777 12th Street, 3rd Floor SACRAMENTO METROPOLITAN Sacramento, CA 95814

AIR QUALITY

MANAGEMENT DISTRICT

AUTHORITY TO CONSTRUCT EVALUATION

APPLICATION NO.:	A/C 25800, 25801
REVIEW STARTING DATE:	07/30/18
ISSUING ENGINEER:	Brian Krebs

I. PROJECT DESCRIPTION:

FACILITY NAME: Cosumnes Power Plant

LOCATION: 14295A Clay East Road, Herald, CA

PROPOSAL: Authority to Construct and Permit to Operate modifications to CT No. 3 (A/C 25800 modifying P/O 22674 and incorporating A/C 25510) and CT No.2 (A/C 25801 modifying P/O 22673 and incorporating A/C 25511).

INTRODUCTION: The Sacramento Municipal Utility District Financing Authority (SFA) operates an electrical generation power plant that is referred to as the Cosumnes Power Plant (CPP) at the above address. SFA operates the facility under a Title V permit and an approved Application of Certification by the California Energy Commission. SFA is proposing to upgrade the existing GE Model 7FA combustion turbines with the GE "Power FlexEfficiency Package" consisting of Advanced Gas Path (AGP) and Dry-Low-NOx2.6+ (DLN2.6+) equipment; this project is referred to as the Gas Turbine Performance Upgrade Project (the Project). These proposed performance upgrades include increased MW output and improved efficiency due to higher gas turbine firing temperatures made possible by improved cooling, coatings, and sealing of the power turbine. In addition, the DLN2.6+ performance upgrades include the use of improved turbine blade aerodynamic shape for increased airflow and efficiency.

SFA's overall goal for this Project is to increase the efficiency and firing rate of each turbine such that the overall CPP generating capacity increases.

- The CT maximum heat input rate will increase from its current rating of 1865 MMBtu/hr to 2200 MMBtu/hr (18% increase).
- CPP's overall power output rating will increase from its current rating of 530 MW to 603.2 MW (14% increase).
- The individual CT name plate rating will increase from its current rating of 170 MW to 198.1 MW (17% increase).
- The 2-on-1 steam generator rating will increase from its current rating of 190 MW to 207 MW (9% increase).

The economics and timing of the Project required that installation of the upgraded components commence in April 2018 for CT No. 3. Failure to receive authorization prior to the April 2018 maintenance window would require that the whole project be postponed to the next major maintenance outage in 2021. Therefore, in order to assure adequate permit processing time, SFA is permitting the Project in two phases.

- Phase 1: Was to allow the installation of the turbine upgrade components at CT No. 2 and CT No. 3 without increasing turbine emissions or firing rate, and restricting emission rates

such that BACT and offsets are not triggered (i.e., operating the turbine in a reduced fire or governed state). Due to the relative simplicity of not triggering BACT or offsets for Phase 1, the permitting was accomplished for the physical installation of hardware by the April 2018 outage. Authorities to Construct were issued for the turbine upgrades (A/Cs 25510 and 25511) and new CO oxidation catalysts (A/Cs 25634 and 25635) for CT Nos. 2 and 3, respectively.

- Phase 2: Is to allow a proposed increase in CT No. 2 (A/C 25801) and CT No. 3's (A/C 25800) firing rate and emissions that are possible after the physical hardware allowed in Phase 1 is installed. Phase 2 is the subject of this permitting action.

As Phase 1 and Phase 2 were always one project, these Authorities to Construct will incorporate the Phase 1 requirements and once issued, A/C's 25510 and 25511 will be cancelled.

In order to not be considered a major modification, the facility will also be taking a yearly NOx facility limit of 192,000 lb/yr and CO facility limit of 246,200 lbs/yr. (See Appendix A)

EQUIPMENT DESCRIPTION:

A/C 25800	Gas Turbine, No. 3, General Electric, Model 7FA, Combined Cycle, 2,200 MMBTU/hr Heat Input, 198.1 MW Nominal Rating, Fueled by Natural Gas/Digester Gas
A/C 25801	Gas Turbine, No. 2, General Electric, Model 7FA, Combined Cycle, 2,200 MMBTU/hr Heat Input, 198.1 MW Nominal Rating, Fueled by Natural Gas/Digester Gas

PROCESS RATE/FUEL USAGE:

Each turbine will be limited to a total of 2,200 MMBTU/hr heat input. In addition to the individual maximum firing rate of each turbine, the maximum amount of digester gas that can be combusted in the turbines will continue to be limited to 2,500 scfm.

OPERATING SCHEDULE: There are no restrictions on the operating schedule of the turbines. They are permitted to operate at all times.

CONTROL EQUIPMENT EVALUATION:

The turbines employ the following control technology and will meet the following requirements:

VOC	1.17 ppmvd corrected to 15% O2, 3-Hr average, utilizing an Oxidation Catalyst
NOx	2.0 ppmvd corrected to 15% O2, 1-Hr average
SOx	Natural gas or equivalent that meets 0.7 gr Sulfur/100 scf
PM10	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.
PM2.5	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.
CO	4.0 ppmvd corrected to 15% O2, 1-Hr average utilizing an Oxidation Catalyst

II. EMISSIONS CALCULATIONS:

1. HISTORIC POTENTIAL EMISSIONS: The equipment is being evaluated as existing emission units (P/O 22673 and 22674); therefore its Historic Potential Emissions are as follows (Rule 202, §225):

Historic Potential Hourly Emissions – Normal Operation		
Pollutant	CT No. 2 (lb/hour)	CT No. 3 (lb/hour)
VOC	3.30	3.30
NOx	13.51	13.51
Sox	1.67	1.67
PM10	9.00	9.00
PM2.5	8.98 (A)	8.98 (A)
CO	16.46	16.46

(A) These turbines were permitted at a time when PM2.5 was not a regulated pollutant and as such daily PM2.5 emissions were not specified. However, when the final permit was issued in 2013, PM2.5 was added to the quarterly facility totals for inventory purposes. PM2.5 emissions were based on a 0.998 PM2.5 to PM10 fraction. Therefore, the hourly PM2.5 emissions will be assumed to be 8.98 lb/hr.

Historic Potential Daily Emissions – Including One 3-hour Startup		
Pollutant	CT No. 2 (lb/day)	CT No. 3 (lb/day)
VOC	117.3	117.3
NOx	523.7	523.7
SOx	40.1	40.1
PM10	216.0	216.0
PM2.5	215.5 (A)	215.5 (A)
CO	3,051.7	3,051.7

(A) These turbines were permitted at a time when PM2.5 was not a regulated pollutant and as such daily PM2.5 emissions were not specified. However, when the final permit was issued in 2013, PM2.5 was added to the quarterly facility totals for inventory purposes. PM2.5 emissions were based on a 0.998 PM2.5 to PM10 fraction. Therefore, the daily PM2.5 emissions will be assumed to be 215.6 lb/day.

Pollutant	Historic Potential Quarterly Emissions (A)							
	Quarter 1 lb/quarter		Quarter 2 lb/quarter		Quarter 3 lb/quarter		Quarter 4 lb/quarter	
	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3
VOC	7,403	7,403	7,479	7,479	7,555	7,555	7,555	7,555
NOx	31,010	31,010	31,321	31,321	31,632	31,632	31,632	31,632
SOx	3,095	3,095	3,130	3,130	3,164	3,164	3,164	3,164
PM10	19,440	19,440	19,656	19,656	19,872	19,872	19,872	19,872
PM2.5	19,401	19,401	19,617	19,617	19,832	19,832	19,832	19,832

Pollutant	Historic Potential Quarterly Emissions (A)							
	Quarter 1 lb/quarter		Quarter 2 lb/quarter		Quarter 3 lb/quarter		Quarter 4 lb/quarter	
	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3
CO	73,965	73,965	74,343	74,343	74,722	74,722	74,722	74,722

(A) When the permits were written, the quarterly emissions reflected the entire facility emissions not the individual permitted units. However, the emissions in this table reflect the individual potentials to emit for CT No. 2 and CT No. 3 as calculated in the original evaluation (EV16006 & 16007) and amended during the SOx increase due to the introduction of digester gas (EV22674).

Historic Potential Annual Emissions (A)						
Pollutant	CT No. 2 (TPY)	CT No. 3 (TPY)	CT No. 2 + CT No. 3 (TPY)	Cooling Tower (TPY)	Perlight Storage (TPY)	Total Facility (TPY)
VOC	15.00	15.00	29.99	0.00	0.00	30.0
NOx	62.80	62.80	125.60	0.00	0.00	125.6
SOx	6.28	6.28	12.55	0.00	0.00	12.6
PM10	39.42	39.42	78.84	1.71	0.01	80.6
PM2.5	39.34	39.34	78.68	0.66	0.01	79.3
CO	148.88	148.88	297.75	0.00	0.00	297.8

(A) The annual emissions for the facility are depicted in P/O's 22673 and 22674. They are calculated from the quarterly emissions for turbines CT2 and CT3 added to the emissions from the cooling tower and the Perlite storage silo. The facility tons per year has been rounded to one decimal point.

2. PROPOSED POTENTIAL TO EMIT:

Proposed Potential Hourly Emissions – Normal Operation		
Pollutant	CT No. 2 (lb/hour)	CT No. 3 (lb/hour)
VOC	3.30	3.30
NOx	16.21	16.21
Sox	1.91	1.91
PM10	9.00	9.00
PM2.5	8.98	8.98
CO	19.73	19.73

Proposed Potential Daily Emissions		
Pollutant	CT No. 2 (lb/day)	CT No. 3 (lb/day)
VOC	117.3	117.3
NOx	580.4	580.4
SOx	45.8	45.8
PM10	216.0	216.0
PM2.5	215.5	215.5
CO	3,120.3	3,120.3

Pollutant	Proposed Potential Quarterly Emissions							
	Quarter 1 lb/quarter		Quarter 2 lb/quarter		Quarter 3 lb/quarter		Quarter 4 lb/quarter	
	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3	CT No. 2	CT No. 3
VOC	7,403	7,403	7,479	7,479	7,555	7,555	7,555	7,555
NOx	31,010	31,010	31,321	31,321	31,632	31,632	31,632	31,632
SOx	4,126	4,126	4,171	4,171	4,217	4,217	4,217	4,217
PM10	19,440	19,440	19,656	19,656	19,872	19,872	19,872	19,872
PM2.5	19,401	19,401	19,617	19,617	19,832	19,832	19,832	19,832
CO	73,965	73,965	74,343	74,343	74,722	74,722	74,722	74,722

Proposed Potential Annual Emissions						
Pollutant	CT No. 2 (TPY)	CT No. 3 (TPY)	CT No. 2 + CT No. 3 (TPY)	Cooling Tower (TPY)	Perlight Storage (TPY)	Total Facility (TPY)
VOC	15.00	15.00	29.99	0.00	0.00	30.0
NOx	62.80	62.80	96.00	0.00	0.00	96.0
SOx	8.37	8.37	16.73	0.00	0.00	16.7
PM10	39.42	39.42	78.84	1.71	0.01	80.6
PM2.5	39.34	39.34	78.68	0.66	0.01	79.3
CO	123.10	123.10	123.10	0.00	0.00	123.1

III. COMPLIANCE WITH RULES AND REGULATIONS:

1. **H&S § 42301.6 (AB 3205) COMPLIANCE:** The equipment is not located within 1,000 feet from the outer boundary of a school site. Therefore the school public noticing requirements of H&S Code § 42301.6 do not apply.

2. NSR COMPLIANCE:

Rule 202 - New Source Review
Since the modification is not considered a major modification for any pollutant (see Appendix A – Major Modification Applicability Determination), the following methodologies will be utilized.

Section 301 - Best Available Control Technology

BACT is triggered for any pollutant for which the emission increase ($BACT_{EI}$) calculated pursuant to Rule 202, Section 411.1 exceeds the levels specified below. For purposes of this calculation, the difference is done using tenths, then the difference is rounded to an integer using standard rounding convention (round up if greater than or equal to 0.5):

BACT is triggered if:

$$BACT_{EI} > BACT_{TL}$$

Where:

$BACT_{EI}$ = Emissions Increase = (DPE – DHPE)
DPE = Daily Potential Emissions (from Section II.2)
DHPE = Daily Historic Potential Emissions (from Section II.1)

$BACT_{TL}$ =

Pollutant	$BACT_{TL}$
VOC	0 lb/day
NOx	0 lb/day
SOx	0 lb/day
CO	550 lb/day
PM_{10}	0 lb/day
$PM_{2.5}$	0 lb/day
Lead	3.3 lb/day

Determination of BACT Applicability for each respective turbine:

Pollutant	DPE (lb/day)	DHPE	$BACT_{EI}$ (lb/day)	$BACT_{TL}$ (lb/day)	Is BACT Required?
VOC	117.3	117.3	0	>0	No
NOx	580.4	523.7	57	>0	Yes
SOx	45.8	40.1	6	>0	Yes
PM10	216.0	216.0	0	>0	No
PM2.5	215.5	215.5	0	>0	No
CO	3,120.3	3,051.7	69	>550	No
Lead	0	0	0	>3.3	No

The proposed NOx, and SOx emissions exceed the BACT trigger levels specified in this section and are therefore subject to BACT.

BACT for this project was determined to be the following (See BACT 203 in Appendix E):

BACT (#203) COMBUSTION GAS TURBINE		
Pollutant	**Standard**	**Compliance Demonstration**
VOC	1.0 ppmvd corrected to 15% O2, 3-Hr average, utilizing an Oxidation Catalyst	N/A – BACT was not triggered
NOx	2.0 ppmvd corrected to 15% O2, 1-Hr average	The turbines are permitted to 2.0 ppmvd corrected to 15% O2, 1-Hr average, thus they meet this requirement
SOx	Natural Gas or equivalent that meets 0.7 gr Sulfur/100 scf	The natural gas/digester gas mixture has an average sulfur content of approximately 0.28 gr Sulfur/100 scf, thus they meet this requirement
PM10	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.	N/A – BACT was not triggered
PM2.5	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.	N/A – BACT was not triggered
CO	2.0 ppmvd corrected to 15% O2, 1-Hr average utilizing an Oxidation Catalyst	N/A - BACT was not triggered

The applicant is proposing emission standards or equipment that meet the aforementioned BACT requirements. Therefore, these turbines comply with BACT.

Section 302 – Offsets: Offsets are triggered for any project where the stationary source potential to emit, calculated pursuant to Rule 202, Section 411.3 exceeds the levels specified below.

Pollutant	lb/qtr
VOC	5,000
NOx	5,000
SOx	13,650
PM10	7,300
PM2.5	15 TPY
CO	49,500

All units at this facility/stationary source were installed after January 1, 1977.

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 1)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,403	31,010
A/C 25801	Turbine #2	7,403	31,010
Total		14,807	62,021
Offset Trigger Level		≥5,000	≥5,000

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 2)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,479	31,321
A/C 25801	Turbine #2	7,479	31,321
Total		14,958	62,643

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
Offset Trigger Level		≥5,000	≥5,000

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 3)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,555	31,632
A/C 25801	Turbine #2	7,555	31,632
Total		15,110	63,265
Offset Trigger Level		≥5,000	≥5,000

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 4)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,555	31,632
A/C 25801	Turbine #2	7,555	31,632
Total		15,110	63,265
Offset Trigger Level		≥5,000	≥5,000

Pursuant to Section 411.3 offsets are triggered for VOC and NOx for all four quarters. Pursuant to Section 411.4, the amount of offsets that are required is determined by the potential to emit minus the Historic Actual Emissions. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), then Historic Actual Emissions are equal to Historic Potential Emissions. The applicant is not requesting an increase in quarterly emissions from their existing permits, therefore, potential emissions minus Historic Potential Emissions is zero and offsets will not be required.

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 1)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.66	0	842	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0	3	0
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	39.34	4,126	19,440	73,965
A/C 25801	Turbine #2	39.34	4,126	19,440	73,965
Total		79.34	8,252	39,725	147,929
Offset Trigger Level		≥ 15	≥ 13,650	≥ 7,300	≥ 49,500

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 2)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.66	0	852	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0.00	0.00	0.00
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	39.34	4,171	19,656	74,343
A/C 25801	Turbine #2	39.34	4,171	19,656	74,343
Total		79.34	8,342	40,167	148,687
Offset Trigger Level		≥ 15	≥ 13,650	≥ 7,300	≥ 49,500

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 3)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.66	0	861	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0.00	0.00	0.00
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	39.34	4,217	19,872	74,722
A/C 25801	Turbine #2	39.34	4,217	19,872	74,722

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
Total		79.34	8,434	40,608	149,444
Offset Trigger Level		≥ 15	≥ 13,650	≥ 7,300	≥ 49,500

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 4)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.66	0	861	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0.00	0.00	0.00
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	39.34	4,217	19,872	74,722
A/C 25801	Turbine #2	39.34	4,217	19,872	74,722
Total		79.34	8,434	40,608	149,444
Offset Trigger Level		≥ 15	≥ 13,650	≥ 7,300	≥ 49,500

Pursuant to Section 411.3 offsets are triggered for PM10, PM2.5, and CO for all four quarters. Pursuant to Section 411.4, the amount of offsets that are required is determined by the potential to emit minus the Historic Actual Emissions. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), then Historic Actual Emissions are equal to Historic Potential Emissions. The applicant is not requesting an increase in quarterly emissions from their existing permits, therefore, potential emissions minus Historic Potential Emissions is zero and offsets will not be required.

Section 306 - Ambient Air Quality Standards

Section 306 prohibits a new or modified stationary source from interfering with the attainment or maintenance of an applicable ambient air quality standard. The table below shows the maximum ambient impacts for the project including the increases in hourly and daily emissions. The maximum ambient impacts remain below the applicable Federal or State ambient air quality standards. The detailed modeling outputs, operating scenarios, and background air quality data used in calculating these impacts are included in the application.

Pollutant	Averaging Period	NAAQS Standard	Units	CAAQS Standard	Units	Modeled Impacts		NAAQS Cumulative Impacts	Units	CAAQS Cummulative Impacts	Units
						µg/m³	ppm				
CO	1Hour	35	ppm	20	ppm	690.06	0.60	3.00	ppm	3.00	ppm
	8 Hour	9	ppm	9	ppm	114.35	0.10	1.80	ppm	1.80	ppm
NO2	1 Hour	100	ppb	0.18	ppm	43.40	0.02	45.07	ppb	0.08	ppm
	Annual	53	ppb	0.03	ppm	0.27	0.0001	13.14	ppb	0.01	ppm
PM2.5	24 Hour	35	µg/m³	--	--	1.47	--	32.47	µg/m³	--	--
	Annual	12	µg/m³	12	µg/m³	0.26	--	9.56	µg/m³	6.26	µg/m³
PM10	24 Hour	150	µg/m³	50	µg/m³	2.14	--	46.81	µg/m³	48.14	µg/m³
	Annual	--	--	20	µg/m³	0.29	--	--	--	19.79	µg/m³
SO2	1 Hour	75	ppb	0.25	ppm	1.46	0.006	7.56	ppb	0.01	ppm
	3 Hour	0.5	ppm	--	--	0.72	0.0003	0.0003	ppm	--	--
	24 Hour	--	--	0.04	ppm	0.35	0.001	--	--	0.01	ppm

Section 308 –CEQA

The CPP underwent review/approval by the CEC as an Application for Certification (AFC) where the CEC process was determined to be CEQA equivalent. Because CPP underwent review/approval by the CEC as an Application for Certification (AFC), and this project will require amendment to this AFC, we expect that CEC staff will determine that this project will require CEC review, and this review will satisfy CEQA. Therefore, the SMAQMD will be required to issue a preliminary Authority to Construct which will act as a preliminary determination of compliance (PDOC) prior to issuing the final Authority to Construct permit for the Project which will act as a final determination of compliance (FDOC).

Section 309 – Denial, Adverse Impact to Visibility of a Class I Area

This section requires the Air Pollution Control Officer to deny an Authority to Construct or a Permit to Operate for a new major stationary source or major modification, if the Air Pollution Control Officer finds, after consideration of comments and an analysis from the Federal Land Manager, that the emissions from the proposed facility or modification would have an adverse impact on visibility of a Class 1 area pursuant to CFR Section 51.307(b).

Since this modification, at an existing major source, is not considered major (see Appendix A), this section does not apply.

Section 401 – Alternative Siting

Except as provided in Section 115, this section requires for major sources or major modifications for which an analysis of alternative sites, sizes, and production processes is required under Section 173(a)(5) of the Clean Air Act, the applicant provide an alternative siting analysis that is functionally equivalent to the requirements of Division 13 of the Public Resources Code. The Authority to Construct shall not be issued unless the Air Pollution Control Officer has concluded, based on the information contained in the alternative siting analysis, that the benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification.

Section 115 states that this section does not apply if the application for Authority to Construct is not a Federal Major Modification. Since this modification is not considered major (see Appendix A), this section does not apply.

Section 404 – Enhanced New Source Review

The applicant has requested enhanced new source review. Therefore, this review will be subject to District Rule 207 Section 305 and Sections 401 through 408.

Section 406 – Submittal of BACT Determinations: This permitting action required a new BACT analysis for this source category. The BACT determination Gas Turbine - No. 203 will be submitted in accordance with the requirements of this section.

Section 413 - Sources Impacting Class 1 Areas
This section requires, for new major sources or major modifications that may affect visibility of a Class 1 area, the applicant to provide the Air Pollution Control Officer with an analysis of impairment to visibility that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the project, as required by 40 CFR Section 51.307(b)(2) and 40 CFR Section 51.166.

Since this modification, at an existing major source, is not considered major (see Appendix A), this section does not apply.

Rule 203 – Prevention of Significant Deterioration

Except as provided in Rule 203, the provisions of Title 40 of the Code of Federal Regulations (CFR) Part 52.21 are incorporated by reference. The PSD program requires pre-construction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies to pollutants for which ambient concentrations do not exceed the corresponding National Ambient Air Quality Standards (i.e., attainment pollutants). For the proposed Turbine Upgrade Project, the emitted pollutants are NOx, SOx, CO, VOC, and PM_{10}/$PM_{2.5}$ (greenhouse gas emissions have also been added to PSD per the tailoring Rule discussed below). While the SMAQMD is classified as an attainment area for NOx, SOx, CO, and PM_{10}, the SMAQMD is a nonattainment area with respect to the $PM_{2.5}$ and ozone (VOC) National Ambient Air Quality Standards. Consequently, the PSD regulations do not apply to VOC and $PM_{2.5}$ emissions from the project.

The federal PSD requirements apply on a pollutant-specific basis to any project that is a new major stationary source or a major modification to an existing major stationary source (these terms are defined in the PSD regulations at 40 CFR 52.21). CPP is an existing major source because its emissions are permitted to exceed 100 tons per year for NOx and CO. However, the actual-to-potential emissions will not exceed the significant increase thresholds for all PSD pollutants, and therefore PSD does not apply to the project. The table below compares the actual-to-potential emissions increase to the PSD significance thresholds for any PSD pollutants.

PSD Significant Increase Determination (TPY)					
Pollutant	CPP Actual Emissions	CPP Proposed Potential to Emit (A)	Actual to Potential Increase	Significant Increase Threshold	Significant Increase?
CO	23.2	123.1	99.9	100	**NO**
NOx	71.1	96.0	24.9	40	**NO**
SOx	N/A	16.7	16.7	40	**NO**
PM	66.5	80.6	14.1	25	**NO**
PM_{10}	66.5	80.6	14.1	15	**NO**
PM2.5	N/A	N/A	N/A	10	**N/A Non-attainment**
Ozone	N/A	N/A	N/A	40	**N/A Non-attainment**
Lead	N/A	<0.6	N/A	0.6	**NO**
Fluorides	N/A	<3	N/A	3	**NO**
Sulfuric acid mist	N/A	<7	N/A	7	**NO**
TRS	N/A	<10	N/A	10	**NO**
Reduced Sulur	N/A	<10	N/A	10	**NO**

(A) See Appendix A for the basis of the Proposed Potential to Emit.

On June 3, 2010, EPA finalized the PSD greenhouse gas (GHG) "tailoring" regulation. The purpose of this regulation is to establish criteria to determine which new stationary sources and/or project modifications trigger PSD and Title V review due to increases in GHG emissions. Under the GHG Tailoring Rule and subsequent EPA guidance documents, beginning on July 1, 2011, existing major sources of GHG emissions such as CPP that undergo a modification that increases GHG emissions by 75,000 tons/year CO2e or more are subject to PSD review. However, the portion of the Tailoring Rule that would trigger PSD solely based on GHG emissions was overturned by the U.S. Supreme Court in June 2014. Thus, since PSD is not triggered by non-GHG pollutants, PSD does not apply to the project solely due to any GHG emissions increases. Therefore, with respect to GHG emissions under the overturned Tailoring Rule requirements, the proposed Project would not be subject to PSD review.

RULE 207 – Title V Federal Operating Permit Program

CPP has a Title V permit. Per Rule 214, Section 101.1, CPP has requested that this application be reviewed through the Enhanced New Source Review process. Consequently, the review of this application is subject to Rule 207, Section 305 and Sections 401 through 408. The Enhanced New Source Review process will allow the District to administratively amend the facility's Title V permit to reflect these changes at a later date.

Section 305 – Title V Permit Content

All the requirements and standards specified in this section are incorporated in the existing

Title V Permit and as applicable will be included in this application.

Section 401 through 408 – Administrative Requirements

This permit action will be processed using SMAQMD Rule 214 Section 404 Enhanced New Source Review. The procedural requirements in SMAQMD Rule 207 Sections 401 through 408 will be used. A public notice will be published in the Sacramento Bee requesting comments within a 30 day review period. The U.S. EPA Region 9 will have a 45 day review period.

The use of the Enhanced New Source Review process will allow this permit action to be incorporated into the facility's Title V permit through a Title V administrative permit amendment (see SMAQMD Rule 207 Section 202.5).

Prior to initial construction under this A/C, the applicant must submit a Title V application for an administrative amendment, and the following permit conditions will be listed on the A/C as follows:

S3. This Authority to Construct has been reviewed through an Enhanced New Source Review process in accordance with the procedural requirements of Section 401 through 408 of Rule 207 Title V – Federal Operating Permit Program.

S4. The Sacramento Municipal Utility District Financing Authority must submit to the Air Pollution Control Officer an application to modify the Title V permit with an Administrative Title V Permit Amendment prior to commencing construction with modifications authorized by this Authority to Construct.

Rule 208 – Acid Rain
Rule 208 requires the CPP to hold emissions allowances for SOx and to monitor and report SOx, NOx, and CO_2 emissions. The current fuel supply for CPP is classified as “pipeline natural gas” and as such they are allowed to use a default emission factor for SOx. When digester gas is added to the natural gas, it will no longer qualify as “pipeline natural gas” or “natural gas”. Therefore the facility will no longer be able to use the default SOx emission factor. Under the Acid Rain regulations, there are several options available to monitor/report SOx, NOx, and CO_2. CPP was granted an alternative SO2 monitoring plan specifically pertaining to the natural gas/digester gas monitoring requirements and it is incorporated into the Title V permit for the facility.

Rule 214 – Federal New Source Review
This rule applies to either new major stationary sources, or modifications to existing major stationary sources.

Section 301 – BACT
Since the modification is not considered a major modification for any pollutant (see Appendix A – Major Modification Applicability Determination), the following methodologies will be utilized.

BACT is triggered for any pollutant for which the emission increase ($BACT_{EI}$) calculated pursuant to Rule 202, Section 411.1 exceeds the levels specified below. For purposes of this calculation, the difference is done using tenths, then the difference is rounded to an integer using standard rounding convention (round up if greater than or equal to 0.5):

BACT is triggered if:

$BACT_{EI} > BACT_{TL}$

Where:

$BACT_{EI}$ = Emissions Increase = (DPE – DHPE)
DPE = Daily Potential Emissions (from Section II.2)
DHPE = Daily Historic Potential Emissions (from Section II.1)

$BACT_{TL}$ =

Pollutant	$BACT_{TL}$
VOC	0 lb/day
NOx	0 lb/day
SOx	0 lb/day
CO	550 lb/day
PM_{10}	0 lb/day
$PM_{2.5}$	0 lb/day
Lead	3.3 lb/day

Determination of BACT Applicability for each respective turbine:

Pollutant	DPE (lb/day)	DHPE	$BACT_{EI}$ (lb/day)	$BACT_{TL}$ (lb/day)	Is BACT Required?
VOC	117.3	117.3	0	>0	No
NOx	580.4	523.7	57	>0	Yes
SOx	45.8	40.1	6	>0	Yes
PM10	216.0	216.0	0	>0	No
PM2.5	215.5	215.5	0	>0	No
CO	3,120.3	3,051.7	69	>550	No
Lead	0	0	0	>3.3	No

The proposed NOx and SOx emissions exceed the BACT trigger levels specified in this section and are therefore subject to BACT.
BACT for this project was determined to be the following (See BACT 203 in Appendix E):

BACT (#203) COMBUSTION GAS TURBINE		
Pollutant	**Standard**	**Compliance Demonstration**
VOC	1.0 ppmvd corrected to 15% O2, 3-Hr average, utilizing an Oxidation Catalyst	N/A – BACT was not triggered
NOx	2.0 ppmvd corrected to 15% O2, 1-Hr average	The turbines are permitted to 2.0 ppmvd corrected to 15% O2, 1-Hr average, thus they meet this requirement
SOx	Natural Gas or equivalent that meets 0.7 gr Sulfur/100 scf	The natural gas/digester gas mixture has an average sulfur content of approximately 0.28 gr Sulfur/100 scf,

		thus they meet this requirement
PM10	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.	N/A – BACT was not triggered
PM2.5	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.	N/A – BACT was not triggered
CO	2.0 ppmvd corrected to 15% O2, 1-Hr average utilizing an Oxidation Catalyst	N/A - BACT was not triggered

The applicant is proposing emission standards or equipment that meet the aforementioned BACT requirements. Therefore, these turbines comply with BACT.

Section 302 – Offsets
Offsets are triggered for modifications where the stationary source potential to emit, calculated pursuant to Rule 214, Section 411.3 exceeds the levels specified below.

Pollutant	lb/qtr
VOC	12,500
NOx	12,500
SOx	20,000
PM10	7,300
PM2.5	10 TPY

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 1)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,403	31,010
A/C 25801	Turbine #2	7,403	31,010

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
Total		14,807	62,021
Offset Trigger Level		≥12,500	≥12,500

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 2)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,479	31,321
A/C 25801	Turbine #2	7,479	31,321
Total		14,958	62,643
Offset Trigger Level		≥12,500	≥12,500

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 3)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,555	31,632
A/C 25801	Turbine #2	7,555	31,632
Total		15,110	63,265
Offset Trigger Level		≥12,500	≥12,500

CALCULATION OF OFFSET TRIGGER LEVEL FOR VOC AND NO_X (Qtr 4)

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 16012	SCR CTG #2	0	0
P/O 16013	SCR CTG #3	0	0
P/O 22672	Cooling Tower	0	0
P/O 22673	Turbine #2	Modified by A/C 25801	
P/O 22674	Turbine #3	Modified by A/C 25800	
P/O 22702	Perlite Storage Silos	0	0
A/C 25510	Turbine #2	Incorporated in 25801	
A/C 25511	Turbine #3	Incorporated in 25800	
A/C 25634	Oxidation Catalyst #2	0	0
A/C 25635	Oxidation Catalyst #3	0	0
A/C 25800	Turbine #3	7,555	31,632
A/C 25801	Turbine #2	7,555	31,632
Total		15,110	63,265
Offset Trigger Level		≥12,500	≥12,500

Pursuant to Section 411.3 offsets are triggered for VOC and NOx for all four quarters. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), pursuant to Section 411.4, the amount of offsets that are required is determined by the potential to emit minus the Historic Potential Emissions. The applicant is not requesting an increase in quarterly emissions from their existing permits, therefore, potential emissions minus Historic Potential Emissions is zero and offsets will not be required.

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 1)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.16	0	842	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0	3	0
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	9.70	4,126	19,440	73,965
A/C 25801	Turbine #2	9.70	4,126	19,440	73,965
Total		19.56	8,252	39,725	147,929
Offset Trigger Level		≥ 10	≥ 20,000	≥ 7,300	NA

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 2)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.16	0	852	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0.00	0.00	0.00
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	9.81	4,171	19,656	74,343
A/C 25801	Turbine #2	9.81	4,171	19,656	74,343

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
Total		19.78	8,342	40,167	148,687
Offset Trigger Level		≥ 10	≥ 20,000	≥ 7,300	NA

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 3)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.17	0	861	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			
P/O 22702	Perlite Storage Silos	0.00	0.00	0.00	0.00
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	9.92	4,217	19,872	74,722
A/C 25801	Turbine #2	9.92	4,217	19,872	74,722
Total		20.01	8,434	40,608	149,444
Offset Trigger Level		≥ 10	≥ 20,000	≥ 7,300	NA

CALCULATION OF OFFSET TRIGGER LEVEL FOR SO_X, PM_{10}, $PM_{2.5}$, AND CO (Qtr 4)

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 16012	SCR CTG #2	0	0	0	0
P/O 16013	SCR CTG #3	0	0	0	0
P/O 22672	Cooling Tower	0.17	0	861	0
P/O 22673	Turbine #2	Modified by A/C 25801			
P/O 22674	Turbine #3	Modified by A/C 25800			

Permit No.	Emissions Unit	Stationary Source Potential to Emit			
		ton/year	lb/quarter		
		PM2.5	SOx	PM10	CO
P/O 22702	Perlite Storage Silos	0.00	0.00	0.00	0.00
A/C 25510	Turbine #2	Incorporated in 25801			
A/C 25511	Turbine #3	Incorporated in 25800			
A/C 25634	Oxidation Catalyst #2	0	0	0	0
A/C 25635	Oxidation Catalyst #3	0	0	0	0
A/C 25800	Turbine #3	9.92	4,217	19,872	74,722
A/C 25801	Turbine #2	9.92	4,217	19,872	74,722
Total		20.01	8,434	40,608	149,444
Offset Trigger Level		≥ 10	≥ 20,000	≥ 7,300	NA

Pursuant to Section 411.3 offsets are triggered for PM10 and PM2.5 for all four quarters. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), pursuant to Section 411.4, the amount of offsets that are required is determined by the potential to emit minus the Historic Potential Emissions. The applicant is not requesting an increase in quarterly emissions from their existing permits, therefore, potential emissions minus Historic Potential Emissions is zero and offsets will not be required.

Section 306 – Ambient Air Quality Standards
See compliance determination in Rule 202, Section 306

Section 309 – Denial, Adverse impact to Visibility of a Class 1 Area
The section only applies for a new major source or major modification. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), then this section does not apply.

Section 401 – Alternative Siting
The section only applies for a new major source or major modification. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), then this section does not apply.

Section 404 – Enhanced New Source Review
The applicant has requested enhanced new source review. Therefore, this review will be subject to District Rule 207 Section 305 and Sections 401 through 408.

Section 413 – Sources Impaction Class I Areas
The section only applies for a new major source or major modification. Since this modification is not considered major (see Appendix A - Major Modification Applicability Determination), then this section does not apply.

Rule 217 – Public Notice Requirements for Permits

Sections 401-402 – CARB, EPA, and Public Notification: The public noticing requirements of Rule 217 do not apply if:

- Offsets are not required under Rule 202, Section 302.
- A visibility analysis is not required under Rule 214, Section 413.

- The increase in potential to emit for the project, calculated under Section 403 of Rule 217, is below the following limits:

Pollutant	lb/qtr
VOC	5,000
NOx	5,000
SOx	9,200
PM10	7,300
PM2.5	10 TPY
CO	49,500

Analysis:

- As determined in Section III.2, offsets are not required.
- Though this permit action is subject to Rule 214, since this is not a new major source nor considered a major modification for any pollutant, the visibility analysis required by Section 413 of Rule 214 is not applicable.
- Since there is no quarterly emission increase, the increase in potential to emit does not exceed the notification exemption thresholds.

Though this modification is not required to conduct a public notice pursuant to Rule 217, nonetheless, this permit modification will be required to conduct a public notice as part of the Enhanced New Source Review process described in Rule 202, Section 404.

3. PROHIBITORY RULE COMPLIANCE:

Rule 401 - Ringelmann Chart
The permit will include conditions requiring that the turbines comply with the Ringelmann No. 1 or 20% opacity standard and in the District's experience, properly maintained turbines are able to meet this requirement. The equipment will be inspected prior to the issuance of the permit to operate and on a regular basis thereafter to ensure continuous compliance.

Rule 402 – Nuisance

This rule prohibits the discharge of air contaminants in quantities that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. The SMAQMD regulates new and modified sources of TACs under this rule by implementing its "Risk Assessment Guidelines for New and Modified Stationary Sources," dated December 2000. These guidelines implement what is commonly known as "Toxics New Source Review."

Under the SMAQMD's toxics policy, modified projects with TAC emission increases are required to perform a screening-level health risk assessment. CPP was evaluated for health risk when it was originally permitted and the Phase 1 Turbine Upgrade Project. However, since this evaluation was performed under the previous risk assessment guidelines, a screening HRA utilizing the newer risk calculation methodologies will be performed here.

The health risk action levels and results are summarized below.

Health Risk Action Levels and Assessment Summary				
Type of Health Risk	Permitting Thresholds(A)		Project HRA Results(B)	
	T-BACT	Maximum	Residential	Worker
Cancer Risk (Chances per Million)	≥ 1.0	10.0	0.06	0.05
Acute Non-Cancer (Hazard Index)	≥ 1.0	1.0	0.01	0.01
Chronic Non-Cancer (Hazard Index)	≥ 1.0	1.0	0.001	0.01

(A) In certain circumstances, the District may allow a health risk in excess of the levels specified here. For more information, see SMAQMD's guidance document, Health Risk Management Programs for Existing, Modified and New Stationary Sources (2016).
(B) Results have been rounded to one significant figure.

The following pollutants and their amounts were identified during the original permitting of the turbines while burning exclusively natural gas and have been evaluated in this analysis:

Pollutant	EF lb/MMCF (A)	lb/yr (E)	lb/hr (F)	Cancer	Acute	Chronic
Ammonia	1.37E01 (B)	261924.00	29.90000		X	X
Propylene	7.71E-01 (C)	13980.70	1.59597			X
Acetaldehyde	4.08E-02	739.83	0.08446	X	X	X
Acrolein	6.53E-03	118.37	0.01351		X	X
Benzene	1.22E-02	221.95	0.02534	X	X	X
1,3-Butadiene	4.39E-04	7.95	0.00091	X	X	X
Ethyl Benzene	3.26E-02	591.87	0.06756	X		X
Formaldehyde	2.06E-01 (D)	3735.44	0.42642	X	X	X
Hexane	2.59E-01 (C)	4696.50	0.53613			X
Napthalene	1.33E-03	24.04	0.00274	X		X
Anthracene	3.38E-05 (C)	0.61	0.00007			
B[a]anthracene	2.26E-05 (C)	0.41	0.00005	X		
B[a]P	1.39E-05 (C)	0.25	0.00003	X		
B[b]fluoranthen	1.13E-05 (C)	0.20	0.00002	X		
B[k]Fluoranthen	1.10E-05 (C)	0.20	0.00002	X		
Chrysene	2.52E-05 (C)	0.46	0.00005	X		
D[a,h]anthracen	2.35E-05 (C)	0.43	0.00005	X		
In[a,2,3-cd]pyr	2.35E-05 (C)	0.43	0.00005	X		
Propylene Oxide	2.96E-02	536.38	0.06123	X	X	X
Toluene	1.33E-01	2404.46	0.27448		X	X
Xylenes	6.53E-02	1183.74	0.13513		X	X

(A) From AP-42 Table 3.1-3, 4/00 unless noted
(B) Based on 10 ppm @ 15% O2 ammonia slip from SCR system, 100% load, 2200 MMBTU/hr.
(C) From CATEF database
(D) Based on 8/21/01 letter from Sims Roy at EPA

(E) Based on hourly emission rate at 8760 hrs/year
(F) Based on 2.16 MMCF/hr for ammonia which is the hourly emission rate at maximum capacity while burning exclusively natural gas. All other pollutants are calculated based on 2.07 MMCF/hr which is the hourly natural gas firing capability of each turbine when co-firing up to the maximum digester gas capacity of 2500 cfm.

The following pollutants and their amounts were identified during the permitting that allowed up to 2500 cfm of digester gas to be fired in the turbines and have been evaluated in this analysis:

Pollutant	EF lb/MMCF	lb/yr (C)	lb/hr (D)	Cancer	Acute	Chronic
1,3-Butadiene	6.05E-03 (A)	3.98	0.00045	X	X	X
DiChloroBenzene	1.24E-02 (A)	8.11	0.00093			
Acetalhyde	3.27E-02 (A)	21.50	0.00245	X	X	X
Carbon Tetrachloride	1.24E-02 (A)	8.11	0.00093	X	X	X
Chlorobenzene	9.88E-03 (A)	6.49	0.00074			X
Chloroform	1.05E-02 (A)	6.90	0.00079	X	X	X
Ethylene Dichloride	9.26E-03 (A)	6.09	0.00069	X		X
Formaldehyde	1.17E-01 (A)	77.08	0.00880	X	X	X
Methylene Chloride	8.03E-03 (A)	5.27	0.00060	X	X	X
Tetrachloroethylene	1.30E-02 (A)	8.52	0.00097	X	X	X
Trichloroethylene	1.11E-02 (A)	7.30	0.00083	X		X
Vinyl Chloride	2.22E-02 (A)	14.61	0.00167	X	X	
Vinylidene Chloride	9.26E-03 (A)	6.09	0.00069			X
Arsenic	1.42E-03 (B)	0.93	0.00011	X	X	X
Cadmium	3.58E-04 (B)	0.24	0.00003	X		X
Chromium	7.41E-04 (B)	0.49	0.00006	X		X
Lead	2.10E-03 (B)	1.38	0.00016	X		X
Nickel	1.24E-03 (B)	0.81	0.00009	X	X	X
Selenium	6.79E-03 (B)	4.46	0.00051			X

(A) From AP-42 Table 3.1-7, 4/00
(B) From AP-42 Table 3.1-8, 4/00
(C) Based on hourly emission rate at 8760 hrs/year
(D) Based on digester gas fuel flow of 1250 cfm for each turbine (2500 cfm total).

The following factors, formulas, and assumptions were taken into consideration in order to estimate the worst case excess cancer risk and the non-cancer health risks for the toxic pollutants emitted.

The project's emissions are modeled with the use of an EPA approved air dispersion model to determine the concentrations of toxic pollutants at residential and non-residential receptors surrounding the project. The model used for this analysis is Lakes Environmental's AERMOD View, Version 9.4.0. The following parameters were used as inputs to the model for each turbine:

Release Height: 48.78 meters
Gas Exit Temperature: 212 °F

Stack Diameter:	5.64 meters
Gas Exit Flow Rate:	1,109,018 acfm
Nominal Emission Rate:	1.0 g/s

SMAQMD utilizes the California Air Resources Board's Hotspots Analysis and Reporting Program (HARP2), Version 18159 model which incorporates the health risk assessment methodologies from the "Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments" (February 2015).

CANCER RISK ASSESSMENT:

From equation 5.4.1.1 and 8.2.4 A:

Riskair = Cair * (BR/BW) * A * EF * CPF * ED/AT * (1E-06) * (GLC) * ASF * FAH

Where:

Riskair	= Cancer risk from inhalation exposure
Cair	= Concentration ($\mu g/m^3$)
(BR/BW)	= Breathing Rate/Body Weight
	= 361 (l/kg-day) 95%, 3rd Trimester
	= 1090 (l/kg-day) 95%, 0<2 yrs
	= 631 (l/kg-day) 80%, 2<9 yrs
	= 572 (l/kg-day) 80%, 2<16 yrs
	= 261 (l/kg-day) 80%, 16<30 yrs
	= 233 (l/kg-day) 80%, 16<70 yrs
	= 230 (l/kg-day) 8 hr worker rate
A	= Inhalation Absorption Factor (default = 1)
EF	= Exposure Frequency
	= 350 days for Res
	= 250 days for Non-Res
CPF	= Cancer Potency Factor (kg-day/mg)
ED	= Exposure Duration, 30 years Res, 25 years Non-Res
AT	= Averaging Time, 25,550 days
ASF	= Age sensitivity factor for a specified age group
FAH	= Fraction of time spent at home (use 1 for children under 16 when a school is within a 1 in a million cancer risk isopleth)
	= 0.85, 3rd Trimester
	= 0.85, 0<2 yrs
	= 0.72, 2<9 yrs
	= 0.72, 2<16 yrs
	= 0.73, 16<30 yrs
	= 0.73, 16<70 yrs
(1E-06)	= (mg/1000 ug)*(m^3/1000 l)
GLC	= Ground Level Adjustment Factor
	= 1.0 for resident
	= 4.2 (7/5 x 24/8) for worker for equipment that, although limited, operates during normal work hours

CANCER RISK SUMMARY:

Permit No.	Receptor (Worst Case)	Excess Cancer Risk (risk in a million)
A/C 25800 & 25801	Residential (Located at Receptor #567, UTM: 663288, 4243338)	0.06
	Non-Residential (Located at Receptor #64, UTM: 664227, 4245473)	0.05

NON-CANCER RISK ASSESSMENT: The chronic non-cancer health risk is determined for a given pollutant by dividing the pollutant's annual average ambient air concentration (ug/m^3) by the chronic reference exposure level of that pollutant in order to obtain the chronic hazard index (HI). The acute non-cancer health risk is determined by dividing the pollutant's maximum hourly ambient air concentration (ug/m^3) by the acute reference exposure level in order to obtain the acute hazard index (HI). In addition, each contaminant can affect different organs of the body and several compounds may affect common organs. Therefore, when there are multiple toxic compounds involved, the effects are additive for the common organs.

A list of chronic or acutely hazardous air contaminants may be found at the OEHHA website www.oehha.ca.gov. The method of calculating the HI numbers (Risk Assessment Guidelines) is also found at this website.

The hazard index for the organs affected are shown below:

Target Organ Affects – Acute HI (Residential)											
Cardiovascular	Central Nervous System	Immune	Kidney	Gilv	Repro/Devel	Respiratory	Skin	Eye	Bone/Teeth	Endo	Blood
1.78E-04	1.85E-04	4.69E-04	X	1.63E-07	5.04E-04	5.01E-03	X	7.66E-03	X	X	3.41E-04

Target Organ Affects – Chronic HI (Residential)											
Cardiovascular	Central Nervous System	Immune	Kidney	Gilv	Repro/Devel	Respiratory	Skin	Eye	Bone/Teeth	Endo	Blood
9.17E-04	9.18E-04	X	3.11E-06	3.03E-06	9.16E-04	1.21E-03	9.14E-04	2.30E-07	X	4.00E-08	1.79E-05

Target Organ Affects – Acute HI (Non-Residential)											
Cardiovascular	Central Nervous System	Immune	Kidney	Gilv	Repro/Devel	Respiratory	Skin	Eye	Bone/Teeth	Endo	Blood
2.14E-04	2.22E-04	5.64E-04	X	1.96E-07	6.06E-04	6.03E-03	X	9.21E-03	X	X	3.78E-04

Target Organ Affects – Chronic HI (Non-Residential)											
Cardiovascular	Central Nervous System	Immune	Kidney	Gilv	Repro/Devel	Respiratory	Skin	Eye	Bone/Teeth	Endo	Blood
7.30E-03	7.32E-03	X	3.07E-05	2.32E-05	7.31E-03	1.10E-02	7.28E-03	2.87E-06	X	4.99E-07	2.23E-04

NON-CANCER RISK SUMMARY:

Permit No.	Receptor (Worst Case)	Hazard Index
A/C 25800 & 25801	Residential - Acute (Located at Receptor #672, UTM: 663288, 4243546	0.01
	Residential - Chronic (Located at Receptor #567, UTM: 663288, 4243338)	0.001
	Non-Residential - Acute (Located at Receptor #6, UTM: 663977, 4246040)	0.01
	Non-Residential – Chronic` (Located at Receptor #64, UTM: 664227, 4245473)	0.01

HRA CONCLUSION: The health risk for this project is considered acceptable to the SMAQMD because:

- The evaluated cancer risk for a maximum exposed individual resident (MEIR) is 0.06 in one million, which is below the significant risk threshold. Since the cancer risk is below 1 in one million, T-BACT is not required.
- The evaluated cancer risk for a maximum exposed individual worker (MEIW) is 0.05 in one million, which is below the significant risk threshold. Since the cancer risk is below 1 in one million, T-BACT is not required.
- The evaluated noncancer Acute Hazard Index is less than one for the maximum exposed individual resident (MEIR) and the maximum exposed individual worker (MEIW).

- The evaluated noncancer Chronic Hazard Index is less than one for the maximum exposed individual resident (MEIR) and the maximum exposed individual worker (MEIW).

Rule 406 – Specific Contaminants
The proposed equipment is not expected to exceed the emissions limit of 0.2% by volume sulfur compound as SO_2 and 0.1 gr/dscf for combustion contaminants calculated to 12% CO_2.

Natural Gas Fuel F-Factor	=	8,710 dscf/MMBtu
Molar Volume	=	385.3 ft3/mol
Natural Gas HHV	=	1,000 BTU/lb
Conversion Factor	=	7,000 gr/lb
PM10 Emission Factor	=	0.00483 lb/MMBTU or 4.83 lb/MMCF
SO_2 Emission Factor	=	0.000868 lb/MMBTU or 0.868 lb/MMCF
Natural Gas Fuel Density	=	44,582 lb fuel/MMCF
Weight % C in Natural Gas	=	76 % or 0.76 lb C/lb fuel
C to CO2 Conversion Efficiency	=	0.995

PM10 Concentration (combustion contaminants):

A. Calculate uncorrected grain loading
   = (4.83 lb/MMCF) x (MMCF/1,000 MMBtu) x (7000 gr/lb) x (MMBtu/8,710 dscf)
   = 0.003881745 gr/dscf

B. Calculate CO_2 emission factor (lb CO_2/MMBtu) assuming 100% C to CO_2 conversion
   = (0.76 lb C/lb fuel) x (mol C/12.01 lb C) x (mol CO_2/mol C) x (44.01 lb CO_2/mol CO_2) x (44,582 lb fuel/MMCF) x (MMCF/1,000 MMBtu)
   = 124.159942 lb CO_2/MMBtu

C. Calculate lb CO_2/MMBtu at 99.5% Conversion
   = 124.159942 lb CO_2/MMBtu × 99.5%
   = 123.539142 lb CO_2/MMBtu

D. Calculate volume % of CO_2 in Exhaust Gas
   = % CO_2
   = mol CO_2/mol exhaust
   = (123.539142 lb CO_2/MMBtu) × (mol CO2/44.01 lb CO2) x (MMBtu/8,710 dscf) x (385.3 dscf/mol exhaust)
   = 0.12417497 mol CO_2/mol exhaust or 12.417497 % CO_2

E. Calculate corrected grain loading
   = (0.003881745 gr/dscf) × (12% CO_2/12.417497 % CO_2)
   0.003751234 gr/dscf corrected to 12% CO_2

OR

Simplified Equation
   = (4.83 lb/MMCF) x (7000 gr/lb) x (0.12 mol CO_2/mol exhaust) x (lb fuel/0.76 lb C) x (12.01 lb C/mol C) x (mol C/mol CO_2) x (MMCF/44,582 lb fuel/) / (0.995) x (mol exhaust/385.3 dscf)
   = 0.003751234 gr/dscf corrected to 12% CO_2

SO2 Concentration (% SO_2 by volume):
The following calculation is at 0% excess air which represents worst case.
= (0.868 lb SO_2/MMCF) x (MMCF/1,000 MMBtu) x (MMBtu/8,710 dscf) x (mol SO_2/64.06 lb SO_2) x (385.3 dscf/mol exhaust)
= 0.000000599 mol SO_2/mol exhaust or 0.0000599 % SO_2

The rule emission limits for SO_2 and PM are 0.2% SO_2 by volume and 0.1 grains/cf at 12% CO2, respectively. Therefore, the emissions from the turbine comply with Rule 406.

Rule 413 – Stationary Gas Turbines

Rule 413 prohibits NOx emissions in excess of 9 ppmvd corrected to 15% O_2 based on a 15-min average, with exceptions for excursions, from gaseous fuel-fired turbines with a maximum electrical output rating of 10 MW or greater operating 877 hours or more per year. Rule 413 is applicable to the CPP turbines, which have a maximum electrical output rating of 198.1 MW and operate up to 8760 hours/year. At a permitted NOx concentration of 2 ppmv corrected to 15% O_2 averaged over one hour, the CPP turbines comply with Rule 413 NOx limit.

Rule 420 - Sulfur Content of Fuels

Rule 420 limits the sulfur content of any gaseous fuel to 50 grains per 100 cubic foot, calculated as H2S. The sulfur content of the blended fuel is expected to be no more than 0.28 grains per 100 cubic foot (92.63 MMBTU/hr of digester gas at 1 grain/100 ft3 and 2107.37 MMBTU/hr of natural gas at 0.25 grain/100 ft3). Therefore, the fuel utilized for the CPP turbines is expected to comply with the Rule 420 limits.

4. NSPS COMPLIANCE:

40 CFR 60 Subpart A – General Provisions
All affected sources are subject to the general provisions of NSPS Subpart A unless specifically excluded by the source-specific NSPS. Subpart A requires initial notification and performance testing, recordkeeping, monitoring; provides reference methods; and mandates general control device requirements for all other subparts as applicable. SFA will continue to meet all applicable requirements of the general provisions outlined in 40 CFR 60 Subpart A.

40 CFR Part 60 Subpart GG – NSPS for Stationary Gas Turbines
NSPS GG, *Standards of Performance for Stationary Gas Turbines*, applies to stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the lower heating value of the fuel fired. The project is considered a "modification" under NSPS because it results in an increase in hourly emissions of a regulated NSPS pollutant per 40 CFR 60.14. Therefore, because this modification is taking place after February 18, 2005, these turbines will be subject to 40 CFR Part 60 Subpart KKKK - NSPS for Stationary Combustion Turbines.

40 CFR Part 60 Subpart KKKK – NSPS for Stationary Combustion Turbines
NSPS GG, *Standards of Performance for Stationary Gas Turbines*, applies to stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005. Since each of these turbines is rated at 2200 MMBTU/hr and the modification is after February 18, 2005 these turbines are subject to this subpart. The general compliance requirements for this subpart include:

- NOx concentration of 15 ppmvd corrected to 15% O2 while combusting natural gas.
- SOx emission rate of 0.060 lb SO2/MMBtu
- Operate and maintain the turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
- Use data to demonstrate that the fuel meets the potential sulfur emission requirement.

- Comply with semi-annual reporting requirements pursuant to §60.4380
- Conduct an initial and subsequent performance test for NOx in accordance with §60.4400
- Conduct an initial and subsequent performance tests for SOx in accordance with §60.4415

The turbines existing NOx emission concentrations and SOx emission rates are more stringent than the NSPS requirements. Conditions will be added, as needed, to ensure compliance with the operational, monitoring, reporting and testing requirements of this subpart.

40 CFR Part 60 Subpart TTTT – Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units
NSPS TTTT, *Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units*, applies to any steam generating unit, IGCC, or stationary combustion turbine that commenced construction after January 8, 2014 or reconstruction after June 18, 2014. In addition, this regulation also applies to any steam generating unit or IGCC that commenced modification after June 18, 2014. The combustion turbines at SFA were originally constructed prior to January 8, 2014 and though these turbines are being modified after the June 18, 2014 applicable modification date, the NSPS removed stationary combustion turbine from that requirement as long as the turbine does not combust solid fuel. As such, NSPS Subpart TTTT does not apply to the modification of these units at CPP.

5. NESHAP COMPLIANCE:
NESHAPs under 40 CFR, Part 61: The list of all adopted National Emission Standards for Hazardous Air Pollutants (http://yosemite.epa.gov/r9/r9nsps.nsf/ViewStandards?ReadForm&Part=61) were reviewed to determine if the proposed project is subject to one or more of these regulations. There are currently no 40 CFR, Part 61 NESHAPs applicable to this source category.

NESHAPs under 40 CFR, Part 63: Due to the District not being delegated for the Part 63 NESHAPs, all Part 63 NESHAPs are enforced as Air Toxics Control Measures (ATCMs). The list of all adopted National Emission Standards for Hazardous Air Pollutants (http://yosemite.epa.gov/r9/r9nsps.nsf/ViewStandards?ReadForm&Part=63) were reviewed to determine if the proposed project is subject to one or more of these regulations. No applicable provisions were identified:

6. ATCM COMPLIANCE: The list of all adopted Airborne Toxic Control Measures (http://www.arb.ca.gov/toxics/atcm/atcm.htm) was reviewed to determine if the proposed project is subject to one or more of these regulations. No applicable provisions were identified:

RECOMMENDATION: This turbine modification project will comply with all applicable District rules and regulations. An authority to construct for the modifications of the turbines should be issued to SFA with the following conditions.

***Refer to conditions in Authority to Construct No.* 25800, 25801**

REVIEWED BY: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____

APPENDIX A

Major Modification Applicability Determination

In order to determine which calculation methodology to use for the BACT and offset trigger analysis, we must first determine if CPP is a "major stationary source" and then whether the project is a "major modification." The source is subject to both Rule 202 as well as 214 so the "major stationary source" determination must be determined for both rules.

Rule 202

CPP is a "major stationary source" per Rule 202, Section 228 for NOx, VOC, $PM_{2.5}$, and CO per the information presented below.

Pollutant	Major Source Threshold	CPP Permit Limit	Major Source?
VOC	25	30.0	**YES**
NOx	25	125.6	**YES**
SO_2	NA	16.7	**NO**
PM_{10}	100 (or 100 tpy SOx as PM10 precursor)	80.6	**NO**
$PM_{2.5}$	100 (or 100 tpy NOx or SOx as $PM_{2.5}$ precursor) (A)	79.3	**YES (NOx as $PM_{2.5}$ precursor)**
CO	100	297.8	**YES**

(A) At this time VOC and ammonia have not been determined to be a necessary part of the PM2.5 control strategy in the attainment demonstration nor have they been approved by EPA in the State Implementation Plan. As such they are not considered a PM2.5 precursor for the purposes of major stationary source threshold.

Rule 214

CPP is a "major stationary source" per Rule 214, Section 228 for NOx, VOC, and $PM_{2.5}$ per the information presented below.

Pollutant	Major Source Threshold	CPP Permit Limit	Major Source?
VOC	25	30.0	**YES**
NOx	25	125.6	**YES**
SO_2	NA	16.7	**NO**
PM_{10}	100 (or 100 tpy SOx as PM10 precursor)	80.6	**NO**
$PM_{2.5}$	100 (or 100 tpy NOx or SOx as $PM_{2.5}$ precursor) (A)	79.3	**YES (NOx as $PM_{2.5}$ precursor)**
CO	NA	297.8	**NA**

(B) At this time VOC and ammonia have not been determined to be a necessary part of the PM2.5 control strategy in the attainment demonstration nor have they been approved by EPA in the State Implementation Plan. As such they are not considered a PM2.5 precursor for the purposes of major stationary source threshold.

The methodology for determining "major modification" is the same for either Rule 202 or 214. For those pollutants (NOx, VOC, PM2.5, and CO) for which the source is major, it must be determined whether the project is a "major modification" for these pollutants.

Emission increases are determined by the calculation method in Rule 202 or 214, Section 411.5:

The sum of the Potential to Emit for the project minus the Historic Actual

Emissions, as defined in Section 224.1, for the project. However, the potential to emit, instead of historic actual emissions, can be used for emissions units if either of the following conditions applies:

a. Actual emissions are at least 80% of the potential to emit limit, or

b. The emissions unit was fully offset for any emissions increase during the 5 year period prior to the date that the application is deemed complete.

Though the facility was fully offset for NOx, VOC, and PM10 (for which PM2.5 is a subset) during the original permitting of the project, this happened well over 5 years ago, thus Section 411.5 (b) is not satisfied.

In determining if the 80% criteria of Section 411.5 (a) is satisfied, we must first determine the appropriate historic actual emissions (baseline).

224.1 ***Existing emissions units****: Historic actual emissions for the existing emissions unit averaged over the two year period immediately preceding the date of application for an Authority to Construct.*

a. If the last two years are unrepresentative of normal source operations as determined by the Air Pollution Control Officer, then any two consecutive years of the last five years that represent normal source operation may be used.

In order to determine the appropriate two year period that represents normal source operations, the applicant in support of Phase 1 of the project provided the amount of energy produced by the facility in megawatt-hour for the previous five years (October 2012 through September 2017).

Appendix B includes the two-year baseline emissions calculation. As noted in Appendix B, when this baseline analysis was run for Phase I the previous two-year period ending September 2017 results in an average 12-month baseline of 4,785,735 MW-hr. The average 12-month baseline for the previous 60-month (five-year) period ending September 2017 is 5,214,630 MW-hr. In fact, the baseline of 4,785,735 for the previous two-year period ending September 2017 results in the lowest baseline value of the entire 5 year period. This time period included record rainfall and snowpack that resulted in an abundance of hydroelectric power which resulted in lower than normal power generation from these thermal assets. Therefore, the previous two-year period is "unrepresentative of normal source operations" pursuant to Rule 202, Section 224.1, and therefore the Project may use "any two consecutive years of the last 5-years that represent normal source operation."

Eight months later when Phase 2 was applied for, the previous two-year period immediately prior to the applications were even lower (4,439,482 MW-hr) as it also contained the record rainfall period along with a major shutdown. Therefore, since the previous two-year period is considered "unrepresentative of normal source operations" and since the two year period that was determined during the Phase 1 analysis is within 5 years of the Phase 2 applications, the same two-year period will be used.

The two-year period in the last five years that is most representative of normal operation is the two-year period ending February 2017. During this period the 24-month average power production was 5,209,784 MW-hr, which is closest to the 24-month average of 5,214,630 MW-hr over the entire 5 year period for the Phase 1 analysis.

Once the two-year baseline period was established, then historic actual emissions were determined for each pollutant and displayed in the table below.

Pollutant	CPP Actual Emissions Baseline (tpy)	CPP Potential to Emit Permit Limit (tpy)	Percent of Potential to Emit	Actual at Least 80% of PTE?
VOC	19.7	30.0	**65.7%**	**NO**
NOx	71.1	125.6	**56.6%**	**NO**
$PM_{2.5}$	66.4 (A)	79.3	**83.7%**	**YES**
CO	23.2	297.8	**7.8%**	**NO**

(A) PM2.5 emissions are the PM10 emissions multiplied by 0.998 PM2.5 to PM10 ratio.

Pollutant	Major Modification Threshold	Proposed Permit Limit	Historical Actual Emissions (B)	Emission Increase (C)	Major Modification?
VOC	25	30.0	19.7	10.3	**NO**
NOx	25	96.0	71.1	24.9	**NO**
$PM_{2.5}$	10 (or 40 tpy NOx or SOx as $PM_{2.5}$ precursor) (A)	79.3	79.3	0	**NO**
CO	100	123.1	23.2	99.9	**NO**

(A) At this time VOC and ammonia have not been determined to be a necessary part of the PM2.5 control strategy in the attainment demonstration nor have they been approved by EPA in the State Implementation Plan. As such they are not considered a PM2.5 precursor for the purposes of major modification threshold.

(B) As indicated in the table above, only PM2.5 satisfy the 80% criteria of Section 411.5(a) and as such the Historic Potential will be considered the Historic Actual.

(C) The emission increase reflects increases only from this permitting action as no other creditable increase or decrease took place in the contemporaneous period.

For VOC, the emissions increase when comparing proposed potential to actual emissions results in only a 10.3 TPY increase and thus will not be considered a major modification for this pollutant.

For NOx SFA is proposing to reduce the potential to emit for this pollutant to avoid triggering the "major modification" determination based on the difference between historical actual and currently permitted potential emissions. Therefore, SFA will reduce the annual NOx emissions limit for the CPP facility from 125.6 tons/year (251,194 lb/yr) to 71.1 + 24.9 = 96.0 tons/year (192,000 lb/yr) and thus will not be considered a major modification for this pollutant.

For PM2.5, the emissions increase when comparing proposed potential to historic potential emissions results in a 0 TPY increase and thus will not be considered a major modification for this pollutant.

For CO SFA is proposing to reduce the potential to emit for this pollutant to avoid triggering the "major modification" determination based on the difference between historical actual and currently permitted potential emissions. Therefore SFA will reduce that annual CO emissions limit for the CPP facility from 297.8 tons/year (595,505 lb/yr) to 23.2 + 99.9 = 123.1 tons/year (246,200 lb/yr) and thus will not be considered a major modification for this pollutant.

Based on this analysis, the proposed modification is not considered a major modification for any pollutant and as such the calculation methodology used for determining BACT and/or Offset

triggers will be Proposed Potential minus Historic Potential (current permitted potential).

APPENDIX B

Two-Year Baseline Emissions

Date/Hour	UNIT2 UNITLOAD (MW -hr)	UNIT3 UNITLOAD (MW -hr)	Combined Load (MW -hr)	Unit 2 24 Month Running Total	Deviation from five year average		Unit 3 24 Month Running Total	Deviation from five year average		Unit 2 and 3 24 Month Running Total	Deviation from five year average
Nov-2012	121617	7639	129256								
Dec-2012	119836	78044	197880								
Jan-2013	127335	127451	254786								
Feb-2013	109282	108042	217324								
Mar-2013	115460	115710	231170								
Apr-2013	1	50152	50153								
May-2013	117314	100258	217572								
Jun-2013	115321	114069	229390								
Jul-2013	106235	116219	222454								
Aug-2013	123619	114769	238388								
Sep-2013	119127	118133	237260								
Oct-2013	124797	114510	239307								
Nov-2013	102693	95225	197918								
Dec-2013	130378	129350	259728								
Jan-2014	128569	127289	255858								
Feb-2014	108727	107199	215926								
Mar-2014	124231	123072	247303								
Apr-2014	117347	116499	233846								
May-2014	111772	90756	202528								
Jun-2014	114099	113215	227314								
Jul-2014	120265	117119	237384								
Aug-2014	119239	115997	235236								
Sep-2014	117266	116452	233718								
Oct-2014	124803	123889	248692	2,719,333	-3.02%		2,541,058.00	1.32%		5,260,391.00	-0.88%
Nov-2014	49583	50179	99762	2,647,299	-0.29%		2,583,598.00	-0.33%		5,230,897.00	-0.31%
Dec-2014	126867	126247	253114	2,654,330	-0.56%		2,631,801.00	-2.20%		5,286,131.00	-1.37%
Jan-2015	127102	125915	253017	2,654,097	-0.55%		2,630,265.00	-2.14%		5,284,362.00	-1.34%
Feb-2015	109146	108695	217841	2,653,961	-0.55%		2,630,918.00	-2.17%		5,284,879.00	-1.35%
Mar-2015	105539	101172	206711	2,644,040	-0.17%		2,616,380.00	-1.60%		5,260,420.00	-0.88%
Apr-2015	70171	65602	135773	2,714,210	-2.83%		2,631,830.00	-2.20%		5,346,040.00	-2.52%
May-2015	124718	123923	248641	2,721,614	-3.11%		2,655,495.00	-3.12%		5,377,109.00	-3.12%
Jun-2015	117346	116071	233417	2,723,639	-3.19%		2,657,497.00	-3.20%		5,381,136.00	-3.19%
Jul-2015	109746	112700	222446	2,727,150	-3.32%		2,653,978.00	-3.06%		5,381,128.00	-3.19%
Aug-2015	121832	119081	240913	2,725,363	-3.25%		2,658,290.00	-3.23%		5,383,653.00	-3.24%
Sep-2015	117797	116915	234712	2,724,033	-3.20%		2,657,072.00	-3.18%		5,381,105.00	-3.19%
Oct-2015	116711	122798	239509	2,715,947	-2.90%		2,665,360.00	-3.50%		5,381,307.00	-3.20%
Nov-2015	125048	50971	176019	2,738,302	-3.74%		2,621,106.00	-1.79%		5,359,408.00	-2.78%
Dec-2015	128372	128195	256567	2,736,296	-3.67%		2,619,951.00	-1.74%		5,356,247.00	-2.72%
Jan-2016	128610	128509	257119	2,736,337	-3.67%		2,621,171.00	-1.79%		5,357,508.00	-2.74%
Feb-2016	120175	119656	239831	2,747,785	-4.10%		2,633,628.00	-2.27%		5,381,413.00	-3.20%
Mar-2016	94669	110618	205287	2,718,223	-2.98%		2,621,174.00	-1.79%		5,339,397.00	-2.39%
Apr-2016	40931	45717	86648	2,641,807	-0.09%		2,550,392.00	0.96%		5,192,199.00	0.43%
May-2016	92903	85365	178268	2,622,938	0.63%		2,545,001.00	1.17%		5,167,939.00	0.90%
Jun-2016	97593	109816	207409	2,606,432	1.25%		2,541,602.00	1.30%		5,148,034.00	1.28%

	Representative Two-Year Baseline Emissions				
	Nox (lb/month)	CO (lb/month)	ROC (lb/month)	PM10 (lb/month)	Sox (lb/month)
	11,094	5,315	3,872	10,565	1,312
	7,826	3,651	2,462	6,718	835
	13,178	4,433	4,625	12,621	1,568
-5.96%	12,368	3,276	4,341	11,847	1,472
-5.96%	12,350	3,935	4,216	11,504	1,429
-6.01%	12,907	3,384	4,497	12,271	1,523
-5.96%	12,381	3,552	4,359	11,895	1,478
-5.96%	12,902	4,264	4,446	12,131	1,507
-5.53%	9,603	4,144	3,259	8,893	1,105
-5.47%	13,476	4,337	4,734	12,918	1,605
-5.49%	13,493	4,208	3,182	13,002	4,747
-5.96%	12,762	2,869	2,992	12,238	4,465
-5.14%	11,181	3,670	2,674	10,562	3,837
-2.24%	5,362	2,905	1,137	4,518	1,657
-1.76%	10,140	4,088	2,243	9,392	3,426
-1.37%	11,603	2,728	2,713	10,859	3,940

Jul-2016	113466	111858	225324	2,599,633	1.51%	2,536,341.00	1.51%	5,135,974.00	1.51%	-1.13%	12,979	3,539	2,831	11,656	4,241
Aug-2016	120760	120947	241707	2,601,154	1.45%	2,541,291.00	1.31%	5,142,445.00	1.38%	-1.26%	12,792	2,721	2,982	12,196	4,459
Sep-2016	118271	118820	237091	2,602,159	1.42%	2,543,659.00	1.22%	5,145,818.00	1.32%	-1.33%	12,882	3,735	2,975	12,062	4,456
Oct-2016	115046	122677	237723	2,592,402	1.79%	2,542,447.00	1.27%	5,134,849.00	1.53%	-1.11%	12,826	5,308	2,902	11,642	4,267
Nov-2016	122303	122654	244957	2,665,122	-0.97%	2,614,922.00	-1.55%	5,280,044.00	-1.25%	-3.97%	13,459	3,398	3,042	12,449	4,543
Dec-2016	127753	128296	256049	2,666,008	-1.00%	2,616,971.00	-1.63%	5,282,979.00	-1.31%	-4.03%	14,294	3,942	3,131	12,862	4,668
Jan-2017	114214	114305	228519	2,653,120	-0.52%	2,605,361.00	-1.17%	5,258,481.00	-0.84%	-3.54%	12,662	4,459	2,907	11,852	4,350
Feb-2017	84456	84688	169144	2,628,430	0.42%	2,581,354.00	-0.24%	5,209,784.00	0.09%	-2.59%	10,027	4,780	2,258	9,244	3,376
Mar-2017	95163	93207	188370	2,618,054	0.81%	2,573,389.00	0.07%	5,191,443.00	0.44%	-2.22%					
Apr-2017	28074	23462	51536	2,575,957	2.41%	2,531,249.00	1.70%	5,107,206.00	2.06%	-0.57%	**71.1**	**23.2**	**19.7**	**66.5**	**17.6 TPY**
May-2017	72534	50605	123139	2,523,773	4.39%	2,457,931.00	4.55%	4,981,704.00	4.47%	1.91%					
Jun-2017	47013	65140	112153	2,453,440	7.05%	2,407,000.00	6.53%	4,860,440.00	6.79%	4.29%					
Jul-2017	98875	105668	204543	2,442,569	7.46%	2,399,968.00	6.80%	4,842,537.00	7.14%	4.65%					
Aug-2017	108219	116691	224910	2,428,956	7.98%	2,397,578.00	6.89%	4,826,534.00	7.44%	4.96%					
Sep-2017	87650	106263	193913	2,398,809	9.12%	2,386,926.00	7.31%	4,785,735.00	8.22%	5.76%					
Oct-2017	108519	108080	216599	2,390,617		2,372,208.00		4,762,825.00		6.22%					
Nov-2017	76991	83236	160227	2,342,560		2,404,473.00		4,747,033.00		6.53%					
Dec-2017	119923	119964	239887	2,334,111		2,396,242.00		4,730,353.00		6.86%					
Jan-2018	124836	124832	249668	2,330,337		2,392,565.00		4,722,902.00		7.00%					
Feb-2018	110611	110657	221268	2,320,773		2,383,566.00		4,704,339.00		7.37%					
Mar-2018	106250	99096	205346	2,332,354		2,372,044.00		4,704,398.00		7.37%					
Apr-2018				2,291,423		2,326,327.00		4,617,750.00		9.07%					
May-2018				2,198,520		2,240,962.00		4,439,482.00		12.58%					
	Phase 1	Sum		95,022,722		92,703,954		187,726,676							
		Average		2,639,520		2,575,110		5,214,630							
	Phase 2	Sum						182,825,529.00							
		Average						5,078,486.92							

APPENDIX C

Facility Emissions

Proposed Hourly Emissions - per turbine

Pollutant	MW	MMBTU/hr	ppm	Fd	lb/MMBTU	lb/hr
VOC	16	2200	1.17	8710		3.30
Nox	46	2200	2	8710		16.21
SOx dg		92.63			0.00462658	0.43
SOx ng		2107.37			0.00070097	1.48
Sox total						1.91
PM10		2200			0.004091	9.00
PM2.5		2200			0.00408273	8.98
CO	28	2200	4	8710		19.73

Proposed Daily Emissions - per turbine

	Normal Operation		Startup		
	lb/hr	hr	lb/hr	hr	lb/day
VOC	3.30	21	16	3	117.3
Nox	16.21	21	80	3	580.4
SOx dg/ng mix	1.91	24			45.8
SOx ng	1.54	24			37.0
PM10	9.00	24			216.0
PM2.5	8.98	24			215.5
CO	19.73	21	902	3	3120.3

Proposed Quarterly Emissions - per turbine

	lb/qtr1	lb/qtr2	lb/qtr3	lb/qtr4
VOC	7,403	7,479	7,555	7,555
Nox	31,010	31,321	31,632	31,632
Sox	4,126	4,171	4,217	4,217
PM10	19,440	19,656	19,872	19,872
PM2.5	19,401	19,617	19,832	19,832
CO	73,965	74,343	74,722	74,722

Proposed Annual Facility Emissions

	CT No.2 (TPY)	CT No.3 (TPY)	CT No.2 + CT No.3 (TPY)	Cooling Tower (TPY)	Perlight Storage (TPY)	Facility total (TPY)
VOC	15.00	15.00	30.00			30.0
Nox	62.80	62.80	125.60			125.6
Sox	8.37	8.37	16.73			16.7
PM10	39.42	39.42	78.84	1.71	0.01	80.6
PM2.5	39.34	39.34	78.68	0.66	0.01	79.3
CO	148.88	148.88	297.75			297.8

Natural Gas Only

40 CFR Part 75, Appx. G, Eq G-4

Fc =	1040	scf/MMBTU
Max Hourly Heat Input	2200	MMBTU/hr
Hourly Heat input (based on yearly average) =	1772	MMBTU/hr
CO2 MW =	44	lb/mol
Molar volume	385	ft3/mol

	CT2	CT3	Total	
Hourly CO2 =	130.74	130.74	261.49	ton/hr
Daily CO2 =	3,137.8	3,137.8	6,275.7	ton/day
Quarterly CO2 (qtr1)=	227,464	227,464	454,928	ton/qtr
Quarterly CO2 (qtr2)=	229,991	229,991	459,983	ton/qtr
Quarterly CO2 (qtr3)=	232,519	232,519	465,038	ton/qtr
Quarterly CO2 (qtr4)=	232,519	232,519	465,038	ton/qtr
Annual CO2 =			1,844,986	ton/yr

CH4 EF	1.00E-03	kg/MMBTU
CH4 global warming potential	25	
N20 EF	1.00E-04	kg/MMBTU
N20 global warming potential	298	

	CT2	CT3	Total	
Hourly CO2e =	0.13	0.13	0.27	ton/hr
	3.2	3.2	6.4	ton/day
	231	231	462	ton/qtr
	234	234	468	ton/qtr
	236	236	473	ton/qtr
	236	236	473	ton/qtr
			1,875	ton/yr

Digester Gas

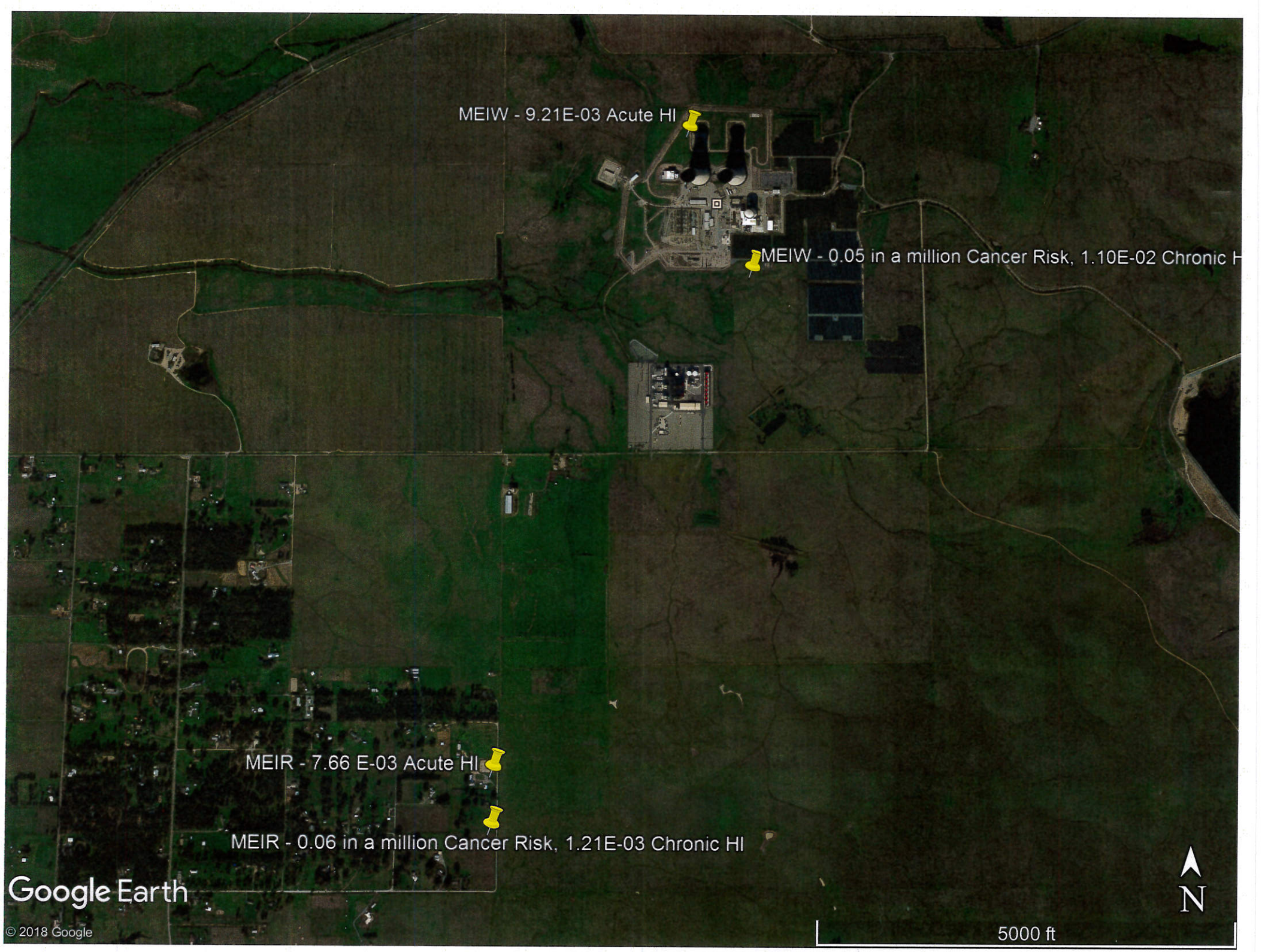
CO2 = 44/12*fuel*CC*MW/MVC*0.001 (metric tons)

fuel =	150000	ft3/hr
CC	44.05	%carbon of fuel
MW =	27.05	kg/kg-mol of fuel
MVC =	849.5	scf/kg-mol

Hourly CO2 =	8.49	ton/hr
Daily CO2 =	203.7	ton/day
Quarterly CO2 (qtr1)=	18,330	ton/qtr
Quarterly CO2 (qtr2)=	18,534	ton/qtr
Quarterly CO2 (qtr3)=	18,737	ton/qtr
Quarterly CO2 (qtr4)=	18,737	ton/qtr
Annual CO2 =	74,550	ton/yr

APPENDIX D

Health Risk Assessment


MEIW - 9.21E-03 Acute HI
MEIW - 0.05 in a million Cancer Risk, 1.10E-02 Chronic H
MEIR - 7.66 E-03 Acute HI
MEIR - 0.06 in a million Cancer Risk, 1.21E-03 Chronic HI
Google Earth
© 2018 Google
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5000 ft

MAXIMALLY EXPOSED INDIVIDUAL WORKER (MEIW) / POINT OF MAXIMUM IMPACT (PMI)

CANCER RISK - SCENARIO: 25YrCancerDerived

*HARP - HRACalc v17023 8/28/2018 12:18:30 PM - Cancer Risk - Input File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\HARP25800NONRES\hra\25800NonResOutHRAInput.hra

					PATHWAY BREAKDOWN											
REC	X	Y	Scenario	Risk	INH	SOIL	DERMAL	MMILK	WATER	FISH	CROP	BEEF	DAIRY	PIG	CHICKEN	EGG
64	664227	4245473.01	25YrCancerDerived_InhSoilDerm	5.236E-08	3.81E-08	1.00E-08	4.29E-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

NONCANCER HAZARD INDEX - SCENARIO: NonCancerAcute

*HARP - HRACalc v17023 8/28/2018 12:18:30 PM - Acute Risk - Input File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\HARP25800NONRES\hra\25800NonResOutHRAInput.hra

					HAZARD INDEXY BY TARGET ORGAN													
REC	X	Y	Scenario	Max HI	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
6	663977	4246040	NonCancerAcute	0.0092116	2.14E-04	2.22E-04	5.64E-04	0.00E+00	1.96E-07	6.06E-04	6.03E-03	0.00E+00	9.21E-03	0.00E+00	0.00E+00	3.78E-04	0.00E+00	0.00E+00

NONCANCER HAZARD INDEX - SCENARIO: NonCancerChronicDerived

*HARP - HRACalc v17023 8/28/2018 12:18:30 PM - Chronic Risk - Input File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\HARP25800NONRES\hra\25800NonResOutHRAInput.hra

					HAZARD INDEXY BY TARGET ORGAN													
REC	X	Y	Scenario	Max HI	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
64	664227	4245473.01	NonCancerChronicDerived_InhSoilDerm	0.010963	7.30E-03	7.32E-03	0.00E+00	3.07E-05	2.32E-05	7.31E-03	1.10E-02	7.28E-03	2.87E-06	0.00E+00	4.99E-07	2.23E-04	0.00E+00	0.00E+00

PMI, MEIR, and MEIW Report
Cosumnes Power Plant
A/C 25800 - 25801 - GAS TURBINE UPGRADES

POL	POLABBREV	InhalationCancerURF	InhalationCancerSlopeFactorOralCancerSlopeFactc	AcuteREL	InhalationChronicRE	OralChronicREL
7664417	NH3	#N/A	#N/A	3200	200	#N/A
115071	Propylene	#N/A	#N/A	#N/A	3000	#N/A
75070	Acetaldehyde	0.0000027	0.01	#N/A	470	140
107028	Acrolein	#N/A	#N/A	#N/A	2.5	0.35
71432	Benzene	0.000029	0.1	#N/A	27	3
106990	1,3-Butadiene	0.00017	0.6	#N/A	660	2
100414	Ethyl Benzene	0.0000025	0.0087	#N/A	#N/A	2000
50000	Formaldehyde	0.000006	0.021	#N/A	55	9
110543	Hexane	#N/A	#N/A	#N/A	#N/A	7000
91203	Naphthalene	0.000034	0.12	#N/A	#N/A	9
120127	Anthracene	#N/A	#N/A	#N/A	#N/A	#N/A
56553	B[a]anthracene	0.00011	0.39	1.2	#N/A	#N/A
50328	B[a]P	0.0011	3.9	12	#N/A	#N/A
205992	B[b]fluoranthen	0.00011	0.39	1.2	#N/A	#N/A
207089	B[k]fluoranthen	0.00011	0.39	1.2	#N/A	#N/A
218019	Chrysene	0.000011	0.039	0.12	#N/A	#N/A
53703	D[a,h]anthracen	0.0012	4.1	4.1	#N/A	#N/A
193395	In[1,2,3-cd]pyr	0.00011	0.39	1.2	#N/A	#N/A
75569	Propylene Oxide	0.0000037	0.013	#N/A	3100	30
108883	Toluene	#N/A	#N/A	#N/A	37000	300
1330207	Xylenes	#N/A	#N/A	#N/A	22000	700
25321226	DiClBenzenes	#N/A	#N/A	#N/A	#N/A	#N/A
56235	CCl4	0.000042	0.15	#N/A	1900	40
108907	Chlorobenzn	#N/A	#N/A	#N/A	#N/A	1000
67663	Chloroform	0.0000053	0.019	#N/A	150	300
107062	EDC	0.000021	0.072	#N/A	#N/A	400
75092	Methylene Chlor	0.000001	0.0035	#N/A	14000	400
127184	Perc	0.0000061	0.021	#N/A	20000	35
79016	TCE	0.000002	0.007	#N/A	#N/A	600
75014	Vinyl Chloride	0.000078	0.27	#N/A	180000	#N/A
75354	Vinylid Chlorid	#N/A	#N/A	#N/A	#N/A	70
7440382	Arsenic	0.0033	12	1.5	0.2	0.015
7440439	Cadmium	0.0042	15	#N/A	#N/A	0.02
18540299	Cr(VI)	0.15	510	0.5	#N/A	0.2
7439921	Lead	0.000012	0.042	0.0085	#N/A	#N/A
7440020	Nickel	0.00026	0.91	#N/A	0.2	0.014
7782492	Selenium	#N/A	#N/A	#N/A	20	0.005

MAXIMALLY EXPOSED INDIVIDUAL RESIDENT (MEIR)

CANCER RISK - SCENARIO: 30YrCancerDerived

*HARP - HRACalc v17023 8/28/2018 12:15:28 PM - Cancer Risk - Input File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra\25800RESoutHRAInput.hra

						PATHWAY BREAKDOWN											
REC	X	Y	Scenario	Risk	INH	SOIL	DERMAL	MMILK	WATER	FISH	CROP	BEEF	DAIRY	PIG	CHICKEN	EGG
567	663288.38	4243337.77	30YrCancerRMP_InhSoilDermMMilk_FAH16to70	5.761E-08	3.70E-08	1.90E-08	8.46E-10	7.75E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

NONCANCER HAZARD INDEX - SCENARIO: NonCancerAcute

*HARP - HRACalc v17023 8/28/2018 12:15:28 PM - Acute Risk - Input File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra\25800RESoutHRAInput.hra

					HAZARD INDEXY BY TARGET ORGAN													
REC	X	Y	Scenario	Max HI	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
672	663288.38	4243546.07	NonCancerAcute	0.0076599	1.78E-04	1.85E-04	4.69E-04	0.00E+00	1.63E-07	5.04E-04	5.01E-03	0.00E+00	7.66E-03	0.00E+00	0.00E+00	3.14E-04	0.00E+00	0.00E+00

NONCANCER HAZARD INDEX - SCENARIO: NonCancerChronicDerived

*HARP - HRACalc v17023 8/28/2018 12:15:28 PM - Chronic Risk - Input File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra\25800RESoutHRAInput.hra

					HAZARD INDEXY BY TARGET ORGAN													
REC	X	Y	Scenario	Max HI	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DEVEL	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
567	663288.38	4243337.77	NonCancerChronicDerived_InhSoilDermMMilk	0.0012089	9.17E-04	9.18E-04	0.00E+00	3.11E-06	3.03E-06	9.16E-04	1.21E-03	9.14E-04	2.30E-07	0.00E+00	4.00E-08	1.79E-05	0.00E+00	0.00E+00

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**
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**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.4.0
** Lakes Environmental Software Inc.
** Date: 8/28/2018
** File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\Res.inp
**
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**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE SMUD CPP HRA
   MODELOPT DFAULT CONC
   AVERTIME 1 PERIOD
   POLLUTID OTHER
   RUNORNOT RUN
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION STKNG1       POINT      663977.000  4245040.000       45.720
   LOCATION STKNG2       POINT      663977.000  4245000.000       45.720
   LOCATION STKDG1       POINT      663977.000  4245040.000       45.720
   LOCATION STKDG2       POINT      663977.000  4245000.000       45.720
   LOCATION CTW1         POINT      664068.000  4245089.000       45.720
   LOCATION CTW2         POINT      664068.000  4245073.000       45.720
   LOCATION CTW3         POINT      664068.000  4245057.000       45.720
   LOCATION CTW4         POINT      664068.000  4245041.000       45.720
   LOCATION CTW5         POINT      664068.000  4245024.000       45.720
   LOCATION CTW6         POINT      664068.000  4245008.000       45.720
   LOCATION CTW7         POINT      664068.000  4244992.000       45.720
   LOCATION CTW8         POINT      664068.000  4244976.000       45.720
** Source Parameters **
   SRCPARAM STKNG1             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM STKNG2             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM STKDG1             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM STKDG2             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM CTW1               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW2               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW3               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW4               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW5               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW6               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW7               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW8               1.0    16.159   293.150  11.59600     9.146

** Building Downwash **
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BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	12.50	12.50	12.50	12.50	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	12.50	12.50	12.50
BUILDHGT CTW2	12.50	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW3	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW3	10.36	10.36	10.36	10.36	12.50	12.50
BUILDHGT CTW3	12.50	12.50	10.36	10.36	10.36	10.36
BUILDHGT CTW3	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW3	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW3	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW4	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW4	10.36	10.36	10.36	10.36	10.36	12.50
BUILDHGT CTW4	12.50	12.50	12.50	10.36	10.36	10.36
BUILDHGT CTW4	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW4	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW4	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36

BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDWID STKNG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID STKNG1	16.99	13.91	14.90	13.91	16.99	19.56
BUILDWID STKNG1	21.53	22.85	23.47	23.38	22.60	21.10
BUILDWID STKNG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID STKNG1	16.99	13.91	10.40	13.91	16.99	19.56
BUILDWID STKNG1	21.53	22.85	23.47	23.38	22.60	21.10
BUILDWID STKNG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID STKNG2	17.08	14.00	15.00	14.00	17.08	19.64
BUILDWID STKNG2	21.61	22.91	23.52	23.42	22.60	21.10
BUILDWID STKNG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID STKNG2	17.08	14.00	10.50	14.00	17.08	19.64
BUILDWID STKNG2	21.61	22.91	23.52	23.42	22.60	21.10
BUILDWID STKDG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID STKDG1	16.99	13.91	14.90	13.91	16.99	19.56
BUILDWID STKDG1	21.53	22.85	23.47	23.38	22.60	21.10
BUILDWID STKDG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID STKDG1	16.99	13.91	10.40	13.91	16.99	19.56
BUILDWID STKDG1	21.53	22.85	23.47	23.38	22.60	21.10
BUILDWID STKDG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID STKDG2	17.08	14.00	15.00	14.00	17.08	19.64
BUILDWID STKDG2	21.61	22.91	23.52	23.42	22.60	21.10
BUILDWID STKDG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID STKDG2	17.08	14.00	10.50	14.00	17.08	19.64
BUILDWID STKDG2	21.61	22.91	23.52	23.42	22.60	21.10
BUILDWID CTW1	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW1	128.98	19.52	19.82	19.52	18.62	121.85
BUILDWID CTW1	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW1	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW1	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW1	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW2	38.67	60.07	79.64	96.80	111.01	121.85

BUILDWID CTW2	128.98	132.20	131.40	19.52	18.62	19.15
BUILDWID CTW2	19.75	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW2	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW2	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW2	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW3	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW3	128.98	132.20	131.40	132.20	26.66	19.15
BUILDWID CTW3	19.75	19.75	79.64	60.07	38.67	16.10
BUILDWID CTW3	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW3	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW3	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW4	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW4	128.98	132.20	131.40	132.20	128.98	30.90
BUILDWID CTW4	19.75	19.75	19.15	60.07	38.67	16.10
BUILDWID CTW4	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW4	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW4	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW5	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW5	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW5	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW5	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW5	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW5	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW6	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW6	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW6	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW6	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW6	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW6	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW7	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW7	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW7	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW7	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW7	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW7	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW8	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW8	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW8	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW8	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW8	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW8	111.01	96.80	79.64	60.07	38.67	16.10
BUILDLEN STKNG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKNG1	23.38	22.59	5.70	22.59	23.38	23.47
BUILDLEN STKNG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKNG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKNG1	23.38	22.59	21.10	22.59	23.38	23.47
BUILDLEN STKNG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKNG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKNG2	23.42	22.60	5.70	22.60	23.42	23.52
BUILDLEN STKNG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN STKNG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKNG2	23.42	22.60	21.10	22.60	23.42	23.52

BUILDLEN STKNG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN STKDG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKDG1	23.38	22.59	5.70	22.59	23.38	23.47
BUILDLEN STKDG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKDG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKDG1	23.38	22.59	21.10	22.59	23.38	23.47
BUILDLEN STKDG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKDG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKDG2	23.42	22.60	5.70	22.60	23.42	23.52
BUILDLEN STKDG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN STKDG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKDG2	23.42	22.60	21.10	22.60	23.42	23.52
BUILDLEN STKDG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN CTW1	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW1	60.07	19.52	19.82	19.52	18.62	79.64
BUILDLEN CTW1	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW1	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW1	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW1	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW2	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW2	60.07	38.67	16.10	19.52	18.62	19.15
BUILDLEN CTW2	19.75	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW2	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW2	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW2	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW3	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW3	60.07	38.67	16.10	38.67	40.71	19.15
BUILDLEN CTW3	19.75	19.75	121.85	128.98	132.20	131.40
BUILDLEN CTW3	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW3	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW3	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW4	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW4	60.07	38.67	16.10	38.67	60.07	39.50
BUILDLEN CTW4	19.75	19.75	19.15	128.98	132.20	131.40
BUILDLEN CTW4	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW4	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW4	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW5	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW5	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW5	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW5	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW5	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW5	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW6	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW6	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW6	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW6	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW6	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW6	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW7	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW7	60.07	38.67	16.10	38.67	60.07	79.64

BUILDLEN	CTW7	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN	CTW7	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN	CTW7	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN	CTW7	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN	CTW8	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN	CTW8	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN	CTW8	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN	CTW8	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN	CTW8	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN	CTW8	96.80	111.01	121.85	128.98	132.20	131.40
XBADJ	STKNG1	-48.46	-50.32	-50.65	-49.45	-21.36	-22.87
XBADJ	STKNG1	-23.68	-23.77	-77.74	-23.61	-23.37	-22.41
XBADJ	STKNG1	-20.77	-18.51	-15.67	-12.37	30.09	34.63
XBADJ	STKNG1	34.46	33.24	31.01	27.84	-1.48	-0.60
XBADJ	STKNG1	0.30	1.19	2.04	1.03	-0.02	-1.06
XBADJ	STKNG1	-2.08	-3.02	-3.88	-4.62	-44.09	-45.13
XBADJ	STKNG2	-9.07	-12.73	-16.01	-18.80	-21.02	-22.60
XBADJ	STKNG2	-23.50	-23.68	-77.74	-23.72	-23.58	-22.72
XBADJ	STKNG2	-21.18	-18.99	-16.22	-12.96	-9.31	-5.37
XBADJ	STKNG2	-4.93	-4.35	-3.63	-2.80	-1.89	-0.92
XBADJ	STKNG2	0.08	1.08	2.04	1.12	0.16	-0.80
XBADJ	STKNG2	-1.73	-2.62	-3.42	-4.12	-4.70	-5.13
XBADJ	STKDG1	-48.46	-50.32	-50.65	-49.45	-21.36	-22.87
XBADJ	STKDG1	-23.68	-23.77	-77.74	-23.61	-23.37	-22.41
XBADJ	STKDG1	-20.77	-18.51	-15.67	-12.37	30.09	34.63
XBADJ	STKDG1	34.46	33.24	31.01	27.84	-1.48	-0.60
XBADJ	STKDG1	0.30	1.19	2.04	1.03	-0.02	-1.06
XBADJ	STKDG1	-2.08	-3.02	-3.88	-4.62	-44.09	-45.13
XBADJ	STKDG2	-9.07	-12.73	-16.01	-18.80	-21.02	-22.60
XBADJ	STKDG2	-23.50	-23.68	-77.74	-23.72	-23.58	-22.72
XBADJ	STKDG2	-21.18	-18.99	-16.22	-12.96	-9.31	-5.37
XBADJ	STKDG2	-4.93	-4.35	-3.63	-2.80	-1.89	-0.92
XBADJ	STKDG2	0.08	1.08	2.04	1.12	0.16	-0.80
XBADJ	STKDG2	-1.73	-2.62	-3.42	-4.12	-4.70	-5.13
XBADJ	CTW1	-125.08	-120.85	-112.96	-101.63	-87.21	-70.15
XBADJ	CTW1	-50.95	-52.25	-53.41	-52.95	-50.87	-10.35
XBADJ	CTW1	-10.33	-10.01	-9.38	-8.47	-7.29	-5.90
XBADJ	CTW1	-7.12	-8.13	-8.89	-9.38	-9.58	-9.50
XBADJ	CTW1	-9.12	-8.47	-7.56	-29.24	-50.03	-69.30
XBADJ	CTW1	-86.46	-101.00	-112.47	-120.52	-124.91	-125.50
XBADJ	CTW2	-109.32	-105.82	-99.10	-89.37	-76.93	-62.15
XBADJ	CTW2	-45.48	-27.42	-8.54	-55.72	-56.35	-56.25
XBADJ	CTW2	-54.77	-22.27	-23.24	-23.50	-23.05	-21.90
XBADJ	CTW2	-22.88	-23.16	-22.75	-21.64	-19.87	-17.50
XBADJ	CTW2	-14.59	-11.25	-7.56	-26.46	-44.56	-61.30
XBADJ	CTW2	-76.18	-88.74	-98.61	-105.48	-109.15	-109.50
XBADJ	CTW3	-93.56	-90.78	-85.24	-77.11	-66.64	-54.15
XBADJ	CTW3	-40.00	-24.65	-8.54	-14.99	-83.90	-64.25
XBADJ	CTW3	-65.05	-63.88	-37.09	-38.54	-38.81	-37.90
XBADJ	CTW3	-38.64	-38.20	-36.60	-33.89	-30.15	-25.50
XBADJ	CTW3	-20.07	-14.03	-7.56	-23.68	-39.08	-53.30
XBADJ	CTW3	-65.89	-76.48	-84.75	-90.45	-93.39	-93.50

XBADJ	CTW4	-77.81	-75.75	-71.39	-64.86	-56.36	-46.15
XBADJ	CTW4	-34.53	-21.87	-8.54	-17.77	-26.46	-92.60
XBADJ	CTW4	-75.34	-76.14	-74.63	-53.57	-54.56	-53.90
XBADJ	CTW4	-54.39	-53.24	-50.46	-46.15	-40.44	-33.50
XBADJ	CTW4	-25.54	-16.80	-7.56	-20.90	-33.61	-45.30
XBADJ	CTW4	-55.61	-64.23	-70.90	-75.41	-77.64	-77.50
XBADJ	CTW5	-61.06	-59.77	-56.66	-51.84	-45.43	-37.65
XBADJ	CTW5	-28.72	-18.92	-8.54	-20.72	-32.27	-42.85
XBADJ	CTW5	-52.12	-59.80	-65.67	-69.55	-71.31	-70.90
XBADJ	CTW5	-71.14	-69.21	-65.18	-59.17	-51.36	-42.00
XBADJ	CTW5	-31.35	-19.76	-7.56	-17.95	-27.80	-36.80
XBADJ	CTW5	-44.68	-51.21	-56.17	-59.44	-60.89	-60.50
XBADJ	CTW6	-45.31	-44.74	-42.81	-39.58	-35.15	-29.65
XBADJ	CTW6	-23.24	-16.14	-8.54	-23.50	-37.75	-50.85
XBADJ	CTW6	-62.40	-72.06	-79.53	-84.58	-87.06	-86.90
XBADJ	CTW6	-86.89	-84.24	-79.04	-71.43	-61.65	-50.00
XBADJ	CTW6	-36.83	-22.54	-7.56	-15.17	-22.32	-28.80
XBADJ	CTW6	-34.40	-38.95	-42.32	-44.40	-45.14	-44.50
XBADJ	CTW7	-29.55	-29.70	-28.95	-27.32	-24.86	-21.65
XBADJ	CTW7	-17.77	-13.36	-8.54	-26.28	-43.22	-58.85
XBADJ	CTW7	-72.68	-84.32	-93.38	-99.62	-102.82	-102.90
XBADJ	CTW7	-102.65	-99.28	-92.89	-83.69	-71.93	-58.00
XBADJ	CTW7	-42.30	-25.31	-7.56	-12.39	-16.85	-20.80
XBADJ	CTW7	-24.11	-26.69	-28.46	-29.37	-29.38	-28.50
XBADJ	CTW8	-13.79	-14.67	-15.10	-15.06	-14.58	-13.65
XBADJ	CTW8	-12.30	-10.58	-8.54	-29.06	-48.69	-66.85
XBADJ	CTW8	-82.97	-96.57	-107.24	-114.65	-118.58	-118.90
XBADJ	CTW8	-118.41	-114.32	-106.75	-95.94	-82.22	-66.00
XBADJ	CTW8	-47.77	-28.09	-7.56	-9.62	-11.38	-12.80
XBADJ	CTW8	-13.83	-14.44	-14.61	-14.33	-13.62	-12.50
YBADJ	STKNG1	5.47	-1.81	-9.04	-15.99	7.74	5.90
YBADJ	STKNG1	3.87	1.73	-1.01	-2.64	-4.74	-6.69
YBADJ	STKNG1	-8.45	-9.94	-11.13	-11.99	-19.32	-12.59
YBADJ	STKNG1	-5.47	1.81	9.04	15.99	-7.74	-5.90
YBADJ	STKNG1	-3.87	-1.73	0.46	2.64	4.74	6.69
YBADJ	STKNG1	8.45	9.94	11.13	11.99	19.32	12.59
YBADJ	STKNG2	12.42	11.87	10.96	9.72	8.18	6.40
YBADJ	STKNG2	4.42	2.30	-0.43	-2.07	-4.19	-6.19
YBADJ	STKNG2	-8.00	-9.57	-10.84	-11.79	-12.38	-12.59
YBADJ	STKNG2	-12.42	-11.87	-10.96	-9.72	-8.18	-6.40
YBADJ	STKNG2	-4.42	-2.30	-0.12	2.07	4.19	6.19
YBADJ	STKNG2	8.00	9.57	10.84	11.79	12.38	12.59
YBADJ	STKDG1	5.47	-1.81	-9.04	-15.99	7.74	5.90
YBADJ	STKDG1	3.87	1.73	-1.01	-2.64	-4.74	-6.69
YBADJ	STKDG1	-8.45	-9.94	-11.13	-11.99	-19.32	-12.59
YBADJ	STKDG1	-5.47	1.81	9.04	15.99	-7.74	-5.90
YBADJ	STKDG1	-3.87	-1.73	0.46	2.64	4.74	6.69
YBADJ	STKDG1	8.45	9.94	11.13	11.99	19.32	12.59
YBADJ	STKDG2	12.42	11.87	10.96	9.72	8.18	6.40
YBADJ	STKDG2	4.42	2.30	-0.43	-2.07	-4.19	-6.19
YBADJ	STKDG2	-8.00	-9.57	-10.84	-11.79	-12.38	-12.59

YBADJ	STKDG2	-12.42	-11.87	-10.96	-9.72	-8.18	-6.40
YBADJ	STKDG2	-4.42	-2.30	-0.12	2.07	4.19	6.19
YBADJ	STKDG2	8.00	9.57	10.84	11.79	12.38	12.59
YBADJ	CTW1	-9.90	-19.99	-29.48	-38.06	-45.49	-51.54
YBADJ	CTW1	-56.03	9.52	2.00	-5.58	-13.00	-52.03
YBADJ	CTW1	-46.12	-38.81	-30.32	-20.91	-10.87	-0.49
YBADJ	CTW1	9.90	19.99	29.48	38.06	45.49	51.54
YBADJ	CTW1	56.03	58.81	59.80	58.98	56.36	52.03
YBADJ	CTW1	46.12	38.81	30.32	20.91	10.87	0.49
YBADJ	CTW2	-7.12	-14.52	-21.48	-27.78	-33.24	-37.69
YBADJ	CTW2	-40.99	-43.05	-43.80	10.17	2.04	-6.16
YBADJ	CTW2	-14.17	-28.53	-22.32	-15.44	-8.09	-0.49
YBADJ	CTW2	7.12	14.52	21.48	27.78	33.24	37.69
YBADJ	CTW2	40.99	43.05	43.80	43.22	41.33	38.18
YBADJ	CTW2	33.87	28.53	22.32	15.44	8.09	0.49
YBADJ	CTW3	-4.34	-9.05	-13.48	-17.49	-20.98	-23.83
YBADJ	CTW3	-25.96	-27.29	-27.80	-27.46	13.05	7.69
YBADJ	CTW3	-1.92	-11.47	-14.32	-9.97	-5.31	-0.49
YBADJ	CTW3	4.34	9.05	13.48	17.49	20.98	23.83
YBADJ	CTW3	25.96	27.29	27.80	27.46	26.29	24.32
YBADJ	CTW3	21.61	18.24	14.32	9.97	5.31	0.49
YBADJ	CTW4	-1.57	-3.58	-5.48	-7.21	-8.72	-9.97
YBADJ	CTW4	-10.92	-11.54	-11.80	-11.71	-11.26	15.68
YBADJ	CTW4	10.34	-1.18	-12.67	-4.50	-2.53	-0.49
YBADJ	CTW4	1.57	3.58	5.48	7.21	8.72	9.97
YBADJ	CTW4	10.92	11.54	11.80	11.71	11.26	10.46
YBADJ	CTW4	9.35	7.96	6.32	4.50	2.53	0.49
YBADJ	CTW5	1.39	2.24	3.02	3.72	4.30	4.75
YBADJ	CTW5	5.05	5.21	5.20	5.04	4.72	4.26
YBADJ	CTW5	3.67	2.97	2.18	1.32	0.42	-0.49
YBADJ	CTW5	-1.39	-2.24	-3.02	-3.72	-4.30	-4.75
YBADJ	CTW5	-5.05	-5.21	-5.20	-5.04	-4.72	-4.26
YBADJ	CTW5	-3.67	-2.97	-2.18	-1.32	-0.42	0.49
YBADJ	CTW6	4.16	7.71	11.02	14.00	16.56	18.60
YBADJ	CTW6	20.09	20.96	21.20	20.79	19.75	18.11
YBADJ	CTW6	15.93	13.25	10.18	6.79	3.20	-0.49
YBADJ	CTW6	-4.16	-7.71	-11.02	-14.00	-16.56	-18.60
YBADJ	CTW6	-20.09	-20.96	-21.20	-20.79	-19.75	-18.11
YBADJ	CTW6	-15.93	-13.25	-10.18	-6.79	-3.20	0.49
YBADJ	CTW7	6.94	13.18	19.02	24.29	28.81	32.46
YBADJ	CTW7	35.12	36.72	37.20	36.55	34.79	31.97
YBADJ	CTW7	28.18	23.54	18.18	12.26	5.98	-0.49
YBADJ	CTW7	-6.94	-13.18	-19.02	-24.29	-28.81	-32.46
YBADJ	CTW7	-35.12	-36.72	-37.20	-36.55	-34.79	-31.97
YBADJ	CTW7	-28.18	-23.54	-18.18	-12.26	-5.98	0.49
YBADJ	CTW8	9.72	18.66	27.02	34.57	41.07	46.32
YBADJ	CTW8	50.16	52.48	53.20	52.31	49.82	45.83
YBADJ	CTW8	40.44	33.82	26.18	17.74	8.76	-0.49
YBADJ	CTW8	-9.72	-18.66	-27.02	-34.57	-41.07	-46.32
YBADJ	CTW8	-50.16	-52.48	-53.20	-52.31	-49.82	-45.83
YBADJ	CTW8	-40.44	-33.82	-26.18	-17.73	-8.76	0.49

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   SRCGROUP STKNG1    STKNG1
   SRCGROUP STKNG2    STKNG2
   SRCGROUP STKDG1    STKDG1
   SRCGROUP STKDG2    STKDG2
   SRCGROUP CTW1      CTW1
   SRCGROUP CTW2      CTW2
   SRCGROUP CTW3      CTW3
   SRCGROUP CTW4      CTW4
   SRCGROUP CTW5      CTW5
   SRCGROUP CTW6      CTW6
   SRCGROUP CTW7      CTW7
   SRCGROUP CTW8      CTW8
SO FINISHED
**
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** AERMOD Receptor Pathway
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**
**
RE STARTING
** DESCRREC "UCART1" "Receptors generated from Uniform Cartesian Grid"
   DISCCART    660080.73   4242282.91   34.11   34.11
   DISCCART    660200.64   4242282.91   34.75   34.75
   DISCCART    660320.55   4242282.91   36.22   36.22
   DISCCART    660440.46   4242282.91   38.10   38.10
   DISCCART    660560.37   4242282.91   41.01   41.01
   DISCCART    660680.28   4242282.91   40.26   40.26
   DISCCART    660800.19   4242282.91   38.10   38.10
   DISCCART    660920.10   4242282.91   41.00   41.00
   DISCCART    661040.01   4242282.91   42.92   42.92
   DISCCART    661159.92   4242282.91   46.78   46.78
   DISCCART    661279.83   4242282.91   47.81   47.81
   DISCCART    661399.74   4242282.91   49.69   49.69
   DISCCART    661519.65   4242282.91   49.47   49.47
   DISCCART    661639.56   4242282.91   48.48   48.48
   DISCCART    661759.47   4242282.91   49.33   49.33
   DISCCART    661879.38   4242282.91   48.56   48.56
   DISCCART    661999.29   4242282.91   46.95   46.95
   DISCCART    662119.20   4242282.91   47.30   47.30
   DISCCART    662239.11   4242282.91   50.52   50.52
   DISCCART    662359.02   4242282.91   54.22   54.22
   DISCCART    662478.93   4242282.91   54.75   54.75
   DISCCART    660080.73   4242407.82   35.69   35.69
   DISCCART    660200.64   4242407.82   39.85   39.85
   DISCCART    660320.55   4242407.82   38.81   38.81
   DISCCART    660440.46   4242407.82   42.57   42.57
   DISCCART    660560.37   4242407.82   41.70   41.70
   DISCCART    660680.28   4242407.82   44.81   44.81
   DISCCART    660800.19   4242407.82   41.32   41.32
   DISCCART    660920.10   4242407.82   39.38   39.38
   DISCCART    661040.01   4242407.82   43.76   43.76
   DISCCART    661159.92   4242407.82   45.00   45.00
   DISCCART    661279.83   4242407.82   45.68   45.68
   DISCCART    661399.74   4242407.82   47.20   47.20
   DISCCART    661519.65   4242407.82   47.24   47.24
   DISCCART    661639.56   4242407.82   48.75   48.75
   DISCCART    661759.47   4242407.82   50.56   50.56
   DISCCART    661879.38   4242407.82   50.63   50.63
   DISCCART    661999.29   4242407.82   50.02   50.02
   DISCCART    662119.20   4242407.82   49.17   49.17
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DISCCART	662239.11	4242407.82	49.07	49.07
DISCCART	662359.02	4242407.82	50.02	50.02
DISCCART	662478.93	4242407.82	53.54	53.54
DISCCART	660080.73	4242532.73	39.66	39.66
DISCCART	660200.64	4242532.73	40.32	40.32
DISCCART	660320.55	4242532.73	42.03	42.03
DISCCART	660440.46	4242532.73	43.01	43.01
DISCCART	660560.37	4242532.73	44.39	44.39
DISCCART	660680.28	4242532.73	45.59	45.59
DISCCART	660800.19	4242532.73	41.38	41.38
DISCCART	660920.10	4242532.73	40.79	40.79
DISCCART	661040.01	4242532.73	41.87	41.87
DISCCART	661159.92	4242532.73	44.29	44.29
DISCCART	661279.83	4242532.73	46.09	46.09
DISCCART	661399.74	4242532.73	47.52	47.52
DISCCART	661519.65	4242532.73	47.63	47.63
DISCCART	661639.56	4242532.73	48.58	48.58
DISCCART	661759.47	4242532.73	50.07	50.07
DISCCART	661879.38	4242532.73	51.47	51.47
DISCCART	661999.29	4242532.73	51.93	51.93
DISCCART	662119.20	4242532.73	51.41	51.41
DISCCART	662239.11	4242532.73	51.35	51.35
DISCCART	662359.02	4242532.73	49.57	49.57
DISCCART	662478.93	4242532.73	50.56	50.56
DISCCART	660080.73	4242657.64	42.82	42.82
DISCCART	660200.64	4242657.64	43.68	43.68
DISCCART	660320.55	4242657.64	43.12	43.12
DISCCART	660440.46	4242657.64	43.75	43.75
DISCCART	660560.37	4242657.64	45.75	45.75
DISCCART	660680.28	4242657.64	43.99	43.99
DISCCART	660800.19	4242657.64	44.61	44.61
DISCCART	660920.10	4242657.64	44.19	44.19
DISCCART	661040.01	4242657.64	42.68	42.68
DISCCART	661159.92	4242657.64	42.42	42.42
DISCCART	661279.83	4242657.64	45.19	45.19
DISCCART	661399.74	4242657.64	46.85	46.85
DISCCART	661519.65	4242657.64	47.24	47.24
DISCCART	661639.56	4242657.64	48.73	48.73
DISCCART	661759.47	4242657.64	50.56	50.56
DISCCART	661879.38	4242657.64	53.32	53.32
DISCCART	661999.29	4242657.64	53.36	53.36
DISCCART	662119.20	4242657.64	53.16	53.16
DISCCART	662239.11	4242657.64	52.30	52.30
DISCCART	662359.02	4242657.64	51.97	51.97
DISCCART	662478.93	4242657.64	52.81	52.81
DISCCART	660080.73	4242782.55	40.23	40.23
DISCCART	660200.64	4242782.55	43.25	43.25
DISCCART	660320.55	4242782.55	44.74	44.74
DISCCART	660440.46	4242782.55	45.32	45.32
DISCCART	660560.37	4242782.55	45.57	45.57
DISCCART	660680.28	4242782.55	44.50	44.50
DISCCART	660800.19	4242782.55	46.18	46.18
DISCCART	660920.10	4242782.55	46.20	46.20
DISCCART	661040.01	4242782.55	43.85	43.85
DISCCART	661159.92	4242782.55	45.56	45.56
DISCCART	661279.83	4242782.55	44.47	44.47
DISCCART	661399.74	4242782.55	44.64	44.64
DISCCART	661519.65	4242782.55	45.74	45.74
DISCCART	661639.56	4242782.55	48.90	48.90
DISCCART	661759.47	4242782.55	49.36	49.36

DISCCART	661879.38	4242782.55	51.17	51.17
DISCCART	661999.29	4242782.55	53.99	53.99
DISCCART	662119.20	4242782.55	54.86	54.86
DISCCART	662239.11	4242782.55	53.52	53.52
DISCCART	662359.02	4242782.55	53.21	53.21
DISCCART	662478.93	4242782.55	54.15	54.15
DISCCART	660080.73	4242907.46	39.14	39.14
DISCCART	660200.64	4242907.46	41.27	41.27
DISCCART	660320.55	4242907.46	43.10	43.10
DISCCART	660440.46	4242907.46	45.97	45.97
DISCCART	660560.37	4242907.46	45.95	45.95
DISCCART	660680.28	4242907.46	46.72	46.72
DISCCART	660800.19	4242907.46	46.97	46.97
DISCCART	660920.10	4242907.46	45.76	45.76
DISCCART	661040.01	4242907.46	46.39	46.39
DISCCART	661159.92	4242907.46	49.23	49.23
DISCCART	661279.83	4242907.46	49.45	49.45
DISCCART	661399.74	4242907.46	47.74	47.74
DISCCART	661519.65	4242907.46	45.98	45.98
DISCCART	661639.56	4242907.46	47.42	47.42
DISCCART	661759.47	4242907.46	49.71	49.71
DISCCART	661879.38	4242907.46	50.74	50.74
DISCCART	661999.29	4242907.46	51.86	51.86
DISCCART	662119.20	4242907.46	53.07	53.07
DISCCART	662239.11	4242907.46	53.94	53.94
DISCCART	662359.02	4242907.46	54.85	54.85
DISCCART	662478.93	4242907.46	56.09	56.09
DISCCART	660080.73	4243032.37	41.40	41.40
DISCCART	660200.64	4243032.37	41.04	41.04
DISCCART	660320.55	4243032.37	42.55	42.55
DISCCART	660440.46	4243032.37	44.80	44.80
DISCCART	660560.37	4243032.37	46.54	46.54
DISCCART	660680.28	4243032.37	51.29	51.29
DISCCART	660800.19	4243032.37	49.88	49.88
DISCCART	660920.10	4243032.37	46.38	46.38
DISCCART	661040.01	4243032.37	47.69	47.69
DISCCART	661159.92	4243032.37	49.88	49.88
DISCCART	661279.83	4243032.37	51.78	51.78
DISCCART	661399.74	4243032.37	48.95	48.95
DISCCART	661519.65	4243032.37	49.25	49.25
DISCCART	661639.56	4243032.37	48.22	48.22
DISCCART	661759.47	4243032.37	51.09	51.09
DISCCART	661879.38	4243032.37	53.63	53.63
DISCCART	661999.29	4243032.37	54.17	54.17
DISCCART	662119.20	4243032.37	53.42	53.42
DISCCART	662239.11	4243032.37	54.42	54.42
DISCCART	662359.02	4243032.37	57.16	57.16
DISCCART	662478.93	4243032.37	58.98	58.98
DISCCART	660080.73	4243157.28	44.52	44.52
DISCCART	660200.64	4243157.28	44.23	44.23
DISCCART	660320.55	4243157.28	43.40	43.40
DISCCART	660440.46	4243157.28	44.27	44.27
DISCCART	660560.37	4243157.28	45.69	45.69
DISCCART	660680.28	4243157.28	48.89	48.89
DISCCART	660800.19	4243157.28	48.12	48.12
DISCCART	660920.10	4243157.28	46.94	46.94
DISCCART	661040.01	4243157.28	48.41	48.41
DISCCART	661159.92	4243157.28	50.28	50.28
DISCCART	661279.83	4243157.28	50.64	50.64
DISCCART	661399.74	4243157.28	48.46	48.46

DISCCART	661519.65	4243157.28	52.87	52.87
DISCCART	661639.56	4243157.28	51.67	51.67
DISCCART	661759.47	4243157.28	48.55	48.55
DISCCART	661879.38	4243157.28	50.16	50.16
DISCCART	661999.29	4243157.28	53.40	53.40
DISCCART	662119.20	4243157.28	53.66	53.66
DISCCART	662239.11	4243157.28	55.09	55.09
DISCCART	662359.02	4243157.28	57.19	57.19
DISCCART	662478.93	4243157.28	58.52	58.52
DISCCART	660080.73	4243282.19	45.91	45.91
DISCCART	660200.64	4243282.19	47.44	47.44
DISCCART	660320.55	4243282.19	46.47	46.47
DISCCART	660440.46	4243282.19	45.48	45.48
DISCCART	660560.37	4243282.19	47.24	47.24
DISCCART	660680.28	4243282.19	46.85	46.85
DISCCART	660800.19	4243282.19	46.63	46.63
DISCCART	660920.10	4243282.19	47.01	47.01
DISCCART	661040.01	4243282.19	49.01	49.01
DISCCART	661159.92	4243282.19	48.89	48.89
DISCCART	661279.83	4243282.19	48.31	48.31
DISCCART	661399.74	4243282.19	48.04	48.04
DISCCART	661519.65	4243282.19	52.69	52.69
DISCCART	661639.56	4243282.19	54.38	54.38
DISCCART	661759.47	4243282.19	51.39	51.39
DISCCART	661879.38	4243282.19	51.12	51.12
DISCCART	661999.29	4243282.19	50.78	50.78
DISCCART	662119.20	4243282.19	51.77	51.77
DISCCART	662239.11	4243282.19	54.80	54.80
DISCCART	662359.02	4243282.19	55.97	55.97
DISCCART	662478.93	4243282.19	57.13	57.13
DISCCART	660080.73	4243407.10	43.35	43.35
DISCCART	660200.64	4243407.10	44.98	44.98
DISCCART	660320.55	4243407.10	45.32	45.32
DISCCART	660440.46	4243407.10	44.70	44.70
DISCCART	660560.37	4243407.10	45.87	45.87
DISCCART	660680.28	4243407.10	47.04	47.04
DISCCART	660800.19	4243407.10	47.24	47.24
DISCCART	660920.10	4243407.10	49.05	49.05
DISCCART	661040.01	4243407.10	48.93	48.93
DISCCART	661159.92	4243407.10	48.02	48.02
DISCCART	661279.83	4243407.10	45.70	45.70
DISCCART	661399.74	4243407.10	47.36	47.36
DISCCART	661519.65	4243407.10	50.55	50.55
DISCCART	661639.56	4243407.10	51.96	51.96
DISCCART	661759.47	4243407.10	52.99	52.99
DISCCART	661879.38	4243407.10	54.74	54.74
DISCCART	661999.29	4243407.10	54.57	54.57
DISCCART	662119.20	4243407.10	53.01	53.01
DISCCART	662239.11	4243407.10	53.19	53.19
DISCCART	662359.02	4243407.10	54.49	54.49
DISCCART	662478.93	4243407.10	55.61	55.61
DISCCART	660080.73	4243532.01	42.55	42.55
DISCCART	660200.64	4243532.01	43.34	43.34
DISCCART	660320.55	4243532.01	42.74	42.74
DISCCART	660440.46	4243532.01	42.11	42.11
DISCCART	660560.37	4243532.01	44.37	44.37
DISCCART	660680.28	4243532.01	45.59	45.59
DISCCART	660800.19	4243532.01	48.48	48.48
DISCCART	660920.10	4243532.01	47.39	47.39
DISCCART	661040.01	4243532.01	47.26	47.26

DISCCART	661159.92	4243532.01	46.25	46.25
DISCCART	661279.83	4243532.01	48.21	48.21
DISCCART	661399.74	4243532.01	48.94	48.94
DISCCART	661519.65	4243532.01	50.36	50.36
DISCCART	661639.56	4243532.01	50.49	50.49
DISCCART	661759.47	4243532.01	53.25	53.25
DISCCART	661879.38	4243532.01	54.95	54.95
DISCCART	661999.29	4243532.01	55.28	55.28
DISCCART	662119.20	4243532.01	55.22	55.22
DISCCART	662239.11	4243532.01	53.66	53.66
DISCCART	662359.02	4243532.01	53.32	53.32
DISCCART	662478.93	4243532.01	55.00	55.00
DISCCART	660080.73	4243656.92	41.26	41.26
DISCCART	660200.64	4243656.92	43.98	43.98
DISCCART	660320.55	4243656.92	42.39	42.39
DISCCART	660440.46	4243656.92	45.07	45.07
DISCCART	660560.37	4243656.92	47.21	47.21
DISCCART	660680.28	4243656.92	48.92	48.92
DISCCART	660800.19	4243656.92	48.85	48.85
DISCCART	660920.10	4243656.92	46.95	46.95
DISCCART	661040.01	4243656.92	44.56	44.56
DISCCART	661159.92	4243656.92	43.18	43.18
DISCCART	661279.83	4243656.92	48.70	48.70
DISCCART	661399.74	4243656.92	49.35	49.35
DISCCART	661519.65	4243656.92	47.90	47.90
DISCCART	661639.56	4243656.92	50.86	50.86
DISCCART	661759.47	4243656.92	51.92	51.92
DISCCART	661879.38	4243656.92	53.42	53.42
DISCCART	661999.29	4243656.92	54.30	54.30
DISCCART	662119.20	4243656.92	54.61	54.61
DISCCART	662239.11	4243656.92	54.75	54.75
DISCCART	662359.02	4243656.92	55.48	55.48
DISCCART	662478.93	4243656.92	55.63	55.63
DISCCART	660080.73	4243781.83	41.46	41.46
DISCCART	660200.64	4243781.83	42.45	42.45
DISCCART	660320.55	4243781.83	37.91	37.91
DISCCART	660440.46	4243781.83	42.27	42.27
DISCCART	660560.37	4243781.83	46.32	46.32
DISCCART	660680.28	4243781.83	46.97	46.97
DISCCART	660800.19	4243781.83	47.82	47.82
DISCCART	660920.10	4243781.83	47.86	47.86
DISCCART	661040.01	4243781.83	46.05	46.05
DISCCART	661159.92	4243781.83	42.33	42.33
DISCCART	661279.83	4243781.83	49.23	49.23
DISCCART	661399.74	4243781.83	50.48	50.48
DISCCART	661519.65	4243781.83	46.03	46.03
DISCCART	661639.56	4243781.83	48.48	48.48
DISCCART	661759.47	4243781.83	50.34	50.34
DISCCART	661879.38	4243781.83	51.83	51.83
DISCCART	661999.29	4243781.83	50.58	50.58
DISCCART	662119.20	4243781.83	54.13	54.13
DISCCART	662239.11	4243781.83	55.20	55.20
DISCCART	662359.02	4243781.83	56.11	56.11
DISCCART	662478.93	4243781.83	57.49	57.49
DISCCART	660080.73	4243906.74	40.63	40.63
DISCCART	660200.64	4243906.74	39.19	39.62
DISCCART	660320.55	4243906.74	37.39	37.39
DISCCART	660440.46	4243906.74	44.74	44.74
DISCCART	660560.37	4243906.74	46.58	46.58
DISCCART	660680.28	4243906.74	44.35	44.35

DISCCART	660800.19	4243906.74	48.39	48.39
DISCCART	660920.10	4243906.74	48.47	48.47
DISCCART	661040.01	4243906.74	44.51	44.51
DISCCART	661159.92	4243906.74	41.30	41.30
DISCCART	661279.83	4243906.74	48.83	48.83
DISCCART	661399.74	4243906.74	50.48	50.48
DISCCART	661519.65	4243906.74	44.35	44.35
DISCCART	661639.56	4243906.74	45.65	45.65
DISCCART	661759.47	4243906.74	46.15	46.15
DISCCART	661879.38	4243906.74	46.67	46.67
DISCCART	661999.29	4243906.74	50.34	50.34
DISCCART	662119.20	4243906.74	52.09	52.09
DISCCART	662239.11	4243906.74	52.88	52.88
DISCCART	662359.02	4243906.74	56.38	56.38
DISCCART	662478.93	4243906.74	59.03	59.03
DISCCART	660080.73	4244031.65	42.38	42.38
DISCCART	660200.64	4244031.65	34.42	40.54
DISCCART	660320.55	4244031.65	41.40	41.40
DISCCART	660440.46	4244031.65	40.34	40.34
DISCCART	660560.37	4244031.65	39.46	39.46
DISCCART	660680.28	4244031.65	44.03	44.03
DISCCART	660800.19	4244031.65	50.63	50.63
DISCCART	660920.10	4244031.65	45.30	45.30
DISCCART	661040.01	4244031.65	41.94	41.94
DISCCART	661159.92	4244031.65	40.58	40.58
DISCCART	661279.83	4244031.65	48.13	48.13
DISCCART	661399.74	4244031.65	44.30	44.30
DISCCART	661519.65	4244031.65	41.40	41.40
DISCCART	661639.56	4244031.65	44.33	44.33
DISCCART	661759.47	4244031.65	48.13	48.13
DISCCART	661879.38	4244031.65	51.13	51.13
DISCCART	661999.29	4244031.65	57.25	57.25
DISCCART	662119.20	4244031.65	57.14	57.14
DISCCART	662239.11	4244031.65	56.19	56.19
DISCCART	662359.02	4244031.65	55.74	55.74
DISCCART	662478.93	4244031.65	59.90	59.90
DISCCART	660080.73	4244156.56	39.68	39.68
DISCCART	660200.64	4244156.56	32.96	32.96
DISCCART	660320.55	4244156.56	36.31	36.31
DISCCART	660440.46	4244156.56	39.92	39.92
DISCCART	660560.37	4244156.56	43.42	43.42
DISCCART	660680.28	4244156.56	45.23	45.23
DISCCART	660800.19	4244156.56	44.98	44.98
DISCCART	660920.10	4244156.56	46.52	46.52
DISCCART	661040.01	4244156.56	40.98	44.50
DISCCART	661159.92	4244156.56	39.64	39.64
DISCCART	661279.83	4244156.56	45.67	45.67
DISCCART	661399.74	4244156.56	39.59	39.59
DISCCART	661519.65	4244156.56	42.01	42.01
DISCCART	661639.56	4244156.56	49.24	49.24
DISCCART	661759.47	4244156.56	53.99	53.99
DISCCART	661879.38	4244156.56	56.82	56.82
DISCCART	661999.29	4244156.56	56.08	56.08
DISCCART	662119.20	4244156.56	59.31	59.31
DISCCART	662239.11	4244156.56	58.93	58.93
DISCCART	662359.02	4244156.56	58.00	58.00
DISCCART	662478.93	4244156.56	56.41	56.41
DISCCART	660080.73	4244281.47	35.48	42.06
DISCCART	660200.64	4244281.47	31.94	41.45
DISCCART	660320.55	4244281.47	42.78	42.78

DISCCART	660440.46	4244281.47	43.89	43.89
DISCCART	660560.37	4244281.47	45.18	45.18
DISCCART	660680.28	4244281.47	45.69	45.69
DISCCART	660800.19	4244281.47	40.40	40.40
DISCCART	660920.10	4244281.47	46.78	46.78
DISCCART	661040.01	4244281.47	39.62	45.72
DISCCART	661159.92	4244281.47	38.14	38.14
DISCCART	661279.83	4244281.47	38.85	38.85
DISCCART	661399.74	4244281.47	38.81	38.81
DISCCART	661519.65	4244281.47	40.87	40.87
DISCCART	661639.56	4244281.47	43.80	43.80
DISCCART	661759.47	4244281.47	46.24	46.24
DISCCART	661879.38	4244281.47	50.75	50.75
DISCCART	661999.29	4244281.47	53.45	53.45
DISCCART	662119.20	4244281.47	55.23	55.23
DISCCART	662239.11	4244281.47	59.81	59.81
DISCCART	662359.02	4244281.47	53.36	53.36
DISCCART	662478.93	4244281.47	48.78	48.78
DISCCART	660080.73	4244406.38	32.83	32.83
DISCCART	660200.64	4244406.38	34.31	44.81
DISCCART	660320.55	4244406.38	39.81	44.81
DISCCART	660440.46	4244406.38	40.63	40.63
DISCCART	660560.37	4244406.38	46.63	46.63
DISCCART	660680.28	4244406.38	37.27	37.27
DISCCART	660800.19	4244406.38	37.13	37.13
DISCCART	660920.10	4244406.38	40.27	40.27
DISCCART	661040.01	4244406.38	36.35	36.35
DISCCART	661159.92	4244406.38	35.71	35.71
DISCCART	661279.83	4244406.38	35.39	35.39
DISCCART	661399.74	4244406.38	39.21	39.21
DISCCART	661519.65	4244406.38	42.85	42.85
DISCCART	661639.56	4244406.38	44.50	44.50
DISCCART	661759.47	4244406.38	44.30	44.30
DISCCART	661879.38	4244406.38	48.98	48.98
DISCCART	661999.29	4244406.38	54.26	54.26
DISCCART	662119.20	4244406.38	56.95	56.95
DISCCART	662239.11	4244406.38	55.09	55.09
DISCCART	662359.02	4244406.38	50.39	50.39
DISCCART	662478.93	4244406.38	48.85	48.85
DISCCART	660080.73	4244531.29	29.91	29.91
DISCCART	660200.64	4244531.29	29.20	44.81
DISCCART	660320.55	4244531.29	30.29	46.02
DISCCART	660440.46	4244531.29	32.71	46.02
DISCCART	660560.37	4244531.29	31.89	46.94
DISCCART	660680.28	4244531.29	32.12	32.12
DISCCART	660800.19	4244531.29	32.07	32.07
DISCCART	660920.10	4244531.29	33.37	33.37
DISCCART	661040.01	4244531.29	33.00	33.00
DISCCART	661159.92	4244531.29	33.56	33.56
DISCCART	661279.83	4244531.29	35.24	35.24
DISCCART	661399.74	4244531.29	40.98	40.98
DISCCART	661519.65	4244531.29	42.97	42.97
DISCCART	661639.56	4244531.29	42.82	42.82
DISCCART	661759.47	4244531.29	41.80	41.80
DISCCART	661879.38	4244531.29	47.46	51.82
DISCCART	661999.29	4244531.29	49.36	49.36
DISCCART	662119.20	4244531.29	55.75	55.75
DISCCART	662239.11	4244531.29	50.58	50.58
DISCCART	662359.02	4244531.29	45.23	45.23
DISCCART	662478.93	4244531.29	47.37	47.37

DISCCART	660080.73	4244656.20	28.58	28.58
DISCCART	660200.64	4244656.20	28.67	28.67
DISCCART	660320.55	4244656.20	28.96	28.96
DISCCART	660440.46	4244656.20	29.52	29.52
DISCCART	660560.37	4244656.20	30.16	30.16
DISCCART	660680.28	4244656.20	30.48	30.48
DISCCART	660800.19	4244656.20	30.49	30.49
DISCCART	660920.10	4244656.20	32.00	32.00
DISCCART	661040.01	4244656.20	32.81	32.81
DISCCART	661159.92	4244656.20	35.94	35.94
DISCCART	661279.83	4244656.20	35.90	35.90
DISCCART	661399.74	4244656.20	36.53	36.53
DISCCART	661519.65	4244656.20	38.95	38.95
DISCCART	661639.56	4244656.20	38.99	38.99
DISCCART	661759.47	4244656.20	43.06	43.06
DISCCART	661879.38	4244656.20	50.43	50.43
DISCCART	661999.29	4244656.20	53.18	53.18
DISCCART	662119.20	4244656.20	57.50	57.50
DISCCART	662239.11	4244656.20	49.23	49.23
DISCCART	662359.02	4244656.20	43.63	43.63
DISCCART	662478.93	4244656.20	47.38	47.38
DISCCART	660080.73	4244781.11	27.46	27.46
DISCCART	660200.64	4244781.11	29.20	29.20
DISCCART	660320.55	4244781.11	28.20	28.20
DISCCART	660440.46	4244781.11	28.83	28.83
DISCCART	660560.37	4244781.11	29.48	29.48
DISCCART	660680.28	4244781.11	30.14	30.14
DISCCART	660800.19	4244781.11	30.78	30.78
DISCCART	660920.10	4244781.11	31.30	31.30
DISCCART	661040.01	4244781.11	31.64	31.64
DISCCART	661159.92	4244781.11	32.46	32.46
DISCCART	661279.83	4244781.11	33.15	33.15
DISCCART	661399.74	4244781.11	35.78	35.78
DISCCART	661519.65	4244781.11	36.25	36.25
DISCCART	661639.56	4244781.11	38.42	38.42
DISCCART	661759.47	4244781.11	42.36	42.36
DISCCART	661879.38	4244781.11	46.78	46.78
DISCCART	661999.29	4244781.11	49.29	49.29
DISCCART	662119.20	4244781.11	56.29	56.29
DISCCART	662239.11	4244781.11	46.63	46.63
DISCCART	662359.02	4244781.11	42.91	61.57
DISCCART	662478.93	4244781.11	45.88	45.88
DISCCART	662500.58	4243129.47	58.98	58.98
DISCCART	662539.97	4243129.47	59.13	59.13
DISCCART	662579.36	4243129.47	59.09	59.09
DISCCART	662618.75	4243129.47	58.79	58.79
DISCCART	662658.14	4243129.47	58.91	58.91
DISCCART	662697.53	4243129.47	59.08	59.08
DISCCART	662736.92	4243129.47	59.25	59.25
DISCCART	662776.31	4243129.47	59.22	59.22
DISCCART	662815.70	4243129.47	59.81	59.81
DISCCART	662855.09	4243129.47	59.96	59.96
DISCCART	662894.48	4243129.47	59.71	59.71
DISCCART	662933.87	4243129.47	59.44	59.44
DISCCART	662973.26	4243129.47	59.39	59.39
DISCCART	663012.65	4243129.47	59.42	59.42
DISCCART	663052.04	4243129.47	59.77	59.77
DISCCART	663091.43	4243129.47	60.59	60.59
DISCCART	663130.82	4243129.47	61.01	61.01
DISCCART	663170.21	4243129.47	60.97	60.97

DISCCART	663209.60	4243129.47	60.55	60.55
DISCCART	663248.99	4243129.47	59.94	59.94
DISCCART	663288.38	4243129.47	59.50	59.50
DISCCART	662500.58	4243171.13	58.77	58.77
DISCCART	662539.97	4243171.13	59.11	59.11
DISCCART	662579.36	4243171.13	59.38	59.38
DISCCART	662618.75	4243171.13	60.01	60.01
DISCCART	662658.14	4243171.13	60.50	60.50
DISCCART	662697.53	4243171.13	60.80	60.80
DISCCART	662736.92	4243171.13	60.48	60.48
DISCCART	662776.31	4243171.13	60.40	60.40
DISCCART	662815.70	4243171.13	60.35	60.35
DISCCART	662855.09	4243171.13	59.85	59.85
DISCCART	662894.48	4243171.13	59.48	59.48
DISCCART	662933.87	4243171.13	59.27	59.27
DISCCART	662973.26	4243171.13	59.13	59.13
DISCCART	663012.65	4243171.13	59.32	59.32
DISCCART	663052.04	4243171.13	60.01	60.01
DISCCART	663091.43	4243171.13	61.04	61.04
DISCCART	663130.82	4243171.13	61.26	61.26
DISCCART	663170.21	4243171.13	61.14	61.14
DISCCART	663209.60	4243171.13	60.76	60.76
DISCCART	663248.99	4243171.13	60.44	60.44
DISCCART	663288.38	4243171.13	60.01	60.01
DISCCART	662500.58	4243212.79	58.41	58.41
DISCCART	662539.97	4243212.79	59.06	59.06
DISCCART	662579.36	4243212.79	59.94	59.94
DISCCART	662618.75	4243212.79	61.07	61.07
DISCCART	662658.14	4243212.79	61.95	61.95
DISCCART	662697.53	4243212.79	62.11	62.11
DISCCART	662736.92	4243212.79	61.59	61.59
DISCCART	662776.31	4243212.79	60.96	60.96
DISCCART	662815.70	4243212.79	60.93	60.93
DISCCART	662855.09	4243212.79	60.54	60.54
DISCCART	662894.48	4243212.79	59.61	59.61
DISCCART	662933.87	4243212.79	58.85	58.85
DISCCART	662973.26	4243212.79	58.94	58.94
DISCCART	663012.65	4243212.79	59.32	59.32
DISCCART	663052.04	4243212.79	60.01	60.01
DISCCART	663091.43	4243212.79	60.76	60.76
DISCCART	663130.82	4243212.79	60.98	60.98
DISCCART	663170.21	4243212.79	61.23	61.23
DISCCART	663209.60	4243212.79	61.18	61.18
DISCCART	663248.99	4243212.79	60.94	60.94
DISCCART	663288.38	4243212.79	60.92	60.92
DISCCART	662500.58	4243254.45	57.85	57.85
DISCCART	662539.97	4243254.45	58.65	58.65
DISCCART	662579.36	4243254.45	59.40	59.40
DISCCART	662618.75	4243254.45	60.32	60.32
DISCCART	662658.14	4243254.45	61.74	61.74
DISCCART	662697.53	4243254.45	62.27	62.27
DISCCART	662736.92	4243254.45	61.76	61.76
DISCCART	662776.31	4243254.45	61.40	61.40
DISCCART	662815.70	4243254.45	61.14	61.14
DISCCART	662855.09	4243254.45	60.33	60.33
DISCCART	662894.48	4243254.45	59.26	59.26
DISCCART	662933.87	4243254.45	58.43	58.43
DISCCART	662973.26	4243254.45	58.52	58.52
DISCCART	663012.65	4243254.45	58.98	58.98
DISCCART	663052.04	4243254.45	59.62	59.62

DISCCART	663091.43	4243254.45	60.00	60.00
DISCCART	663130.82	4243254.45	60.33	60.33
DISCCART	663170.21	4243254.45	60.82	60.82
DISCCART	663209.60	4243254.45	61.17	61.17
DISCCART	663248.99	4243254.45	61.06	61.06
DISCCART	663288.38	4243254.45	60.96	60.96
DISCCART	662500.58	4243296.11	57.43	57.43
DISCCART	662539.97	4243296.11	58.23	58.23
DISCCART	662579.36	4243296.11	58.69	58.69
DISCCART	662618.75	4243296.11	59.16	59.16
DISCCART	662658.14	4243296.11	59.78	59.78
DISCCART	662697.53	4243296.11	60.28	60.28
DISCCART	662736.92	4243296.11	60.79	60.79
DISCCART	662776.31	4243296.11	60.23	60.23
DISCCART	662815.70	4243296.11	59.85	59.85
DISCCART	662855.09	4243296.11	59.22	59.22
DISCCART	662894.48	4243296.11	58.56	58.56
DISCCART	662933.87	4243296.11	58.00	58.00
DISCCART	662973.26	4243296.11	58.10	58.10
DISCCART	663012.65	4243296.11	58.56	58.56
DISCCART	663052.04	4243296.11	59.19	59.19
DISCCART	663091.43	4243296.11	59.37	59.37
DISCCART	663130.82	4243296.11	59.58	59.58
DISCCART	663170.21	4243296.11	60.15	60.15
DISCCART	663209.60	4243296.11	60.75	60.75
DISCCART	663248.99	4243296.11	60.75	60.75
DISCCART	663288.38	4243296.11	60.75	60.75
DISCCART	662500.58	4243337.77	56.81	56.81
DISCCART	662539.97	4243337.77	57.47	57.47
DISCCART	662579.36	4243337.77	57.91	57.91
DISCCART	662618.75	4243337.77	58.31	58.31
DISCCART	662658.14	4243337.77	58.67	58.67
DISCCART	662697.53	4243337.77	58.78	58.78
DISCCART	662736.92	4243337.77	59.05	59.05
DISCCART	662776.31	4243337.77	58.82	58.82
DISCCART	662815.70	4243337.77	58.45	58.45
DISCCART	662855.09	4243337.77	58.18	58.18
DISCCART	662894.48	4243337.77	57.97	57.97
DISCCART	662933.87	4243337.77	57.61	57.61
DISCCART	662973.26	4243337.77	57.91	57.91
DISCCART	663012.65	4243337.77	58.28	58.28
DISCCART	663052.04	4243337.77	58.78	58.78
DISCCART	663091.43	4243337.77	58.90	58.90
DISCCART	663130.82	4243337.77	59.29	59.29
DISCCART	663170.21	4243337.77	59.68	59.68
DISCCART	663209.60	4243337.77	60.05	60.05
DISCCART	663248.99	4243337.77	60.49	60.49
DISCCART	663288.38	4243337.77	60.95	60.95
DISCCART	662500.58	4243379.43	56.11	56.11
DISCCART	662539.97	4243379.43	56.65	56.65
DISCCART	662579.36	4243379.43	57.07	57.07
DISCCART	662618.75	4243379.43	57.39	57.39
DISCCART	662658.14	4243379.43	57.34	57.34
DISCCART	662697.53	4243379.43	57.66	57.66
DISCCART	662736.92	4243379.43	57.92	57.92
DISCCART	662776.31	4243379.43	57.80	57.80
DISCCART	662815.70	4243379.43	57.77	57.77
DISCCART	662855.09	4243379.43	57.71	57.71
DISCCART	662894.48	4243379.43	57.61	57.61
DISCCART	662933.87	4243379.43	57.61	57.61

DISCCART	662973.26	4243379.43	57.91	57.91
DISCCART	663012.65	4243379.43	58.10	58.10
DISCCART	663052.04	4243379.43	58.50	58.50
DISCCART	663091.43	4243379.43	58.87	58.87
DISCCART	663130.82	4243379.43	59.07	59.07
DISCCART	663170.21	4243379.43	59.40	59.40
DISCCART	663209.60	4243379.43	59.73	59.73
DISCCART	663248.99	4243379.43	60.65	60.65
DISCCART	663288.38	4243379.43	61.70	61.70
DISCCART	662500.58	4243421.09	55.68	55.68
DISCCART	662539.97	4243421.09	56.08	56.08
DISCCART	662579.36	4243421.09	56.22	56.22
DISCCART	662618.75	4243421.09	56.47	56.47
DISCCART	662658.14	4243421.09	56.47	56.47
DISCCART	662697.53	4243421.09	56.81	56.81
DISCCART	662736.92	4243421.09	57.19	57.19
DISCCART	662776.31	4243421.09	57.34	57.34
DISCCART	662815.70	4243421.09	57.34	57.34
DISCCART	662855.09	4243421.09	57.34	57.34
DISCCART	662894.48	4243421.09	57.53	57.53
DISCCART	662933.87	4243421.09	57.61	57.61
DISCCART	662973.26	4243421.09	57.91	57.91
DISCCART	663012.65	4243421.09	58.10	58.10
DISCCART	663052.04	4243421.09	58.50	58.50
DISCCART	663091.43	4243421.09	58.83	58.83
DISCCART	663130.82	4243421.09	59.00	59.00
DISCCART	663170.21	4243421.09	59.63	59.63
DISCCART	663209.60	4243421.09	60.77	60.77
DISCCART	663248.99	4243421.09	62.03	62.03
DISCCART	663288.38	4243421.09	62.64	62.64
DISCCART	662500.58	4243462.75	55.34	55.34
DISCCART	662539.97	4243462.75	55.67	55.67
DISCCART	662579.36	4243462.75	55.82	55.82
DISCCART	662618.75	4243462.75	56.04	56.04
DISCCART	662658.14	4243462.75	56.15	56.15
DISCCART	662697.53	4243462.75	56.43	56.43
DISCCART	662736.92	4243462.75	56.79	56.79
DISCCART	662776.31	4243462.75	56.98	56.98
DISCCART	662815.70	4243462.75	57.01	57.01
DISCCART	662855.09	4243462.75	57.25	57.25
DISCCART	662894.48	4243462.75	57.46	57.46
DISCCART	662933.87	4243462.75	57.61	57.61
DISCCART	662973.26	4243462.75	57.98	57.98
DISCCART	663012.65	4243462.75	58.19	58.19
DISCCART	663052.04	4243462.75	58.50	58.50
DISCCART	663091.43	4243462.75	58.90	58.90
DISCCART	663130.82	4243462.75	59.30	59.30
DISCCART	663170.21	4243462.75	59.97	59.97
DISCCART	663209.60	4243462.75	61.50	61.50
DISCCART	663248.99	4243462.75	62.75	62.75
DISCCART	663288.38	4243462.75	63.33	63.33
DISCCART	662500.58	4243504.41	55.23	55.23
DISCCART	662539.97	4243504.41	55.28	55.28
DISCCART	662579.36	4243504.41	55.62	55.62
DISCCART	662618.75	4243504.41	55.93	55.93
DISCCART	662658.14	4243504.41	56.33	56.33
DISCCART	662697.53	4243504.41	56.60	56.60
DISCCART	662736.92	4243504.41	56.69	56.69
DISCCART	662776.31	4243504.41	56.77	56.77
DISCCART	662815.70	4243504.41	56.80	56.80

DISCCART	662855.09	4243504.41	56.92	56.92
DISCCART	662894.48	4243504.41	57.24	57.24
DISCCART	662933.87	4243504.41	57.61	57.61
DISCCART	662973.26	4243504.41	57.91	57.91
DISCCART	663012.65	4243504.41	58.10	58.10
DISCCART	663052.04	4243504.41	58.50	58.50
DISCCART	663091.43	4243504.41	58.90	58.90
DISCCART	663130.82	4243504.41	59.30	59.30
DISCCART	663170.21	4243504.41	60.15	60.15
DISCCART	663209.60	4243504.41	61.30	61.30
DISCCART	663248.99	4243504.41	62.34	62.34
DISCCART	663288.38	4243504.41	63.06	63.06
DISCCART	662500.58	4243546.07	54.86	54.86
DISCCART	662539.97	4243546.07	54.86	54.86
DISCCART	662579.36	4243546.07	54.92	54.92
DISCCART	662618.75	4243546.07	55.61	55.61
DISCCART	662658.14	4243546.07	56.32	56.32
DISCCART	662697.53	4243546.07	56.42	56.42
DISCCART	662736.92	4243546.07	56.55	56.55
DISCCART	662776.31	4243546.07	56.39	56.39
DISCCART	662815.70	4243546.07	56.41	56.41
DISCCART	662855.09	4243546.07	56.69	56.69
DISCCART	662894.48	4243546.07	57.34	57.34
DISCCART	662933.87	4243546.07	57.92	57.92
DISCCART	662973.26	4243546.07	57.92	57.92
DISCCART	663012.65	4243546.07	58.30	58.30
DISCCART	663052.04	4243546.07	58.81	58.81
DISCCART	663091.43	4243546.07	59.21	59.21
DISCCART	663130.82	4243546.07	59.63	59.63
DISCCART	663170.21	4243546.07	60.83	60.83
DISCCART	663209.60	4243546.07	62.31	62.31
DISCCART	663248.99	4243546.07	62.94	62.94
DISCCART	663288.38	4243546.07	63.58	63.58
DISCCART	662500.58	4243587.73	54.73	54.73
DISCCART	662539.97	4243587.73	54.85	54.85
DISCCART	662579.36	4243587.73	54.90	54.90
DISCCART	662618.75	4243587.73	55.19	55.19
DISCCART	662658.14	4243587.73	55.84	55.84
DISCCART	662697.53	4243587.73	56.27	56.27
DISCCART	662736.92	4243587.73	56.39	56.39
DISCCART	662776.31	4243587.73	56.39	56.39
DISCCART	662815.70	4243587.73	56.40	56.40
DISCCART	662855.09	4243587.73	56.81	56.81
DISCCART	662894.48	4243587.73	57.63	57.63
DISCCART	662933.87	4243587.73	58.09	58.09
DISCCART	662973.26	4243587.73	58.39	58.39
DISCCART	663012.65	4243587.73	58.67	58.67
DISCCART	663052.04	4243587.73	58.95	58.95
DISCCART	663091.43	4243587.73	59.29	59.29
DISCCART	663130.82	4243587.73	60.16	60.16
DISCCART	663170.21	4243587.73	61.17	61.17
DISCCART	663209.60	4243587.73	62.52	62.52
DISCCART	663248.99	4243587.73	62.81	62.81
DISCCART	663288.38	4243587.73	63.11	63.11
DISCCART	662500.58	4243629.39	54.81	54.81
DISCCART	662539.97	4243629.39	55.07	55.07
DISCCART	662579.36	4243629.39	55.11	55.11
DISCCART	662618.75	4243629.39	55.14	55.14
DISCCART	662658.14	4243629.39	55.87	55.87
DISCCART	662697.53	4243629.39	56.12	56.12

DISCCART	662736.92	4243629.39	56.39	56.39
DISCCART	662776.31	4243629.39	56.57	56.57
DISCCART	662815.70	4243629.39	57.17	57.17
DISCCART	662855.09	4243629.39	57.73	57.73
DISCCART	662894.48	4243629.39	57.84	57.84
DISCCART	662933.87	4243629.39	58.16	58.16
DISCCART	662973.26	4243629.39	58.87	58.87
DISCCART	663012.65	4243629.39	59.27	59.27
DISCCART	663052.04	4243629.39	59.61	59.61
DISCCART	663091.43	4243629.39	59.66	59.66
DISCCART	663130.82	4243629.39	60.26	60.26
DISCCART	663170.21	4243629.39	60.97	60.97
DISCCART	663209.60	4243629.39	61.59	61.59
DISCCART	663248.99	4243629.39	62.27	62.27
DISCCART	663288.38	4243629.39	62.54	62.54
DISCCART	662500.58	4243671.05	55.91	55.91
DISCCART	662539.97	4243671.05	55.91	55.91
DISCCART	662579.36	4243671.05	55.96	55.96
DISCCART	662618.75	4243671.05	56.21	56.21
DISCCART	662658.14	4243671.05	56.21	56.21
DISCCART	662697.53	4243671.05	56.51	56.51
DISCCART	662736.92	4243671.05	56.78	56.78
DISCCART	662776.31	4243671.05	57.40	57.40
DISCCART	662815.70	4243671.05	58.07	58.07
DISCCART	662855.09	4243671.05	58.69	58.69
DISCCART	662894.48	4243671.05	58.94	58.94
DISCCART	662933.87	4243671.05	59.25	59.25
DISCCART	662973.26	4243671.05	59.24	59.24
DISCCART	663012.65	4243671.05	59.54	59.54
DISCCART	663052.04	4243671.05	60.72	60.72
DISCCART	663091.43	4243671.05	61.08	61.08
DISCCART	663130.82	4243671.05	60.83	60.83
DISCCART	663170.21	4243671.05	61.32	61.32
DISCCART	663209.60	4243671.05	62.06	62.06
DISCCART	663248.99	4243671.05	62.46	62.46
DISCCART	663288.38	4243671.05	63.11	63.11
DISCCART	662500.58	4243712.71	56.68	56.68
DISCCART	662539.97	4243712.71	56.76	56.76
DISCCART	662579.36	4243712.71	56.81	56.81
DISCCART	662618.75	4243712.71	57.05	57.05
DISCCART	662658.14	4243712.71	57.20	57.20
DISCCART	662697.53	4243712.71	57.38	57.38
DISCCART	662736.92	4243712.71	57.73	57.73
DISCCART	662776.31	4243712.71	58.43	58.43
DISCCART	662815.70	4243712.71	58.92	58.92
DISCCART	662855.09	4243712.71	59.72	59.72
DISCCART	662894.48	4243712.71	60.23	60.23
DISCCART	662933.87	4243712.71	60.28	60.28
DISCCART	662973.26	4243712.71	60.31	60.31
DISCCART	663012.65	4243712.71	60.17	60.17
DISCCART	663052.04	4243712.71	61.38	61.38
DISCCART	663091.43	4243712.71	62.23	62.23
DISCCART	663130.82	4243712.71	61.89	61.89
DISCCART	663170.21	4243712.71	62.00	62.00
DISCCART	663209.60	4243712.71	62.72	62.72
DISCCART	663248.99	4243712.71	63.12	63.12
DISCCART	663288.38	4243712.71	63.77	63.77
DISCCART	662500.58	4243754.37	57.29	57.29
DISCCART	662539.97	4243754.37	57.30	57.30
DISCCART	662579.36	4243754.37	57.65	57.65

DISCCART	662618.75	4243754.37	58.05	58.05
DISCCART	662658.14	4243754.37	58.20	58.20
DISCCART	662697.53	4243754.37	58.50	58.50
DISCCART	662736.92	4243754.37	58.64	58.64
DISCCART	662776.31	4243754.37	59.27	59.27
DISCCART	662815.70	4243754.37	59.77	59.77
DISCCART	662855.09	4243754.37	60.57	60.57
DISCCART	662894.48	4243754.37	61.16	61.16
DISCCART	662933.87	4243754.37	61.25	61.25
DISCCART	662973.26	4243754.37	61.46	61.46
DISCCART	663012.65	4243754.37	61.06	61.06
DISCCART	663052.04	4243754.37	61.53	61.53
DISCCART	663091.43	4243754.37	62.48	62.48
DISCCART	663130.82	4243754.37	62.31	62.31
DISCCART	663170.21	4243754.37	62.18	62.18
DISCCART	663209.60	4243754.37	62.61	62.61
DISCCART	663248.99	4243754.37	63.25	63.25
DISCCART	663288.38	4243754.37	63.90	63.90
DISCCART	662500.58	4243796.03	57.78	57.78
DISCCART	662539.97	4243796.03	58.20	58.20
DISCCART	662579.36	4243796.03	58.61	58.61
DISCCART	662618.75	4243796.03	59.11	59.11
DISCCART	662658.14	4243796.03	59.36	59.36
DISCCART	662697.53	4243796.03	59.38	59.38
DISCCART	662736.92	4243796.03	59.55	59.55
DISCCART	662776.31	4243796.03	59.78	59.78
DISCCART	662815.70	4243796.03	60.19	60.19
DISCCART	662855.09	4243796.03	60.77	60.77
DISCCART	662894.48	4243796.03	61.17	61.17
DISCCART	662933.87	4243796.03	61.27	61.27
DISCCART	662973.26	4243796.03	61.57	61.57
DISCCART	663012.65	4243796.03	61.57	61.57
DISCCART	663052.04	4243796.03	61.68	61.68
DISCCART	663091.43	4243796.03	62.10	62.10
DISCCART	663130.82	4243796.03	62.18	62.18
DISCCART	663170.21	4243796.03	62.18	62.18
DISCCART	663209.60	4243796.03	62.54	62.54
DISCCART	663248.99	4243796.03	62.98	62.98
DISCCART	663288.38	4243796.03	63.17	63.17
DISCCART	662500.58	4243837.69	58.54	58.54
DISCCART	662539.97	4243837.69	59.21	59.21
DISCCART	662579.36	4243837.69	59.61	59.61
DISCCART	662618.75	4243837.69	59.70	59.70
DISCCART	662658.14	4243837.69	59.74	59.74
DISCCART	662697.53	4243837.69	59.77	59.77
DISCCART	662736.92	4243837.69	59.97	59.97
DISCCART	662776.31	4243837.69	60.03	60.03
DISCCART	662815.70	4243837.69	60.37	60.37
DISCCART	662855.09	4243837.69	60.68	60.68
DISCCART	662894.48	4243837.69	60.94	60.94
DISCCART	662933.87	4243837.69	61.27	61.27
DISCCART	662973.26	4243837.69	61.57	61.57
DISCCART	663012.65	4243837.69	61.57	61.57
DISCCART	663052.04	4243837.69	61.64	61.64
DISCCART	663091.43	4243837.69	61.89	61.89
DISCCART	663130.82	4243837.69	62.08	62.08
DISCCART	663170.21	4243837.69	62.18	62.18
DISCCART	663209.60	4243837.69	62.54	62.54
DISCCART	663248.99	4243837.69	62.67	62.67
DISCCART	663288.38	4243837.69	61.99	61.99

DISCCART	662500.58	4243879.35	58.90	58.90
DISCCART	662539.97	4243879.35	59.36	59.36
DISCCART	662579.36	4243879.35	59.70	59.70
DISCCART	662618.75	4243879.35	59.89	59.89
DISCCART	662658.14	4243879.35	59.76	59.76
DISCCART	662697.53	4243879.35	59.66	59.66
DISCCART	662736.92	4243879.35	59.83	59.83
DISCCART	662776.31	4243879.35	60.00	60.00
DISCCART	662815.70	4243879.35	60.28	60.28
DISCCART	662855.09	4243879.35	60.74	60.74
DISCCART	662894.48	4243879.35	60.99	60.99
DISCCART	662933.87	4243879.35	61.26	61.26
DISCCART	662973.26	4243879.35	61.22	61.22
DISCCART	663012.65	4243879.35	61.25	61.25
DISCCART	663052.04	4243879.35	61.51	61.51
DISCCART	663091.43	4243879.35	61.59	61.59
DISCCART	663130.82	4243879.35	61.81	61.81
DISCCART	663170.21	4243879.35	62.10	62.10
DISCCART	663209.60	4243879.35	62.45	62.45
DISCCART	663248.99	4243879.35	62.48	62.48
DISCCART	663288.38	4243879.35	61.02	61.02
DISCCART	662500.58	4243921.01	59.37	59.37
DISCCART	662539.97	4243921.01	59.29	59.29
DISCCART	662579.36	4243921.01	59.63	59.63
DISCCART	662618.75	4243921.01	59.65	59.65
DISCCART	662658.14	4243921.01	58.93	58.93
DISCCART	662697.53	4243921.01	58.56	58.56
DISCCART	662736.92	4243921.01	59.24	59.24
DISCCART	662776.31	4243921.01	59.41	59.41
DISCCART	662815.70	4243921.01	59.46	59.46
DISCCART	662855.09	4243921.01	60.48	60.48
DISCCART	662894.48	4243921.01	61.17	61.17
DISCCART	662933.87	4243921.01	61.26	61.26
DISCCART	662973.26	4243921.01	60.75	60.75
DISCCART	663012.65	4243921.01	60.93	60.93
DISCCART	663052.04	4243921.01	61.26	61.26
DISCCART	663091.43	4243921.01	61.10	61.10
DISCCART	663130.82	4243921.01	61.37	61.37
DISCCART	663170.21	4243921.01	61.69	61.69
DISCCART	663209.60	4243921.01	61.75	61.75
DISCCART	663248.99	4243921.01	61.99	61.99
DISCCART	663288.38	4243921.01	61.15	61.15
DISCCART	662500.58	4243962.67	60.01	60.01
DISCCART	662539.97	4243962.67	59.75	59.75
DISCCART	662579.36	4243962.67	59.92	59.92
DISCCART	662618.75	4243962.67	58.87	58.87
DISCCART	662658.14	4243962.67	57.32	57.32
DISCCART	662697.53	4243962.67	56.65	56.65
DISCCART	662736.92	4243962.67	57.83	57.83
DISCCART	662776.31	4243962.67	57.79	57.79
DISCCART	662815.70	4243962.67	58.08	58.08
DISCCART	662855.09	4243962.67	59.55	59.55
DISCCART	662894.48	4243962.67	60.33	60.33
DISCCART	662933.87	4243962.67	60.14	60.14
DISCCART	662973.26	4243962.67	59.42	59.42
DISCCART	663012.65	4243962.67	60.35	60.35
DISCCART	663052.04	4243962.67	60.70	60.70
DISCCART	663091.43	4243962.67	60.54	60.54
DISCCART	663130.82	4243962.67	61.15	61.15
DISCCART	663170.21	4243962.67	61.29	61.29

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   DISCCART    663209.60   4243962.67   60.65   60.65
   DISCCART    663248.99   4243962.67   60.44   60.44
   DISCCART    663288.38   4243962.67   59.71   59.71
RE FINISHED
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** AERMOD Meteorology Pathway
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**
ME STARTING
** Surface File Path: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\
   SURFFILE "Exec 09-13.SFC"
** Profile File Path: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\
   PROFFILE "Exec 09-13.PFL"
   SURFDATA 23232 2009 SACRAMENTO/EXECUTIVE_ARPT
   UAIRDATA 23230 2009 OAKLAND/WSO_AP
   PROFBASE 6.0 METERS
ME FINISHED
**
**********************************
** AERMOD Output Pathway
**********************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   MAXTABLE ALLAVE 10
** Auto-Generated Plotfiles
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25999\25800\CPP\Residential\RESIDENTIAL.AD\01H1G001.PLT" 31
   PLOTFILE 1 STKNG2 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\01H1G002.PLT" 32
   PLOTFILE 1 STKDG1 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\01H1G003.PLT" 33
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25999\25800\CPP\Residential\RESIDENTIAL.AD\01H1G005.PLT" 35
   PLOTFILE 1 CTW2 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\01H1G006.PLT" 36
   PLOTFILE 1 CTW3 1ST "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE 1 CTW4 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\01H1G008.PLT" 38
   PLOTFILE 1 CTW5 1ST "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE 1 CTW6 1ST "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE 1 CTW8 1ST "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE PERIOD STKNG1 "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE PERIOD STKNG2 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G002.PLT" 44
   PLOTFILE PERIOD STKDG1 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G003.PLT" 45
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   PLOTFILE PERIOD CTW1 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G005.PLT" 47
   PLOTFILE PERIOD CTW2 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G006.PLT" 48
   PLOTFILE PERIOD CTW3 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G007.PLT" 49
   PLOTFILE PERIOD CTW4 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G008.PLT" 50
   PLOTFILE PERIOD CTW5 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G009.PLT" 51
   PLOTFILE PERIOD CTW6 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G010.PLT" 52
   PLOTFILE PERIOD CTW7 "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE PERIOD CTW8 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\Residential\RESIDENTIAL.AD\PE00G012.PLT" 54
OU FINISHED
**
**************************************
** Project Parameters
**************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     10
** ZONEINX  0
**
```

HARP Project Summary Report 8/28/2018 12:16:52 PM

PROJECT INFORMATION
HARP Version: 18159
Project Name: HARP25800RES
Project Output Directory: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):0
Y (m):0
Zone:1
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:80
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
STCK1NG	0	0	7664417	NH3	1	261924	29.9	1
STCK1NG	0	0	115071	Propylene	1	13980.6972	1.59597	1
STCK1NG	0	0	75070	Acetaldehyde	1	739.83456	0.084456	1
STCK1NG	0	0	107028	Acrolein	1	118.3735296	0.01351296	1
STCK1NG	0	0	71432	Benzene	1	221.950368	0.0253368	1
STCK1NG	0	0	106990	1,3-Butadiene	1	7.95322152	0.000907902	1
STCK1NG	0	0	100414	Ethyl Benzene	1	591.867648	0.0675648	1
STCK1NG	0	0	50000	Formaldehyde	1	3735.4392	0.42642	1
STCK1NG	0	0	110543	Hexane	1	4696.4988	0.53613	1
STCK1NG	0	0	91203	Naphthalene	1	24.0446232	0.00274482	1
STCK1NG	0	0	120127	Anthracene	1	0.61290216	7E-05	1
STCK1NG	0	0	56553	B[a]anthracene	1	0.40981032	4.68E-05	1
STCK1NG	0	0	50328	B[a]P	1	0.25205148	2.88E-05	1
STCK1NG	0	0	205992	B[b]fluoranthen	1	0.20490516	2.34E-05	1
STCK1NG	0	0	207089	B[k]fluoranthen	1	0.1994652	2.28E-05	1
STCK1NG	0	0	218019	Chrysene	1	0.45695664	5.22E-05	1
STCK1NG	0	0	53703	D[a,h]anthracen	1	0.4261302	4.86E-05	1
STCK1NG	0	0	193395	In[1,2,3-cd]pyr	1	0.4261302	4.86E-05	1
STCK1NG	0	0	75569	Propylene Oxide	1	536.380056	0.0612306	1
STCK1NG	0	0	108883	Toluene	1	2404.46232	0.274482	1
STCK1NG	0	0	1330207	Xylenes	1	1183.735296	0.1351296	1
STCK2NG	0	0	7664417	NH3	1	261924	29.9	1
STCK2NG	0	0	115071	Propylene	1	13980.6972	1.59597	1
STCK2NG	0	0	75070	Acetaldehyde	1	739.83456	0.084456	1
STCK2NG	0	0	107028	Acrolein	1	118.3735296	0.01351296	1
STCK2NG	0	0	71432	Benzene	1	221.950368	0.0253368	1
STCK2NG	0	0	106990	1,3-Butadiene	1	7.95322152	0.000907902	1
STCK2NG	0	0	100414	Ethyl Benzene	1	591.867648	0.0675648	1
STCK2NG	0	0	50000	Formaldehyde	1	3735.4392	0.42642	1
STCK2NG	0	0	110543	Hexane	1	4696.4988	0.53613	1
STCK2NG	0	0	91203	Naphthalene	1	24.0446232	0.00274482	1
STCK2NG	0	0	120127	Anthracene	1	0.61290216	7E-05	1
STCK2NG	0	0	56553	B[a]anthracene	1	0.40981032	4.68E-05	1
STCK2NG	0	0	50328	B[a]P	1	0.25205148	2.88E-05	1
STCK2NG	0	0	205992	B[b]fluoranthen	1	0.20490516	2.34E-05	1

STCK2NG	0	0	207089	B[k]fluoranthen	1	0.1994652	2.28E-05	1
STCK2NG	0	0	218019	Chrysene	1	0.45695664	5.22E-05	1
STCK2NG	0	0	53703	D[a,h]anthracen	1	0.4261302	4.86E-05	1
STCK2NG	0	0	193395	In[1,2,3-cd]pyr	1	0.4261302	4.86E-05	1
STCK2NG	0	0	75569	Propylene Oxide	1	536.380056	0.0612306	1
STCK2NG	0	0	108883	Toluene	1	2404.46232	0.274482	1
STCK2NG	0	0	1330207	Xylenes	1	1183.735296	0.1351296	1
STCK1DG	0	0	106990	1,3-Butadiene	1	3.9758355	0.000453863	1
STCK1DG	0	0	25321226	DiClBenzenes	1	8.11395	0.00092625	1
STCK1DG	0	0	75070	Acetaldehyde	1	21.5019675	0.002454563	1
STCK1DG	0	0	56235	CCl4	1	8.11395	0.00092625	1
STCK1DG	0	0	108907	Chlorobenzn	1	6.49116	0.000741	1
STCK1DG	0	0	67663	Chloroform	1	6.8968575	0.000787313	1
STCK1DG	0	0	107062	EDC	1	6.0854625	0.000694688	1
STCK1DG	0	0	50000	Formaldehyde	1	77.082525	0.008799375	1
STCK1DG	0	0	75092	Methylene Chlor	1	5.2740675	0.000602063	1
STCK1DG	0	0	127184	Perc	1	8.5196475	0.000972563	1
STCK1DG	0	0	79016	TCE	1	7.302555	0.000833625	1
STCK1DG	0	0	75014	Vinyl Chloride	1	14.60511	0.00166725	1
STCK1DG	0	0	75354	Vinylid Chlorid	1	6.0854625	0.000694688	1
STCK1DG	0	0	7440382	Arsenic	1	0.93310425	0.000106519	1
STCK1DG	0	0	7440439	Cadmium	1	0.23530455	2.69E-05	1
STCK1DG	0	0	18540299	Cr(VI)	1	0.486837	5.56E-05	1
STCK1DG	0	0	7439921	Lead	1	1.3793715	0.000157463	1
STCK1DG	0	0	7440020	Nickel	1	0.811395	9.26E-05	1
STCK1DG	0	0	7782492	Selenium	1	4.4626725	0.000509438	1
STCK2DG	0	0	106990	1,3-Butadiene	1	3.9758355	0.000453863	1
STCK2DG	0	0	25321226	DiClBenzenes	1	8.11395	0.00092625	1
STCK2DG	0	0	75070	Acetaldehyde	1	21.5019675	0.002454563	1
STCK2DG	0	0	56235	CCl4	1	8.11395	0.00092625	1
STCK2DG	0	0	108907	Chlorobenzn	1	6.49116	0.000741	1
STCK2DG	0	0	67663	Chloroform	1	6.8968575	0.000787313	1
STCK2DG	0	0	107062	EDC	1	6.0854625	0.000694688	1
STCK2DG	0	0	50000	Formaldehyde	1	77.082525	0.008799375	1
STCK2DG	0	0	75092	Methylene Chlor	1	5.2740675	0.000602063	1
STCK2DG	0	0	127184	Perc	1	8.5196475	0.000972563	1
STCK2DG	0	0	79016	TCE	1	7.302555	0.000833625	1
STCK2DG	0	0	75014	Vinyl Chloride	1	14.60511	0.00166725	1
STCK2DG	0	0	75354	Vinylid Chlorid	1	6.0854625	0.000694688	1
STCK2DG	0	0	7440382	Arsenic	1	0.93310425	0.000106519	1
STCK2DG	0	0	7440439	Cadmium	1	0.23530455	2.69E-05	1
STCK2DG	0	0	18540299	Cr(VI)	1	0.486837	5.56E-05	1
STCK2DG	0	0	7439921	Lead	1	1.3793715	0.000157463	1
STCK2DG	0	0	7440020	Nickel	1	0.811395	9.26E-05	1
STCK2DG	0	0	7782492	Selenium	1	4.4626725	0.000509438	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

100414MAXHR.txt
100414PER.txt
106990MAXHR.txt
106990PER.txt
107028MAXHR.txt
107028PER.txt
107062MAXHR.txt

107062PER.txt
108883MAXHR.txt
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108907MAXHR.txt
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115071MAXHR.txt
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120127MAXHR.txt
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127184MAXHR.txt
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1330207MAXHR.txt
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18540299MAXHR.txt
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193395MAXHR.txt
193395PER.txt
205992MAXHR.txt
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50000MAXHR.txt
50000PER.txt
50328MAXHR.txt
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53703MAXHR.txt
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56235MAXHR.txt
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56553MAXHR.txt
56553PER.txt
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71432MAXHR.txt
71432PER.txt
7439921MAXHR.txt
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7440020MAXHR.txt
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7440382MAXHR.txt
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7440439MAXHR.txt
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75014MAXHR.txt
75014PER.txt
75070MAXHR.txt
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75092MAXHR.txt
75092PER.txt
75354MAXHR.txt
75354PER.txt
75569MAXHR.txt
75569PER.txt

7664417MAXHR.txt
7664417PER.txt
7782492MAXHR.txt
7782492PER.txt
79016MAXHR.txt
79016PER.txt
91203MAXHR.txt
91203PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH18232
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
7664417	NH3			3200	200		
115071	Propylene				3000		
75070	Acetaldehyde	0.01		470	140		300
107028	Acrolein			2.5	0.35		0.7
71432	Benzene	0.1		27	3		3
106990	1,3-Butadiene	0.6		660	2		9
100414	Ethyl Benzene	0.0087			2000		
50000	Formaldehyde	0.021		55	9		9
110543	Hexane				7000		
91203	Naphthalene	0.12			9		
120127	Anthracene						
56553	B[a]anthracene	0.39	1.2				
50328	B[a]P	3.9	12				
205992	B[b]fluoranthen	0.39	1.2				
207089	B[k]fluoranthen	0.39	1.2				
218019	Chrysene	0.039	0.12				
53703	D[a,h]anthracen	4.1	4.1				
193395	In[1,2,3-cd]pyr	0.39	1.2				
75569	Propylene Oxide	0.013		3100	30		
108883	Toluene			37000	300		
1330207	Xylenes			22000	700		
25321226	DiClBenzenes						
56235	CCl4	0.15		1900	40		
108907	Chlorobenzn				1000		
67663	Chloroform	0.019		150	300		
107062	EDC	0.072			400		
75092	Methylene Chlor	0.0035		14000	400		
127184	Perc	0.021		20000	35		
79016	TCE	0.007			600		
75014	Vinyl Chloride	0.27		180000			
75354	Vinylid Chlorid				70		
7440382	Arsenic	12	1.5	0.2	0.015	3.5E-06	0.015
7440439	Cadmium	15			0.02	0.0005	
18540299	Cr(VI)	510	0.5		0.2	0.02	
7439921	Lead	0.042	0.0085				
7440020	Nickel	0.91		0.2	0.014	0.011	0.06
7782492	Selenium				20	0.005	

AIR DISPERSION MODELING INFORMATION
Versions used in HARP. All executables were obtained from USEPA's Support Center for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/)
AERMOD: 18081
AERMAP: 18081

BPIPPRM: 04274
AERPLOT: 13329

METEOROLOGICAL INFORMATION
Version:
Surface File:
Profile File:
Surface Station:
Upper Station:
On-Site Station:

LIST OF AIR DISPERSION FILES
AERMOD Input File:
AERMOD Output File:
AERMOD Error File:
Plotfile list

LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)

25800RESoutCancerRisk.csv
25800RESoutCancerRiskSumByRec.csv
25800RESoutGLCList.csv
25800RESoutHRAInput.hra
25800RESoutNCAcuteRisk.csv
25800RESoutNCAcuteRiskSumByRec.csv
25800RESoutNCChronicRisk.csv
25800RESoutNCChronicRiskSumByRec.csv
25800RESoutOutput.txt
25800RESoutPathwayRec.csv
25800RESoutPolDB.csv

Spatial averaging files (\sa\)

```
<?xml version="1.0" encoding="UTF-8"?>
<!--HARP RISK INPUT FILE-->
<!--Created 2018/08/28 12:15:28-->
<HRA>
  <HRAVERSION>18159</HRAVERSION>
  <Title>25800RESout</Title>
  <AERMODMode>Y</AERMODMode><!--Read AERMOD plot file (Y) or read CSV file (N)-->
  <GLCList>L:\SSD
FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra\25800RESoutGLCLi
st.csv</GLCList>
  <PollutantList>L:\SSD
FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra\25800RESoutPolDB
.csv</PollutantList>
  <PathwayRecConc>L:\SSD
FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra\25800RESoutPathw
ayRec.csv</PathwayRecConc>
  <Output>L:\SSD
FOLDERS\Modeling\25500-25999\25800\CPP\Residential\HARP25800RES\hra</Output>
  <PollutantNum>37</PollutantNum>
  <Append>N</Append>
  <ReceptorIndex>NA</ReceptorIndex>
  <SourceName>NA</SourceName>
  <RiskScenario>
        <ReceptorType>Resident</ReceptorType><!--Residential, Population, School, or
Worker-->
        <UDEDOn>N</UDEDOn><!--Y or N-->
        <ExposureDuration>30</ExposureDuration><!--years-->
        <Scenario>All</Scenario><!--Cancer, NCChronic, NCChronic8HR, NCAcute, All-->
        <StartAge>-0.25</StartAge><!--years-->
        <WorkerExposureFrequency>250</WorkerExposureFrequency><!--days/year-->
        <WorkerNote>NA</WorkerNote>
        <Tier2On>N</Tier2On>
        <IntakeRatePercentile>Derived</IntakeRatePercentile><!--HighEnd, Mean,
Derived-->
  </RiskScenario>
<Pathways>
  <Type>2</Type>
  <PathwaysEnabled><!--Y or N-->
        <Inhalation>Y</Inhalation>
        <Soil>Y</Soil>
        <Dermal>Y</Dermal>
        <MothersMilk>Y</MothersMilk>
        <Water>N</Water>
        <Fish>N</Fish>
        <HomegrownCrop>N</HomegrownCrop>
        <Beef>N</Beef>
        <Dairy>N</Dairy>
        <Pig>N</Pig>
```

```
        <Chicken>N</Chicken>
        <Egg>N</Egg>
  </PathwaysEnabled>
  <Inhalation>
        <FAH3rdTrito16>N</FAH3rdTrito16><!--Y or N-->
        <FAH16to70>Y</FAH16to70><!--Y or N-->
        <DBRType>RMP</DBRType><!--LongTerm24HR, RMP, SedentaryPassive8HR, Light8HR,
or Moderate8HR-->
        <GLCAdjustmentFactor>1</GLCAdjustmentFactor>
        <UseAdj>N</UseAdj><!--Y or N-->
        <USEPOSTFILE8REL>N</USEPOSTFILE8REL><!--Y or N-->
        <USEPOSTFILECAN>N</USEPOSTFILECAN><!--Y or N-->
  </Inhalation>
  <Deposition>0.05</Deposition>
  <SoilMixingRate>0.01</SoilMixingRate>
  <DermalClimate>Mixed</DermalClimate><!--Cold, Mixed, or Warm-->
  <HumanWater>
        <SurfaceArea>0</SurfaceArea><!--m^2-->
        <WaterVolume>0</WaterVolume><!--kg-->
        <VolumeChangesPerYear>0</VolumeChangesPerYear>
        <FractionFromContamSource>0</FractionFromContamSource>

<RecPhysicallyActiveLivesWorkHotClimates>N</RecPhysicallyActiveLivesWorkHotClimates>
<!--Y or N-->
  </HumanWater>
  <Homegrown>
        <HouseholdType>HouseholdsthatGarden</HouseholdType><!--HouseholdsthatGarden,
HouseholdsthatFarm, or UserDefined-->
        <Leafy>0.137</Leafy>
        <Exposed>0.137</Exposed>
        <Protected>0.137</Protected>
        <Root>0.137</Root>
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  <Fish>
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        <WaterVolume>0</WaterVolume><!--kg-->
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  </Fish>
  <AnimalFractions>
        <HouseholdTypeBD>RaiseHunt</HouseholdTypeBD><!--RaiseHunt, Farm, or
UserDefined-->
        <HouseholdTypePCE>RaiseHunt</HouseholdTypePCE><!--RaiseHunt, Farm, or
UserDefined-->
        <Beef>0.485</Beef>
        <Pork>0.242</Pork>
        <Poultry>0.156</Poultry>
        <Eggs>0.146</Eggs>
```

```
        <Dairy>0.207</Dairy>
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    <BeefDairyWater>
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        <VolumeChangesPerYear>0</VolumeChangesPerYear>
        <FractionFromContamSourceBeef>0</FractionFromContamSourceBeef>
        <FractionFromContamSourceDairy>0</FractionFromContamSourceDairy>
    </BeefDairyWater>
    <BeefFractionFromGrazing>0.5</BeefFractionFromGrazing>
    <DairyFractionFromGrazing>0.5</DairyFractionFromGrazing>
    <PigChickenEggsWater>
        <SurfaceArea>0</SurfaceArea><!--m^2-->
        <WaterVolume>0</WaterVolume><!--kg-->
        <VolumeChangesPerYear>0</VolumeChangesPerYear>
        <FractionFromContamSourcePig>0</FractionFromContamSourcePig>
        <FractionFromContamSourceChicken>0</FractionFromContamSourceChicken>
        <FractionFromContamSourceEggs>0</FractionFromContamSourceEggs>
    </PigChickenEggsWater>
    <Pig>
        <FractionEatenOffGround>0</FractionEatenOffGround>
        <FractionFeedOnsiteContaminated>0.1</FractionFeedOnsiteContaminated>
        <Leafy>0.25</Leafy>
        <Exposed>0.25</Exposed>
        <Protected>0.25</Protected>
        <Root>0.25</Root>
    </Pig>
    <Chicken>
        <FractionEatenOffGround>0</FractionEatenOffGround>
        <FractionFeedOnsiteContaminated>0.05</FractionFeedOnsiteContaminated>
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        <Exposed>0.25</Exposed>
        <Protected>0.25</Protected>
        <Root>0.25</Root>
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        <FractionFeedOnsiteContaminated>0</FractionFeedOnsiteContaminated>
        <Leafy>0.25</Leafy>
        <Exposed>0.25</Exposed>
        <Protected>0.25</Protected>
        <Root>0.25</Root>
    </Egg>
</Pathways>
<Tier2>
        <EFOn>N</EFOn><!--Y or N-->
        <EF>350</EF>
        <Inhalation>
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        <IROn>N</IROn><!--Y or N-->
        <Mean>361,1090,631,572,261,233</Mean>
        <HighEnd>361,1090,631,572,261,233</HighEnd>
        <FAHOn>N</FAHOn><!--Y or N-->
        <FAH>0.85,0.85,0.72,0.72,0.73,0.73</FAH>
</Inhalation>
<Soil>
        <IROn>N</IROn><!--Y or N-->
        <Mean>0.7,20,5,3,0.7,0.6</Mean>
        <HighEnd>3,40,20,10,3,3</HighEnd>
        <TfOn>N</TfOn><!--Y or N-->
        <Tf>25550</Tf>
</Soil>
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        <TfOn>N</TfOn><!--Y or N-->
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        <HighEnd>2400,2900,8700,8100,2400,2400</HighEnd>
</Dermal>
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        <Mean>101</Mean>
        <HighEnd>139</HighEnd>
</MothersMilk>
<Water>
        <TfOn>N</TfOn><!--Y or N-->
        <Mean>18,113,26,24,18,18</Mean>
        <HighEnd>47,196,66,61,47,45</HighEnd>
</Water>
<Fish>
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        <Mean>0.38,0.18,0.36,0.36,0.38,0.36</Mean>
        <HighEnd>1.22,0.58,1.16,1.16,1.22,1.16</HighEnd>
</Fish>
<CropIROn>N</CropIROn><!--Y or N-->
<BDIROn>N</BDIROn><!--Y or N-->
<PCEIROn>N</PCEIROn><!--Y or N-->
<Leafy>
        <Mean>0.9,3.8,2.5,0.9,0.9,1.1</Mean>
        <HighEnd>3.2,10.8,7.9,3.2,3.2,3.4</HighEnd>
</Leafy>
<Exposed>
        <Mean>1.9,11.7,7.4,1.9,1.9,1.8</Mean>
        <HighEnd>5.9,30.2,21.7,5.9,5.9,5.6</HighEnd>
</Exposed>
<Protected>
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        <HighEnd>5.8,17.5,13.3,5.8,5.8,5.2</HighEnd>
</Protected>
```

```
        <Root>
                <Mean>1.7,5.7,3.9,1.7,1.7,1.5</Mean>
                <HighEnd>4.6,15.3,10.8,4.6,4.6,4.2</HighEnd>
        </Root>
        <Beef>
                <Mean>2,3.9,3.5,2,2,1.7</Mean>
                <HighEnd>4.8,11.3,8.6,4.8,4.8,4.4</HighEnd>
        </Beef>
        <Dairy>
                <Mean>5.4,50.9,23.3,5.4,5.4,4.3</Mean>
                <HighEnd>15.9,116,61.4,15.9,15.9,13.2</HighEnd>
        </Dairy>
        <Pig>
                <Mean>1.8,4.5,3.7,1.8,1.8,1.5</Mean>
                <HighEnd>4.7,11.4,9,4.7,4.7,3.8</HighEnd>
        </Pig>
        <Chicken>
                <Mean>0.9,2.9,2.2,0.9,0.9,0.9</Mean>
                <HighEnd>2.9,10.5,7.8,2.9,2.9,2.8</HighEnd>
        </Chicken>
        <Egg>
                <Mean>1.6,6.1,3.9,1.6,1.6,1.3</Mean>
                <HighEnd>4.2,15,9.4,4.2,4.2,3.4</HighEnd>
        </Egg>
        <WhatWasChanged>NA</WhatWasChanged>
</Tier2>
</HRA>
```

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 9.4.0
** Lakes Environmental Software Inc.
** Date: 8/28/2018
** File: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\NonRes.inp
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
   TITLEONE SMUD CPP HRA
   MODELOPT DFAULT CONC
   AVERTIME 1 PERIOD
   POLLUTID OTHER
   RUNORNOT RUN
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION STKNG1       POINT      663977.000  4245040.000       45.720
   LOCATION STKNG2       POINT      663977.000  4245000.000       45.720
   LOCATION STKDG1       POINT      663977.000  4245040.000       45.720
   LOCATION STKDG2       POINT      663977.000  4245000.000       45.720
   LOCATION CTW1         POINT      664068.000  4245089.000       45.720
   LOCATION CTW2         POINT      664068.000  4245073.000       45.720
   LOCATION CTW3         POINT      664068.000  4245057.000       45.720
   LOCATION CTW4         POINT      664068.000  4245041.000       45.720
   LOCATION CTW5         POINT      664068.000  4245024.000       45.720
   LOCATION CTW6         POINT      664068.000  4245008.000       45.720
   LOCATION CTW7         POINT      664068.000  4244992.000       45.720
   LOCATION CTW8         POINT      664068.000  4244976.000       45.720
** Source Parameters **
   SRCPARAM STKNG1             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM STKNG2             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM STKDG1             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM STKDG2             1.0    48.780   373.150  20.94999     5.640
   SRCPARAM CTW1               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW2               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW3               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW4               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW5               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW6               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW7               1.0    16.159   293.150  11.59600     9.146
   SRCPARAM CTW8               1.0    16.159   293.150  11.59600     9.146

** Building Downwash **
```

BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKNG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG1	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	19.20	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
BUILDHGT STKDG2	24.38	24.38	24.38	24.38	24.38	24.38
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BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	12.50	12.50	12.50	12.50	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW1	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW2	10.36	10.36	10.36	12.50	12.50	12.50
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BUILDHGT CTW3	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW3	10.36	10.36	10.36	10.36	12.50	12.50
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BUILDHGT CTW3	10.36	10.36	10.36	10.36	10.36	10.36
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BUILDHGT CTW4	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT CTW5	10.36	10.36	10.36	10.36	10.36	10.36

BUILDHGT	CTW5	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW5	10.36	10.36	10.36	10.36	10.36	10.36

BUILDHGT	CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW6	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW6	10.36	10.36	10.36	10.36	10.36	10.36

BUILDHGT	CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW7	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW7	10.36	10.36	10.36	10.36	10.36	10.36

BUILDHGT	CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW8	10.36	10.36	10.36	10.36	10.36	10.36
BUILDHGT	CTW8	10.36	10.36	10.36	10.36	10.36	10.36

BUILDWID	STKNG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID	STKNG1	16.99	13.91	14.90	13.91	16.99	19.56
BUILDWID	STKNG1	21.53	22.85	23.47	23.38	22.60	21.10
BUILDWID	STKNG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID	STKNG1	16.99	13.91	10.40	13.91	16.99	19.56
BUILDWID	STKNG1	21.53	22.85	23.47	23.38	22.60	21.10

BUILDWID	STKNG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID	STKNG2	17.08	14.00	15.00	14.00	17.08	19.64
BUILDWID	STKNG2	21.61	22.91	23.52	23.42	22.60	21.10
BUILDWID	STKNG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID	STKNG2	17.08	14.00	10.50	14.00	17.08	19.64
BUILDWID	STKNG2	21.61	22.91	23.52	23.42	22.60	21.10

BUILDWID	STKDG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID	STKDG1	16.99	13.91	14.90	13.91	16.99	19.56
BUILDWID	STKDG1	21.53	22.85	23.47	23.38	22.60	21.10
BUILDWID	STKDG1	22.60	23.42	23.52	22.91	21.53	19.56
BUILDWID	STKDG1	16.99	13.91	10.40	13.91	16.99	19.56
BUILDWID	STKDG1	21.53	22.85	23.47	23.38	22.60	21.10

BUILDWID	STKDG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID	STKDG2	17.08	14.00	15.00	14.00	17.08	19.64
BUILDWID	STKDG2	21.61	22.91	23.52	23.42	22.60	21.10
BUILDWID	STKDG2	22.60	23.42	23.52	22.91	21.61	19.64
BUILDWID	STKDG2	17.08	14.00	10.50	14.00	17.08	19.64
BUILDWID	STKDG2	21.61	22.91	23.52	23.42	22.60	21.10

BUILDWID	CTW1	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID	CTW1	128.98	19.52	19.82	19.52	18.62	121.85
BUILDWID	CTW1	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID	CTW1	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID	CTW1	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID	CTW1	111.01	96.80	79.64	60.07	38.67	16.10

BUILDWID	CTW2	38.67	60.07	79.64	96.80	111.01	121.85

BUILDWID CTW2	128.98	132.20	131.40	19.52	18.62	19.15
BUILDWID CTW2	19.75	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW2	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW2	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW2	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW3	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW3	128.98	132.20	131.40	132.20	26.66	19.15
BUILDWID CTW3	19.75	19.75	79.64	60.07	38.67	16.10
BUILDWID CTW3	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW3	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW3	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW4	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW4	128.98	132.20	131.40	132.20	128.98	30.90
BUILDWID CTW4	19.75	19.75	19.15	60.07	38.67	16.10
BUILDWID CTW4	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW4	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW4	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW5	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW5	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW5	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW5	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW5	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW5	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW6	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW6	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW6	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW6	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW6	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW6	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW7	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW7	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW7	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW7	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW7	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW7	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW8	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW8	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW8	111.01	96.80	79.64	60.07	38.67	16.10
BUILDWID CTW8	38.67	60.07	79.64	96.80	111.01	121.85
BUILDWID CTW8	128.98	132.20	131.40	132.20	128.98	121.85
BUILDWID CTW8	111.01	96.80	79.64	60.07	38.67	16.10
BUILDLEN STKNG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKNG1	23.38	22.59	5.70	22.59	23.38	23.47
BUILDLEN STKNG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKNG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKNG1	23.38	22.59	21.10	22.59	23.38	23.47
BUILDLEN STKNG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKNG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKNG2	23.42	22.60	5.70	22.60	23.42	23.52
BUILDLEN STKNG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN STKNG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKNG2	23.42	22.60	21.10	22.60	23.42	23.52

BUILDLEN STKNG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN STKDG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKDG1	23.38	22.59	5.70	22.59	23.38	23.47
BUILDLEN STKDG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKDG1	14.00	17.08	19.64	21.61	22.85	23.47
BUILDLEN STKDG1	23.38	22.59	21.10	22.59	23.38	23.47
BUILDLEN STKDG1	22.85	21.53	19.56	16.99	14.00	10.50
BUILDLEN STKDG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKDG2	23.42	22.60	5.70	22.60	23.42	23.52
BUILDLEN STKDG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN STKDG2	14.00	17.08	19.64	21.61	22.91	23.52
BUILDLEN STKDG2	23.42	22.60	21.10	22.60	23.42	23.52
BUILDLEN STKDG2	22.91	21.61	19.64	17.08	14.00	10.50
BUILDLEN CTW1	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW1	60.07	19.52	19.82	19.52	18.62	79.64
BUILDLEN CTW1	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW1	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW1	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW1	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW2	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW2	60.07	38.67	16.10	19.52	18.62	19.15
BUILDLEN CTW2	19.75	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW2	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW2	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW2	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW3	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW3	60.07	38.67	16.10	38.67	40.71	19.15
BUILDLEN CTW3	19.75	19.75	121.85	128.98	132.20	131.40
BUILDLEN CTW3	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW3	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW3	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW4	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW4	60.07	38.67	16.10	38.67	60.07	39.50
BUILDLEN CTW4	19.75	19.75	19.15	128.98	132.20	131.40
BUILDLEN CTW4	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW4	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW4	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW5	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW5	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW5	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW5	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW5	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW5	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW6	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW6	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW6	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW6	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW6	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN CTW6	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN CTW7	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN CTW7	60.07	38.67	16.10	38.67	60.07	79.64

BUILDLEN	CTW7	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN	CTW7	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN	CTW7	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN	CTW7	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN	CTW8	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN	CTW8	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN	CTW8	96.80	111.01	121.85	128.98	132.20	131.40
BUILDLEN	CTW8	132.20	128.98	121.85	111.01	96.80	79.64
BUILDLEN	CTW8	60.07	38.67	16.10	38.67	60.07	79.64
BUILDLEN	CTW8	96.80	111.01	121.85	128.98	132.20	131.40
XBADJ	STKNG1	-48.46	-50.32	-50.65	-49.45	-21.36	-22.87
XBADJ	STKNG1	-23.68	-23.77	-77.74	-23.61	-23.37	-22.41
XBADJ	STKNG1	-20.77	-18.51	-15.67	-12.37	30.09	34.63
XBADJ	STKNG1	34.46	33.24	31.01	27.84	-1.48	-0.60
XBADJ	STKNG1	0.30	1.19	2.04	1.03	-0.02	-1.06
XBADJ	STKNG1	-2.08	-3.02	-3.88	-4.62	-44.09	-45.13
XBADJ	STKNG2	-9.07	-12.73	-16.01	-18.80	-21.02	-22.60
XBADJ	STKNG2	-23.50	-23.68	-77.74	-23.72	-23.58	-22.72
XBADJ	STKNG2	-21.18	-18.99	-16.22	-12.96	-9.31	-5.37
XBADJ	STKNG2	-4.93	-4.35	-3.63	-2.80	-1.89	-0.92
XBADJ	STKNG2	0.08	1.08	2.04	1.12	0.16	-0.80
XBADJ	STKNG2	-1.73	-2.62	-3.42	-4.12	-4.70	-5.13
XBADJ	STKDG1	-48.46	-50.32	-50.65	-49.45	-21.36	-22.87
XBADJ	STKDG1	-23.68	-23.77	-77.74	-23.61	-23.37	-22.41
XBADJ	STKDG1	-20.77	-18.51	-15.67	-12.37	30.09	34.63
XBADJ	STKDG1	34.46	33.24	31.01	27.84	-1.48	-0.60
XBADJ	STKDG1	0.30	1.19	2.04	1.03	-0.02	-1.06
XBADJ	STKDG1	-2.08	-3.02	-3.88	-4.62	-44.09	-45.13
XBADJ	STKDG2	-9.07	-12.73	-16.01	-18.80	-21.02	-22.60
XBADJ	STKDG2	-23.50	-23.68	-77.74	-23.72	-23.58	-22.72
XBADJ	STKDG2	-21.18	-18.99	-16.22	-12.96	-9.31	-5.37
XBADJ	STKDG2	-4.93	-4.35	-3.63	-2.80	-1.89	-0.92
XBADJ	STKDG2	0.08	1.08	2.04	1.12	0.16	-0.80
XBADJ	STKDG2	-1.73	-2.62	-3.42	-4.12	-4.70	-5.13
XBADJ	CTW1	-125.08	-120.85	-112.96	-101.63	-87.21	-70.15
XBADJ	CTW1	-50.95	-52.25	-53.41	-52.95	-50.87	-10.35
XBADJ	CTW1	-10.33	-10.01	-9.38	-8.47	-7.29	-5.90
XBADJ	CTW1	-7.12	-8.13	-8.89	-9.38	-9.58	-9.50
XBADJ	CTW1	-9.12	-8.47	-7.56	-29.24	-50.03	-69.30
XBADJ	CTW1	-86.46	-101.00	-112.47	-120.52	-124.91	-125.50
XBADJ	CTW2	-109.32	-105.82	-99.10	-89.37	-76.93	-62.15
XBADJ	CTW2	-45.48	-27.42	-8.54	-55.72	-56.35	-56.25
XBADJ	CTW2	-54.77	-22.27	-23.24	-23.50	-23.05	-21.90
XBADJ	CTW2	-22.88	-23.16	-22.75	-21.64	-19.87	-17.50
XBADJ	CTW2	-14.59	-11.25	-7.56	-26.46	-44.56	-61.30
XBADJ	CTW2	-76.18	-88.74	-98.61	-105.48	-109.15	-109.50
XBADJ	CTW3	-93.56	-90.78	-85.24	-77.11	-66.64	-54.15
XBADJ	CTW3	-40.00	-24.65	-8.54	-14.99	-83.90	-64.25
XBADJ	CTW3	-65.05	-63.88	-37.09	-38.54	-38.81	-37.90
XBADJ	CTW3	-38.64	-38.20	-36.60	-33.89	-30.15	-25.50
XBADJ	CTW3	-20.07	-14.03	-7.56	-23.68	-39.08	-53.30
XBADJ	CTW3	-65.89	-76.48	-84.75	-90.45	-93.39	-93.50

XBADJ	CTW4	-77.81	-75.75	-71.39	-64.86	-56.36	-46.15
XBADJ	CTW4	-34.53	-21.87	-8.54	-17.77	-26.46	-92.60
XBADJ	CTW4	-75.34	-76.14	-74.63	-53.57	-54.56	-53.90
XBADJ	CTW4	-54.39	-53.24	-50.46	-46.15	-40.44	-33.50
XBADJ	CTW4	-25.54	-16.80	-7.56	-20.90	-33.61	-45.30
XBADJ	CTW4	-55.61	-64.23	-70.90	-75.41	-77.64	-77.50
XBADJ	CTW5	-61.06	-59.77	-56.66	-51.84	-45.43	-37.65
XBADJ	CTW5	-28.72	-18.92	-8.54	-20.72	-32.27	-42.85
XBADJ	CTW5	-52.12	-59.80	-65.67	-69.55	-71.31	-70.90
XBADJ	CTW5	-71.14	-69.21	-65.18	-59.17	-51.36	-42.00
XBADJ	CTW5	-31.35	-19.76	-7.56	-17.95	-27.80	-36.80
XBADJ	CTW5	-44.68	-51.21	-56.17	-59.44	-60.89	-60.50
XBADJ	CTW6	-45.31	-44.74	-42.81	-39.58	-35.15	-29.65
XBADJ	CTW6	-23.24	-16.14	-8.54	-23.50	-37.75	-50.85
XBADJ	CTW6	-62.40	-72.06	-79.53	-84.58	-87.06	-86.90
XBADJ	CTW6	-86.89	-84.24	-79.04	-71.43	-61.65	-50.00
XBADJ	CTW6	-36.83	-22.54	-7.56	-15.17	-22.32	-28.80
XBADJ	CTW6	-34.40	-38.95	-42.32	-44.40	-45.14	-44.50
XBADJ	CTW7	-29.55	-29.70	-28.95	-27.32	-24.86	-21.65
XBADJ	CTW7	-17.77	-13.36	-8.54	-26.28	-43.22	-58.85
XBADJ	CTW7	-72.68	-84.32	-93.38	-99.62	-102.82	-102.90
XBADJ	CTW7	-102.65	-99.28	-92.89	-83.69	-71.93	-58.00
XBADJ	CTW7	-42.30	-25.31	-7.56	-12.39	-16.85	-20.80
XBADJ	CTW7	-24.11	-26.69	-28.46	-29.37	-29.38	-28.50
XBADJ	CTW8	-13.79	-14.67	-15.10	-15.06	-14.58	-13.65
XBADJ	CTW8	-12.30	-10.58	-8.54	-29.06	-48.69	-66.85
XBADJ	CTW8	-82.97	-96.57	-107.24	-114.65	-118.58	-118.90
XBADJ	CTW8	-118.41	-114.32	-106.75	-95.94	-82.22	-66.00
XBADJ	CTW8	-47.77	-28.09	-7.56	-9.62	-11.38	-12.80
XBADJ	CTW8	-13.83	-14.44	-14.61	-14.33	-13.62	-12.50
YBADJ	STKNG1	5.47	-1.81	-9.04	-15.99	7.74	5.90
YBADJ	STKNG1	3.87	1.73	-1.01	-2.64	-4.74	-6.69
YBADJ	STKNG1	-8.45	-9.94	-11.13	-11.99	-19.32	-12.59
YBADJ	STKNG1	-5.47	1.81	9.04	15.99	-7.74	-5.90
YBADJ	STKNG1	-3.87	-1.73	0.46	2.64	4.74	6.69
YBADJ	STKNG1	8.45	9.94	11.13	11.99	19.32	12.59
YBADJ	STKNG2	12.42	11.87	10.96	9.72	8.18	6.40
YBADJ	STKNG2	4.42	2.30	-0.43	-2.07	-4.19	-6.19
YBADJ	STKNG2	-8.00	-9.57	-10.84	-11.79	-12.38	-12.59
YBADJ	STKNG2	-12.42	-11.87	-10.96	-9.72	-8.18	-6.40
YBADJ	STKNG2	-4.42	-2.30	-0.12	2.07	4.19	6.19
YBADJ	STKNG2	8.00	9.57	10.84	11.79	12.38	12.59
YBADJ	STKDG1	5.47	-1.81	-9.04	-15.99	7.74	5.90
YBADJ	STKDG1	3.87	1.73	-1.01	-2.64	-4.74	-6.69
YBADJ	STKDG1	-8.45	-9.94	-11.13	-11.99	-19.32	-12.59
YBADJ	STKDG1	-5.47	1.81	9.04	15.99	-7.74	-5.90
YBADJ	STKDG1	-3.87	-1.73	0.46	2.64	4.74	6.69
YBADJ	STKDG1	8.45	9.94	11.13	11.99	19.32	12.59
YBADJ	STKDG2	12.42	11.87	10.96	9.72	8.18	6.40
YBADJ	STKDG2	4.42	2.30	-0.43	-2.07	-4.19	-6.19
YBADJ	STKDG2	-8.00	-9.57	-10.84	-11.79	-12.38	-12.59

YBADJ	STKDG2	-12.42	-11.87	-10.96	-9.72	-8.18	-6.40
YBADJ	STKDG2	-4.42	-2.30	-0.12	2.07	4.19	6.19
YBADJ	STKDG2	8.00	9.57	10.84	11.79	12.38	12.59
YBADJ	CTW1	-9.90	-19.99	-29.48	-38.06	-45.49	-51.54
YBADJ	CTW1	-56.03	9.52	2.00	-5.58	-13.00	-52.03
YBADJ	CTW1	-46.12	-38.81	-30.32	-20.91	-10.87	-0.49
YBADJ	CTW1	9.90	19.99	29.48	38.06	45.49	51.54
YBADJ	CTW1	56.03	58.81	59.80	58.98	56.36	52.03
YBADJ	CTW1	46.12	38.81	30.32	20.91	10.87	0.49
YBADJ	CTW2	-7.12	-14.52	-21.48	-27.78	-33.24	-37.69
YBADJ	CTW2	-40.99	-43.05	-43.80	10.17	2.04	-6.16
YBADJ	CTW2	-14.17	-28.53	-22.32	-15.44	-8.09	-0.49
YBADJ	CTW2	7.12	14.52	21.48	27.78	33.24	37.69
YBADJ	CTW2	40.99	43.05	43.80	43.22	41.33	38.18
YBADJ	CTW2	33.87	28.53	22.32	15.44	8.09	0.49
YBADJ	CTW3	-4.34	-9.05	-13.48	-17.49	-20.98	-23.83
YBADJ	CTW3	-25.96	-27.29	-27.80	-27.46	13.05	7.69
YBADJ	CTW3	-1.92	-11.47	-14.32	-9.97	-5.31	-0.49
YBADJ	CTW3	4.34	9.05	13.48	17.49	20.98	23.83
YBADJ	CTW3	25.96	27.29	27.80	27.46	26.29	24.32
YBADJ	CTW3	21.61	18.24	14.32	9.97	5.31	0.49
YBADJ	CTW4	-1.57	-3.58	-5.48	-7.21	-8.72	-9.97
YBADJ	CTW4	-10.92	-11.54	-11.80	-11.71	-11.26	15.68
YBADJ	CTW4	10.34	-1.18	-12.67	-4.50	-2.53	-0.49
YBADJ	CTW4	1.57	3.58	5.48	7.21	8.72	9.97
YBADJ	CTW4	10.92	11.54	11.80	11.71	11.26	10.46
YBADJ	CTW4	9.35	7.96	6.32	4.50	2.53	0.49
YBADJ	CTW5	1.39	2.24	3.02	3.72	4.30	4.75
YBADJ	CTW5	5.05	5.21	5.20	5.04	4.72	4.26
YBADJ	CTW5	3.67	2.97	2.18	1.32	0.42	-0.49
YBADJ	CTW5	-1.39	-2.24	-3.02	-3.72	-4.30	-4.75
YBADJ	CTW5	-5.05	-5.21	-5.20	-5.04	-4.72	-4.26
YBADJ	CTW5	-3.67	-2.97	-2.18	-1.32	-0.42	0.49
YBADJ	CTW6	4.16	7.71	11.02	14.00	16.56	18.60
YBADJ	CTW6	20.09	20.96	21.20	20.79	19.75	18.11
YBADJ	CTW6	15.93	13.25	10.18	6.79	3.20	-0.49
YBADJ	CTW6	-4.16	-7.71	-11.02	-14.00	-16.56	-18.60
YBADJ	CTW6	-20.09	-20.96	-21.20	-20.79	-19.75	-18.11
YBADJ	CTW6	-15.93	-13.25	-10.18	-6.79	-3.20	0.49
YBADJ	CTW7	6.94	13.18	19.02	24.29	28.81	32.46
YBADJ	CTW7	35.12	36.72	37.20	36.55	34.79	31.97
YBADJ	CTW7	28.18	23.54	18.18	12.26	5.98	-0.49
YBADJ	CTW7	-6.94	-13.18	-19.02	-24.29	-28.81	-32.46
YBADJ	CTW7	-35.12	-36.72	-37.20	-36.55	-34.79	-31.97
YBADJ	CTW7	-28.18	-23.54	-18.18	-12.26	-5.98	0.49
YBADJ	CTW8	9.72	18.66	27.02	34.57	41.07	46.32
YBADJ	CTW8	50.16	52.48	53.20	52.31	49.82	45.83
YBADJ	CTW8	40.44	33.82	26.18	17.74	8.76	-0.49
YBADJ	CTW8	-9.72	-18.66	-27.02	-34.57	-41.07	-46.32
YBADJ	CTW8	-50.16	-52.48	-53.20	-52.31	-49.82	-45.83
YBADJ	CTW8	-40.44	-33.82	-26.18	-17.73	-8.76	0.49

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   SRCGROUP STKNG1    STKNG1
   SRCGROUP STKNG2    STKNG2
   SRCGROUP STKDG1    STKDG1
   SRCGROUP STKDG2    STKDG2
   SRCGROUP CTW1      CTW1
   SRCGROUP CTW2      CTW2
   SRCGROUP CTW3      CTW3
   SRCGROUP CTW4      CTW4
   SRCGROUP CTW5      CTW5
   SRCGROUP CTW6      CTW6
   SRCGROUP CTW7      CTW7
   SRCGROUP CTW8      CTW8
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
** DESCRREC "UCART1" "Receptors generated from Uniform Cartesian Grid"
   DISCCART    662478.93   4242282.91    0.00    0.00
   DISCCART    662478.93   4242407.82    0.00    0.00
** DESCRREC "UPOL1" "Receptors generated from Uniform Polar Grid"
   DISCCART    663977.00   4245290.00   43.60   43.60
   DISCCART    663977.00   4245540.00   50.90   50.90
   DISCCART    663977.00   4245790.00   51.60   51.60
   DISCCART    663977.00   4246040.00   55.20   55.20
   DISCCART    663977.00   4246290.00   56.20   56.20
   DISCCART    663977.00   4246540.00   46.00   46.00
   DISCCART    663977.00   4246790.00   39.60   39.60
   DISCCART    663977.00   4247040.00   40.30   40.30
   DISCCART    663977.00   4247290.00   43.70   43.70
   DISCCART    663977.00   4247540.00   47.60   47.60
   DISCCART    663977.00   4247790.00   57.90   57.90
   DISCCART    663977.00   4248040.00   49.00   49.00
   DISCCART    663977.00   4248290.00   44.30   44.30
   DISCCART    663977.00   4248540.00   41.20   41.20
   DISCCART    663977.00   4248790.00   41.70   41.70
   DISCCART    663977.00   4249040.00   42.70   42.70
   DISCCART    663977.00   4249290.00   48.70   48.70
   DISCCART    663977.00   4249540.00   52.70   52.70
   DISCCART    663977.00   4249790.00   52.10   52.10
   DISCCART    663977.00   4250040.00   60.20   60.20
   DISCCART    664020.41   4245286.20   44.00   44.00
   DISCCART    664063.82   4245532.40   50.20   50.20
   DISCCART    664107.24   4245778.61   51.80   51.80
   DISCCART    664150.65   4246024.81   54.90   54.90
   DISCCART    664194.06   4246271.01   54.90   54.90
   DISCCART    664237.47   4246517.21   46.00   46.00
   DISCCART    664280.88   4246763.41   42.60   42.60
   DISCCART    664324.30   4247009.62   43.60   43.60
   DISCCART    664367.71   4247255.82   45.60   45.60
   DISCCART    664411.12   4247502.02   47.00   47.00
   DISCCART    664454.53   4247748.22   52.00   52.00
   DISCCART    664497.94   4247994.42   61.00   61.00
   DISCCART    664541.36   4248240.63   48.00   48.00
   DISCCART    664584.77   4248486.83   42.70   42.70
   DISCCART    664628.18   4248733.03   42.80   42.80
   DISCCART    664671.59   4248979.23   50.10   59.40
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DISCCART	664715.00	4249225.43	50.80	50.80
DISCCART	664758.42	4249471.63	53.50	53.50
DISCCART	664801.83	4249717.84	54.30	54.30
DISCCART	664845.24	4249964.04	65.40	65.40
DISCCART	664062.51	4245274.92	44.90	44.90
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DISCCART	664233.52	4245744.77	51.60	51.60
DISCCART	664319.02	4245979.69	54.30	54.30
DISCCART	664404.53	4246214.62	50.90	50.90
DISCCART	664490.03	4246449.54	44.40	44.40
DISCCART	664575.54	4246684.46	42.70	42.70
DISCCART	664661.04	4246919.39	43.40	43.40
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DISCCART	665174.07	4248328.92	47.80	47.80
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DISCCART	665516.09	4249268.62	48.20	48.20
DISCCART	665601.60	4249503.54	52.20	52.20
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DISCCART	664102.00	4245256.51	45.70	45.70
DISCCART	664227.00	4245473.01	48.80	48.80
DISCCART	664352.00	4245689.52	51.40	51.40
DISCCART	664477.00	4245906.03	54.20	54.20
DISCCART	664602.00	4246122.53	53.10	61.00
DISCCART	664727.00	4246339.04	46.20	46.20
DISCCART	664852.00	4246555.54	44.40	44.40
DISCCART	664977.00	4246772.05	45.70	45.70
DISCCART	665102.00	4246988.56	46.10	73.20
DISCCART	665227.00	4247205.06	52.30	73.20
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DISCCART	665477.00	4247638.08	61.30	61.30
DISCCART	665602.00	4247854.58	53.90	53.90
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DISCCART	666102.00	4248720.61	48.60	48.60
DISCCART	666227.00	4248937.11	51.10	51.10
DISCCART	666352.00	4249153.62	51.50	51.50
DISCCART	666477.00	4249370.13	53.40	53.40
DISCCART	664137.70	4245231.51	45.80	45.80
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DISCCART	665101.88	4246380.58	48.50	48.50
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DISCCART	665423.27	4246763.60	47.00	47.00
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DISCCART	665744.67	4247146.62	48.80	48.80
DISCCART	665905.36	4247338.13	52.50	52.50
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DISCCART	666548.15	4248104.18	60.90	66.80

DISCCART	666708.85	4248295.69	56.50	70.10
DISCCART	666869.54	4248487.20	57.30	57.30
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DISCCART	666083.62	4246807.67	53.60	64.00
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DISCCART	666658.16	4247289.76	49.80	49.80
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DISCCART	667232.69	4247771.85	54.50	82.30
DISCCART	667424.20	4247932.54	76.00	82.30
DISCCART	667615.71	4248093.24	61.10	81.40
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DISCCART	664410.01	4245290.00	53.40	53.40
DISCCART	664626.52	4245415.00	57.80	57.80
DISCCART	664843.03	4245540.00	61.70	61.70
DISCCART	665059.53	4245665.00	64.40	64.40
DISCCART	665276.04	4245790.00	64.00	64.00
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DISCCART	665709.05	4246040.00	59.00	72.80
DISCCART	665925.56	4246165.00	65.30	73.20
DISCCART	666142.06	4246290.00	65.10	65.10
DISCCART	666358.57	4246415.00	59.70	59.70
DISCCART	666575.08	4246540.00	66.90	66.90
DISCCART	666791.58	4246665.00	58.80	58.80
DISCCART	667008.09	4246790.00	62.20	62.20
DISCCART	667224.60	4246915.00	67.10	67.10
DISCCART	667441.10	4247040.00	57.90	57.90
DISCCART	667657.61	4247165.00	62.70	62.70
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DISCCART	667031.00	4246151.57	82.10	82.10
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DISCCART	667500.85	4246322.58	74.60	85.30
DISCCART	667735.77	4246408.08	76.40	85.30

DISCCART	667970.69	4246493.59	86.00	86.00
DISCCART	668205.62	4246579.09	88.40	88.40
DISCCART	668440.54	4246664.60	89.00	89.00
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DISCCART	664223.20	4245083.41	45.70	45.70
DISCCART	664469.40	4245126.82	51.60	51.60
DISCCART	664715.61	4245170.24	53.80	53.80
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DISCCART	665946.62	4245387.30	75.30	75.30
DISCCART	666192.82	4245430.71	75.20	75.20
DISCCART	666439.02	4245474.12	76.70	76.70
DISCCART	666685.22	4245517.53	78.80	78.80
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DISCCART	667177.63	4245604.36	75.50	75.50
DISCCART	667423.83	4245647.77	76.20	76.20
DISCCART	667670.03	4245691.18	82.10	82.10
DISCCART	667916.23	4245734.59	84.10	84.10
DISCCART	668162.43	4245778.00	85.40	85.40
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DISCCART	668654.84	4245864.83	89.20	89.20
DISCCART	668901.04	4245908.24	91.20	91.20
DISCCART	664227.00	4245040.00	46.20	46.20
DISCCART	664477.00	4245040.00	49.70	49.70
DISCCART	664727.00	4245040.00	50.60	50.60
DISCCART	664977.00	4245040.00	55.10	55.10
DISCCART	665227.00	4245040.00	66.20	66.20
DISCCART	665477.00	4245040.00	74.10	74.10
DISCCART	665727.00	4245040.00	72.30	72.30
DISCCART	665977.00	4245040.00	73.50	73.50
DISCCART	666227.00	4245040.00	74.60	74.60
DISCCART	666477.00	4245040.00	73.20	73.20
DISCCART	666727.00	4245040.00	75.20	75.20
DISCCART	666977.00	4245040.00	81.10	81.10
DISCCART	667227.00	4245040.00	82.30	82.30
DISCCART	667477.00	4245040.00	82.70	82.70
DISCCART	667727.00	4245040.00	83.80	83.80
DISCCART	667977.00	4245040.00	85.00	85.00
DISCCART	668227.00	4245040.00	86.00	86.00
DISCCART	668477.00	4245040.00	88.00	88.00
DISCCART	668727.00	4245040.00	88.40	88.40
DISCCART	668977.00	4245040.00	74.70	74.70
DISCCART	664223.20	4244996.59	47.00	47.00
DISCCART	664469.40	4244953.18	48.80	48.80
DISCCART	664715.61	4244909.76	50.50	50.50
DISCCART	664961.81	4244866.35	54.50	54.50
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DISCCART	665454.21	4244779.53	72.80	72.80
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DISCCART	665946.62	4244692.70	68.10	68.10
DISCCART	666192.82	4244649.29	73.60	73.60
DISCCART	666439.02	4244605.88	77.90	77.90
DISCCART	666685.22	4244562.47	79.20	79.20
DISCCART	666931.42	4244519.06	79.10	79.10
DISCCART	667177.63	4244475.64	81.70	81.70
DISCCART	667423.83	4244432.23	82.30	82.30
DISCCART	667670.03	4244388.82	82.30	82.30
DISCCART	667916.23	4244345.41	82.20	82.20

DISCCART	668162.43	4244302.00	84.20	84.20
DISCCART	668408.63	4244258.58	63.50	63.50
DISCCART	668654.84	4244215.17	59.60	59.60
DISCCART	668901.04	4244171.76	62.40	62.40
DISCCART	664211.92	4244954.49	47.70	47.70
DISCCART	664446.85	4244868.99	48.80	48.80
DISCCART	664681.77	4244783.48	50.50	50.50
DISCCART	664916.69	4244697.98	54.30	54.30
DISCCART	665151.62	4244612.47	57.80	57.80
DISCCART	665386.54	4244526.97	56.80	70.10
DISCCART	665621.46	4244441.46	57.90	57.90
DISCCART	665856.39	4244355.96	64.00	64.00
DISCCART	666091.31	4244270.45	72.10	72.10
DISCCART	666326.23	4244184.95	76.20	76.20
DISCCART	666561.15	4244099.44	78.00	78.00
DISCCART	666796.08	4244013.94	78.80	78.80
DISCCART	667031.00	4243928.43	79.60	79.60
DISCCART	667265.92	4243842.93	79.90	79.90
DISCCART	667500.85	4243757.42	69.10	79.20
DISCCART	667735.77	4243671.92	69.70	69.70
DISCCART	667970.69	4243586.41	59.10	59.10
DISCCART	668205.62	4243500.91	55.20	55.20
DISCCART	668440.54	4243415.40	55.00	55.00
DISCCART	668675.46	4243329.90	53.10	53.10
DISCCART	664193.51	4244915.00	47.40	47.40
DISCCART	664410.01	4244790.00	48.80	48.80
DISCCART	664626.52	4244665.00	49.70	49.70
DISCCART	664843.03	4244540.00	51.80	51.80
DISCCART	665059.53	4244415.00	53.60	53.60
DISCCART	665276.04	4244290.00	57.50	57.50
DISCCART	665492.54	4244165.00	67.50	70.10
DISCCART	665709.05	4244040.00	70.90	70.90
DISCCART	665925.56	4243915.00	67.00	67.00
DISCCART	666142.06	4243790.00	67.10	67.10
DISCCART	666358.57	4243665.00	70.80	70.80
DISCCART	666575.08	4243540.00	73.10	73.10
DISCCART	666791.58	4243415.00	77.70	77.70
DISCCART	667008.09	4243290.00	79.20	79.20
DISCCART	667224.60	4243165.00	64.00	64.00
DISCCART	667441.10	4243040.00	57.30	57.30
DISCCART	667657.61	4242915.00	51.80	51.80
DISCCART	667874.11	4242790.00	50.10	50.10
DISCCART	668090.62	4242665.00	50.00	50.00
DISCCART	668307.13	4242540.00	48.50	48.50
DISCCART	664168.51	4244879.30	47.30	47.30
DISCCART	664360.02	4244718.61	48.90	48.90
DISCCART	664551.53	4244557.91	51.40	51.40
DISCCART	664743.04	4244397.21	54.10	54.10
DISCCART	664934.56	4244236.52	55.00	55.00
DISCCART	665126.07	4244075.82	70.10	70.10
DISCCART	665317.58	4243915.12	71.30	71.30
DISCCART	665509.09	4243754.42	71.00	71.00
DISCCART	665700.60	4243593.73	73.90	73.90
DISCCART	665892.11	4243433.03	75.30	75.30
DISCCART	666083.62	4243272.33	76.20	76.20
DISCCART	666275.13	4243111.64	76.20	76.20
DISCCART	666466.64	4242950.94	76.20	76.20
DISCCART	666658.16	4242790.24	75.20	75.20
DISCCART	666849.67	4242629.55	76.70	76.70
DISCCART	667041.18	4242468.85	78.00	82.30

DISCCART	667232.69	4242308.15	64.30	64.30
DISCCART	667424.20	4242147.46	61.40	61.40
DISCCART	667615.71	4241986.76	66.40	70.70
DISCCART	667807.22	4241826.06	46.00	46.00
DISCCART	664137.70	4244848.49	46.70	46.70
DISCCART	664298.39	4244656.98	50.40	50.40
DISCCART	664459.09	4244465.47	54.30	54.30
DISCCART	664619.79	4244273.96	60.20	60.20
DISCCART	664780.48	4244082.44	70.00	70.00
DISCCART	664941.18	4243890.93	64.80	64.80
DISCCART	665101.88	4243699.42	65.20	66.10
DISCCART	665262.58	4243507.91	64.80	64.80
DISCCART	665423.27	4243316.40	72.70	72.70
DISCCART	665583.97	4243124.89	76.20	76.20
DISCCART	665744.67	4242933.38	75.30	75.30
DISCCART	665905.36	4242741.87	73.10	73.10
DISCCART	666066.06	4242550.36	72.70	72.70
~~DISCCART~~	~~666226.76~~	~~4242358.84~~	~~75.20~~	~~75.20~~
DISCCART	666387.45	4242167.33	73.40	73.40
DISCCART	666548.15	4241975.82	78.50	78.50
DISCCART	666708.85	4241784.31	54.90	79.20
DISCCART	666869.54	4241592.80	51.90	51.90
DISCCART	667030.24	4241401.29	45.70	45.70
DISCCART	667190.94	4241209.78	45.40	45.40
DISCCART	664102.00	4244823.49	47.20	47.20
DISCCART	664227.00	4244606.99	51.60	51.60
DISCCART	664352.00	4244390.48	53.80	53.80
DISCCART	664477.00	4244173.97	64.60	64.60
DISCCART	664602.00	4243957.47	68.10	68.10
DISCCART	664727.00	4243740.96	66.50	66.50
DISCCART	664852.00	4243524.46	68.60	68.60
DISCCART	664977.00	4243307.95	70.10	70.10
DISCCART	665102.00	4243091.44	70.90	70.90
DISCCART	665227.00	4242874.94	73.00	73.00
DISCCART	665352.00	4242658.43	70.10	70.10
DISCCART	665477.00	4242441.92	70.00	70.00
DISCCART	665602.00	4242225.42	61.30	61.30
DISCCART	665727.00	4242008.91	68.60	68.60
DISCCART	665852.00	4241792.40	61.50	61.50
DISCCART	665977.00	4241575.90	66.60	66.60
DISCCART	666102.00	4241359.39	63.80	63.80
DISCCART	666227.00	4241142.89	58.50	58.50
DISCCART	666352.00	4240926.38	50.90	50.90
DISCCART	666477.00	4240709.87	51.50	51.50
DISCCART	664062.51	4244805.08	47.70	47.70
DISCCART	664148.01	4244570.15	52.90	52.90
DISCCART	664233.52	4244335.23	57.50	57.50
DISCCART	664319.02	4244100.31	57.30	57.30
DISCCART	664404.53	4243865.38	60.60	60.60
DISCCART	664490.03	4243630.46	67.00	67.00
DISCCART	664575.54	4243395.54	67.60	67.60
DISCCART	664661.04	4243160.61	70.30	70.30
DISCCART	664746.55	4242925.69	70.10	70.10
DISCCART	664832.05	4242690.77	70.10	70.10
DISCCART	664917.56	4242455.85	67.40	67.40
DISCCART	665003.06	4242220.92	62.90	62.90
DISCCART	665088.57	4241986.00	62.80	62.80
DISCCART	665174.07	4241751.08	62.60	62.60
DISCCART	665259.58	4241516.15	54.80	54.80
DISCCART	665345.08	4241281.23	51.80	51.80

DISCCART	665430.59	4241046.31	52.30	52.30
DISCCART	665516.09	4240811.38	58.40	58.40
DISCCART	665601.60	4240576.46	54.90	54.90
DISCCART	665687.10	4240341.54	51.80	51.80
DISCCART	664020.41	4244793.80	48.00	48.00
DISCCART	664063.82	4244547.60	52.60	52.60
DISCCART	664107.24	4244301.39	60.40	60.40
DISCCART	664150.65	4244055.19	64.00	64.00
DISCCART	664194.06	4243808.99	64.00	64.00
DISCCART	664237.47	4243562.79	64.80	64.80
DISCCART	664280.88	4243316.59	67.10	67.10
DISCCART	664324.30	4243070.38	70.20	70.20
DISCCART	664367.71	4242824.18	71.10	71.10
DISCCART	664411.12	4242577.98	70.40	70.40
DISCCART	664454.53	4242331.78	67.50	67.50
DISCCART	664497.94	4242085.58	66.80	66.80
DISCCART	664541.36	4241839.37	63.60	63.60
DISCCART	664584.77	4241593.17	61.90	61.90
DISCCART	664628.18	4241346.97	61.20	61.20
DISCCART	664671.59	4241100.77	57.60	57.60
DISCCART	664715.00	4240854.57	53.20	53.20
DISCCART	664758.42	4240608.37	52.60	52.60
DISCCART	664801.83	4240362.16	48.80	48.80
DISCCART	664845.24	4240115.96	45.30	45.30
DISCCART	663977.00	4244790.00	48.00	48.00
DISCCART	663977.00	4244540.00	51.60	51.60
DISCCART	663977.00	4244290.00	55.20	55.20
DISCCART	663977.00	4244040.00	58.70	58.70
DISCCART	663977.00	4243790.00	61.40	61.40
DISCCART	663977.00	4243540.00	64.90	64.90
DISCCART	663977.00	4243290.00	64.70	64.70
DISCCART	663977.00	4243040.00	64.90	64.90
DISCCART	663977.00	4242790.00	67.10	67.10
DISCCART	663977.00	4242540.00	64.40	64.40
DISCCART	663977.00	4242290.00	64.00	64.00
DISCCART	663977.00	4242040.00	64.00	64.00
DISCCART	663977.00	4241790.00	60.30	60.30
DISCCART	663977.00	4241540.00	57.90	57.90
DISCCART	663977.00	4241290.00	57.90	57.90
DISCCART	663977.00	4241040.00	54.90	54.90
DISCCART	663977.00	4240790.00	54.90	54.90
DISCCART	663977.00	4240540.00	49.80	49.80
DISCCART	663977.00	4240290.00	58.30	58.30
DISCCART	663977.00	4240040.00	45.90	45.90
DISCCART	663933.59	4244793.80	48.00	48.00
DISCCART	663890.18	4244547.60	50.90	50.90
DISCCART	663846.76	4244301.39	59.90	59.90
DISCCART	663803.35	4244055.19	61.00	61.00
DISCCART	663759.94	4243808.99	64.70	64.70
DISCCART	663716.53	4243562.79	64.00	64.00
DISCCART	663673.12	4243316.59	63.80	63.80
DISCCART	663629.70	4243070.38	62.90	62.90
DISCCART	663586.29	4242824.18	60.40	60.40
DISCCART	663542.88	4242577.98	64.00	64.00
DISCCART	663499.47	4242331.78	59.50	59.50
DISCCART	663456.06	4242085.58	57.30	57.30
DISCCART	663412.64	4241839.37	57.90	57.90
DISCCART	663369.23	4241593.17	59.60	59.60
DISCCART	663325.82	4241346.97	56.50	56.50
DISCCART	663282.41	4241100.77	53.40	53.40

DISCCART	663239.00	4240854.57	52.30	52.30
DISCCART	663195.58	4240608.37	51.70	51.70
DISCCART	663152.17	4240362.16	46.40	46.40
DISCCART	663108.76	4240115.96	42.90	42.90
DISCCART	663891.49	4244805.08	47.90	47.90
DISCCART	663805.99	4244570.15	50.70	50.70
DISCCART	663720.48	4244335.23	62.40	62.40
DISCCART	663634.98	4244100.31	58.80	58.80
DISCCART	663549.47	4243865.38	61.70	61.70
DISCCART	663463.97	4243630.46	62.70	62.70
DISCCART	663378.46	4243395.54	63.10	63.10
DISCCART	663207.45	4242925.69	58.30	58.30
DISCCART	663121.95	4242690.77	56.70	56.70
DISCCART	663036.44	4242455.85	56.30	56.30
DISCCART	662950.94	4242220.92	59.10	59.10
DISCCART	662865.43	4241986.00	53.70	53.70
DISCCART	662779.93	4241751.08	51.40	51.40
DISCCART	662694.42	4241516.15	56.60	56.60
DISCCART	662608.92	4241281.23	54.20	54.20
DISCCART	662523.41	4241046.31	50.70	50.70
DISCCART	663852.00	4244823.49	47.60	47.60
DISCCART	663727.00	4244606.99	50.20	50.20
DISCCART	663602.00	4244390.48	55.10	55.10
DISCCART	663477.00	4244173.97	60.60	60.60
DISCCART	663352.00	4243957.47	60.00	60.00
DISCCART	662727.00	4242874.94	55.90	55.90
DISCCART	662602.00	4242658.43	52.20	52.20
DISCCART	663816.30	4244848.49	47.20	47.20
DISCCART	663655.61	4244656.98	49.60	49.60
DISCCART	663494.91	4244465.47	57.80	57.80
DISCCART	663334.21	4244273.96	59.70	59.70
DISCCART	663173.52	4244082.44	58.00	58.00
DISCCART	663785.49	4244879.30	47.00	47.00
DISCCART	663593.98	4244718.61	51.80	51.80
DISCCART	663402.47	4244557.91	53.40	53.40
DISCCART	663210.96	4244397.21	61.60	61.60
DISCCART	663019.44	4244236.52	58.00	58.00
DISCCART	662827.93	4244075.82	57.20	57.20
DISCCART	663760.49	4244915.00	46.40	46.40
DISCCART	663543.99	4244790.00	50.40	50.40
DISCCART	663327.48	4244665.00	50.70	50.70
DISCCART	663110.97	4244540.00	55.60	59.70
DISCCART	662894.47	4244415.00	59.10	59.10
DISCCART	662677.96	4244290.00	57.00	57.00
DISCCART	663742.08	4244954.49	46.00	46.00
DISCCART	663507.15	4244868.99	47.20	47.20
DISCCART	663272.23	4244783.48	48.00	48.00
DISCCART	663037.31	4244697.98	48.70	48.70
DISCCART	662802.38	4244612.47	53.50	53.50
DISCCART	662567.46	4244526.97	51.70	51.70
DISCCART	663730.80	4244996.59	45.60	45.60
DISCCART	663484.60	4244953.18	44.80	44.80
DISCCART	663238.39	4244909.76	45.40	45.40
DISCCART	662992.19	4244866.35	45.70	45.70
DISCCART	662745.99	4244822.94	46.80	46.80
DISCCART	663727.00	4245040.00	45.20	45.20
DISCCART	663477.00	4245040.00	43.90	43.90
DISCCART	663227.00	4245040.00	43.90	43.90
DISCCART	662977.00	4245040.00	43.50	43.50
DISCCART	662727.00	4245040.00	42.70	42.70

DISCCART	662477.00	4245040.00	55.20	55.20
DISCCART	662227.00	4245040.00	42.50	42.50
DISCCART	661977.00	4245040.00	40.40	40.40
DISCCART	661727.00	4245040.00	36.40	36.40
DISCCART	661477.00	4245040.00	32.50	32.50
DISCCART	661227.00	4245040.00	31.70	31.70
DISCCART	660977.00	4245040.00	30.50	30.50
DISCCART	660727.00	4245040.00	29.30	29.30
DISCCART	660477.00	4245040.00	29.30	29.30
DISCCART	660227.00	4245040.00	28.90	28.90
DISCCART	659977.00	4245040.00	29.00	29.00
DISCCART	659727.00	4245040.00	28.70	28.70
DISCCART	659477.00	4245040.00	28.00	28.00
DISCCART	659227.00	4245040.00	26.40	26.40
DISCCART	658977.00	4245040.00	26.20	26.20
DISCCART	663730.80	4245083.41	44.80	44.80
DISCCART	663484.60	4245126.82	43.60	43.60
DISCCART	663238.39	4245170.24	42.60	42.60
DISCCART	662992.19	4245213.65	41.90	41.90
DISCCART	662745.99	4245257.06	40.20	40.20
DISCCART	662499.79	4245300.47	40.00	40.00
DISCCART	662253.59	4245343.88	36.00	36.00
DISCCART	662007.38	4245387.30	35.10	35.10
DISCCART	661761.18	4245430.71	33.60	33.60
DISCCART	661514.98	4245474.12	33.20	33.20
DISCCART	661268.78	4245517.53	32.00	32.00
DISCCART	661022.58	4245560.94	36.90	36.90
DISCCART	660776.37	4245604.36	48.70	48.70
DISCCART	660530.17	4245647.77	46.50	46.50
DISCCART	660283.97	4245691.18	40.10	40.10
DISCCART	660037.77	4245734.59	30.20	30.20
DISCCART	659791.57	4245778.00	29.60	29.60
DISCCART	659545.37	4245821.42	29.30	29.30
DISCCART	659299.16	4245864.83	26.80	26.80
DISCCART	659052.96	4245908.24	26.30	26.30
DISCCART	663742.08	4245125.51	44.40	44.40
DISCCART	663507.15	4245211.01	43.00	43.00
DISCCART	663272.23	4245296.52	41.40	41.40
DISCCART	663037.31	4245382.02	39.30	39.30
DISCCART	662802.38	4245467.53	38.30	38.30
DISCCART	662567.46	4245553.03	36.60	36.60
DISCCART	662332.54	4245638.54	36.80	36.80
DISCCART	662097.61	4245724.04	36.90	36.90
DISCCART	661862.69	4245809.55	35.30	35.30
DISCCART	661627.77	4245895.05	33.80	33.80
DISCCART	661392.85	4245980.56	32.20	32.20
DISCCART	661157.92	4246066.06	38.90	38.90
DISCCART	660923.00	4246151.57	36.70	36.70
DISCCART	660688.08	4246237.07	32.60	32.60
DISCCART	660453.15	4246322.58	31.10	31.10
DISCCART	660218.23	4246408.08	29.80	29.80
DISCCART	659983.31	4246493.59	29.00	29.00
DISCCART	659748.38	4246579.09	27.70	27.70
DISCCART	659513.46	4246664.60	28.60	28.60
DISCCART	659278.54	4246750.10	27.40	27.40
DISCCART	663760.49	4245165.00	44.20	44.20
DISCCART	663543.99	4245290.00	41.60	41.60
DISCCART	663327.48	4245415.00	40.20	40.20
DISCCART	663110.97	4245540.00	39.60	39.60
DISCCART	662894.47	4245665.00	40.10	40.10

DISCCART	662677.96	4245790.00	39.30	39.30
DISCCART	662461.46	4245915.00	37.80	37.80
DISCCART	662244.95	4246040.00	36.50	36.50
DISCCART	662028.44	4246165.00	34.00	34.00
DISCCART	661811.94	4246290.00	35.40	35.40
DISCCART	661595.43	4246415.00	45.10	54.60
DISCCART	661378.92	4246540.00	37.80	37.80
DISCCART	661162.42	4246665.00	34.10	34.10
DISCCART	660945.91	4246790.00	30.50	30.50
DISCCART	660729.40	4246915.00	32.10	32.10
DISCCART	660512.90	4247040.00	35.90	35.90
DISCCART	660296.39	4247165.00	33.70	33.70
DISCCART	660079.89	4247290.00	30.50	30.50
DISCCART	659863.38	4247415.00	30.80	30.80
DISCCART	659646.87	4247540.00	31.10	31.10
DISCCART	663785.49	4245200.70	43.20	43.20
DISCCART	663593.98	4245361.39	41.10	41.10
DISCCART	663402.47	4245522.09	40.90	40.90
DISCCART	663210.96	4245682.79	43.50	43.50
DISCCART	663019.44	4245843.48	47.90	47.90
DISCCART	662827.93	4246004.18	40.70	40.70
DISCCART	662636.42	4246164.88	36.80	36.80
DISCCART	662444.91	4246325.58	35.40	35.40
DISCCART	662253.40	4246486.27	36.00	36.00
DISCCART	662061.89	4246646.97	38.70	38.70
DISCCART	661870.38	4246807.67	38.60	38.60
DISCCART	661678.87	4246968.36	33.60	33.60
DISCCART	661487.36	4247129.06	33.50	33.50
DISCCART	661295.84	4247289.76	37.00	37.00
DISCCART	661104.33	4247450.45	44.40	44.40
DISCCART	660912.82	4247611.15	44.80	44.80
DISCCART	660721.31	4247771.85	43.70	43.70
DISCCART	660529.80	4247932.54	41.60	41.60
DISCCART	660338.29	4248093.24	32.00	32.00
DISCCART	660146.78	4248253.94	32.00	32.00
DISCCART	663816.30	4245231.51	42.70	42.70
DISCCART	663655.61	4245423.02	41.50	41.50
DISCCART	663494.91	4245614.53	45.30	45.30
DISCCART	663334.21	4245806.04	54.30	69.80
DISCCART	663173.52	4245997.56	47.80	47.80
DISCCART	663012.82	4246189.07	41.70	41.70
DISCCART	662852.12	4246380.58	37.40	37.40
DISCCART	662691.42	4246572.09	36.80	36.80
DISCCART	662530.73	4246763.60	45.00	45.00
DISCCART	662370.03	4246955.11	51.00	51.00
DISCCART	662209.33	4247146.62	47.80	47.80
DISCCART	662048.64	4247338.13	36.40	36.40
DISCCART	661887.94	4247529.64	34.70	34.70
DISCCART	661727.24	4247721.16	39.80	39.80
DISCCART	661566.55	4247912.67	48.60	48.60
DISCCART	661405.85	4248104.18	50.30	50.30
DISCCART	661245.15	4248295.69	44.80	44.80
DISCCART	661084.46	4248487.20	43.80	43.80
DISCCART	660923.76	4248678.71	47.40	47.40
DISCCART	660763.06	4248870.22	38.50	38.50
DISCCART	663852.00	4245256.51	42.70	42.70
DISCCART	663727.00	4245473.01	41.50	41.50
DISCCART	663602.00	4245689.52	47.70	47.70
DISCCART	663477.00	4245906.03	60.00	69.80
DISCCART	663352.00	4246122.53	49.30	49.30

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   DISCCART    663227.00   4246339.04   48.30   48.30
   DISCCART    663102.00   4246555.54   38.10   38.10
   DISCCART    662977.00   4246772.05   36.60   36.60
   DISCCART    662852.00   4246988.56   49.10   49.10
   DISCCART    662727.00   4247205.06   45.80   45.80
   DISCCART    662602.00   4247421.57   42.70   42.70
   DISCCART    662477.00   4247638.08   39.70   39.70
   DISCCART    662352.00   4247854.58   38.20   38.20
   DISCCART    662227.00   4248071.09   36.60   36.60
   DISCCART    662102.00   4248287.60   44.30   44.30
   DISCCART    661977.00   4248504.10   47.40   47.40
   DISCCART    661852.00   4248720.61   52.20   52.20
   DISCCART    661727.00   4248937.11   52.20   52.20
   DISCCART    661602.00   4249153.62   46.70   46.70
   DISCCART    661477.00   4249370.13   44.40   44.40
   DISCCART    663891.49   4245274.92   42.70   42.70
   DISCCART    663805.99   4245509.85   43.20   43.20
   DISCCART    663720.48   4245744.77   48.00   48.00
   DISCCART    663634.98   4245979.69   62.90   62.90
   DISCCART    663549.47   4246214.62   47.10   47.10
   DISCCART    663463.97   4246449.54   48.90   48.90
   DISCCART    663378.46   4246684.46   38.10   38.10
   DISCCART    663292.96   4246919.39   41.00   41.00
   DISCCART    663207.45   4247154.31   44.40   44.40
   DISCCART    663121.95   4247389.23   46.80   46.80
   DISCCART    663036.44   4247624.15   50.20   50.20
   DISCCART    662950.94   4247859.08   43.50   43.50
   DISCCART    662865.43   4248094.00   37.50   37.50
   DISCCART    662779.93   4248328.92   42.60   42.60
   DISCCART    662694.42   4248563.85   48.80   48.80
   DISCCART    662608.92   4248798.77   50.00   50.00
   DISCCART    662523.41   4249033.69   54.10   54.10
   DISCCART    662437.91   4249268.62   58.20   58.20
   DISCCART    662352.40   4249503.54   57.40   57.40
   DISCCART    662266.90   4249738.46   51.50   51.50
   DISCCART    663933.59   4245286.20   43.10   43.10
   DISCCART    663890.18   4245532.40   45.60   45.60
   DISCCART    663846.76   4245778.61   51.30   51.30
   DISCCART    663803.35   4246024.81   54.30   54.30
   DISCCART    663759.94   4246271.01   49.00   52.70
   DISCCART    663716.53   4246517.21   49.30   49.30
   DISCCART    663673.12   4246763.41   38.90   38.90
   DISCCART    663629.70   4247009.62   40.90   40.90
   DISCCART    663586.29   4247255.82   45.20   45.20
   DISCCART    663542.88   4247502.02   46.30   46.30
   DISCCART    663499.47   4247748.22   46.80   46.80
   DISCCART    663456.06   4247994.42   49.40   49.40
   DISCCART    663412.64   4248240.63   39.60   39.60
   DISCCART    663369.23   4248486.83   40.60   40.60
   DISCCART    663325.82   4248733.03   45.50   45.50
   DISCCART    663282.41   4248979.23   48.30   48.30
   DISCCART    663239.00   4249225.43   56.80   56.80
   DISCCART    663195.58   4249471.63   57.90   57.90
   DISCCART    663152.17   4249717.84   61.60   61.60
   DISCCART    663108.76   4249964.04   61.30   61.30
RE FINISHED
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** AERMOD Meteorology Pathway
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**
ME STARTING
** Surface File Path: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\
   SURFFILE "Exec 09-13.SFC"
** Profile File Path: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\
   PROFFILE "Exec 09-13.PFL"
   SURFDATA 23232 2009 SACRAMENTO/EXECUTIVE_ARPT
   UAIRDATA 23230 2009 OAKLAND/WSO_AP
   PROFBASE 6.0 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
   MAXTABLE ALLAVE 10
** Auto-Generated Plotfiles
   PLOTFILE 1 STKNG1 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G001.PLT" 31
   PLOTFILE 1 STKNG2 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G002.PLT" 32
   PLOTFILE 1 STKDG1 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G003.PLT" 33
   PLOTFILE 1 STKDG2 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G004.PLT" 34
   PLOTFILE 1 CTW1 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G005.PLT" 35
   PLOTFILE 1 CTW2 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G006.PLT" 36
   PLOTFILE 1 CTW3 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G007.PLT" 37
   PLOTFILE 1 CTW4 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G008.PLT" 38
   PLOTFILE 1 CTW5 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G009.PLT" 39
   PLOTFILE 1 CTW6 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G010.PLT" 40
   PLOTFILE 1 CTW7 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G011.PLT" 41
   PLOTFILE 1 CTW8 1ST "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\01H1G012.PLT" 42
   PLOTFILE PERIOD STKNG1 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G001.PLT" 43
   PLOTFILE PERIOD STKNG2 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G002.PLT" 44
   PLOTFILE PERIOD STKDG1 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G003.PLT" 45
   PLOTFILE PERIOD STKDG2 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G004.PLT" 46
   PLOTFILE PERIOD CTW1 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G005.PLT" 47
   PLOTFILE PERIOD CTW2 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G006.PLT" 48
   PLOTFILE PERIOD CTW3 "L:\SSD FOLDERS\Modeling\25500-
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   PLOTFILE PERIOD CTW5 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G009.PLT" 51
   PLOTFILE PERIOD CTW6 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G010.PLT" 52
   PLOTFILE PERIOD CTW7 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G011.PLT" 53
   PLOTFILE PERIOD CTW8 "L:\SSD FOLDERS\Modeling\25500-
25999\25800\CPP\NonResidential\NONRESIDENTIAL.AD\PE00G012.PLT" 54
OU FINISHED
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** Project Parameters
**************************************
** PROJCTN  CoordinateSystemUTM
** DESCPTN  UTM: Universal Transverse Mercator
** DATUM    World Geodetic System 1984
** DTMRGN   Global Definition
** UNITS    m
** ZONE     10
** ZONEINX  0
**
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HARP Project Summary Report 8/28/2018 12:19:04 PM

PROJECT INFORMATION
HARP Version: 18159
Project Name: HARP25800NONRES
Project Output Directory: L:\SSD FOLDERS\Modeling\25500-25999\25800\CPP\NonResidential\HARP25800NONRES
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):0
Y (m):0
Zone:1
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:80
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
STCK1NG	0	0	7664417	NH3	1	261924	29.9	1
STCK1NG	0	0	115071	Propylene	1	13980.6972	1.59597	1
STCK1NG	0	0	75070	Acetaldehyde	1	739.83456	0.084456	1
STCK1NG	0	0	107028	Acrolein	1	118.3735296	0.01351296	1
STCK1NG	0	0	71432	Benzene	1	221.950368	0.0253368	1
STCK1NG	0	0	106990	1,3-Butadiene	1	7.95322152	0.000907902	1
STCK1NG	0	0	100414	Ethyl Benzene	1	591.867648	0.0675648	1
STCK1NG	0	0	50000	Formaldehyde	1	3735.4392	0.42642	1
STCK1NG	0	0	110543	Hexane	1	4696.4988	0.53613	1
STCK1NG	0	0	91203	Naphthalene	1	24.0446232	0.00274482	1
STCK1NG	0	0	120127	Anthracene	1	0.61290216	7E-05	1
STCK1NG	0	0	56553	B[a]anthracene	1	0.40981032	4.68E-05	1
STCK1NG	0	0	50328	B[a]P	1	0.25205148	2.88E-05	1
STCK1NG	0	0	205992	B[b]fluoranthen	1	0.20490516	2.34E-05	1
STCK1NG	0	0	207089	B[k]fluoranthen	1	0.1994652	2.28E-05	1
STCK1NG	0	0	218019	Chrysene	1	0.45695664	5.22E-05	1
STCK1NG	0	0	53703	D[a,h]anthracen	1	0.4261302	4.86E-05	1
STCK1NG	0	0	193395	In[1,2,3-cd]pyr	1	0.4261302	4.86E-05	1
STCK1NG	0	0	75569	Propylene Oxide	1	536.380056	0.0612306	1
STCK1NG	0	0	108883	Toluene	1	2404.46232	0.274482	1
STCK1NG	0	0	1330207	Xylenes	1	1183.735296	0.1351296	1
STCK2NG	0	0	7664417	NH3	1	261924	29.9	1
STCK2NG	0	0	115071	Propylene	1	13980.6972	1.59597	1
STCK2NG	0	0	75070	Acetaldehyde	1	739.83456	0.084456	1
STCK2NG	0	0	107028	Acrolein	1	118.3735296	0.01351296	1
STCK2NG	0	0	71432	Benzene	1	221.950368	0.0253368	1
STCK2NG	0	0	106990	1,3-Butadiene	1	7.95322152	0.000907902	1
STCK2NG	0	0	100414	Ethyl Benzene	1	591.867648	0.0675648	1
STCK2NG	0	0	50000	Formaldehyde	1	3735.4392	0.42642	1
STCK2NG	0	0	110543	Hexane	1	4696.4988	0.53613	1
STCK2NG	0	0	91203	Naphthalene	1	24.0446232	0.00274482	1
STCK2NG	0	0	120127	Anthracene	1	0.61290216	7E-05	1
STCK2NG	0	0	56553	B[a]anthracene	1	0.40981032	4.68E-05	1
STCK2NG	0	0	50328	B[a]P	1	0.25205148	2.88E-05	1
STCK2NG	0	0	205992	B[b]fluoranthen	1	0.20490516	2.34E-05	1

STCK2NG	0	0	207089	B[k]fluoranthen	1	0.1994652	2.28E-05	1
STCK2NG	0	0	218019	Chrysene	1	0.45695664	5.22E-05	1
STCK2NG	0	0	53703	D[a,h]anthracen	1	0.4261302	4.86E-05	1
STCK2NG	0	0	193395	In[1,2,3-cd]pyr	1	0.4261302	4.86E-05	1
STCK2NG	0	0	75569	Propylene Oxide	1	536.380056	0.0612306	1
STCK2NG	0	0	108883	Toluene	1	2404.46232	0.274482	1
STCK2NG	0	0	1330207	Xylenes	1	1183.735296	0.1351296	1
STCK1DG	0	0	106990	1,3-Butadiene	1	3.9758355	0.000453863	1
STCK1DG	0	0	25321226	DiClBenzenes	1	8.11395	0.00092625	1
STCK1DG	0	0	75070	Acetaldehyde	1	21.5019675	0.002454563	1
STCK1DG	0	0	56235	CCl4	1	8.11395	0.00092625	1
STCK1DG	0	0	108907	Chlorobenzn	1	6.49116	0.000741	1
STCK1DG	0	0	67663	Chloroform	1	6.8968575	0.000787313	1
STCK1DG	0	0	107062	EDC	1	6.0854625	0.000694688	1
STCK1DG	0	0	50000	Formaldehyde	1	77.082525	0.008799375	1
STCK1DG	0	0	75092	Methylene Chlor	1	5.2740675	0.000602063	1
STCK1DG	0	0	127184	Perc	1	8.5196475	0.000972563	1
STCK1DG	0	0	79016	TCE	1	7.302555	0.000833625	1
STCK1DG	0	0	75014	Vinyl Chloride	1	14.60511	0.00166725	1
STCK1DG	0	0	75354	Vinylid Chlorid	1	6.0854625	0.000694688	1
STCK1DG	0	0	7440382	Arsenic	1	0.93310425	0.000106519	1
STCK1DG	0	0	7440439	Cadmium	1	0.23530455	2.69E-05	1
STCK1DG	0	0	18540299	Cr(VI)	1	0.486837	5.56E-05	1
STCK1DG	0	0	7439921	Lead	1	1.3793715	0.000157463	1
STCK1DG	0	0	7440020	Nickel	1	0.811395	9.26E-05	1
STCK1DG	0	0	7782492	Selenium	1	4.4626725	0.000509438	1
STCK2DG	0	0	106990	1,3-Butadiene	1	3.9758355	0.000453863	1
STCK2DG	0	0	25321226	DiClBenzenes	1	8.11395	0.00092625	1
STCK2DG	0	0	75070	Acetaldehyde	1	21.5019675	0.002454563	1
STCK2DG	0	0	56235	CCl4	1	8.11395	0.00092625	1
STCK2DG	0	0	108907	Chlorobenzn	1	6.49116	0.000741	1
STCK2DG	0	0	67663	Chloroform	1	6.8968575	0.000787313	1
STCK2DG	0	0	107062	EDC	1	6.0854625	0.000694688	1
STCK2DG	0	0	50000	Formaldehyde	1	77.082525	0.008799375	1
STCK2DG	0	0	75092	Methylene Chlor	1	5.2740675	0.000602063	1
STCK2DG	0	0	127184	Perc	1	8.5196475	0.000972563	1
STCK2DG	0	0	79016	TCE	1	7.302555	0.000833625	1
STCK2DG	0	0	75014	Vinyl Chloride	1	14.60511	0.00166725	1
STCK2DG	0	0	75354	Vinylid Chlorid	1	6.0854625	0.000694688	1
STCK2DG	0	0	7440382	Arsenic	1	0.93310425	0.000106519	1
STCK2DG	0	0	7440439	Cadmium	1	0.23530455	2.69E-05	1
STCK2DG	0	0	18540299	Cr(VI)	1	0.486837	5.56E-05	1
STCK2DG	0	0	7439921	Lead	1	1.3793715	0.000157463	1
STCK2DG	0	0	7440020	Nickel	1	0.811395	9.26E-05	1
STCK2DG	0	0	7782492	Selenium	1	4.4626725	0.000509438	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

100414MAXHR.txt
100414PER.txt
106990MAXHR.txt
106990PER.txt
107028MAXHR.txt
107028PER.txt
107062MAXHR.txt

107062PER.txt
108883MAXHR.txt
108883PER.txt
108907MAXHR.txt
108907PER.txt
110543MAXHR.txt
110543PER.txt
115071MAXHR.txt
115071PER.txt
120127MAXHR.txt
120127PER.txt
127184MAXHR.txt
127184PER.txt
1330207MAXHR.txt
1330207PER.txt
18540299MAXHR.txt
18540299PER.txt
193395MAXHR.txt
193395PER.txt
205992MAXHR.txt
205992PER.txt
207089MAXHR.txt
207089PER.txt
218019MAXHR.txt
218019PER.txt
25321226MAXHR.txt
25321226PER.txt
50000MAXHR.txt
50000PER.txt
50328MAXHR.txt
50328PER.txt
53703MAXHR.txt
53703PER.txt
56235MAXHR.txt
56235PER.txt
56553MAXHR.txt
56553PER.txt
67663MAXHR.txt
67663PER.txt
71432MAXHR.txt
71432PER.txt
7439921MAXHR.txt
7439921PER.txt
7440020MAXHR.txt
7440020PER.txt
7440382MAXHR.txt
7440382PER.txt
7440439MAXHR.txt
7440439PER.txt
75014MAXHR.txt
75014PER.txt
75070MAXHR.txt
75070PER.txt
75092MAXHR.txt
75092PER.txt
75354MAXHR.txt
75354PER.txt
75569MAXHR.txt
75569PER.txt

7664417MAXHR.txt
7664417PER.txt
7782492MAXHR.txt
7782492PER.txt
79016MAXHR.txt
79016PER.txt
91203MAXHR.txt
91203PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH18232
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
7664417	NH3			3200	200		
115071	Propylene				3000		
75070	Acetaldehyde	0.01		470	140		300
107028	Acrolein			2.5	0.35		0.7
71432	Benzene	0.1		27	3		3
106990	1,3-Butadiene	0.6		660	2		9
100414	Ethyl Benzene	0.0087			2000		
50000	Formaldehyde	0.021		55	9		9
110543	Hexane				7000		
91203	Naphthalene	0.12			9		
120127	Anthracene						
56553	B[a]anthracene	0.39	1.2				
50328	B[a]P	3.9	12				
205992	B[b]fluoranthen	0.39	1.2				
207089	B[k]fluoranthen	0.39	1.2				
218019	Chrysene	0.039	0.12				
53703	D[a,h]anthracen	4.1	4.1				
193395	In[1,2,3-cd]pyr	0.39	1.2				
75569	Propylene Oxide	0.013		3100	30		
108883	Toluene			37000	300		
1330207	Xylenes			22000	700		
25321226	DiClBenzenes						
56235	CCl4	0.15		1900	40		
108907	Chlorobenzn				1000		
67663	Chloroform	0.019		150	300		
107062	EDC	0.072			400		
75092	Methylene Chlor	0.0035		14000	400		
127184	Perc	0.021		20000	35		
79016	TCE	0.007			600		
75014	Vinyl Chloride	0.27		180000			
75354	Vinylid Chlorid				70		
7440382	Arsenic	12	1.5	0.2	0.015	3.5E-06	0.015
7440439	Cadmium	15			0.02	0.0005	
18540299	Cr(VI)	510	0.5		0.2	0.02	
7439921	Lead	0.042	0.0085				
7440020	Nickel	0.91		0.2	0.014	0.011	0.06
7782492	Selenium				20	0.005	

AIR DISPERSION MODELING INFORMATION
Versions used in HARP. All executables were obtained from USEPA's Support Center for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/)
AERMOD: 18081
AERMAP: 18081

BPIPPRM: 04274
AERPLOT: 13329

METEOROLOGICAL INFORMATION
Version:
Surface File:
Profile File:
Surface Station:
Upper Station:
On-Site Station:

LIST OF AIR DISPERSION FILES
AERMOD Input File:
AERMOD Output File:
AERMOD Error File:
Plotfile list

LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)

25800NonResOutCancerRisk.csv
25800NonResOutCancerRiskSumByRec.csv
25800NonResOutGLCList.csv
25800NonResOutHRAInput.hra
25800NonResOutNCAcuteRisk.csv
25800NonResOutNCAcuteRiskSumByRec.csv
25800NonResOutNCChronicRisk.csv
25800NonResOutNCChronicRiskSumByRec.csv
25800NonResOutOutput.txt
25800NonResOutPathwayRec.csv
25800NonResOutPolDB.csv

Spatial averaging files (\sa\)

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<?xml version="1.0" encoding="UTF-8"?>
<!--HARP RISK INPUT FILE-->
<!--Created 2018/08/28 12:18:29-->
<HRA>
  <HRAVERSION>18159</HRAVERSION>
  <Title>25800NonResOut</Title>
  <AERMODMode>Y</AERMODMode><!--Read AERMOD plot file (Y) or read CSV file (N)-->
  <GLCList>L:\SSD
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sOutGLCList.csv</GLCList>
  <PollutantList>L:\SSD
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  <PathwayRecConc>L:\SSD
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  <Append>N</Append>
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  <SourceName>NA</SourceName>
  <RiskScenario>
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Worker-->
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        <ExposureDuration>25</ExposureDuration><!--years-->
        <Scenario>All</Scenario><!--Cancer, NCChronic, NCChronic8HR, NCAcute, All-->
        <StartAge>16</StartAge><!--years-->
        <WorkerExposureFrequency>250</WorkerExposureFrequency><!--days/year-->
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        <Tier2On>N</Tier2On>
        <IntakeRatePercentile>Derived</IntakeRatePercentile><!--HighEnd, Mean,
Derived-->
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        <Soil>Y</Soil>
        <Dermal>Y</Dermal>
        <MothersMilk>N</MothersMilk>
        <Water>N</Water>
        <Fish>N</Fish>
        <HomegrownCrop>N</HomegrownCrop>
        <Beef>N</Beef>
        <Dairy>N</Dairy>
        <Pig>N</Pig>
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```
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        <Egg>N</Egg>
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        <FAH16to70>N</FAH16to70><!--Y or N-->
        <DBRType>Moderate8HR</DBRType><!--LongTerm24HR, RMP, SedentaryPassive8HR,
Light8HR, or Moderate8HR-->
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        <UseAdj>N</UseAdj><!--Y or N-->
        <USEPOSTFILE8REL>N</USEPOSTFILE8REL><!--Y or N-->
        <USEPOSTFILECAN>N</USEPOSTFILECAN><!--Y or N-->
  </Inhalation>
  <Deposition>0.05</Deposition>
  <SoilMixingRate>0.01</SoilMixingRate>
  <DermalClimate>Mixed</DermalClimate><!--Cold, Mixed, or Warm-->
  <HumanWater>
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        <VolumeChangesPerYear>0</VolumeChangesPerYear>
        <FractionFromContamSource>0</FractionFromContamSource>

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<!--Y or N-->
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HouseholdsthatFarm, or UserDefined-->
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        <Exposed>0.137</Exposed>
        <Protected>0.137</Protected>
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  <AnimalFractions>
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UserDefined-->
        <HouseholdTypePCE>RaiseHunt</HouseholdTypePCE><!--RaiseHunt, Farm, or
UserDefined-->
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        <Pork>0.242</Pork>
        <Poultry>0.156</Poultry>
        <Eggs>0.146</Eggs>
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        <FractionFromContamSourceDairy>0</FractionFromContamSourceDairy>
    </BeefDairyWater>
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    </PigChickenEggsWater>
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        <Exposed>0.25</Exposed>
        <Protected>0.25</Protected>
        <Root>0.25</Root>
    </Pig>
    <Chicken>
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        <Exposed>0.25</Exposed>
        <Protected>0.25</Protected>
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    </Chicken>
    <Egg>
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        <FractionFeedOnsiteContaminated>0</FractionFeedOnsiteContaminated>
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<Tier2>
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        <EF>350</EF>
        <Inhalation>
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        <HighEnd>240,1200,640,520,240,230</HighEnd>
        <FAHOn>N</FAHOn><!--Y or N-->
        <FAH>0.85,0.85,0.72,0.72,0.73,0.73</FAH>
</Inhalation>
<Soil>
        <IROn>N</IROn><!--Y or N-->
        <Mean>0.7,20,5,3,0.7,0.6</Mean>
        <HighEnd>3,40,20,10,3,3</HighEnd>
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</Soil>
<Dermal>
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        <Mean>101</Mean>
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</MothersMilk>
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        <Mean>18,113,26,24,18,18</Mean>
        <HighEnd>47,196,66,61,47,45</HighEnd>
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<Fish>
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        <HighEnd>1.22,0.58,1.16,1.16,1.22,1.16</HighEnd>
</Fish>
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<BDIROn>N</BDIROn><!--Y or N-->
<PCEIROn>N</PCEIROn><!--Y or N-->
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</Leafy>
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<Protected>
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        <HighEnd>5.8,17.5,13.3,5.8,5.8,5.2</HighEnd>
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```

```
        <Root>
                <Mean>1.7,5.7,3.9,1.7,1.7,1.5</Mean>
                <HighEnd>4.6,15.3,10.8,4.6,4.6,4.2</HighEnd>
        </Root>
        <Beef>
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                <HighEnd>4.8,11.3,8.6,4.8,4.8,4.4</HighEnd>
        </Beef>
        <Dairy>
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                <HighEnd>15.9,116,61.4,15.9,15.9,13.2</HighEnd>
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        <Pig>
                <Mean>1.8,4.5,3.7,1.8,1.8,1.5</Mean>
                <HighEnd>4.7,11.4,9,4.7,4.7,3.8</HighEnd>
        </Pig>
        <Chicken>
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        </Chicken>
        <Egg>
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</Tier2>
</HRA>
```

APPENDIX E

BACT #203 Combustion Gas Turbine

CATEGORY: **TURBINE**

BACT Size: Minor Source BACT **GAS TURBINE**

BACT Determination Number: 203	**BACT Determination Date:**

Equipment Information

Permit Number: 25800
Equipment Description: GAS TURBINE
Unit Size/Rating/Capacity: Turbine, 2200 mmBTU/hr
Equipment Location: SMUD FINANCING AUTHORITY (COSUMNES POWER PLANT)
14295 CLAY EAST RD
HERALD, CA

BACT Determination Information

ROCs	**Standard:**	1.0 ppmvd @t 15% O2, 3-Hr Avg, Oxidation Catalyst
	Technology Description:	Oxidation Catalyst
	Basis:	Achieved in Practice
NOx	**Standard:**	2.0 ppmvd @ 15% O2, 1-Hr Avg
	Technology Description:	SCR or Equivalent
	Basis:	Achieved in Practice
SOx	**Standard:**	Natural Gas or Equiv. that meets 0.7 gr S/100scf
	Technology Description:	
	Basis:	Achieved in Practice
PM10	**Standard:**	Natural Gas or Equiv. that meets 0.7 gr S/100scf
	Technology Description:	
	Basis:	Achieved in Practice
PM2.5	**Standard:**	Natural Gas or Equiv. that meets 0.7 gr S/100scf
	Technology Description:	
	Basis:	Achieved in Practice
CO	**Standard:**	2.0 ppmvd @t 15% O2, 1-HR avg, Oxidation Catalyst
	Technology Description:	Oxidation Catalyst
	Basis:	Achieved in Practice
LEAD	**Standard:**	
	Technology Description:	
	Basis:	

Comments:

District Contact: Brian Krebs Phone No.: (916) 874 -4856 email: bkrebs@airquality.org

777 12th Street, Third Floor

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Sacramento, CA 95814

BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NO.:	203
DATE:	August 2, 2018
ENGINEER:	Brian Krebs

Category/General Equip Description:	Combustion Gas Turbine
Equipment Specific Description:	F-Class Combined Gas Turbine Nominal rating of 198.1 MW
Equipment Size/Rating:	Major Source BACT
Previous BACT Det. No.:	N/A

This Best Available Control Technology (BACT) determination category was determined under the project for A/C 25800 and 25801 (SMUD Cosumnes Power Plant (CPP). CPP is a combined cycle power plant that consists of two combined cycle combustion turbines, two unfired heat recovery steam generators, and one steam turbine. The combustion turbines utilize selective catalytic reduction for NOx control and an oxidation catalyst for CO and to a lesser extent VOC control.

BACT/T-BACT ANALYSIS

A: ACHIEVED IN PRACTICE (Rule 202, §205.1a)

The following technologies have either been currently employed as BACT/T-BACT for combustion gas turbines or are regulated by applicable District rules by the following agencies and air pollution control districts.

US EPA

BACT

Source: EPA RACT/BACT/LAER Clearinghouse

Gas turbine >25 MW	
Pollutant	**Standard**
VOC	0.3 ppmvd corrected to 15% O2 3hr average (Chouteau Power Plant, OK-0129)
NOx	2.0 ppmvd corrected to 15% O2 1hr average (OTAY Mesa Energy Center, CA-1177)

SOx	0.75 gr S/100 scf Fuel (St. Joseph Energy Center, LLC, IN-0158)
PM10	0.0025 lb/MMBTU (Filer City Station, MI-0427)
PM2.5	NA
CO	0.9 ppmvd corrected to 15% O2 1hr average (CPV Towantic, CT-0157 & CT-0158, and Killingly Energy Center, CT-1061) 1.5 ppmvd corrected to 15% O2 1 Hr average (Avenal Energy Project, CA-1192, Palmdale Hybrid Power Project, CA-1212, and Warren County Power Plant – Dominion, VA-0315) 2.0 ppmvd corrected to 15% O2 1 Hr Average (Sand Hill Energy Center, TX-0709

T-BACT
There are no T-BACT standards published in the clearinghouse for this category

RULE REQUIREMENTS

40 CFR Part 60 subpart KKKK – Standards of Performance for Stationary Combustion Turbines

New, modified, or reconstructed turbine firing natural gas, > 850 MMBTU/hr	
Pollutant	**Standard**
NOx	15 ppmvd corrected to 15% O2
SOx	1. 0.90 lb SO2/MW-hr or 2. 0.060 lb SO2/MMBtu heat input of the fuel

CALIFORNIA AIR RESOURCES BOARD

BACT
Source: ARB BACT Clearinghouse

Gas turbine >=50 MW	
Pollutant	**Standard**
VOC	0.7 ppmvd corrected to 15% O2 3hr average (La Paloma Generating Co. LLC)
NOx (A)	1.5 ppmvd corrected to 15% O2 1hr average (IDC Bellingham LLC) 2.0 ppmvd corrected to 15% O2 1hr average (Cosumnes Power Plant)
Sox	1 ppmvd corrected to 15% O2 Calendar Day average (Sutter Power Plant)
PM10	0.0056 lb/MMBTU (Cosumnes Power Plant)
PM2.5	0.0056 lb/MMBTU (Cosumnes Power Plant)
CO	2.0 ppmvd corrected to 15% O2 1hr average (Magnolia Power)

(A) Conversation from the permitting authority of the IDC Bellingham LLC indicated that the facility was never built.

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS
None.

CAPCOA

BACT
Source: CAPCOA BACT Clearinghouse

Gas turbine >=23MMBTU/hr	
Pollutant	**Standard**
VOC	0.6 ppmvd corrected to 15% O2 (A330-862-98 Bear Mountain Limited)
NOx	2.0 ppmvd corrected to 15% O2 3hr average (A330-877-99 Federal Cold Storage)
SOx	PUC natural gas assuming 0.7 gr/100 scf (A330-882-99 Sutter Power Plant)
PM10	PUC natural gas assuming 0.7 gr/100 scf (A330-882-99 Sutter Power Plant)
PM2.5	PUC natural gas assuming 0.7 gr/100 scf (A330-882-99 Sutter Power Plant)
CO	4.0 ppmvd corrected to 15% O2 Calendar Day average (A330-882-99 Sutter Power Plant)

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS
None.

SMAQMD

BACT
Source: SMAQMD BACT Clearinghouse

Gas turbine, 170 MW, 1865 MMBTU/hr – CPP, PO16006	
Pollutant	**Standard**
VOC	1.4 ppmvd corrected to 15% O2 3 hr average
NOx	2.0 ppmvd corrected to 15% O2 1hr average
SOx	1 gr s/100scf
PM10	9.0 lb/hr
PM2.5	NA
CO	4.0 ppmvd corrected to 15% O2 3 hr average

T-BACT
There are no T-BACT standards published in the clearinghouse for this category.

RULE REQUIREMENTS

Rule 413 – Stationary Gas Turbines (03-24-05)

Pollutant	Standard
NOx (gaseous fuel)	9 ppmvd corrected to 15% O2 excluding startups/shutdowns and short-term excursions
NOx (liquid fuel)	25 ppmvd corrected to 15% O2 excluding startups/shutdowns and short-term excursions

Startup/Shutdown
(Cold Start) - 4 hrs if steam turbine is shutdown for 72 hrs or more
(Warm Start) - 3 hrs if steam turbine is shutdown for between 8 hrs and 72 hrs or more
(Hot Start) - 1 hrs if associated steam turbine is shutdown for less than or equal to 8 hrs

SCAQMD

BACT

Source: Section I - SCAQMD LAER/BACT Determinations
Section II – Other LAER/BACT Determinations
Section III – Other Technologies
PART D: BACT Guidelines For Non-Major Polluting Facilities

Gas Turbine – For each specific pollutant, listed is the most stringent standard along with ID.	
Pollutant	**Standard**
VOC	1.4 ppmvd corrected to 15% O2 1 hr average (Mountain View, 366147)
NOx	2.0 ppmvd corrected to 15% O2 1hr average (Vernon City, 394164)
SOx	0.004 gr/scf (Three Mountain, 99-PO-01)
PM10	0.0012 gr/scf (Three Mountain, 99-PO-01)
PM2.5	NA
CO	2.0 ppmvd corrected to 15% O2 1 hr average (Magnolia, 386305)

T-BACT

There are no T-BACT standards published in the clearinghouse for this category

RULE REQUIREMENTS

Rule 1134 – Emissions of Oxides of Nitrogen from Stationary Gas Turbines (08-08-97)

Pollutant	Standard
NOx (gaseous fuel)	9 ppmvd corrected to 15% O2 excluding thermal stabilization period

Thermal Stabilization Period
2 hrs or as specified in the permit issued prior to 8/4/89.

SAN DIEGO COUNTY APCD

BACT
Source: NSR Requirements for BACT
There are no BACT standards published in the clearinghouse for this category

T-BACT
There are no T-BACT standards published in the clearinghouse for this category

RULE REQUIREMENTS
Rule 69.3 – Stationary Gas Turbine Engines – Reasonably Available Control Technology (12-16-98)

Pollutant	Standard
NOx (gaseous fuel)	42 ppmvd corrected to 15% O2 excluding startups
NOx (liquid fuel)	65 ppmvd corrected to 15% O2 excluding startups

Startup
Startup - a maximum of 2 hrs unless an extended startup is authorized

Rule 69.3.1 – Stationary Gas Turbine Engines – Best Available Retrofit Technology (02-24-10)

Pollutant	Standard
NOx (gaseous fuel)	9 ppmvd X E/25 corrected to 15% O2 excluding startups
NOx (liquid fuel)	25 ppmvd X E/25 corrected to 15% O2 excluding startups

E=(MRTE)(LHV)/(HHV)

Where:

E: **"Unit Thermal Efficiency (E)"** means the percent thermal efficiency of the gas turbine engine

MRTE: **"Manufacturer's Rated Thermal Efficiency (MRTE)"** means the manufacturer's continuous rated percent thermal efficiency of the gas turbine engine, including the effect of any air pollution control equipment if such equipment is installed, at peak load, after correction to lower heating value.

LHV: **"Lower Heating Value (LHV)"** means the total heat liberated, excluding the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

HHV: **"Higher Heating Value (HHV)"** means the total heat liberated, including the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

Startup
Normal Startup - a maximum of 2 hrs unless an extended startup is authorized
Extended Startup - a maximum of 6 hrs for a combined cycle unit when the APCO determines that key parameters indicates that 2 hrs is not sufficient to meet the emission limits.

BAAQMD

BACT
Source: NSR Requirements for BACT

Combined Cycle >=40 megawatts	
Pollutant	**Standard**
VOC	2.0 ppmvd corrected to 15% O2
NOx	2.0 ppmvd corrected to 15% O2
SOx	Natural Gas Fuel 1 gr/100 scf
PM10	Natural Gas Fuel 1 gr/100 scf
PM2.5	No standard
CO	4.0 ppmvd corrected to 15% O2

T-BACT
There are no T-BACT standards published in the clearinghouse for this category

RULE REQUIREMENTS

Regulation 9, Rule 9 Nitrogen Oxides from Stationary Gas Turbines (12-06-06)

>500 MMBTU/HR	
Pollutant	**Standard**
NOx (gaseous fuel)	5 ppmvd corrected to 15% O2 excluding startups/shutdowns
NOx (Refinery, waste or LPG gas)	9 ppmvd corrected to 15% O2 excluding startups/shutdowns
NOx (liquid fuel)	25 ppmvd corrected to 15% O2 excluding startups/shutdowns

Startup/Shutdown
Normal Startup - a maximum of 4 hrs
Cold Steam Turbine Starts at combined cycle facilities - a maximum of 6 hrs
Shutdown - a maximum of 2 hrs

San Joaquin Valley APCD

BACT
Source: BACT Clearinghouse

BACT #3.4.2

Gas Turbine - >= 50 MW, Uniform Load, with Heat Recovery	
Pollutant	**Standard**
VOC	1.5 ppmvd corrected to 15% O2 (Technologically Feasible) 2.0 ppmvd corrected to 15% O2 (Achieved in Practice)
NOx	2.0 ppmvd corrected to 15% O2, 1 hr average, excluding startup and shutdown (Technologically Feasible) 2.5 ppmvd corrected to 15% O2, 1 hr average, excluding startup and shutdown (Achieved in Practice)
SOx	PUC-regulated natural gas of 0.75 g S/100 scf
PM10	Air inlet filter cooler, lube oil vent coalescer and natural gas fuel or equal
PM2.5	No standard
CO	4.0 ppmvd corrected to 15% O2 (Technologically Feasible) 6.0 ppmvd corrected to 15% O2 (Achieved in Practice)

T-BACT
There are no T-BACT standards published in the clearinghouse for this category

RULE REQUIREMENTS

Rule 4703 – Stationary Gas Turbines (9-20-07)

>10 MW, Combined Cycle	
Pollutant	**Standard**
NOx (gaseous fuel)	3 ppmvd corrected to 15% O2 excluding startups (Enhanced Option)
NOx (liquid fuel)	25 ppmvd corrected to 15% O2 excluding startups
CO	25 ppmvd corrected to 15% O2 excluding startups (GE Frame 7)

Startup
Normal Startup - a maximum of 2 hrs unless an extended startup is authorized
Extended Startup - as approved by the APCO, ARB, and EPA

SUMMARY OF ACHIEVED IN PRACTICE CONTROL TECHNOLOGIES	
Pollutant	**Standard**
VOC	1. EPA - 0.3 ppmvd corrected to 15% O2, 3 Hr average (Chouteau Power Plant – OK-0129) 2. CAPCOA – 0.6 ppmvd corrected to 15% O2, 3 Hr average (Bear Mountain Limited – A330-862-98) 3. EPA – 0.7 ppmvd corrected to 15% O2, 1 Hr average and Average of 3-1 Hr stack tests – (CT-0161, NJ-0082, NY-0104) 4. CARB – 0.7 ppmvd corrected to 15% O2, (LaPaloma Generating Co, LLC) 5. EPA – 1.0 ppmvd corrected to 15% O2, 3-Hr Block average (MA-0039 and MD-0041) 6. SMAQMD – 1.4 ppmvd corrected to 15% O2, 3 Hr average (CPP, PO 16006) 7. SCAQMD – 1.4 ppmvd corrected to 15% O2, 1 Hr average (Mountain View, 366147) 8. SJVAPCD – 2.0 ppmvd corrected to 15% O2, 1 Hr average 9. BAAQMD – 2.0 ppmvd corrected to 15% O2 10. SDCAPCD – no determination
NOx	1. CARB – 1.5 ppmvd corrected to 15% O2, 1 Hr average (IDC Bellingham LLC) 2. EPA – 2.0 ppmvs corrected to 15% O2, 1 Hr average (Avenal Energy Project, CA – 1192 and many others) 3. CARB – 2.0 ppmvd corrected to 15% O2, 1 Hr average (CPP and others) 4. SMAQMD - 2.0 ppmvd corrected to 15% O2, 1 Hr average (CPP, PO 16006) 5. SCAQMD - 2.0 ppmvd corrected to 15% O2, 1 Hr average (Vernon City, 394164) 6. CAPCOA - 2.0 ppmvd corrected to 15% O2, 3 Hr average (Federal Cold Storage, A330-877-99) 7. BAAQMD - 2.0 ppmvd corrected to 15% O2 8. SJVAPCD - 2.5 ppmvd corrected to 15% O2, 1 Hr average 9. SDCAPCD - 9 ppmvd corrected to 15% O2, (Rule 69.3.1)
SOx	1. SCAQMD - 0.4 gr S/100 scf Fuel 2. CARB – 0.7 gr S/100 scf Fuel 3. CAPCOA – 0.7 gr S/100 scf Fuel 4. EPA - 0.75 gr S/100 scf Fuel 5. SJVAPCD – 0.75 gr S/100 scf Fuel 6. SMAQMD – 1 gr S/100 scf Fuel 7. BAAQMD – 1 gr S/100 scf Fuel 8. SDCAPCD – no determination
PM10	1. EPA – 0.0025 lb/MMBTU 2. SMAQMD - 0.0048 lb/MMBTU 3. SCAQMD – 0.0056 lb/MMBTU 4. CARB – 0.0056 lb/MMBTU 5. SJVAPCD – Air inlet filter cooler, lube oil vent coalescer and natural gas fuel

	or equal. 6. CAPCOA – The combusting of PUC Natural Gas with a 0.7 gr S/100 scf 7. BAAQMD - Natural Gas Fuel with 1 gr S/100 scf 8. SDCAPCD – no determination
PM2.5 (A)	1. EPA – 0.0025 lb/MMBTU 2. SMAQMD - 0.0048 lb/MMBTU 3. SCAQMD – 0.0056 lb/MMBTU 4. CARB – 0.0056 lb/MMBTU 5. SJVAPCD – Air inlet filter cooler, lube oil vent coalescer and natural gas fuel or equal. 6. CAPCOA – The combusting of PUC Natural Gas with a 0.7 gr S/100 scf 7. BAAQMD - Natural Gas Fuel with 1 gr S/100 scf 8. SDCAPCD – no determination
CO	1. EPA – 0.9 ppmvd corrected to 15% O2, 1 Hr block (CPV Towantic, LLC, CT-0157 & CT-0158, and Killingly Energy Center, CT-0161) 2. EPA - 1.5 ppmvd corrected to 15% O2, 1 Hr average (Avenal Energy Project, CA-1192) 3. EPA – 2.0 ppmvd corrected to 15% O2, 1 Hr average (Sand Hill Energy Center, TX-0709) 4. CARB – 2.0 ppmvd corrected to 15% O2, 1 Hr average (Magnolia Power) 5. SCAQMD - 2.0 ppmvd corrected to 15% O2, 1 Hr average (Magnolia Power) 6. CAPCOA – 4.0 ppmvd corrected to 15% O2, Calendar Day average (Sutter Power Plant, A330-882-99) 7. SMAQMD – 4.0 ppmvd corrected to 15% O2, 3 Hr average (CPP, PO16006) 8. BAAQMD - 4.0 ppmvd corrected to 15% O2 9. SJVAQMD – 6.0 ppmvd corrected to 15% O2 10. SDCAPCD – no determination
T-BACT (VOC)	N/A – [SMAQMD, SCAQMD, SDCAPCD, BAAQMD, SJVAPCD, ARB, EPA, CAPCOA]

(A) Assume same as PM10

Discussion:

General

The various determinations above span many years. They represent various sizes, classes and manufacturer of the individual turbines. Each power plant in which these turbines are employed can be configured differently to meet the individual needs of the utility and in many cases these factors as well as the previous ones mentioned make it difficult to compare. Many times the emission rates that ultimately are reported as BACT are not a result of a specific technology or control, but rather represents the applicants willingness to accept a smaller compliance margin in order to lessen the permitting burden (availability and cost of emission offsets, CEQA, Major source or PSD thresholds, etc..). For a few pollutants, NOx, VOC and CO, good combustion design and practices can be combined with actual control technology such as Selective Catalytic Reduction or an Oxidation Catalyst to result in lower emissions of these respective pollutants. For particulate, emissions rates are influenced primarily by the fuel quality, combustion design

and emission monitoring precision. For SOx, the emission rates are almost exclusively related to the sulfur content of the fuel which for all of the turbines listed above were from combusting various qualities of natural gas.

VOC

The most stringent VOC concentration reported for all of the projects analyzed was 0.3 ppmvd corrected to 15% O2, 3 hour average from the Chouteau Power Plant in Oklahoma. The turbine is a Siemens V84.3A rated at approximately 1882 MMBTU/hr. Though it appears to be similar in size, it is a different manufacturer and assuredly a different configuration. The CO emissions are listed at 8 ppm which is substantially higher than many of the others evaluated. This project is the only project of the top performing projects that does not utilize an oxidation catalyst which might explain the rather poor CO emission concentration. For these reasons, this BACT determination will not be considered achieved in practice for this application.

The next most stringent VOC emission concentration is 0.6 ppmvd corrected to 15% O2, 3 hour average at the Bear Mountain Limited power plant. This determination is for a GE LM5000 which is an aero-derivative turbine which is much smaller and not at all comparable to a frame turbine. As such, this BACT determination will not be considered achieved in practice for this application.

Several projects reported BACT determinations of 0.7 ppmvd corrected to 15% O2 for various averaging periods. None of these projects reported using the same manufacturer and class of turbine and as such, these BACT determinations will not be considered achieved in practice for this application.

Finally, the next most stringent standard was 1.0 ppmvd corrected to 15% O2 for various averaging periods. There were many projects that arrived at this BACT determination and a few of them reported this determination for General Electric 7FA turbines which are the same as the subject of this BACT determination. All of them utilized an oxidation catalyst. For this reason, a VOC BACT determination that requires an oxidation catalyst that results in a VOC concentration of 1.0 ppmvd corrected to 15% O2, 3-hour average will be considered achieved in practice.

NOx

The most stringent NOx concentration reported for all of the projects analyzed was 1.5 ppmvd corrected to 15% O2, 1 hour average from the IDC Bellingham LLC power plant project in Massachusetts. Conversations with the permitting authority indicated that the project was never built. As such, this BACT determination will not be considered achieved in practice for this application.

The next most stringent NOx emission concentration is 2.0 ppmvd corrected to 15% O2, 1 hour average. This was for many projects throughout the nation including the project for which is the subject of this BACT determination (CPP). All of the projects at this level utilize Selective Catalytic Reduction to achieve this level of NOx control. Though the projects analyzed all use SCR, SCONOx or perhaps other control technologies could potentially achieve similar results. For this reason, no specific control technology will be specified, but rather a NOx BACT determination that results in a NOx concentration of 2.0 ppmvd corrected to 15% O2, 1 hour average will be considered achieved in practice for this application.

SOx

As mentioned previously, SOx emissions are directly related to the sulfur content of the fuel and all of the projects analyzed combust natural gas with sulfur contents that are contained in their local fuel supply. From all of the projects analyzed, the most stringent sulfur content specified was 0.4 gr S/100 scf of fuel. However, this was for a project in Redding CA, Three Mountain, 99-PO-01a which was not built[1]. As such, this BACT determination will not be considered achieved in practice. The next most stringent sulfur content specified was 0.7 gr S/100 scf of fuel. The natural gas fuel supply for the CPP project meets this requirement. Therefore, a SOx BACT determination of natural gas fuel that meet 0.7 gr S/100 scf will be considered achieved in practice.

Particulate (PM10/PM2.5)

Again as mentioned previously, none of the projects utilize any type of add on control for particulate. Though all of the projects employ good combustion practices, some projects report lower particulate emission rates than others with similar equipment and fuel. This is just a function of the projects willingness to accept a lower compliance margin rather than any attempt at lower emissions. Therefore a specific emission rate will not be considered as achieved in practice.

All of the remaining determinations specify the combustion of a clean fuel (i.e. "natural gas"). In addition to the use of combusting natural gas or equivalent, the SJVAPCD identified two combustion practices that can be utilized to minimize particulate emissions. For these reasons, a Particulate (PM10/PM2.5) BACT determination of an air inlet filter cooler, lube oil vent coalescer, and the combusting of natural gas or equivalent will be considered achieved in practice.

CO

Two projects reported BACT determinations of 0.9 ppmvd corrected to 15% O2 without duct firing and 1.7 ppmvd corrected to 15% O2 with duct firing (CPV Towantic, LLC and Killingly Energy Center). Both projects are not operational yet and the turbines appear to be much larger. For these reasons, these BACT determinations will not be considered achieved in practice for this application.

The next most stringent CO emission concentration is 1.5 ppmvd corrected to 15% O2, 1 hour average for the Avenal Energy Project, Palmdale Hybrid Power Project, and the Warren County Power Plant – Dominion. All of the projects utilize an oxidation catalyst to achieve this level of CO control. The Avenal Energy Center and Palmdale Hybrid Power Project are not currently constructed[1]. The Warren County Power Plant is a much larger turbine and has a higher emission limit when the unit is duct firing. For these reasons, this emission concentration is not considered achieved in practice for this application.

Lastly, a CO concentration of 2.0 ppmvd corrected to 15% O2, 1 hour average was found for several turbine projects. The Sand Hill Energy Center is a similar sized turbine, utilizes an oxidation catalyst, and does not have a less stringent limit while duct firing. For these reasons, a CO BACT determination that requires an oxidation catalyst that results in a CO concentration of 2.0 ppmvd corrected to 15% O2 will be considered achieved in practice.

[1] The California Energy Commission maintains a project status webpage for the California power plants under their jurisdiction https://www.energy.ca.gov/sitingcases/all_projects.html.

START-UP's
Since the start-up provisions of the South Coast Rule 1134 only apply to turbines in existence prior to August of 1989 when the physical size of the units did not require extended start-up times, this start-up provision was not considered. A review of the rest of the start-up provisions of the District's rules determined that the start-up provisions of the current CPP turbine continue to be the most stringent.

BEST CONTROL TECHNOLOGIES - ACHIEVED IN PRACTICE	
Pollutant	**Standard**
VOC	1.0 ppmvd corrected to 15% O2, 3-Hr average, utilizing an Oxidation Catalyst
NOx	2.0 ppmvd corrected to 15% O2, 1-Hr average
Sox	Natural Gas or equivalent that meets 0.7 gr Sulfur/100 scf
PM10	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.
PM2.5 (A)	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.
CO	2.0 ppmvd corrected to 15% O2, 1-Hr average utilizing an Oxidation Catalyst

(A) Assume same as PM10

B: TECHNOLOGICALLY FEASIBLE AND COST EFFECTIVE (Rule 202, §205.1.b.)

Technologically Feasible Alternatives:
Any alternative basic equipment, fuel, process, emission control device or technique, singly or in combination, determined to be technologically feasible by the Air Pollution Control Officer.

The table below shows the technologically feasible alternatives identified as capable of reducing emissions beyond the levels determined to be "Achieved in Practice" as per Rule 202, §205.1.a.

Pollutant	Technologically Feasible Alternative
VOC	No other technologically feasible option identified (A)
NOx	No other technologically feasible option identified
SOx	No other technologically feasible option identified
PM10	No other technologically feasible option identified
PM2.5	No other technologically feasible option identified

CO	No other technologically feasible option identified (A)

(A) The SJVAPCD identified technologically feasible emission standards for both VOC and CO. However in both cases, the standards selected for Achieved in Practice were found to be more stringent.

Cost Effective Determination:
Since no other technologies were determined to be technologically feasible, a cost analysis is not applicable.

CONCLUSION

Therefore, no identified technologically feasible controls are considered.

C: SELECTION OF BACT

BACT (#203) COMBUSTION GAS TURBINE	
Pollutant	**Standard**
VOC	1.0 ppmvd corrected to 15% O2, 3-Hr average, utilizing an Oxidation Catalyst
NOx	2.0 ppmvd corrected to 15% O2, 1-Hr average
SOx	Natural Gas or equivalent that meets 0.7 gr Sulfur/100 scf
PM10	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.
PM2.5	Natural gas or equivalent fuel that meets 0.7 gr Sulfur/100 scf with an air inlet filter cooler and lube oil vent coalescer.
CO	2.0 ppmvd corrected to 15% O2, 1-Hr average utilizing an Oxidation Catalyst

D: SELECTION OF T-BACT

No T-BACT determinations were identified. However since the majority of the risk is expected to be from VOC's, the VOC BACT determination will be considered to be T-BACT

REVIEWED BY: _____ **DATE:** _____

APPROVED BY: _____ **DATE:** _____