APPENDIX E: AIR QUALITY

Whitmore Study Page 1 of 3

EDMS 4.11 Model Inputs for Study Whitmore Study

Date: Thursday, February 26, 2004 Study Created: Monday, October 27, 2003

Study Pathname: F:\Projects\SWCA\Grand Canyon\Whitmore Study\Whitmore Study.EDM

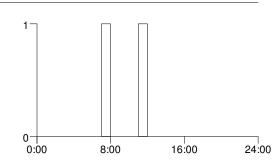
Airport: GRAND CANYON BAR TEN AIRSTRIP AZ 1 Airport Location (lat / lon): 36-15-34.930N 113-13-52.762W

Field elevation: 4100 (feet MSL) Average temperature: 59.0 Mixing Height: 3000 (feet) Year being studied: 2003

This study is an analysis of Emissions only. GSE are modeled based upon aircraft LTO.

Hourly Operational Profiles

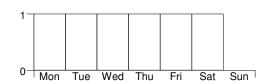
Name: [DEFAULT				
Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.0000	9	0.0000	17	0.0000
2	0.0000	10	0.0000	18	0.0000
3	0.0000	11	0.0000	19	0.0000
4	0.0000	12	1.0000	20	0.0000
5	0.0000	13	0.0000	21	0.0000
6	0.0000	14	0.0000	22	0.0000
7	0.0000	15	0.0000	23	0.0000
8	1.0000	16	0.0000	24	0.0000



Daily Operational Profiles

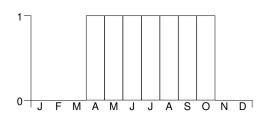
Name: DEFAULT	
Day	Fraction of Peak
Monday	1.0000
Tuesday	1.0000
Wednesday	1.0000
Thursday	1.0000

Day Fraction of Peak Friday 1.0000
Saturday 1.0000
Sunday 0.0000



Monthly Operational Profiles

Name: DEFAUL	.Т		
Month	Fraction of Peak	Month	Fraction of Peal
January	0.0000	July	1.0000
February	0.0000	August	1.0000
March	0.0000	September	1.0000
April	1.0000	October	1.0000
May	1.0000	November	0.0000
June	1.0000	December	0.0000



Whitmore Study Page 2 of 3

Aircraft

Aircraft Name: Cessna 441 Conquest2 Engine Type: TPE331-8 Identification: DO228 Annual LTOs:

Annual TGO:

Hourly Operational Profile:

Daily Operational Profile:

Monthly Operational Profile:

Default

Default

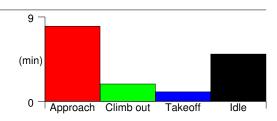
Default

Default

Category:

SGTP

Takeoff weight (lbs): 3000
Approach angle (°): 3
Takeoff Time (minutes): 1.03
Climb out Time (minutes): 1.87
Approach Time (minutes): 8.09
Total Idle Time (minutes): 5.09
Taxi & Queue Time (minutes): 5.00



Horsepower:

175

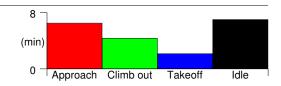
71

Aircraft Name:
Bell 206
Engine Type:
250B17B
Identification:
Bell Ranger

Annual LTOs: 1600
Annual TGO: 0
Hourly Operational Profile: DEFAULT

Daily Operational Profile: DEFAULT
Monthly Operational Profile: DEFAULT
Category: SGTH

Takeoff Time (minutes):2.17Climb out Time (minutes):4.33Approach Time (minutes):6.50Total Idle Time (minutes):7.00Taxi & Queue Time (minutes):7.00



No APU assigned.
Assigned GSE/AGE:
Fuel Truck, Small, < 3,000 gal

Ground Power Unit, 28VDC

No APU assigned.
Assigned GSE/AGE:

Fuel Truck, Small, < 3,000 gal

Ground Power Unit, 28VDC

Fuel: Diesel Diesel

Fuel:

Diesel

Diesel

Op Time (mins): 10.00 40.00

Op Time (mins):

10.00

40.00

Horsepower: 175 71 Load Factor: 0.2500 0.7500

Load Factor:

0.2500

0.7500

User-Created GSE

**My Gse

Default Operating Time per LTO (minutes): 7.00
Default Annual Operating Time (hours): 333
Default Power Rating (Horsepower): 425
Default Load Factor: 0.9000

Emissions data is based upon the following system GSE type operating in the specified year.

Gse Type: Air Start, 180 PPM

Operating Year: 2009
Default Fuel: Diesel

Whitmore Study Page 3 of 3

User-Created APUs

27-1

End of Report

EDMS 4.11 Emissions Inventory Report

Airport: GRAND CANYON BAR TEN AIRSTRIP

Study Name: Whitmore Study

Report Date: 02/26/04

SUMMARY

NAME	CO	HC	NOx	SOx	PM10
Aircraft	1.275	.174	.429	.049	.000
GSE/AGE/APU	.115	.038	.547	.077	.030
Total	1.390	.212	.976	.126	.030

AIRCRAFT EMISSIONS

Engine	Mode	CO	HC	NOx	SOx	PM10
TPE331-8	APCH	.073	.003	.160	.017	.000
	CLMB	.009	.000	.059	.006	.000
	TKOF	.004	.000	.036	.003	.000
	TAXI	.076	.006	.017	.004	.000
	TOTAL	.162	.009	.272	.030	.000
	APU	.000	.000	.000	.000	.000
	GSE	.024	.008	.113	.016	.006
250B17B	APCH	.357	.039	.017	.004	.000
	CLMB	.128	.006	.084	.008	.000
	TKOF	.060	.002	.051	.004	.000
	TAXI	.568	.117	.006	.003	.000
	TOTAL	1.113	.164	.158	.019	.000
	APU	.000	.000	.000	.000	.000
	GSE	.091	.030	.434	.061	.024
	TPE331-8	TPE331-8 APCH CLMB TKOF TAXI TOTAL APU GSE 250B17B APCH CLMB TKOF TAXI TOTAL APU APU APU APU APU APU APU A	TPE331-8 APCH CLMB .009 TKOF .004 TAXI .076 TOTAL .162 APU .000 GSE .024 250B17B APCH .357 CLMB .128 TKOF .060 TAXI .568 TOTAL .1113 APU .000	TPE331-8 APCH CLMB .009 .000 TKOF .004 .006 TOTAL .162 .009 APU .000 .000 GSE .024 .008 250B17B APCH .357 .039 CLMB .128 .006 TKOF .060 .002 TAXI .568 .117 TOTAL .113 .164 APU .000 .000	TPE331-8 APCH CLMB .009 .000 .059 TKOF .004 .006 .017 TOTAL .162 .009 .272 APU .000 .000 .000 .000 GSE .024 .008 .113 250B17B APCH .357 .039 .017 CLMB .128 .006 .084 TKOF .060 .084 TKOF .060 .002 .051 TAXI .568 .117 .006 TOTAL .113 .164 .158 APU .000 .000 .000 .000	TPE331-8 APCH CLMB .009 .000 .059 .006 TKOF .004 .000 .036 .003 TAXI .076 .006 .017 .004 TOTAL .162 .009 .272 .030 APU .000 .000 .000 .000 .000 .000 .000 .0

VEHICULAR EMISSIONS

NAME	CO	HC	NOx	SOx	PM10
	.000	.000	.000	.000	.000

STATIONARY SOURCE EMISSIONS

NAME	CO	HC	NOx	SOx	PM10
	.000	.000	.000	.000	.000

Diamond Down Study Page 1 of 2

EDMS 4.11 Model Inputs for Study Diamond Down Study

Date: Thursday, February 26, 2004

Study Created: Wednesday, February 11, 2004

Study Pathname: F:\Projects\SWCA\Grand Canyon\Lower Gorge Study\Lower Gorge Study.EDM

Airport: Lower Gorge Alternative E

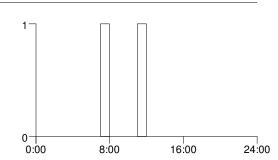
Airport Location (lat / lon): 36-15-34.930N 113-13-52.762W

Field elevation: 4100 (feet MSL) Average temperature: 59.0 Mixing Height: 3000 (feet) Year being studied: 2003

This study is an analysis of Emissions only. GSE are modeled based upon aircraft LTO.

Hourly Operational Profiles

Name:	DEFAULT				
Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peal
1	0.0000	9	0.0000	17	0.0000
2	0.0000	10	0.0000	18	0.0000
3	0.0000	11	0.0000	19	0.0000
4	0.0000	12	1.0000	20	0.0000
5	0.0000	13	0.0000	21	0.0000
6	0.0000	14	0.0000	22	0.0000
7	0.0000	15	0.0000	23	0.0000
8	1.0000	16	0.0000	24	0.0000



Daily Operational Profiles

Name: DEFAULT
Day
Manadan

Fraction of Peak Monday 1.0000 Tuesday 1.0000 1.0000 Wednesday Thursday 1.0000

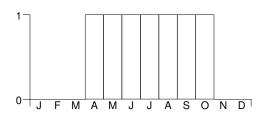
Day Fraction of Peak Friday 1.0000 Saturday 1.0000 Sunday 0.0000

Wed Thu

Monthly Operational Profiles

Name: DEFAULT	
Month	Fraction of Peak
January	0.0000
February	0.0000
March	0.0000
April	1.0000
May	1.0000
June	1.0000

Month Fraction of Peak July 1.0000 August 1.0000 September 1.0000 October 1.0000 November 0.0000 December 0.0000



Diamond Down Study Page 2 of 2

Aircraft

Aircraft Name: Annual LTOs: 159000 **Bell 206** Annual TGO: Engine Type: Hourly Operational Profile: **DEFAULT** 250B17B Daily Operational Profile: **DEFAULT** Monthly Operational Profile: Identification: **DEFAULT** Bell Ranger Category: **SGTH** 8 Takeoff Time (minutes): 2.17 Climb out Time (minutes): 4.33 (min) Approach Time (minutes): 6.50 Total Idle Time (minutes): 7.00 0 Approach Climb out Taxi & Queue Time (minutes): 7.00 Takeoff Idle

> No APU assigned. No GSE assigned.

User-Created GSE

**My Gse Default Operating Time per LTO (minutes): 7.00
Default Annual Operating Time (hours): 333
Default Power Rating (Horsepower): 425

Default Load Factor:

Emissions data is based upon the following system GSE type operating in the specified year.

0.9000

Gse Type: Air Start, 180 PPM

Operating Year: 2009
Default Fuel: Diesel

User-Created APUs

**My APU Default Operating Time per LTO (minutes): 26.00
Emissions Data Source: APU WR27-1

End of Report

EDMS 4.11 Emissions Inventory Report

Airport: Lower Gorge Alternative E Study Name: Diamond Down Study

Report Date: 02/26/04

SUMMARY

NAME	CO	HC	NOx	SOx	PM10
Aircraft	110.543	16.332	15.652	1.891	.000
GSE/AGE/APU	.000	.000	.000	.000	.000
Total	110.543	16.332	15.652	1.891	.000

AIRCRAFT EMISSIONS

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
Bell 206 Bell Ranger	250B17B	APCH CLMB TKOF TAXI TOTAL	35.490 12.691 5.953 56.409 110.543	3.910 .563 .229 11.631 16.333	1.654 8.386 5.030 .582 15.652	.406 .760 .412 .314	.000 .000 .000 .000
		APU GSE	.000	.000	.000	.000	.000

VEHICULAR EMISSIONS

NAME	CO	HC	NOx	SOx	PM10
	.000	.000	.000	.000	.000

STATIONARY SOURCE EMISSIONS

NAME	CO	HC	NOx	SOx	PM10
	.000	.000	.000	.000	.000