APPENDIX H

TTI: Mobile 5a-h Input and Output Mock-up Files Depicting Parameterizations Used In Emissions Modeling for FY 2007

HOUSTON/GALVESTON ATTAINMENT DEMONSTRATION - PART II

OCTOBER 1999 REVISION

MOBILE5a-h Input and Output Mock-up Files Depicting Parameterizations Used in Emissions Modeling for FY 2007 Performed by Texas Transportation Institute in Support of the COAST Project

```
5          PROMPT
Harris County Mock-Up for COAST Redo Phase 1
1          TAMFLG
4          SPDFLG - trip distibutions
3          VMFLAG - yes
3          MYMRFG - yes
2          NEWFLG - diesel standards
2          IMFLAG - Harris County only
1          ALHFLG - n/a
5          ATPFLG - Harris County only
5          RLFLAG - no refueling emissins
2          LOCFLG
2          TEMFLG - use hourly airshed modeling temperature
3          OUTFMT - print desc
4          PRTFLG - Print HC, CO & NOx
1          IDLFLG
3          NMHFLG - Calculate emissions for volatile organic hydrocarbons.
3          HCFLAG
.699.171.076.018.002.001.031.002                    VMT mix: LDGV,LDGT1,LDGT2,HDGV,LDDV,LDDT,HDDV,MC
 .066 .088 .079 .077 .078 .076 .068 .067 .076 .068  Harris    .LDGV..MY AGES 1-10
 .043 .043 .037 .029 .031 .024 .017 .010 .024 .017  County                   11-20
 .004 .004 .002 .002 .008                                                     21-25
 .062 .083 .080 .075 .080 .074 .059 .066 .074 .059            .LDGT1.MY AGES 1-10
 .038 .046 .038 .024 .030 .027 .020 .014 .027 .020                            11-20
 .006 .007 .004 .004 .014                                                     21-25
 .094 .099 .076 .070 .069 .059 .034 .052 .059 .034            .LDGT2.MY AGES 1-10
 .043 .049 .029 .029 .046 .034 .030 .023 .034 .030                            11-20
 .005 .003 .002 .002 .005                                                     21-25
 .061 .069 .066 .071 .066 .061 .052 .049 .061 .052            .HDGV..MY AGES 1-10
 .031 .058 .048 .039 .052 .042 .027 .017 .042 .027                            11-20
 .012 .009 .007 .004 .011                                                     21-25
 .066 .088 .079 .077 .078 .076 .068 .067 .076 .068            .LDDV..MY AGES 1-10
 .043 .043 .037 .029 .031 .024 .017 .010 .024 .017                           11-20
 .004 .004 .002 .002 .008                                                     21-25
 .062 .083 .080 .075 .080 .074 .059 .066 .074 .059            .LDDT..MY AGES 1-10
 .038 .046 .038 .024 .030 .027 .020 .014 .027 .020                            11-20
 .006 .007 .004 .004 .014                                                     21-25
 .048 .042 .071 .074 .064 .059 .053 .062 .059 .053            .HDDV..MY AGES 1-10
 .036 .056 .067 .050 .053 .034 .024 .011 .034 .024                            11-20
 .008 .005 .002 .002 .009                                                     21-25
 .056 .061 .043 .047 .057 .048 .052 .079 .048 .052            .MC....MY AGES 1-10
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```
 .061 .396 .000 .000 .000 .000 .000 .000 .000 .000                      BER vector
 .000 .000 .000 .000 .000
004                                                                     HDDV std 90
1 7 3 90 90 05.639 00.000                                               HDDV std 91-97
1 7 3 91 97 04.598 00.000                                               HDDV std 98-03
1 7 3 98 03 03.679 00.000                                               new 2004 H-D Diesel Stds
1 7 3 04 20 01.840 00.000                                               2-Speed Idle
97 23 83 05 01 01 084 1 1 2222 2211 220. 1.20 999.                      ATP see notes about ATP1&2
84 83 05 2222 11 084. 22222222                                          Pressure (gas cap) test
97 83 05 2222 11 084.                                                   LAP
HAR              B  67. 092.  8.3  7.8 92 1 1 2                         trip length dist: AMpk
 13.9 29.8 24.4 14.5  7.8  9.6                                          HWY
4 07 63.2 83.9 15.1 14.3 23.3  7                                        NLEV, start 2001, program credit=2
01 2
0000000000000000000000000000000000000000000000000000000000000000 END OF RUN 1
```

```
5          PROMPT
Other Counties (non-Harris): Mock-Up for COAST Redo Phase 1
1          TAMFLG
4          SPDFLG - trip distributions
3          VMFLAG - yes
3          MYMRFG - yes
2          NEWFLG - diesel standards
1          IMFLAG - no
1          ALHFLG - n/a
1          ATPFLG - no
5          RLFLAG - no refueling emissins
2          LOCFLG
2          TEMFLG - use hourly airshed modeling temperature
3          OUTFMT - print desc
4          PRTFLG - Print HC, CO & NOx
1          IDLFLG
3          NMHFLG - Calculate emissions for volatile organic hydrocarbons.
3          HCFLAG
.699.171.076.018.002.001.031.002                    VMT mix: LDGV,LDGT1,LDGT2,HDGV,LDDV,LDDT,HDDV,MC
 .039 .068 .081 .074 .076 .077 .060 .063 .071 .065  Harris     .LDGV..MY AGES 1-10
 .046 .047 .044 .036 .040 .034 .023 .014 .007 .006  County                    11-20
 .005 .005 .003 .003 .014                                                      21-25
 .059 .077 .079 .076 .076 .067 .049 .059 .061 .063            .LDGT1.MY AGES 1-10
 .039 .048 .043 .026 .035 .035 .024 .018 .009 .009                            11-20
 .008 .008 .006 .005 .022                                                      21-25
 .125 .098 .088 .061 .080 .056 .031 .053 .060 .068            .LDGT2.MY AGES 1-10
 .037 .041 .028 .026 .037 .029 .027 .021 .014 .006                            11-20
 .004 .003 .002 .001 .007                                                      21-25
 .050 .042 .040 .046 .047 .047 .026 .024 .041 .045            .HDGV..MY AGES 1-10
 .023 .064 .057 .052 .057 .047 .034 .024 .037 .033                            11-20
 .026 .018 .016 .014 .090                                                      21-25
 .039 .068 .081 .074 .076 .077 .060 .063 .071 .065            .LDDV..MY AGES 1-10
 .046 .047 .044 .036 .040 .034 .023 .014 .007 .006                           11-20
 .005 .005 .003 .003 .014                                                      21-25
 .059 .077 .079 .076 .076 .067 .049 .059 .061 .063            .LDDT..MY AGES 1-10
 .039 .048 .043 .026 .035 .035 .024 .018 .009 .009                            11-20
 .008 .008 .006 .005 .022                                                      21-25
 .026 .029 .054 .030 .044 .039 .026 .065 .073 .080            .HDDV..MY AGES 1-10
 .027 .051 .098 .056 .065 .069 .036 .023 .017 .038                            11-20
 .018 .008 .005 .006 .018                                                      21-25
 .029 .031 .027 .031 .049 .044 .052 .074 .069 .053            .MC....MY AGES 1-10
```

```
 .045 .495 .000 .000 .000 .000 .000 .000 .000 .000
 .000 .000 .000 .000 .000
004                                                          BER vector
1 7 3 90 90 05.639 00.000                                    HDDV std 90
1 7 3 91 97 04.598 00.000                                    HDDV std 91-97
1 7 3 98 03 03.679 00.000                                    HDDV std 98-03
1 7 3 04 20 01.840 00.000                                    new 2004 H-D Diesel Stds
HAR               B  67. 092.  8.3  7.8 92 1 1 2             LAP
 13.9 29.8 24.4 14.5  7.8  9.6                               trip length dist: AMpk
4 07 63.2 83.9 15.1 14.3 23.3  7                             HWY
01 1                                                         NLEV, start 2001, program credit=1
0000000000000000000000000000000000000000000000000000000000000 END OF FILE
```

```
1Harris County Mock-Up for COAST Redo Phase 1
 MOB5a_H I/M Program Options (Nov-95)

0
-M 49 Warning:
+                1.04     MYR sum not = 1. (will normalize)
-M 49 Warning:
+                1.03     MYR sum not = 1. (will normalize)
-M 49 Warning:
+                1.01     MYR sum not = 1. (will normalize)
-M 49 Warning:
+                1.03     MYR sum not = 1. (will normalize)
-M 49 Warning:
+                1.04     MYR sum not = 1. (will normalize)
-M 49 Warning:
+                1.03     MYR sum not = 1. (will normalize)
-M153 Error:
 Warning: Refueling emissions in grams-per-gallon are only available using the 120 column descriptive output option
(OUTFMT = 3 or 5). See MOBILE5 Users
 Guide chapters 2.1.15, 2.1.19 and 2.1.20 for more information.
0              Emission Factor Modification Profile
+
```

0Equation	Reg	Veh	Pol	First MY	Last MY	Base	DR	Altered
1	1	7	3	1990	1990	11.65	0.00	Yes
2	1	7	3	1991	1997	9.37	0.00	Yes
3	1	7	3	1998	2003	7.49	0.00	Yes
4	1	7	3	2004	2020	3.75	0.00	Yes

```
0I/M program selected:

0    Start year (January 1):              1997
     Pre-1981 MYR stringency rate:         23%
     First model year covered:            1983
     Last model year covered:             2005
     Waiver rate (pre-1981):               1.%
     Waiver rate (1981 and newer):         1.%
     Compliance Rate:                     84.%
     Inspection type:                     Test Only
     Inspection frequency                 Annual
     Vehicle types covered:               LDGV - Yes
                                         LDGT1 - Yes
                                         LDGT2 - Yes
                                          HDGV - Yes
     1981 & later MYR test type:          2500 rpm / Idle
     Cutpoints, HC:  220.000   CO:    1.200   NOx:  999.000
```

0Functional Check Program Description:

0Check Start (Jan1)	Model Yrs Covered	Vehicle Classes Covered LDGV	LDGT1	LDGT2	HDGV	Inspection Type	Freq	Comp Rate
Press 1997	1983-2005	Yes	Yes	Yes	Yes	Test Only	Annual	84.0%
ATP 1984	1983-2005	Yes	Yes	Yes	Yes	Test Only	Annual	84.0%

0Air pump system disablements: Yes
Catalyst removals: Yes
Fuel inlet restrictor disablements: Yes
Tailpipe lead deposit test: Yes
EGR disablement: Yes
Evaporative system disablements: Yes
PCV system disablements: Yes
Missing gas caps: Yes

0HAR

Minimum Temp: 67. (F) Maximum Temp: 92. (F)
Period 1 RVP: 8.3 Period 2 RVP: 7.8 Period 2 Yr: 1992

0VOC HC emission factors include evaporative HC emission factors.

0

0Emission factors are as of July 1st of the indicated calendar year.
LEV phase-in begins in 2001 using (12/1/92) Guidance Memo Credits
0User supplied basic exhaust emissions rates, veh registration distributions.

0Cal. Year: 2007 Region: Low Altitude: 500. Ft.
I/M Program: Yes Ambient Temp: 83.9 / 83.9 / 83.9 F
Anti-tam. Program: Yes Operating Mode: 15.1 / 14.3 / 23.3
Reformulated Gas: Yes ASTM Class: B

0Veh. Type: +	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
Veh. Spd.:	63.2	63.2	63.2		63.2	63.2	63.2	63.2	63.2	
VMT Mix:	0.699	0.171	0.076		0.018	0.002	0.001	0.031	0.002	
ZEV Fract:	0.00%	0.00%								
0Composite Emission Factors (Gm/Mile)										
VOC HC:	0.50	0.58	0.91	0.68	0.86	0.21	0.30	0.94	5.45	0.57
Exhst HC:	0.36	0.44	0.76	0.54	0.38	0.21	0.30	0.94	2.04	0.43
Evap. HC:	0.08	0.09	0.09	0.09	0.42				2.80	0.10
Refuel HC:	0.00	0.00	0.00	0.00	0.00					0.00
Runing HC:	0.02	0.02	0.02	0.02	0.02					0.02
Rsting HC:	0.03	0.03	0.03	0.03	0.04				0.61	0.03
Exhst CO:	4.92	6.20	9.84	7.32	10.54	0.76	0.85	6.48	25.01	5.69
Exhst NOX:	1.53	1.80	2.99	2.17	5.22	1.71	1.92	11.47	1.59	2.06

1Other Counties (non-Harris): Mock-Up for COAST Redo Phase 1
MOB5a_H I/M Program Options (Nov-95)

0
-M 49 Warning:
+ 1.00 MYR sum not = 1. (will normalize)
-M 49 Warning:
+ 1.00 MYR sum not = 1. (will normalize)
-M 49 Warning:
+ 1.00 MYR sum not = 1. (will normalize)
-M 49 Warning:
+ 1.00 MYR sum not = 1. (will normalize)
-M 49 Warning:
+ 1.00 MYR sum not = 1. (will normalize)
-M 49 Warning:
+ 1.00 MYR sum not = 1. (will normalize)
-M 49 Warning:
+ 0.999 MYR sum not = 1. (will normalize)
0 Emission Factor Modification Profile
+

0Equation	Reg	Veh	Pol	First MY	Last MY	Base	DR	Altered
1	1	7	3	1990	1990	11.65	0.00	Yes
2	1	7	3	1991	1997	9.37	0.00	Yes
3	1	7	3	1998	2003	7.49	0.00	Yes
4	1	7	3	2004	2020	3.75	0.00	Yes

0HAR Minimum Temp: 67. (F) Maximum Temp: 92. (F)
Period 1 RVP: 8.3 Period 2 RVP: 7.8 Period 2 Start Yr: 1992
0VOC HC emission factors include all evaporative HC emission factors, except for refueling emissions.
0

0Emission factors are as of July 1st of the indicated calendar year.
LEV phase-in begins in 2001 *NOT* using (12/1/92) Guidance Memo Credits
0User supplied basic exhaust emissions rates, veh registration distributions.
0Cal. Year: 2007 I/M Program: No Ambient Temp: 83.9 / 83.9 / 83.9 (F) Region: Low
Anti-tam. Program: No Operating Mode: 15.1 / 14.3 / 23.3 Altitude: 500. Ft.
Reformulated Gas: Yes ASTM Class: B

0 Veh. Type:	LDGV	LDGT1	LDGT2	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
+										
Veh. Speeds:	63.2	63.2	63.2		63.2	63.2	63.2	63.2	63.2	
VMT Mix:	0.699	0.171	0.076		0.018	0.002	0.001	0.031	0.002	
ZEV Fract:	0.00 %	0.00 %								
0Composite Emission Factors (Gm/Mile)										
VOC HC:	0.79	0.95	1.06	0.98	1.44	0.22	0.30	0.94	5.94	0.865
Exhaust HC:	0.61	0.74	0.88	0.79	0.54	0.22	0.30	0.94	2.21	0.662
Evaporat HC:	0.13	0.15	0.13	0.14	0.80				3.06	0.145
Refuel L HC:	0.00	0.00	0.00	0.00	0.00					0.000
Runing L HC:	0.02	0.02	0.02	0.02	0.04					0.022
Rsting L HC:	0.04	0.04	0.03	0.03	0.06				0.67	0.036
Exhaust CO:	8.53	10.52	11.91	10.95	17.23	0.77	0.85	6.66	25.78	9.235
Exhaust NOX:	2.04	2.35	2.84	2.50	5.77	1.75	1.93	12.73	1.59	2.550

0Evaporative Emissions by Component — Weathered RVP: 6.7 — Hot Soak Temp: 83.9 (F)

(Hot Soak: g/trip, Diurnals: g, Crankcase: g/mi, Refuel: g/gal, Resting: g/hr) — Running Loss Temp: 83.9 (F)

Resting Loss Temp: 83.9 (F)

Hot Soak	0.51	0.55	0.55	0.55	2.44				8.64	
WtDiurnal	1.62	2.18	2.13	2.16	13.53				8.65	
Multiple	3.54	3.67	3.48	3.61	21.55					
Crankcase	0.01	0.01	0.01	0.01	0.01				0.00	
Refuel	0.00	0.00	0.00	0.00	0.00					
Resting	0.04	0.04	0.04	0.04	0.07				0.19	