-09	1.09E-04	1.04E-03	0.00E+00	1.24E-03	0.00E+00	0.00E+00	1.52E-05	0.00E+00	0.00E+00	1.24E-03
7190	ALL		390600	3779750	NonCancerAcute	0.00E+00	1.73E-04	1.48E-05	0.00E+00	2.57E-09	1.06E-04	1.02E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.48E-05	0.00E+00	0.00E+00	1.21E-03
7480	ALL		390600	3779900	NonCancerAcute	0.00E+00	1.73E-04	1.47E-05	0.00E+00	2.56E-09	1.06E-04	1.01E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.21E-03
6892	ALL		390550	3779600	NonCancerAcute	0.00E+00	1.73E-04	1.47E-05	0.00E+00	2.56E-09	1.06E-04	1.01E-03	0.00E+00	1.21E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.21E-03
79	ALL		390542	3780084	NonCancerAcute	0.00E+00	1.72E-04	1.47E-05	0.00E+00	2.55E-09	1.06E-04	1.01E-03	0.00E+00	1.20E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.20E-03
7288	ALL		390600	3779800	NonCancerAcute	0.00E+00	1.72E-04	1.47E-05	0.00E+00	2.55E-09	1.06E-04	1.01E-03	0.00E+00	1.20E-03	0.00E+00	0.00E+00	1.47E-05	0.00E+00	0.00E+00	1.20E-03
7091	ALL		390600	3779700	NonCancerAcute	0.00E+00	1.68E-04	1.44E-05	0.00E+00	2.50E-09	1.03E-04	9.87E-04	0.00E+00	1.18E-03	0.00E+00	0.00E+00	1.44E-05	0.00E+00	0.00E+00	1.18E-03
110	ALL		390115.5	3779357	NonCancerAcute	0.00E+00	1.68E-04	1.43E-05	0.00E+00	2.49E-09	1.03E-04	9.84E-04	0.00E+00	1.17E-03	0.00E+00	0.00E+00	1.43E-05	0.00E+00	0.00E+00	1.17E-03
109	ALL		390163.8	3779355.7	NonCancerAcute	0.00E+00	1.66E-04	1.42E-05	0.00E+00	2.47E-09	1.02E-04	9.76E-04	0.00E+00	1.16E-03	0.00E+00	0.00E+00	1.42E-05	0.00E+00	0.00E+00	1.16E-03
6793	ALL		390550	3779550	NonCancerAcute	0.00E+00	1.66E-04	1.42E-05	0.00E+00	2.46E-09	1.02E-04	9.73E-04	0.00E+00	1.16E-03	0.00E+00	0.00E+00	1.42E-05	0.00E+00	0.00E+00	1.16E-03
7758	ALL		390550	3780050	NonCancerAcute	0.00E+00	1.65E-04	1.41E-05	0.00E+00	2.45E-09	1.01E-04	9.68E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00	0.00E+00	1.15E-03
94	ALL		390521	3779518	NonCancerAcute	0.00E+00	1.65E-04	1.41E-05	0.00E+00	2.44E-09	1.01E-04	9.66E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00	0.00E+00	1.15E-03
108	ALL		390212.1	3779354.5	NonCancerAcute	0.00E+00	1.65E-04	1.41E-05	0.00E+00	2.44E-09	1.01E-04	9.66E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.41E-05	0.00E+00	0.00E+00	1.15E-03
6385	ALL		390100	3779350	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.63E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
6992	ALL		390600	3779650	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.62E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
6386	ALL		390150	3779350	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.61E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
6387	ALL		390200	3779350	NonCancerAcute	0.00E+00	1.64E-04	1.40E-05	0.00E+00	2.43E-09	1.01E-04	9.61E-04	0.00E+00	1.15E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	1.15E-03
107	ALL		390260.5	3779353.2	NonCancerAcute	0.00E+00	1.61E-04	1.38E-05	0.00E+00	2.39E-09	9.90E-05	9.46E-04	0.00E+00	1.13E-03	0.00E+00	0.00E+00	1.38E-05	0.00E+00	0.00E+00	1.13E-03

Appendix A.5.1 - Biogas Renewable Generation Project - Engines HARP2 Output Summary - Worker HIC - Top 50

*HARP - HRACalc v17023 6/22/2017 2:45:32 PM - Chronic Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\SCHOLL CANYON\hra\work_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
85	ALL		390407	3779876	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.68E-04	0.00E+00	1.68E-04	8.73E-08	1.69E-04	9.51E-03	0.00E+00	9.67E-08	0.00E+00	1.90E-08	5.80E-06	0.00E+00	0.00E+00	9.51E-03
8535	ALL		389700	3780450	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.62E-04	0.00E+00	1.62E-04	8.41E-08	1.63E-04	9.16E-03	0.00E+00	9.31E-08	0.00E+00	1.83E-08	5.59E-06	0.00E+00	0.00E+00	9.16E-03
8536	ALL		389750	3780450	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.61E-04	0.00E+00	1.61E-04	8.35E-08	1.62E-04	9.10E-03	0.00E+00	9.25E-08	0.00E+00	1.82E-08	5.55E-06	0.00E+00	0.00E+00	9.10E-03
20	ALL		389759	3780447	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.56E-04	0.00E+00	1.56E-04	8.09E-08	1.57E-04	8.82E-03	0.00E+00	8.96E-08	0.00E+00	1.76E-08	5.38E-06	0.00E+00	0.00E+00	8.82E-03
8638	ALL		389750	3780500	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.50E-04	0.00E+00	1.50E-04	7.77E-08	1.50E-04	8.47E-03	0.00E+00	8.60E-08	0.00E+00	1.69E-08	5.16E-06	0.00E+00	0.00E+00	8.47E-03
86	ALL		390419.6	3779834.2	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.48E-04	0.00E+00	1.48E-04	7.68E-08	1.49E-04	8.37E-03	0.00E+00	8.51E-08	0.00E+00	1.67E-08	5.10E-06	0.00E+00	0.00E+00	8.37E-03
87	ALL		390432.2	3779792.4	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.45E-04	0.00E+00	1.45E-04	7.53E-08	1.46E-04	8.20E-03	0.00E+00	8.33E-08	0.00E+00	1.64E-08	5.00E-06	0.00E+00	0.00E+00	8.20E-03
8637	ALL		389700	3780500	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.45E-04	0.00E+00	1.45E-04	7.52E-08	1.45E-04	8.19E-03	0.00E+00	8.32E-08	0.00E+00	1.64E-08	5.00E-06	0.00E+00	0.00E+00	8.19E-03
21	ALL		389767.5	3780482.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.44E-04	0.00E+00	1.43E-04	7.45E-08	1.44E-04	8.12E-03	0.00E+00	8.25E-08	0.00E+00	1.62E-08	4.95E-06	0.00E+00	0.00E+00	8.12E-03
84	ALL		390438.3	3779909.3	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.39E-04	0.00E+00	1.39E-04	7.21E-08	1.39E-04	7.86E-03	0.00E+00	7.98E-08	0.00E+00	1.57E-08	4.79E-06	0.00E+00	0.00E+00	7.86E-03
8433	ALL		389650	3780400	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.37E-04	0.00E+00	1.37E-04	7.11E-08	1.37E-04	7.75E-03	0.00E+00	7.87E-08	0.00E+00	1.55E-08	4.72E-06	0.00E+00	0.00E+00	7.75E-03
8739	ALL		389750	3780550	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.37E-04	0.00E+00	1.36E-04	7.09E-08	1.37E-04	7.73E-03	0.00E+00	7.85E-08	0.00E+00	1.54E-08	4.71E-06	0.00E+00	0.00E+00	7.73E-03
7285	ALL		390450	3779800	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.34E-04	0.00E+00	1.34E-04	6.96E-08	1.35E-04	7.58E-03	0.00E+00	7.70E-08	0.00E+00	1.51E-08	4.62E-06	0.00E+00	0.00E+00	7.58E-03
19	ALL		389721	3780420.2	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.33E-04	0.00E+00	1.33E-04	6.89E-08	1.33E-04	7.51E-03	0.00E+00	7.63E-08	0.00E+00	1.50E-08	4.58E-06	0.00E+00	0.00E+00	7.51E-03
7477	ALL		390450	3779900	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.33E-04	0.00E+00	1.33E-04	6.89E-08	1.33E-04	7.51E-03	0.00E+00	7.63E-08	0.00E+00	1.50E-08	4.58E-06	0.00E+00	0.00E+00	7.51E-03
88	ALL		390444.8	3779750.6	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.32E-04	0.00E+00	1.32E-04	6.86E-08	1.33E-04	7.47E-03	0.00E+00	7.59E-08	0.00E+00	1.49E-08	4.56E-06	0.00E+00	0.00E+00	7.47E-03
7381	ALL		390450	3779850	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.31E-04	0.00E+00	1.31E-04	6.82E-08	1.32E-04	7.43E-03	0.00E+00	7.55E-08	0.00E+00	1.48E-08	4.53E-06	0.00E+00	0.00E+00	7.43E-03
7187	ALL		390450	3779750	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.29E-04	0.00E+00	1.29E-04	6.70E-08	1.30E-04	7.31E-03	0.00E+00	7.42E-08	0.00E+00	1.46E-08	4.45E-06	0.00E+00	0.00E+00	7.31E-03
22	ALL		389776	3780518	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.26E-04	0.00E+00	1.26E-04	6.53E-08	1.26E-04	7.11E-03	0.00E+00	7.23E-08	0.00E+00	1.42E-08	4.34E-06	0.00E+00	0.00E+00	7.11E-03
83	ALL		390469.7	3779942.7	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.25E-04	0.00E+00	1.24E-04	6.47E-08	1.25E-04	7.05E-03	0.00E+00	7.16E-08	0.00E+00	1.41E-08	4.30E-06	0.00E+00	0.00E+00	7.05E-03
8843	ALL		389800	3780600	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.22E-04	0.00E+00	1.22E-04	6.32E-08	1.22E-04	6.89E-03	0.00E+00	7.00E-08	0.00E+00	1.38E-08	4.20E-06	0.00E+00	0.00E+00	6.89E-03
8432	ALL		389600	3780400	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.22E-04	0.00E+00	1.22E-04	6.32E-08	1.22E-04	6.89E-03	0.00E+00	7.00E-08	0.00E+00	1.38E-08	4.20E-06	0.00E+00	0.00E+00	6.89E-03
8948	ALL		389850	3780650	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.21E-04	0.00E+00	1.21E-04	6.30E-08	1.22E-04	6.86E-03	0.00E+00	6.97E-08	0.00E+00	1.37E-08	4.18E-06	0.00E+00	0.00E+00	6.86E-03
8332	ALL		389600	3780350	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.21E-04	0.00E+00	1.21E-04	6.27E-08	1.21E-04	6.83E-03	0.00E+00	6.94E-08	0.00E+00	1.36E-08	4.17E-06	0.00E+00	0.00E+00	6.83E-03
8738	ALL		389700	3780550	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.20E-04	0.00E+00	1.20E-04	6.23E-08	1.20E-04	6.79E-03	0.00E+00	6.89E-08	0.00E+00	1.36E-08	4.14E-06	0.00E+00	0.00E+00	6.79E-03
26	ALL		389869.7	3780642	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.19E-04	0.00E+00	1.19E-04	6.20E-08	1.20E-04	6.75E-03	0.00E+00	6.86E-08	0.00E+00	1.35E-08	4.12E-06	0.00E+00	0.00E+00	6.75E-03
89	ALL		390457.4	3779708.8	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.19E-04	0.00E+00	1.19E-04	6.18E-08	1.20E-04	6.74E-03	0.00E+00	6.84E-08	0.00E+00	1.35E-08	4.11E-06	0.00E+00	0.00E+00	6.74E-03
27	ALL		389855.3	3780676	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.19E-04	0.00E+00	1.19E-04	6.16E-08	1.19E-04	6.72E-03	0.00E+00	6.82E-08	0.00E+00	1.34E-08	4.10E-06	0.00E+00	0.00E+00	6.72E-03
8534	ALL		389650	3780450	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.17E-04	0.00E+00	1.17E-04	6.08E-08	1.18E-04	6.63E-03	0.00E+00	6.73E-08	0.00E+00	1.32E-08	4.04E-06	0.00E+00	0.00E+00	6.63E-03
16	ALL		389607	3780339.8	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.16E-04	0.00E+00	1.16E-04	6.02E-08	1.17E-04	6.57E-03	0.00E+00	6.67E-08	0.00E+00	1.31E-08	4.00E-06	0.00E+00	0.00E+00	6.57E-03
17	ALL		389645	3780366.6	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.16E-04	0.00E+00	1.15E-04	6.00E-08	1.16E-04	6.53E-03	0.00E+00	6.64E-08	0.00E+00	1.31E-08	3.98E-06	0.00E+00	0.00E+00	6.53E-03
18	ALL		389683	3780393.4	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.15E-04	0.00E+00	1.15E-04	5.97E-08	1.16E-04	6.51E-03	0.00E+00	6.61E-08	0.00E+00	1.30E-08	3.97E-06	0.00E+00	0.00E+00	6.51E-03
29	ALL		389874.5	3780717.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.15E-04	0.00E+00	1.15E-04	5.95E-08	1.15E-04	6.49E-03	0.00E+00	6.59E-08	0.00E+00	1.30E-08	3.95E-06	0.00E+00	0.00E+00	6.49E-03
30	ALL		389908	3780725	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.14E-04	0.00E+00	1.14E-04	5.94E-08	1.15E-04	6.47E-03	0.00E+00	6.58E-08	0.00E+00	1.29E-08	3.95E-06	0.00E+00	0.00E+00	6.47E-03
15	ALL		389569	3780313	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.14E-04	0.00E+00	1.14E-04	5.93E-08	1.15E-04	6.47E-03	0.00E+00	6.57E-08	0.00E+00	1.29E-08	3.94E-06	0.00E+00	0.00E+00	6.47E-03
14	ALL		389539.5	3780308.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.13E-04	0.00E+00	1.13E-04	5.87E-08	1.14E-04	6.40E-03	0.00E+00	6.50E-08	0.00E+00	1.28E-08	3.90E-06	0.00E+00	0.00E+00	6.40E-03
12	ALL		389482.5	3780271.8	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.13E-04	0.00E+00	1.13E-04	5.85E-08	1.13E-04	6.38E-03	0.00E+00	6.48E-08	0.00E+00	1.27E-08	3.89E-06	0.00E+00	0.00E+00	6.38E-03
82	ALL		390501	3779976	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.12E-04	0.00E+00	1.12E-04	5.83E-08	1.13E-04	6.36E-03	0.00E+00	6.46E-08	0.00E+00	1.27E-08	3.87E-06	0.00E+00	0.00E+00	6.36E-03
11	ALL		389455	3780239.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.12E-04	0.00E+00	1.12E-04	5.83E-08	1.13E-04	6.35E-03	0.00E+00	6.45E-08	0.00E+00	1.27E-08	3.87E-06	0.00E+00	0.00E+00	6.35E-03
9044	ALL		389450	3780700	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.12E-04	0.00E+00	1.12E-04	5.82E-08	1.13E-04	6.34E-03	0.00E+00	6.44E-08	0.00E+00	1.27E-08	3.87E-06	0.00E+00	0.00E+00	6.34E-03
7572	ALL		390500	3779950	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.12E-04	0.00E+00	1.12E-04	5.82E-08	1.12E-04	6.34E-03	0.00E+00	6.44E-08	0.00E+00	1.27E-08	3.86E-06	0.00E+00	0.00E+00	6.34E-03
13	ALL		389510	3780304	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.12E-04	0.00E+00	1.12E-04	5.80E-08	1.12E-04	6.32E-03	0.00E+00	6.42E-08	0.00E+00	1.26E-08	3.85E-06	0.00E+00	0.00E+00	6.32E-03
8231	ALL		389500	3780300	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.12E-04	0.00E+00	1.11E-04	5.79E-08	1.12E-04	6.31E-03	0.00E+00	6.41E-08	0.00E+00	1.26E-08	3.85E-06	0.00E+00	0.00E+00	6.31E-03
8132	ALL		389450	3780250	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.11E-04	0.00E+00	1.11E-04	5.78E-08	1.12E-04	6.30E-03	0.00E+00	6.40E-08	0.00E+00	1.26E-08	3.84E-06	0.00E+00	0.00E+00	6.30E-03
81	ALL		390511	3780015	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.10E-04	0.00E+00	1.10E-04	5.73E-08	1.11E-04	6.24E-03	0.00E+00	6.34E-08	0.00E+00	1.25E-08	3.81E-06	0.00E+00	0.00E+00	6.24E-03
8844	ALL		389850	3780600	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.10E-04	0.00E+00	1.10E-04	5.73E-08	1.11E-04	6.24E-03	0.00E+00	6.34E-08	0.00E+00	1.25E-08	3.81E-06	0.00E+00	0.00E+00	6.24E-03
10	ALL		389427.5	3780207.2	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.10E-04	0.00E+00	1.10E-04	5.73E-08	1.11E-04	6.24E-03	0.00E+00	6.34E-08	0.00E+00	1.25E-08	3.80E-06	0.00E+00	0.00E+00	6.24E-03
8740	ALL		389800	3780550	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.10E-04	0.00E+00	1.10E-04	5.71E-08	1.10E-04	6.23E-03	0.00E+00	6.33E-08	0.00E+00	1.24E-08	3.80E-06	0.00E+00	0.00E+00	6.23E-03
7382	ALL		390500	3779850	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.09E-04	0.00E+00	1.09E-04	5.67E-08	1.10E-04	6.18E-03	0.00E+00	6.28E-08	0.00E+00	1.23E-08	3.77E-06	0.00E+00	0.00E+00	6.18E-03
9148	ALL		389500	3780750	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.09E-04	0.00E+00	1.09E-04	5.66E-08	1.09E-04	6.17E-03	0.00E+00	6.27E-08	0.00E+00	1.23E-08	3.76E-06	0.00E+00	0.00E+00	6.17E-03

Appendix A.5.1 - Biogas Renewable Generation Project - Flares HARP2 Output Summary - Residential MICR - Top 50

*HARP - HRACalc v17023 7/3/2017 4:46:50 PM - Cancer Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\Flare3\SCHOLL CANYON FLARE\hra\res_HRAInput.hr

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
8536	ALL		389750	3780450	1.24E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.24E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	ALL		389759	3780447	1.21E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	ALL		389427.5	3780207.2	1.21E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8535	ALL		389700	3780450	1.21E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	ALL		389400	3780175	1.21E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.21E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	ALL		389455	3780239.5	1.19E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.19E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8034	ALL		389400	3780200	1.19E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.19E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8638	ALL		389750	3780500	1.18E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.18E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8132	ALL		389450	3780250	1.18E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.18E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	ALL		389482.5	3780271.8	1.16E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	ALL		389767.5	3780482.5	1.15E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.15E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	ALL		389355.6	3780183.6	1.15E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.15E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8131	ALL		389400	3780250	1.14E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.14E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8433	ALL		389650	3780400	1.13E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8033	ALL		389350	3780200	1.13E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	ALL		389569	3780313	1.13E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.13E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8332	ALL		389600	3780350	1.12E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8231	ALL		389500	3780300	1.12E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	ALL		389510	3780304	1.11E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	ALL		389539.5	3780308.5	1.11E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8637	ALL		389700	3780500	1.11E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8739	ALL		389750	3780550	1.11E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	ALL		389607	3780339.8	1.10E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8230	ALL		389450	3780300	1.10E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8130	ALL		389350	3780250	1.10E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.10E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	ALL		389311.2	3780192.2	1.09E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.09E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	ALL		389908	3780725	1.09E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.09E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	ALL		389721	3780420.2	1.09E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.09E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8948	ALL		389850	3780650	1.09E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.09E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8032	ALL		389300	3780200	1.08E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	ALL		389874.5	3780717.5	1.08E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8229	ALL		389400	3780300	1.08E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	ALL		389855.3	3780676	1.07E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8432	ALL		389600	3780400	1.07E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	ALL		389869.7	3780642	1.06E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	ALL		389645	3780366.6	1.06E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8129	ALL		389300	3780250	1.06E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8228	ALL		389350	3780300	1.05E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8843	ALL		389800	3780600	1.05E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	ALL		389776	3780518	1.05E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	ALL		389266.9	3780200.9	1.05E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31	ALL		389884.5	3780758.5	1.04E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.04E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8331	ALL		389550	3780350	1.03E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8330	ALL		389500	3780350	1.03E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8227	ALL		389300	3780300	1.03E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	ALL		389683	3780393.4	1.03E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.03E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8329	ALL		389450	3780350	1.02E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8128	ALL		389250	3780250	1.02E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8328	ALL		389400	3780350	1.01E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9155	ALL		389850	3780750	1.01E-07	2YrCancerDerived_InhSoilDermMMilk_FAH16to70	1.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Appendix A.5.1 - Biogas Renewable Generation Project - Flares HARP2 Output Summary - Residential HIA - Top 50

*HARP - HRACalc v17023 7/3/2017 4:46:50 PM - Acute Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\Flare3\SCHOLL CANYON FLARE\hra\res_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE\	RESP	SKIN	EYE	BONE/TEET	ENDO	BLOOD	ODOR	GENERAL	MAXHI
86	ALL		390419.6	3779834	NonCancer	0.00E+00	9.64E-04	1.48E-04	0.00E+00	5.08E-08	2.95E-04	3.29E-05	0.00E+00	1.23E-02	0.00E+00	0.00E+00	1.48E-04	0.00E+00	0.00E+00	1.23E-02
7381	ALL		390450	3779850	NonCancer	0.00E+00	8.40E-04	1.29E-04	0.00E+00	4.43E-08	2.57E-04	2.87E-05	0.00E+00	1.07E-02	0.00E+00	0.00E+00	1.29E-04	0.00E+00	0.00E+00	1.07E-02
87	ALL		390432.2	3779792	NonCancer	0.00E+00	8.12E-04	1.24E-04	0.00E+00	4.28E-08	2.48E-04	2.77E-05	0.00E+00	1.04E-02	0.00E+00	0.00E+00	1.24E-04	0.00E+00	0.00E+00	1.04E-02
88	ALL		390444.8	3779751	NonCancer	0.00E+00	8.06E-04	1.24E-04	0.00E+00	4.25E-08	2.47E-04	2.76E-05	0.00E+00	1.03E-02	0.00E+00	0.00E+00	1.24E-04	0.00E+00	0.00E+00	1.03E-02
7187	ALL		390450	3779750	NonCancer	0.00E+00	7.93E-04	1.21E-04	0.00E+00	4.18E-08	2.42E-04	2.71E-05	0.00E+00	1.01E-02	0.00E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	1.01E-02
85	ALL		390407	3779876	NonCancer	0.00E+00	7.80E-04	1.19E-04	0.00E+00	4.11E-08	2.38E-04	2.67E-05	0.00E+00	9.96E-03	0.00E+00	0.00E+00	1.19E-04	0.00E+00	0.00E+00	9.96E-03
7285	ALL		390450	3779800	NonCancer	0.00E+00	7.68E-04	1.18E-04	0.00E+00	4.05E-08	2.35E-04	2.62E-05	0.00E+00	9.81E-03	0.00E+00	0.00E+00	1.18E-04	0.00E+00	0.00E+00	9.81E-03
89	ALL		390457.4	3779709	NonCancer	0.00E+00	7.33E-04	1.12E-04	0.00E+00	3.87E-08	2.24E-04	2.51E-05	0.00E+00	9.37E-03	0.00E+00	0.00E+00	1.12E-04	0.00E+00	0.00E+00	9.37E-03
111	ALL		390067.2	3779358	NonCancer	0.00E+00	7.20E-04	1.10E-04	0.00E+00	3.80E-08	2.20E-04	2.46E-05	0.00E+00	9.20E-03	0.00E+00	0.00E+00	1.10E-04	0.00E+00	0.00E+00	9.20E-03
112	ALL		390018.9	3779360	NonCancer	0.00E+00	7.19E-04	1.10E-04	0.00E+00	3.79E-08	2.20E-04	2.46E-05	0.00E+00	9.19E-03	0.00E+00	0.00E+00	1.10E-04	0.00E+00	0.00E+00	9.19E-03
90	ALL		390470	3779667	NonCancer	0.00E+00	7.15E-04	1.10E-04	0.00E+00	3.77E-08	2.19E-04	2.45E-05	0.00E+00	9.14E-03	0.00E+00	0.00E+00	1.10E-04	0.00E+00	0.00E+00	9.14E-03
6384	ALL		390050	3779350	NonCancer	0.00E+00	7.12E-04	1.09E-04	0.00E+00	3.75E-08	2.18E-04	2.43E-05	0.00E+00	9.10E-03	0.00E+00	0.00E+00	1.09E-04	0.00E+00	0.00E+00	9.10E-03
110	ALL		390115.5	3779357	NonCancer	0.00E+00	7.07E-04	1.08E-04	0.00E+00	3.73E-08	2.16E-04	2.42E-05	0.00E+00	9.04E-03	0.00E+00	0.00E+00	1.08E-04	0.00E+00	0.00E+00	9.04E-03
113	ALL		389970.5	3779361	NonCancer	0.00E+00	7.07E-04	1.08E-04	0.00E+00	3.73E-08	2.16E-04	2.42E-05	0.00E+00	9.03E-03	0.00E+00	0.00E+00	1.08E-04	0.00E+00	0.00E+00	9.03E-03
6383	ALL		390000	3779350	NonCancer	0.00E+00	7.01E-04	1.07E-04	0.00E+00	3.69E-08	2.14E-04	2.40E-05	0.00E+00	8.95E-03	0.00E+00	0.00E+00	1.07E-04	0.00E+00	0.00E+00	8.95E-03
6385	ALL		390100	3779350	NonCancer	0.00E+00	6.92E-04	1.06E-04	0.00E+00	3.65E-08	2.11E-04	2.36E-05	0.00E+00	8.84E-03	0.00E+00	0.00E+00	1.06E-04	0.00E+00	0.00E+00	8.84E-03
91	ALL		390471.5	3779634	NonCancer	0.00E+00	6.92E-04	1.06E-04	0.00E+00	3.65E-08	2.11E-04	2.36E-05	0.00E+00	8.84E-03	0.00E+00	0.00E+00	1.06E-04	0.00E+00	0.00E+00	8.84E-03
109	ALL		390163.8	3779356	NonCancer	0.00E+00	6.86E-04	1.05E-04	0.00E+00	3.61E-08	2.10E-04	2.34E-05	0.00E+00	8.76E-03	0.00E+00	0.00E+00	1.05E-04	0.00E+00	0.00E+00	8.76E-03
7382	ALL		390500	3779850	NonCancer	0.00E+00	6.85E-04	1.05E-04	0.00E+00	3.61E-08	2.09E-04	2.34E-05	0.00E+00	8.75E-03	0.00E+00	0.00E+00	1.05E-04	0.00E+00	0.00E+00	8.75E-03
7478	ALL		390500	3779900	NonCancer	0.00E+00	6.83E-04	1.05E-04	0.00E+00	3.60E-08	2.09E-04	2.33E-05	0.00E+00	8.72E-03	0.00E+00	0.00E+00	1.05E-04	0.00E+00	0.00E+00	8.72E-03
7188	ALL		390500	3779750	NonCancer	0.00E+00	6.79E-04	1.04E-04	0.00E+00	3.58E-08	2.08E-04	2.32E-05	0.00E+00	8.67E-03	0.00E+00	0.00E+00	1.04E-04	0.00E+00	0.00E+00	8.67E-03
6386	ALL		390150	3779350	NonCancer	0.00E+00	6.78E-04	1.04E-04	0.00E+00	3.58E-08	2.07E-04	2.32E-05	0.00E+00	8.66E-03	0.00E+00	0.00E+00	1.04E-04	0.00E+00	0.00E+00	8.66E-03
92	ALL		390473	3779600	NonCancer	0.00E+00	6.64E-04	1.02E-04	0.00E+00	3.50E-08	2.03E-04	2.27E-05	0.00E+00	8.48E-03	0.00E+00	0.00E+00	1.02E-04	0.00E+00	0.00E+00	8.48E-03
116	ALL		389825.6	3779365	NonCancer	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
6382	ALL		389950	3779350	NonCancer	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
6387	ALL		390200	3779350	NonCancer	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
6990	ALL		390500	3779650	NonCancer	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
7286	ALL		390500	3779800	NonCancer	0.00E+00	6.56E-04	1.01E-04	0.00E+00	3.46E-08	2.01E-04	2.24E-05	0.00E+00	8.39E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.39E-03
7089	ALL		390500	3779700	NonCancer	0.00E+00	6.54E-04	1.00E-04	0.00E+00	3.45E-08	2.00E-04	2.23E-05	0.00E+00	8.35E-03	0.00E+00	0.00E+00	1.00E-04	0.00E+00	0.00E+00	8.35E-03
108	ALL		390212.1	3779355	NonCancer	0.00E+00	6.51E-04	9.98E-05	0.00E+00	3.43E-08	1.99E-04	2.23E-05	0.00E+00	8.32E-03	0.00E+00	0.00E+00	9.98E-05	0.00E+00	0.00E+00	8.32E-03
7477	ALL		390450	3779900	NonCancer	0.00E+00	6.44E-04	9.86E-05	0.00E+00	3.39E-08	1.97E-04	2.20E-05	0.00E+00	8.22E-03	0.00E+00	0.00E+00	9.86E-05	0.00E+00	0.00E+00	8.22E-03
115	ALL		389873.9	3779363	NonCancer	0.00E+00	6.37E-04	9.77E-05	0.00E+00	3.36E-08	1.95E-04	2.18E-05	0.00E+00	8.14E-03	0.00E+00	0.00E+00	9.77E-05	0.00E+00	0.00E+00	8.14E-03
6388	ALL		390250	3779350	NonCancer	0.00E+00	6.33E-04	9.70E-05	0.00E+00	3.34E-08	1.94E-04	2.16E-05	0.00E+00	8.09E-03	0.00E+00	0.00E+00	9.70E-05	0.00E+00	0.00E+00	8.09E-03
107	ALL		390260.5	3779353	NonCancer	0.00E+00	6.32E-04	9.69E-05	0.00E+00	3.33E-08	1.93E-04	2.16E-05	0.00E+00	8.08E-03	0.00E+00	0.00E+00	9.69E-05	0.00E+00	0.00E+00	8.08E-03
6263	ALL		390050	3779300	NonCancer	0.00E+00	6.31E-04	9.67E-05	0.00E+00	3.33E-08	1.93E-04	2.16E-05	0.00E+00	8.07E-03	0.00E+00	0.00E+00	9.67E-05	0.00E+00	0.00E+00	8.07E-03
6380	ALL		389850	3779350	NonCancer	0.00E+00	6.30E-04	9.66E-05	0.00E+00	3.32E-08	1.93E-04	2.16E-05	0.00E+00	8.05E-03	0.00E+00	0.00E+00	9.66E-05	0.00E+00	0.00E+00	8.05E-03
6891	ALL		390500	3779600	NonCancer	0.00E+00	6.30E-04	9.66E-05	0.00E+00	3.32E-08	1.93E-04	2.15E-05	0.00E+00	8.05E-03	0.00E+00	0.00E+00	9.66E-05	0.00E+00	0.00E+00	8.05E-03
117	ALL		389777.3	3779366	NonCancer	0.00E+00	6.26E-04	9.60E-05	0.00E+00	3.30E-08	1.91E-04	2.14E-05	0.00E+00	8.00E-03	0.00E+00	0.00E+00	9.60E-05	0.00E+00	0.00E+00	8.00E-03
6379	ALL		389800	3779350	NonCancer	0.00E+00	6.24E-04	9.56E-05	0.00E+00	3.29E-08	1.91E-04	2.13E-05	0.00E+00	7.97E-03	0.00E+00	0.00E+00	9.56E-05	0.00E+00	0.00E+00	7.97E-03
114	ALL		389922.2	3779362	NonCancer	0.00E+00	6.20E-04	9.50E-05	0.00E+00	3.27E-08	1.90E-04	2.12E-05	0.00E+00	7.92E-03	0.00E+00	0.00E+00	9.50E-05	0.00E+00	0.00E+00	7.92E-03
84	ALL		390438.3	3779909	NonCancer	0.00E+00	6.15E-04	9.42E-05	0.00E+00	3.24E-08	1.88E-04	2.10E-05	0.00E+00	7.85E-03	0.00E+00	0.00E+00	9.42E-05	0.00E+00	0.00E+00	7.85E-03
6264	ALL		390100	3779300	NonCancer	0.00E+00	6.08E-04	9.32E-05	0.00E+00	3.21E-08	1.86E-04	2.08E-05	0.00E+00	7.77E-03	0.00E+00	0.00E+00	9.32E-05	0.00E+00	0.00E+00	7.77E-03
6265	ALL		390150	3779300	NonCancer	0.00E+00	6.07E-04	9.30E-05	0.00E+00	3.20E-08	1.85E-04	2.07E-05	0.00E+00	7.75E-03	0.00E+00	0.00E+00	9.30E-05	0.00E+00	0.00E+00	7.75E-03
93	ALL		390497	3779559	NonCancer	0.00E+00	6.06E-04	9.28E-05	0.00E+00	3.19E-08	1.85E-04	2.07E-05	0.00E+00	7.74E-03	0.00E+00	0.00E+00	9.28E-05	0.00E+00	0.00E+00	7.74E-03
6262	ALL		390000	3779300	NonCancer	0.00E+00	6.06E-04	9.28E-05	0.00E+00	3.19E-08	1.85E-04	2.07E-05	0.00E+00	7.74E-03	0.00E+00	0.00E+00	9.28E-05	0.00E+00	0.00E+00	7.74E-03
6389	ALL		390300	3779350	NonCancer	0.00E+00	5.95E-04	9.12E-05	0.00E+00	3.14E-08	1.82E-04	2.03E-05	0.00E+00	7.60E-03	0.00E+00	0.00E+00	9.12E-05	0.00E+00	0.00E+00	7.60E-03
7383	ALL		390550	3779850	NonCancer	0.00E+00	5.93E-04	9.08E-05	0.00E+00	3.13E-08	1.81E-04	2.03E-05	0.00E+00	7.57E-03	0.00E+00	0.00E+00	9.08E-05	0.00E+00	0.00E+00	7.57E-03
6266	ALL		390200	3779300	NonCancer	0.00E+00	5.92E-04	9.07E-05	0.00E+00	3.12E-08	1.81E-04	2.02E-05	0.00E+00	7.57E-03	0.00E+00	0.00E+00	9.07E-05	0.00E+00	0.00E+00	7.57E-03
6991	ALL		390550	3779650	NonCancer	0.00E+00	5.88E-04	9.02E-05	0.00E+00	3.10E-08	1.80E-04	2.01E-05	0.00E+00	7.52E-03	0.00E+00	0.00E+00	9.02E-05	0.00E+00	0.00E+00	7.52E-03
7189	ALL		390550	3779750	NonCancer	0.00E+00	5.87E-04	9.00E-05	0.00E+00	3.10E-08	1.80E-04	2.01E-05	0.00E+00	7.50E-03	0.00E+00	0.00E+00	9.00E-05	0.00E+00	0.00E+00	7.50E-03

Appendix A.5.1 - Biogas Renewable Generation Project - Flares HARP2 Output Summary - Residential HIC - Top 50

*HARP - HRACalc v17023 7/3/2017 4:46:50 PM - Chronic Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\Flare3\SCHOLL CANYON FLARE\hra\res_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
8536	ALL		389750	3780450	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.47E-04	0.00E+00	2.46E-04	5.37E-07	2.51E-04	1.22E-03	0.00E+00	3.40E-07	0.00E+00	6.60E-08	2.02E-05	0.00E+00	0.00E+00	1.22E-03
20	ALL		389759	3780447	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.42E-04	0.00E+00	2.42E-04	5.28E-07	2.47E-04	1.20E-03	0.00E+00	3.35E-07	0.00E+00	6.49E-08	1.98E-05	0.00E+00	0.00E+00	1.20E-03
10	ALL		389427.5	3780207.2	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.42E-04	0.00E+00	2.41E-04	5.27E-07	2.46E-04	1.20E-03	0.00E+00	3.34E-07	0.00E+00	6.48E-08	1.98E-05	0.00E+00	0.00E+00	1.20E-03
8535	ALL		389700	3780450	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.41E-04	0.00E+00	2.41E-04	5.26E-07	2.46E-04	1.20E-03	0.00E+00	3.33E-07	0.00E+00	6.47E-08	1.97E-05	0.00E+00	0.00E+00	1.20E-03
9	ALL		389400	3780175	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.41E-04	0.00E+00	2.41E-04	5.26E-07	2.45E-04	1.19E-03	0.00E+00	3.33E-07	0.00E+00	6.46E-08	1.97E-05	0.00E+00	0.00E+00	1.19E-03
11	ALL		389455	3780239.5	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.39E-04	0.00E+00	2.38E-04	5.20E-07	2.43E-04	1.18E-03	0.00E+00	3.29E-07	0.00E+00	6.39E-08	1.95E-05	0.00E+00	0.00E+00	1.18E-03
8034	ALL		389400	3780200	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.37E-04	0.00E+00	2.37E-04	5.17E-07	2.41E-04	1.18E-03	0.00E+00	3.28E-07	0.00E+00	6.36E-08	1.94E-05	0.00E+00	0.00E+00	1.18E-03
8638	ALL		389750	3780500	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.35E-04	0.00E+00	2.35E-04	5.13E-07	2.39E-04	1.17E-03	0.00E+00	3.25E-07	0.00E+00	6.30E-08	1.92E-05	0.00E+00	0.00E+00	1.17E-03
8132	ALL		389450	3780250	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.35E-04	0.00E+00	2.34E-04	5.12E-07	2.39E-04	1.16E-03	0.00E+00	3.24E-07	0.00E+00	6.29E-08	1.92E-05	0.00E+00	0.00E+00	1.16E-03
12	ALL		389482.5	3780271.8	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.32E-04	0.00E+00	2.31E-04	5.05E-07	2.36E-04	1.15E-03	0.00E+00	3.20E-07	0.00E+00	6.21E-08	1.90E-05	0.00E+00	0.00E+00	1.15E-03
21	ALL		389767.5	3780482.5	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.30E-04	0.00E+00	2.29E-04	5.01E-07	2.34E-04	1.14E-03	0.00E+00	3.17E-07	0.00E+00	6.15E-08	1.88E-05	0.00E+00	0.00E+00	1.14E-03
8	ALL		389355.6	3780183.6	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.29E-04	0.00E+00	2.29E-04	4.99E-07	2.33E-04	1.13E-03	0.00E+00	3.16E-07	0.00E+00	6.13E-08	1.87E-05	0.00E+00	0.00E+00	1.13E-03
8131	ALL		389400	3780250	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.27E-04	0.00E+00	2.27E-04	4.95E-07	2.31E-04	1.12E-03	0.00E+00	3.13E-07	0.00E+00	6.08E-08	1.86E-05	0.00E+00	0.00E+00	1.12E-03
8433	ALL		389650	3780400	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.26E-04	0.00E+00	2.26E-04	4.93E-07	2.30E-04	1.12E-03	0.00E+00	3.12E-07	0.00E+00	6.06E-08	1.85E-05	0.00E+00	0.00E+00	1.12E-03
8033	ALL		389350	3780200	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.26E-04	0.00E+00	2.26E-04	4.93E-07	2.30E-04	1.12E-03	0.00E+00	3.12E-07	0.00E+00	6.06E-08	1.85E-05	0.00E+00	0.00E+00	1.12E-03
15	ALL		389569	3780313	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.25E-04	0.00E+00	2.24E-04	4.90E-07	2.29E-04	1.11E-03	0.00E+00	3.10E-07	0.00E+00	6.02E-08	1.84E-05	0.00E+00	0.00E+00	1.11E-03
8332	ALL		389600	3780350	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.24E-04	0.00E+00	2.24E-04	4.89E-07	2.28E-04	1.11E-03	0.00E+00	3.10E-07	0.00E+00	6.01E-08	1.83E-05	0.00E+00	0.00E+00	1.11E-03
8231	ALL		389500	3780300	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.23E-04	0.00E+00	2.23E-04	4.87E-07	2.27E-04	1.11E-03	0.00E+00	3.08E-07	0.00E+00	5.98E-08	1.83E-05	0.00E+00	0.00E+00	1.11E-03
13	ALL		389510	3780304	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.23E-04	0.00E+00	2.22E-04	4.85E-07	2.26E-04	1.10E-03	0.00E+00	3.07E-07	0.00E+00	5.96E-08	1.82E-05	0.00E+00	0.00E+00	1.10E-03
14	ALL		389539.5	3780308.5	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.23E-04	0.00E+00	2.22E-04	4.85E-07	2.26E-04	1.10E-03	0.00E+00	3.07E-07	0.00E+00	5.96E-08	1.82E-05	0.00E+00	0.00E+00	1.10E-03
8637	ALL		389700	3780500	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.21E-04	0.00E+00	2.21E-04	4.82E-07	2.25E-04	1.10E-03	0.00E+00	3.05E-07	0.00E+00	5.93E-08	1.81E-05	0.00E+00	0.00E+00	1.10E-03
8739	ALL		389750	3780550	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.21E-04	0.00E+00	2.21E-04	4.82E-07	2.25E-04	1.10E-03	0.00E+00	3.05E-07	0.00E+00	5.93E-08	1.81E-05	0.00E+00	0.00E+00	1.10E-03
16	ALL		389607	3780339.8	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.20E-04	0.00E+00	2.20E-04	4.80E-07	2.24E-04	1.09E-03	0.00E+00	3.04E-07	0.00E+00	5.90E-08	1.80E-05	0.00E+00	0.00E+00	1.09E-03
8230	ALL		389450	3780300	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.19E-04	0.00E+00	2.19E-04	4.78E-07	2.23E-04	1.09E-03	0.00E+00	3.03E-07	0.00E+00	5.88E-08	1.79E-05	0.00E+00	0.00E+00	1.09E-03
8130	ALL		389350	3780250	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.19E-04	0.00E+00	2.19E-04	4.78E-07	2.23E-04	1.09E-03	0.00E+00	3.03E-07	0.00E+00	5.87E-08	1.79E-05	0.00E+00	0.00E+00	1.09E-03
7	ALL		389311.2	3780192.2	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.18E-04	0.00E+00	2.18E-04	4.76E-07	2.22E-04	1.08E-03	0.00E+00	3.01E-07	0.00E+00	5.85E-08	1.78E-05	0.00E+00	0.00E+00	1.08E-03
30	ALL		389908	3780725	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.18E-04	0.00E+00	2.17E-04	4.75E-07	2.22E-04	1.08E-03	0.00E+00	3.01E-07	0.00E+00	5.83E-08	1.78E-05	0.00E+00	0.00E+00	1.08E-03
19	ALL		389721	3780420.2	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.18E-04	0.00E+00	2.17E-04	4.74E-07	2.21E-04	1.08E-03	0.00E+00	3.00E-07	0.00E+00	5.83E-08	1.78E-05	0.00E+00	0.00E+00	1.08E-03
8948	ALL		389850	3780650	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.17E-04	0.00E+00	2.16E-04	4.73E-07	2.21E-04	1.07E-03	0.00E+00	3.00E-07	0.00E+00	5.81E-08	1.77E-05	0.00E+00	0.00E+00	1.07E-03
8032	ALL		389300	3780200	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.15E-04	0.00E+00	2.15E-04	4.70E-07	2.19E-04	1.07E-03	0.00E+00	2.97E-07	0.00E+00	5.77E-08	1.76E-05	0.00E+00	0.00E+00	1.07E-03
29	ALL		389874.5	3780717.5	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.15E-04	0.00E+00	2.15E-04	4.70E-07	2.19E-04	1.07E-03	0.00E+00	2.97E-07	0.00E+00	5.77E-08	1.76E-05	0.00E+00	0.00E+00	1.07E-03
8229	ALL		389400	3780300	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.15E-04	0.00E+00	2.14E-04	4.69E-07	2.19E-04	1.07E-03	0.00E+00	2.97E-07	0.00E+00	5.76E-08	1.76E-05	0.00E+00	0.00E+00	1.07E-03
27	ALL		389855.3	3780676	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.14E-04	0.00E+00	2.14E-04	4.67E-07	2.18E-04	1.06E-03	0.00E+00	2.96E-07	0.00E+00	5.74E-08	1.75E-05	0.00E+00	0.00E+00	1.06E-03
8432	ALL		389600	3780400	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.14E-04	0.00E+00	2.13E-04	4.66E-07	2.18E-04	1.06E-03	0.00E+00	2.95E-07	0.00E+00	5.73E-08	1.75E-05	0.00E+00	0.00E+00	1.06E-03
26	ALL		389869.7	3780642	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.12E-04	0.00E+00	2.11E-04	4.62E-07	2.16E-04	1.05E-03	0.00E+00	2.92E-07	0.00E+00	5.67E-08	1.73E-05	0.00E+00	0.00E+00	1.05E-03
17	ALL		389645	3780366.6	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.12E-04	0.00E+00	2.11E-04	4.61E-07	2.15E-04	1.05E-03	0.00E+00	2.92E-07	0.00E+00	5.67E-08	1.73E-05	0.00E+00	0.00E+00	1.05E-03
8129	ALL		389300	3780250	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.11E-04	0.00E+00	2.11E-04	4.61E-07	2.15E-04	1.05E-03	0.00E+00	2.92E-07	0.00E+00	5.66E-08	1.73E-05	0.00E+00	0.00E+00	1.05E-03
8228	ALL		389350	3780300	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.10E-04	0.00E+00	2.10E-04	4.58E-07	2.14E-04	1.04E-03	0.00E+00	2.90E-07	0.00E+00	5.63E-08	1.72E-05	0.00E+00	0.00E+00	1.04E-03
8843	ALL		389800	3780600	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.10E-04	0.00E+00	2.09E-04	4.57E-07	2.13E-04	1.04E-03	0.00E+00	2.89E-07	0.00E+00	5.61E-08	1.71E-05	0.00E+00	0.00E+00	1.04E-03
22	ALL		389776	3780518	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.09E-04	0.00E+00	2.09E-04	4.56E-07	2.13E-04	1.04E-03	0.00E+00	2.89E-07	0.00E+00	5.60E-08	1.71E-05	0.00E+00	0.00E+00	1.04E-03
6	ALL		389266.9	3780200.9	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.09E-04	0.00E+00	2.08E-04	4.55E-07	2.12E-04	1.03E-03	0.00E+00	2.88E-07	0.00E+00	5.59E-08	1.71E-05	0.00E+00	0.00E+00	1.03E-03
31	ALL		389884.5	3780758.5	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.08E-04	0.00E+00	2.07E-04	4.53E-07	2.11E-04	1.03E-03	0.00E+00	2.87E-07	0.00E+00	5.56E-08	1.70E-05	0.00E+00	0.00E+00	1.03E-03
8331	ALL		389550	3780350	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.07E-04	0.00E+00	2.06E-04	4.50E-07	2.10E-04	1.02E-03	0.00E+00	2.85E-07	0.00E+00	5.53E-08	1.69E-05	0.00E+00	0.00E+00	1.02E-03
8330	ALL		389500	3780350	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.06E-04	0.00E+00	2.05E-04	4.48E-07	2.09E-04	1.02E-03	0.00E+00	2.84E-07	0.00E+00	5.51E-08	1.68E-05	0.00E+00	0.00E+00	1.02E-03
8227	ALL		389300	3780300	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.05E-04	0.00E+00	2.04E-04	4.47E-07	2.08E-04	1.02E-03	0.00E+00	2.83E-07	0.00E+00	5.49E-08	1.68E-05	0.00E+00	0.00E+00	1.02E-03
18	ALL		389683	3780393.4	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.05E-04	0.00E+00	2.04E-04	4.46E-07	2.08E-04	1.01E-03	0.00E+00	2.82E-07	0.00E+00	5.48E-08	1.67E-05	0.00E+00	0.00E+00	1.01E-03
8329	ALL		389450	3780350	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.04E-04	0.00E+00	2.04E-04	4.45E-07	2.08E-04	1.01E-03	0.00E+00	2.82E-07	0.00E+00	5.47E-08	1.67E-05	0.00E+00	0.00E+00	1.01E-03
8128	ALL		389250	3780250	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.04E-04	0.00E+00	2.03E-04	4.44E-07	2.07E-04	1.01E-03	0.00E+00	2.81E-07	0.00E+00	5.46E-08	1.67E-05	0.00E+00	0.00E+00	1.01E-03
8328	ALL		389400	3780350	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.02E-04	0.00E+00	2.02E-04	4.41E-07	2.06E-04	1.00E-03	0.00E+00	2.79E-07	0.00E+00	5.41E-08	1.65E-05	0.00E+00	0.00E+00	1.00E-03
9155	ALL		389850	3780750	NonCancerChronicDerived_InhSoilDermMMilk	0.00E+00	2.01E-04	0.00E+00	2.01E-04	4.39E-07	2.05E-04	9.97E-04	0.00E+00	2.78E-07	0.00E+00	5.39E-08	1.64E-05	0.00E+00	0.00E+00	9.97E-04

Appendix A.5.1 - Biogas Renewable Generation Project - Flares HARP2 Output Summary - Worker MICR - Top 50

*HARP - HRACalc v17023 7/3/2017 4:53:18 PM - Cancer Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\Flare3\SCHOLL CANYON FLARE\hra\work_HRAInput.hra

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK
8536	ALL		389750	3780450	1.87E-09	2YrCancerDerived_InhSoilDerm	1.87E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	ALL		389759	3780447	1.83E-09	2YrCancerDerived_InhSoilDerm	1.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	ALL		389427.5	3780207.2	1.83E-09	2YrCancerDerived_InhSoilDerm	1.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8535	ALL		389700	3780450	1.83E-09	2YrCancerDerived_InhSoilDerm	1.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	ALL		389400	3780175	1.82E-09	2YrCancerDerived_InhSoilDerm	1.82E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	ALL		389455	3780239.5	1.80E-09	2YrCancerDerived_InhSoilDerm	1.80E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8034	ALL		389400	3780200	1.79E-09	2YrCancerDerived_InhSoilDerm	1.79E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8638	ALL		389750	3780500	1.78E-09	2YrCancerDerived_InhSoilDerm	1.78E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8132	ALL		389450	3780250	1.78E-09	2YrCancerDerived_InhSoilDerm	1.78E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	ALL		389482.5	3780271.8	1.75E-09	2YrCancerDerived_InhSoilDerm	1.75E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	ALL		389767.5	3780482.5	1.74E-09	2YrCancerDerived_InhSoilDerm	1.74E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	ALL		389355.6	3780183.6	1.73E-09	2YrCancerDerived_InhSoilDerm	1.73E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8131	ALL		389400	3780250	1.72E-09	2YrCancerDerived_InhSoilDerm	1.72E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8433	ALL		389650	3780400	1.71E-09	2YrCancerDerived_InhSoilDerm	1.71E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8033	ALL		389350	3780200	1.71E-09	2YrCancerDerived_InhSoilDerm	1.71E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	ALL		389569	3780313	1.70E-09	2YrCancerDerived_InhSoilDerm	1.70E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8332	ALL		389600	3780350	1.70E-09	2YrCancerDerived_InhSoilDerm	1.70E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8231	ALL		389500	3780300	1.69E-09	2YrCancerDerived_InhSoilDerm	1.69E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	ALL		389510	3780304	1.68E-09	2YrCancerDerived_InhSoilDerm	1.68E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	ALL		389539.5	3780308.5	1.68E-09	2YrCancerDerived_InhSoilDerm	1.68E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8637	ALL		389700	3780500	1.67E-09	2YrCancerDerived_InhSoilDerm	1.67E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8739	ALL		389750	3780550	1.67E-09	2YrCancerDerived_InhSoilDerm	1.67E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	ALL		389607	3780339.8	1.67E-09	2YrCancerDerived_InhSoilDerm	1.67E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8230	ALL		389450	3780300	1.66E-09	2YrCancerDerived_InhSoilDerm	1.66E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8130	ALL		389350	3780250	1.66E-09	2YrCancerDerived_InhSoilDerm	1.66E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	ALL		389311.2	3780192.2	1.65E-09	2YrCancerDerived_InhSoilDerm	1.65E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	ALL		389908	3780725	1.65E-09	2YrCancerDerived_InhSoilDerm	1.65E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	ALL		389721	3780420.2	1.65E-09	2YrCancerDerived_InhSoilDerm	1.65E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8948	ALL		389850	3780650	1.64E-09	2YrCancerDerived_InhSoilDerm	1.64E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8032	ALL		389300	3780200	1.63E-09	2YrCancerDerived_InhSoilDerm	1.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	ALL		389874.5	3780717.5	1.63E-09	2YrCancerDerived_InhSoilDerm	1.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8229	ALL		389400	3780300	1.63E-09	2YrCancerDerived_InhSoilDerm	1.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	ALL		389855.3	3780676	1.62E-09	2YrCancerDerived_InhSoilDerm	1.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8432	ALL		389600	3780400	1.62E-09	2YrCancerDerived_InhSoilDerm	1.62E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	ALL		389869.7	3780642	1.60E-09	2YrCancerDerived_InhSoilDerm	1.60E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	ALL		389645	3780366.6	1.60E-09	2YrCancerDerived_InhSoilDerm	1.60E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8129	ALL		389300	3780250	1.60E-09	2YrCancerDerived_InhSoilDerm	1.60E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8228	ALL		389350	3780300	1.59E-09	2YrCancerDerived_InhSoilDerm	1.59E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8843	ALL		389800	3780600	1.59E-09	2YrCancerDerived_InhSoilDerm	1.59E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	ALL		389776	3780518	1.58E-09	2YrCancerDerived_InhSoilDerm	1.58E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	ALL		389266.9	3780200.9	1.58E-09	2YrCancerDerived_InhSoilDerm	1.58E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31	ALL		389884.5	3780758.5	1.57E-09	2YrCancerDerived_InhSoilDerm	1.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8331	ALL		389550	3780350	1.56E-09	2YrCancerDerived_InhSoilDerm	1.56E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8330	ALL		389500	3780350	1.56E-09	2YrCancerDerived_InhSoilDerm	1.56E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8227	ALL		389300	3780300	1.55E-09	2YrCancerDerived_InhSoilDerm	1.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	ALL		389683	3780393.4	1.55E-09	2YrCancerDerived_InhSoilDerm	1.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8329	ALL		389450	3780350	1.54E-09	2YrCancerDerived_InhSoilDerm	1.54E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8128	ALL		389250	3780250	1.54E-09	2YrCancerDerived_InhSoilDerm	1.54E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8328	ALL		389400	3780350	1.53E-09	2YrCancerDerived_InhSoilDerm	1.53E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9155	ALL		389850	3780750	1.52E-09	2YrCancerDerived_InhSoilDerm	1.52E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Appendix A.5.1 - Biogas Renewable Generation Project - Flares HARP2 Output Summary - Worker HIA - Top 50

*HARP - HRACalc v17023 7/3/2017 4:53:18 PM - Acute Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\Flare3\SCHOLL CANYON FLARE\hra\work_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
86	ALL		390419.6	3779834.2	NonCancerAcute	0.00E+00	9.64E-04	1.48E-04	0.00E+00	5.08E-08	2.95E-04	3.29E-05	0.00E+00	1.23E-02	0.00E+00	0.00E+00	1.48E-04	0.00E+00	0.00E+00	1.23E-02
7381	ALL		390450	3779850	NonCancerAcute	0.00E+00	8.40E-04	1.29E-04	0.00E+00	4.43E-08	2.57E-04	2.87E-05	0.00E+00	1.07E-02	0.00E+00	0.00E+00	1.29E-04	0.00E+00	0.00E+00	1.07E-02
87	ALL		390432.2	3779792.4	NonCancerAcute	0.00E+00	8.12E-04	1.24E-04	0.00E+00	4.28E-08	2.48E-04	2.77E-05	0.00E+00	1.04E-02	0.00E+00	0.00E+00	1.24E-04	0.00E+00	0.00E+00	1.04E-02
88	ALL		390444.8	3779750.6	NonCancerAcute	0.00E+00	8.06E-04	1.24E-04	0.00E+00	4.25E-08	2.47E-04	2.76E-05	0.00E+00	1.03E-02	0.00E+00	0.00E+00	1.24E-04	0.00E+00	0.00E+00	1.03E-02
7187	ALL		390450	3779750	NonCancerAcute	0.00E+00	7.93E-04	1.21E-04	0.00E+00	4.18E-08	2.42E-04	2.71E-05	0.00E+00	1.01E-02	0.00E+00	0.00E+00	1.21E-04	0.00E+00	0.00E+00	1.01E-02
85	ALL		390407	3779876	NonCancerAcute	0.00E+00	7.80E-04	1.19E-04	0.00E+00	4.11E-08	2.38E-04	2.67E-05	0.00E+00	9.96E-03	0.00E+00	0.00E+00	1.19E-04	0.00E+00	0.00E+00	9.96E-03
7285	ALL		390450	3779800	NonCancerAcute	0.00E+00	7.68E-04	1.18E-04	0.00E+00	4.05E-08	2.35E-04	2.62E-05	0.00E+00	9.81E-03	0.00E+00	0.00E+00	1.18E-04	0.00E+00	0.00E+00	9.81E-03
89	ALL		390457.4	3779708.8	NonCancerAcute	0.00E+00	7.33E-04	1.12E-04	0.00E+00	3.87E-08	2.24E-04	2.51E-05	0.00E+00	9.37E-03	0.00E+00	0.00E+00	1.12E-04	0.00E+00	0.00E+00	9.37E-03
111	ALL		390067.2	3779358.3	NonCancerAcute	0.00E+00	7.20E-04	1.10E-04	0.00E+00	3.80E-08	2.20E-04	2.46E-05	0.00E+00	9.20E-03	0.00E+00	0.00E+00	1.10E-04	0.00E+00	0.00E+00	9.20E-03
112	ALL		390018.9	3779359.5	NonCancerAcute	0.00E+00	7.19E-04	1.10E-04	0.00E+00	3.79E-08	2.20E-04	2.46E-05	0.00E+00	9.19E-03	0.00E+00	0.00E+00	1.10E-04	0.00E+00	0.00E+00	9.19E-03
90	ALL		390470	3779667	NonCancerAcute	0.00E+00	7.15E-04	1.10E-04	0.00E+00	3.77E-08	2.19E-04	2.45E-05	0.00E+00	9.14E-03	0.00E+00	0.00E+00	1.10E-04	0.00E+00	0.00E+00	9.14E-03
6384	ALL		390050	3779350	NonCancerAcute	0.00E+00	7.12E-04	1.09E-04	0.00E+00	3.75E-08	2.18E-04	2.43E-05	0.00E+00	9.10E-03	0.00E+00	0.00E+00	1.09E-04	0.00E+00	0.00E+00	9.10E-03
110	ALL		390115.5	3779357	NonCancerAcute	0.00E+00	7.07E-04	1.08E-04	0.00E+00	3.73E-08	2.16E-04	2.42E-05	0.00E+00	9.04E-03	0.00E+00	0.00E+00	1.08E-04	0.00E+00	0.00E+00	9.04E-03
113	ALL		389970.5	3779360.8	NonCancerAcute	0.00E+00	7.07E-04	1.08E-04	0.00E+00	3.73E-08	2.16E-04	2.42E-05	0.00E+00	9.03E-03	0.00E+00	0.00E+00	1.08E-04	0.00E+00	0.00E+00	9.03E-03
6383	ALL		390000	3779350	NonCancerAcute	0.00E+00	7.01E-04	1.07E-04	0.00E+00	3.69E-08	2.14E-04	2.40E-05	0.00E+00	8.95E-03	0.00E+00	0.00E+00	1.07E-04	0.00E+00	0.00E+00	8.95E-03
6385	ALL		390100	3779350	NonCancerAcute	0.00E+00	6.92E-04	1.06E-04	0.00E+00	3.65E-08	2.11E-04	2.36E-05	0.00E+00	8.84E-03	0.00E+00	0.00E+00	1.06E-04	0.00E+00	0.00E+00	8.84E-03
91	ALL		390471.5	3779633.5	NonCancerAcute	0.00E+00	6.92E-04	1.06E-04	0.00E+00	3.65E-08	2.11E-04	2.36E-05	0.00E+00	8.84E-03	0.00E+00	0.00E+00	1.06E-04	0.00E+00	0.00E+00	8.84E-03
109	ALL		390163.8	3779355.7	NonCancerAcute	0.00E+00	6.86E-04	1.05E-04	0.00E+00	3.61E-08	2.10E-04	2.34E-05	0.00E+00	8.76E-03	0.00E+00	0.00E+00	1.05E-04	0.00E+00	0.00E+00	8.76E-03
7382	ALL		390500	3779850	NonCancerAcute	0.00E+00	6.85E-04	1.05E-04	0.00E+00	3.61E-08	2.09E-04	2.34E-05	0.00E+00	8.75E-03	0.00E+00	0.00E+00	1.05E-04	0.00E+00	0.00E+00	8.75E-03
7478	ALL		390500	3779900	NonCancerAcute	0.00E+00	6.83E-04	1.05E-04	0.00E+00	3.60E-08	2.09E-04	2.33E-05	0.00E+00	8.72E-03	0.00E+00	0.00E+00	1.05E-04	0.00E+00	0.00E+00	8.72E-03
7188	ALL		390500	3779750	NonCancerAcute	0.00E+00	6.79E-04	1.04E-04	0.00E+00	3.58E-08	2.08E-04	2.32E-05	0.00E+00	8.67E-03	0.00E+00	0.00E+00	1.04E-04	0.00E+00	0.00E+00	8.67E-03
6386	ALL		390150	3779350	NonCancerAcute	0.00E+00	6.78E-04	1.04E-04	0.00E+00	3.58E-08	2.07E-04	2.32E-05	0.00E+00	8.66E-03	0.00E+00	0.00E+00	1.04E-04	0.00E+00	0.00E+00	8.66E-03
92	ALL		390473	3779600	NonCancerAcute	0.00E+00	6.64E-04	1.02E-04	0.00E+00	3.50E-08	2.03E-04	2.27E-05	0.00E+00	8.48E-03	0.00E+00	0.00E+00	1.02E-04	0.00E+00	0.00E+00	8.48E-03
116	ALL		389825.6	3779364.6	NonCancerAcute	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
6382	ALL		389950	3779350	NonCancerAcute	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
6387	ALL		390200	3779350	NonCancerAcute	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
6990	ALL		390500	3779650	NonCancerAcute	0.00E+00	6.58E-04	1.01E-04	0.00E+00	3.47E-08	2.01E-04	2.25E-05	0.00E+00	8.41E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.41E-03
7286	ALL		390500	3779800	NonCancerAcute	0.00E+00	6.56E-04	1.01E-04	0.00E+00	3.46E-08	2.01E-04	2.24E-05	0.00E+00	8.39E-03	0.00E+00	0.00E+00	1.01E-04	0.00E+00	0.00E+00	8.39E-03
7089	ALL		390500	3779700	NonCancerAcute	0.00E+00	6.54E-04	1.00E-04	0.00E+00	3.45E-08	2.00E-04	2.23E-05	0.00E+00	8.35E-03	0.00E+00	0.00E+00	1.00E-04	0.00E+00	0.00E+00	8.35E-03
108	ALL		390212.1	3779354.5	NonCancerAcute	0.00E+00	6.51E-04	9.98E-05	0.00E+00	3.43E-08	1.99E-04	2.23E-05	0.00E+00	8.32E-03	0.00E+00	0.00E+00	9.98E-05	0.00E+00	0.00E+00	8.32E-03
7477	ALL		390450	3779900	NonCancerAcute	0.00E+00	6.44E-04	9.86E-05	0.00E+00	3.39E-08	1.97E-04	2.20E-05	0.00E+00	8.22E-03	0.00E+00	0.00E+00	9.86E-05	0.00E+00	0.00E+00	8.22E-03
115	ALL		389873.9	3779363.4	NonCancerAcute	0.00E+00	6.37E-04	9.77E-05	0.00E+00	3.36E-08	1.95E-04	2.18E-05	0.00E+00	8.14E-03	0.00E+00	0.00E+00	9.77E-05	0.00E+00	0.00E+00	8.14E-03
6388	ALL		390250	3779350	NonCancerAcute	0.00E+00	6.33E-04	9.70E-05	0.00E+00	3.34E-08	1.94E-04	2.16E-05	0.00E+00	8.09E-03	0.00E+00	0.00E+00	9.70E-05	0.00E+00	0.00E+00	8.09E-03
107	ALL		390260.5	3779353.2	NonCancerAcute	0.00E+00	6.32E-04	9.69E-05	0.00E+00	3.33E-08	1.93E-04	2.16E-05	0.00E+00	8.08E-03	0.00E+00	0.00E+00	9.69E-05	0.00E+00	0.00E+00	8.08E-03
6263	ALL		390050	3779300	NonCancerAcute	0.00E+00	6.31E-04	9.67E-05	0.00E+00	3.33E-08	1.93E-04	2.16E-05	0.00E+00	8.07E-03	0.00E+00	0.00E+00	9.67E-05	0.00E+00	0.00E+00	8.07E-03
6380	ALL		389850	3779350	NonCancerAcute	0.00E+00	6.30E-04	9.66E-05	0.00E+00	3.32E-08	1.93E-04	2.16E-05	0.00E+00	8.05E-03	0.00E+00	0.00E+00	9.66E-05	0.00E+00	0.00E+00	8.05E-03
6891	ALL		390500	3779600	NonCancerAcute	0.00E+00	6.30E-04	9.66E-05	0.00E+00	3.32E-08	1.93E-04	2.15E-05	0.00E+00	8.05E-03	0.00E+00	0.00E+00	9.66E-05	0.00E+00	0.00E+00	8.05E-03
117	ALL		389777.3	3779365.9	NonCancerAcute	0.00E+00	6.26E-04	9.60E-05	0.00E+00	3.30E-08	1.91E-04	2.14E-05	0.00E+00	8.00E-03	0.00E+00	0.00E+00	9.60E-05	0.00E+00	0.00E+00	8.00E-03
6379	ALL		389800	3779350	NonCancerAcute	0.00E+00	6.24E-04	9.56E-05	0.00E+00	3.29E-08	1.91E-04	2.13E-05	0.00E+00	7.97E-03	0.00E+00	0.00E+00	9.56E-05	0.00E+00	0.00E+00	7.97E-03
114	ALL		389922.2	3779362.1	NonCancerAcute	0.00E+00	6.20E-04	9.50E-05	0.00E+00	3.27E-08	1.90E-04	2.12E-05	0.00E+00	7.92E-03	0.00E+00	0.00E+00	9.50E-05	0.00E+00	0.00E+00	7.92E-03
84	ALL		390438.3	3779909.3	NonCancerAcute	0.00E+00	6.15E-04	9.42E-05	0.00E+00	3.24E-08	1.88E-04	2.10E-05	0.00E+00	7.85E-03	0.00E+00	0.00E+00	9.42E-05	0.00E+00	0.00E+00	7.85E-03
6264	ALL		390100	3779300	NonCancerAcute	0.00E+00	6.08E-04	9.32E-05	0.00E+00	3.21E-08	1.86E-04	2.08E-05	0.00E+00	7.77E-03	0.00E+00	0.00E+00	9.32E-05	0.00E+00	0.00E+00	7.77E-03
6265	ALL		390150	3779300	NonCancerAcute	0.00E+00	6.07E-04	9.30E-05	0.00E+00	3.20E-08	1.85E-04	2.07E-05	0.00E+00	7.75E-03	0.00E+00	0.00E+00	9.30E-05	0.00E+00	0.00E+00	7.75E-03
93	ALL		390497	3779559	NonCancerAcute	0.00E+00	6.06E-04	9.28E-05	0.00E+00	3.19E-08	1.85E-04	2.07E-05	0.00E+00	7.74E-03	0.00E+00	0.00E+00	9.28E-05	0.00E+00	0.00E+00	7.74E-03
6262	ALL		390000	3779300	NonCancerAcute	0.00E+00	6.06E-04	9.28E-05	0.00E+00	3.19E-08	1.85E-04	2.07E-05	0.00E+00	7.74E-03	0.00E+00	0.00E+00	9.28E-05	0.00E+00	0.00E+00	7.74E-03
6389	ALL		390300	3779350	NonCancerAcute	0.00E+00	5.95E-04	9.12E-05	0.00E+00	3.14E-08	1.82E-04	2.03E-05	0.00E+00	7.60E-03	0.00E+00	0.00E+00	9.12E-05	0.00E+00	0.00E+00	7.60E-03
7383	ALL		390550	3779850	NonCancerAcute	0.00E+00	5.93E-04	9.08E-05	0.00E+00	3.13E-08	1.81E-04	2.03E-05	0.00E+00	7.57E-03	0.00E+00	0.00E+00	9.08E-05	0.00E+00	0.00E+00	7.57E-03
6266	ALL		390200	3779300	NonCancerAcute	0.00E+00	5.92E-04	9.07E-05	0.00E+00	3.12E-08	1.81E-04	2.02E-05	0.00E+00	7.57E-03	0.00E+00	0.00E+00	9.07E-05	0.00E+00	0.00E+00	7.57E-03
6991	ALL		390550	3779650	NonCancerAcute	0.00E+00	5.88E-04	9.02E-05	0.00E+00	3.10E-08	1.80E-04	2.01E-05	0.00E+00	7.52E-03	0.00E+00	0.00E+00	9.02E-05	0.00E+00	0.00E+00	7.52E-03
7189	ALL		390550	3779750	NonCancerAcute	0.00E+00	5.87E-04	9.00E-05	0.00E+00	3.10E-08	1.80E-04	2.01E-05	0.00E+00	7.50E-03	0.00E+00	0.00E+00	9.00E-05	0.00E+00	0.00E+00	7.50E-03

Appendix A.5.1 - Biogas Renewable Generation Project - Flares HARP2 Output Summary - Worker HIC - Top 50

*HARP - HRACalc v17023 7/3/2017 4:53:18 PM - Chronic Risk - Input File: C:\Work\Bee\Glendale CA\Scholl Canyon Revised 6_17\HRA\Flare3\SCHOLL CANYON FLARE\hra\work_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL	MAXHI
8536	ALL		389750	3780450	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.68E-04	0.00E+00	1.67E-04	5.37E-07	1.72E-04	1.22E-03	0.00E+00	3.40E-07	0.00E+00	6.60E-08	2.02E-05	0.00E+00	0.00E+00	1.22E-03
20	ALL		389759	3780447	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.65E-04	0.00E+00	1.65E-04	5.28E-07	1.69E-04	1.20E-03	0.00E+00	3.35E-07	0.00E+00	6.49E-08	1.98E-05	0.00E+00	0.00E+00	1.20E-03
10	ALL		389427.5	3780207.2	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.65E-04	0.00E+00	1.64E-04	5.27E-07	1.69E-04	1.20E-03	0.00E+00	3.34E-07	0.00E+00	6.48E-08	1.98E-05	0.00E+00	0.00E+00	1.20E-03
8535	ALL		389700	3780450	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.64E-04	0.00E+00	1.64E-04	5.26E-07	1.69E-04	1.20E-03	0.00E+00	3.33E-07	0.00E+00	6.47E-08	1.97E-05	0.00E+00	0.00E+00	1.20E-03
9	ALL		389400	3780175	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.64E-04	0.00E+00	1.64E-04	5.26E-07	1.69E-04	1.19E-03	0.00E+00	3.33E-07	0.00E+00	6.46E-08	1.97E-05	0.00E+00	0.00E+00	1.19E-03
11	ALL		389455	3780239.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.63E-04	0.00E+00	1.62E-04	5.20E-07	1.67E-04	1.18E-03	0.00E+00	3.29E-07	0.00E+00	6.39E-08	1.95E-05	0.00E+00	0.00E+00	1.18E-03
8034	ALL		389400	3780200	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.62E-04	0.00E+00	1.61E-04	5.17E-07	1.66E-04	1.18E-03	0.00E+00	3.28E-07	0.00E+00	6.36E-08	1.94E-05	0.00E+00	0.00E+00	1.18E-03
8638	ALL		389750	3780500	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.60E-04	0.00E+00	1.60E-04	5.13E-07	1.64E-04	1.17E-03	0.00E+00	3.25E-07	0.00E+00	6.30E-08	1.92E-05	0.00E+00	0.00E+00	1.17E-03
8132	ALL		389450	3780250	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.60E-04	0.00E+00	1.59E-04	5.12E-07	1.64E-04	1.16E-03	0.00E+00	3.24E-07	0.00E+00	6.29E-08	1.92E-05	0.00E+00	0.00E+00	1.16E-03
12	ALL		389482.5	3780271.8	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.58E-04	0.00E+00	1.57E-04	5.05E-07	1.62E-04	1.15E-03	0.00E+00	3.20E-07	0.00E+00	6.21E-08	1.90E-05	0.00E+00	0.00E+00	1.15E-03
21	ALL		389767.5	3780482.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.56E-04	0.00E+00	1.56E-04	5.01E-07	1.60E-04	1.14E-03	0.00E+00	3.17E-07	0.00E+00	6.15E-08	1.88E-05	0.00E+00	0.00E+00	1.14E-03
8	ALL		389355.6	3780183.6	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.56E-04	0.00E+00	1.55E-04	4.99E-07	1.60E-04	1.13E-03	0.00E+00	3.16E-07	0.00E+00	6.13E-08	1.87E-05	0.00E+00	0.00E+00	1.13E-03
8131	ALL		389400	3780250	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.55E-04	0.00E+00	1.54E-04	4.95E-07	1.59E-04	1.12E-03	0.00E+00	3.13E-07	0.00E+00	6.08E-08	1.86E-05	0.00E+00	0.00E+00	1.12E-03
8433	ALL		389650	3780400	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.54E-04	0.00E+00	1.54E-04	4.93E-07	1.58E-04	1.12E-03	0.00E+00	3.12E-07	0.00E+00	6.06E-08	1.85E-05	0.00E+00	0.00E+00	1.12E-03
8033	ALL		389350	3780200	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.54E-04	0.00E+00	1.54E-04	4.93E-07	1.58E-04	1.12E-03	0.00E+00	3.12E-07	0.00E+00	6.06E-08	1.85E-05	0.00E+00	0.00E+00	1.12E-03
15	ALL		389569	3780313	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.53E-04	0.00E+00	1.53E-04	4.90E-07	1.57E-04	1.11E-03	0.00E+00	3.10E-07	0.00E+00	6.02E-08	1.84E-05	0.00E+00	0.00E+00	1.11E-03
8332	ALL		389600	3780350	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.53E-04	0.00E+00	1.52E-04	4.89E-07	1.57E-04	1.11E-03	0.00E+00	3.10E-07	0.00E+00	6.01E-08	1.83E-05	0.00E+00	0.00E+00	1.11E-03
8231	ALL		389500	3780300	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.52E-04	0.00E+00	1.52E-04	4.87E-07	1.56E-04	1.11E-03	0.00E+00	3.08E-07	0.00E+00	5.98E-08	1.83E-05	0.00E+00	0.00E+00	1.11E-03
13	ALL		389510	3780304	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.52E-04	0.00E+00	1.51E-04	4.85E-07	1.56E-04	1.10E-03	0.00E+00	3.07E-07	0.00E+00	5.96E-08	1.82E-05	0.00E+00	0.00E+00	1.10E-03
14	ALL		389539.5	3780308.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.52E-04	0.00E+00	1.51E-04	4.85E-07	1.55E-04	1.10E-03	0.00E+00	3.07E-07	0.00E+00	5.96E-08	1.82E-05	0.00E+00	0.00E+00	1.10E-03
8637	ALL		389700	3780500	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.51E-04	0.00E+00	1.50E-04	4.82E-07	1.55E-04	1.10E-03	0.00E+00	3.05E-07	0.00E+00	5.93E-08	1.81E-05	0.00E+00	0.00E+00	1.10E-03
8739	ALL		389750	3780550	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.51E-04	0.00E+00	1.50E-04	4.82E-07	1.55E-04	1.10E-03	0.00E+00	3.05E-07	0.00E+00	5.93E-08	1.81E-05	0.00E+00	0.00E+00	1.10E-03
16	ALL		389607	3780339.8	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.50E-04	0.00E+00	1.49E-04	4.80E-07	1.54E-04	1.09E-03	0.00E+00	3.04E-07	0.00E+00	5.90E-08	1.80E-05	0.00E+00	0.00E+00	1.09E-03
8230	ALL		389450	3780300	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.49E-04	0.00E+00	1.49E-04	4.78E-07	1.53E-04	1.09E-03	0.00E+00	3.03E-07	0.00E+00	5.88E-08	1.79E-05	0.00E+00	0.00E+00	1.09E-03
8130	ALL		389350	3780250	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.49E-04	0.00E+00	1.49E-04	4.78E-07	1.53E-04	1.09E-03	0.00E+00	3.03E-07	0.00E+00	5.87E-08	1.79E-05	0.00E+00	0.00E+00	1.09E-03
7	ALL		389311.2	3780192.2	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.49E-04	0.00E+00	1.48E-04	4.76E-07	1.52E-04	1.08E-03	0.00E+00	3.01E-07	0.00E+00	5.85E-08	1.78E-05	0.00E+00	0.00E+00	1.08E-03
30	ALL		389908	3780725	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.48E-04	0.00E+00	1.48E-04	4.75E-07	1.52E-04	1.08E-03	0.00E+00	3.01E-07	0.00E+00	5.83E-08	1.78E-05	0.00E+00	0.00E+00	1.08E-03
19	ALL		389721	3780420.2	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.48E-04	0.00E+00	1.48E-04	4.74E-07	1.52E-04	1.08E-03	0.00E+00	3.00E-07	0.00E+00	5.83E-08	1.78E-05	0.00E+00	0.00E+00	1.08E-03
8948	ALL		389850	3780650	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.48E-04	0.00E+00	1.47E-04	4.73E-07	1.52E-04	1.07E-03	0.00E+00	3.00E-07	0.00E+00	5.81E-08	1.77E-05	0.00E+00	0.00E+00	1.07E-03
8032	ALL		389300	3780200	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.47E-04	0.00E+00	1.46E-04	4.70E-07	1.51E-04	1.07E-03	0.00E+00	2.97E-07	0.00E+00	5.77E-08	1.76E-05	0.00E+00	0.00E+00	1.07E-03
29	ALL		389874.5	3780717.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.47E-04	0.00E+00	1.46E-04	4.70E-07	1.50E-04	1.07E-03	0.00E+00	2.97E-07	0.00E+00	5.77E-08	1.76E-05	0.00E+00	0.00E+00	1.07E-03
8229	ALL		389400	3780300	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.46E-04	0.00E+00	1.46E-04	4.69E-07	1.50E-04	1.07E-03	0.00E+00	2.97E-07	0.00E+00	5.76E-08	1.76E-05	0.00E+00	0.00E+00	1.07E-03
27	ALL		389855.3	3780676	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.46E-04	0.00E+00	1.46E-04	4.67E-07	1.50E-04	1.06E-03	0.00E+00	2.96E-07	0.00E+00	5.74E-08	1.75E-05	0.00E+00	0.00E+00	1.06E-03
8432	ALL		389600	3780400	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.46E-04	0.00E+00	1.45E-04	4.66E-07	1.49E-04	1.06E-03	0.00E+00	2.95E-07	0.00E+00	5.73E-08	1.75E-05	0.00E+00	0.00E+00	1.06E-03
26	ALL		389869.7	3780642	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.44E-04	0.00E+00	1.44E-04	4.62E-07	1.48E-04	1.05E-03	0.00E+00	2.92E-07	0.00E+00	5.67E-08	1.73E-05	0.00E+00	0.00E+00	1.05E-03
17	ALL		389645	3780366.6	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.44E-04	0.00E+00	1.44E-04	4.61E-07	1.48E-04	1.05E-03	0.00E+00	2.92E-07	0.00E+00	5.67E-08	1.73E-05	0.00E+00	0.00E+00	1.05E-03
8129	ALL		389300	3780250	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.44E-04	0.00E+00	1.44E-04	4.61E-07	1.48E-04	1.05E-03	0.00E+00	2.92E-07	0.00E+00	5.66E-08	1.73E-05	0.00E+00	0.00E+00	1.05E-03
8228	ALL		389350	3780300	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.43E-04	0.00E+00	1.43E-04	4.58E-07	1.47E-04	1.04E-03	0.00E+00	2.90E-07	0.00E+00	5.63E-08	1.72E-05	0.00E+00	0.00E+00	1.04E-03
8843	ALL		389800	3780600	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.43E-04	0.00E+00	1.42E-04	4.57E-07	1.46E-04	1.04E-03	0.00E+00	2.89E-07	0.00E+00	5.61E-08	1.71E-05	0.00E+00	0.00E+00	1.04E-03
22	ALL		389776	3780518	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.42E-04	0.00E+00	1.42E-04	4.56E-07	1.46E-04	1.04E-03	0.00E+00	2.89E-07	0.00E+00	5.60E-08	1.71E-05	0.00E+00	0.00E+00	1.04E-03
6	ALL		389266.9	3780200.9	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.42E-04	0.00E+00	1.42E-04	4.55E-07	1.46E-04	1.03E-03	0.00E+00	2.88E-07	0.00E+00	5.59E-08	1.71E-05	0.00E+00	0.00E+00	1.03E-03
31	ALL		389884.5	3780758.5	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.42E-04	0.00E+00	1.41E-04	4.53E-07	1.45E-04	1.03E-03	0.00E+00	2.87E-07	0.00E+00	5.56E-08	1.70E-05	0.00E+00	0.00E+00	1.03E-03
8331	ALL		389550	3780350	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.41E-04	0.00E+00	1.40E-04	4.50E-07	1.44E-04	1.02E-03	0.00E+00	2.85E-07	0.00E+00	5.53E-08	1.69E-05	0.00E+00	0.00E+00	1.02E-03
8330	ALL		389500	3780350	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.40E-04	0.00E+00	1.40E-04	4.48E-07	1.44E-04	1.02E-03	0.00E+00	2.84E-07	0.00E+00	5.51E-08	1.68E-05	0.00E+00	0.00E+00	1.02E-03
8227	ALL		389300	3780300	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.40E-04	0.00E+00	1.39E-04	4.47E-07	1.43E-04	1.02E-03	0.00E+00	2.83E-07	0.00E+00	5.49E-08	1.68E-05	0.00E+00	0.00E+00	1.02E-03
18	ALL		389683	3780393.4	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.39E-04	0.00E+00	1.39E-04	4.46E-07	1.43E-04	1.01E-03	0.00E+00	2.82E-07	0.00E+00	5.48E-08	1.67E-05	0.00E+00	0.00E+00	1.01E-03
8329	ALL		389450	3780350	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.39E-04	0.00E+00	1.39E-04	4.45E-07	1.43E-04	1.01E-03	0.00E+00	2.82E-07	0.00E+00	5.47E-08	1.67E-05	0.00E+00	0.00E+00	1.01E-03
8128	ALL		389250	3780250	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.39E-04	0.00E+00	1.38E-04	4.44E-07	1.42E-04	1.01E-03	0.00E+00	2.81E-07	0.00E+00	5.46E-08	1.67E-05	0.00E+00	0.00E+00	1.01E-03
8328	ALL		389400	3780350	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.38E-04	0.00E+00	1.37E-04	4.41E-07	1.41E-04	1.00E-03	0.00E+00	2.79E-07	0.00E+00	5.41E-08	1.65E-05	0.00E+00	0.00E+00	1.00E-03
9155	ALL		389850	3780750	NonCancerChronicDerived_InhSoilDerm	0.00E+00	1.37E-04	0.00E+00	1.37E-04	4.39E-07	1.41E-04	9.97E-04	0.00E+00	2.78E-07	0.00E+00	5.39E-08	1.64E-05	0.00E+00	0.00E+00	9.97E-04