UTAH STATE DEPARTMENT OF HEALTH
Division of Environmental Health
Bureau of Air Quality
PM10 S.I.P
Winter of 88/89 Emissions Inventory - Salt Lake & Davis Counties

(1) Area source emissions (Tons/Month)

A> Vehicular	PM_{10}	SO_2	NO_x	TOTAL	Annual-> Winter Month Conversion Factor		1988 ACTUAL (Tons/Year) PM_{10}	SO_2	NO_x	Total
Unleaded	9.3	23.5	262.5	295.3						
Leaded	15.1	38.1	425.5	478.7						
Diesel	51.8	157.6	693.6	903.0						
Roaddust	826.2	0.0	0.0	826.2						
Roadsanding	26.1	0.0	0.0	26.1						
Roadsalt	135.6	0.0	0.0	135.6						
Brake wear	36.7	0.0	0.0	36.7						
Sub-Total	1100.9	219.2	1381.6	2701.7						
B> Other transportation										
Trains	7.4	14.3	93.1	114.8	0.0833	88.4	172.1	1117.1	1377.6	
Airplanes	6.8	9.5	79.8	96.0	0.0833	81.4	113.7	957.5	1152.5	
Sub-Total	14.2	23.8	172.9	210.8		169.9	285.8	2074.6	2530.2	
C> Space Heating										
Wood Burning	334.6	4.5	31.2	370.3	0.18	1890.5	25.2	176.4	2092.1	
Coal burning	12.3	46.2	6.0	64.5	0.18	69.5	261.1	33.6	364.2	
Natural Gas	17.3	2.2	363.7	383.2	0.18	97.6	12.3	2054.9	2164.8	
Res/Comm Oil & Others	4.6	120.0	45.7	170.3	0.18	25.7	677.9	258.3	961.9	
Sub-Total	368.7	172.8	446.6	988.2		2083.3	976.5	2523.2	5583.0	

(2) Major Source Inventory - Salt Lake and south Davis county

COMPANY NAME	January 1989 monthly inventory (Tons/Month) PM_{10}	SO_2	NO_x	TOTAL
AMOCO	8.9	668.9	33.7	711.5
ASPHALT MATERIALS asphalt plant	0.0	0.0	0.0	0.0
ASPHALT MATERIALS crusher	0.0	0.0	0.0	0.0
BOUNTIFUL CITY POWER	0.0	0.1	1.9	2.0
CENTRAL VALLEY WATER	0.0	0.4	17.6	18.1
CHEVRON	15.2	200.0	98.2	313.4
CPC #2 HOBUSCH 9400 SO. 1100 EAST	0.1	0.0	0.2	0.3
CPC #3 2200 NO. BOUNTIFUL	0.1	0.0	0.2	0.3
CPC WALKER WASATCH BLVD.	0.0	0.0	0.0	0.0
"CPC WHITEHILL PIT, BOUNTIFUL"	1.1	0.0	0.4	1.5
CRYSEN	0.2	0.1	10.6	11.0
FLYING J	1.9	27.6	21.1	50.6
GENEVA ROCK 350 W. 3900 SO.	0.3	0.0	0.1	0.5
GENEVA ROCK PT. OF MT.	3.4	0.0	0.0	3.4
HARPER PIT #1	0.0	0.0	0.0	0.0
HARPER PIT #10	0.0	0.0	0.0	0.0
HARSHAW FILTROL	1.5	1.0	5.0	7.5
HERCULES	26.5	0.1	20.1	46.7
INTERSTATE BRICK	4.5	0.0	0.2	4.7

(2) Major Source Inventory - Salt Lake and south Davis County (Cont'd)

COMPANY NAME	January 1989 monthly inventory (Tons/Month)			
	PM_{10}	SO_2	NO_x	TOTAL
KMC BARNEY'S	0.0	0.0	0.0	0.0
KMC BONN CRUSHER	19.9	0.0	0.0	19.9
KMC COPP CONC.	0.2	9.6	1.3	11.1
KMC MINE	275.6	52.0	337.3	664.9
KMC POWER PLANT	19.8	342.0	250.9	612.7
KMC REFINERY	0.9	0.5	3.0	4.4
KMC TALL STACK	42.9	5580.0	0.0	5622.9
KMC LOW LEVEL FUG.	69.1	1004.4	12.0	1085.5
LDS HOSPITAL	0.7	9.6	5.9	16.2
LDS WELFARE SQ.	1.0	0.2	0.2	1.3
LONE STAR	0.0	0.0	0.0	0.0
MONROC BECK ST.	5.0	0.0	0.0	5.0
MONROC COTTONWOOD	0.1	0.0	0.5	0.7
MORTON SALT	2.0	0.0	0.5	2.5
MOUNTAIN BELL	0.0	0.0	0.1	0.1
MOUNTAIN FUEL 100S 180W.	0.2	0.1	5.2	5.5
MOUNTIAN FUEL 100S. 1078 W.	0.1	0.0	2.6	2.8
MURRAY CITY POWER	0.0	0.0	0.5	0.5
OSTLER ROCKY MOUNTAIN	2.1	0.0	0.5	2.6
PARSONS KERNS	0.0	0.0	0.0	0.1
PARSONS WOODSCROSS	0.1	0.0	0.3	0.4
PHILLIPS	10.0	508.6	58.1	576.7
PIONEER SAND & GRAVEL	0.0	0.0	0.0	0.0
SALT LAKE CITY ASPHALT	0.0	0.0	0.0	0.0
SALT LAKE CO. ASPHALT	0.1	0.0	0.1	0.2
SALT LAKE VALLEY SAND & GRAVEL	0.0	0.0	0.0	0.0
SAVAGE ROCK 6200S. 3100EAST	0.0	0.0	0.2	0.2
STAKER BECK ST.	5.8	0.0	0.0	5.8
STAKER DRAPER	0.0	0.0	0.0	0.0
STAKER WEST PIT	0.0	0.0	0.0	0.0
U OF U	27.2	47.0	30.8	105.0
UNION PACIFIC RESOURCES	4.3	0.1	0.6	5.0
UP&L 40N. 100W.	0.1	0.0	2.4	2.5
UP&L GADSBY	0.0	0.0	0.0	0.0
UTAH METAL WORKS	0.6	0.0	0.0	0.7
VA HOSPITAL	0.0	0.0	0.8	0.9
W.W. & W.B. GARDNER	0.8	0.0	0.0	0.8
WOLF EXCAVATING	0.6	0.0	0.4	1.0
Sub-Total	553.2	8452.5	923.6	9929.3

(3) Totals for all catagories	PM_{10}	SO_2	NO_x	Total	Percent Breakout PM_{10}	SO_2	NO_x	Total
A> Vehicular	1100.9	219.2	1381.6	2701.7	54.0	2.5	47.2	19.5
B> Other transportation	14.2	23.8	172.9	210.8	0.7	0.3	5.9	1.5
C> Space Heating	368.7	172.8	446.6	988.2	18.1	1.9	15.3	7.1
D> Point sources	553.2	8452.5	923.6	9929.3	27.2	95.3	31.6	71.9
Grand Totals	2036.9	8868.3	2924.7	13830.0	100.0	100.0	100.0	100.0

(4) Composite automobile profile breakout:

Fuel Type	Conditions	% in profile
Leaded	Cold Start	5.5
Leaded	Hot, normal	25.3
Unleaded	Cold start	3.4
Unleaded	Hot, normal	15.6
Diesel	Cold start	9.0
Diesel	Hot, normal	41.2
Total		100.0

(5) EXPECTED REDUCTIONS IN VEHICULAR NO_x:

Mobile 4 was run in order to obtain a fleet emission factor for both the base year of 1988, and for future years as the fleet turns over with newer "low NO_x" vehicles replacing older "high NO_x" vehicles. The following is a listing of the emission fctors predicted by the model. NO_x control applied to the control strategy reflects the percentage of decrease in the emission factor relative to the base year factor of 1988. It should be noted that these emission factors reflect an average
speed of 35 miles per hour.

1988	2.33 g/vmt	1994	1.623 g/vmt	2000	1.069 g/vmt
1989	2.19 g/vmt	1995	1.490 g/vmt	2001	0.990 g/vmt
1990	2.07 g/vmt	1996	1.38 g/vmt	2002	0.930 g/vmt
1991	1.93 g/vmt	1997	1.290 g/vmt	2003	0.900 g/vmt
1992	1.809 g/vmt	1998	1.205 g/vmt	2004	0.860 g/vmt
1993	1.72 g/vmt	1999	1.120 g/vmt	2005	0.854 g/vmt

UTAH STATE DEPARTMENT OF HEALTH
Bureau of Air Quality
Control Strategy Worksheet

Date: 25-Jun-91

INVENTORY DATA TO DEMONSTRATE CONTROL FOR 24 HOUR STANDARD: POST-SIP ALLOWABLE EMISSIONS

Tons Per Year (Annual)

	PM-10	SOx	NOx	TOTAL
AMOCO	113.0	2,013.0	688.0	2,814.0
ASPHALT MATERIALS asphalt plant	2.7	0.1	2.9	5.7
ASPHALT MATERIALS crusher	10.2	0.0	0.0	10.2
BOUNTIFUL CITY POWER	1.1	6.0	250.0	257.1
CENTRAL VALLEY WATER	0.7	4.0	203.7	208.3
CHEVRON	175.0	2,578.2	1,021.6	3,774.8
CPC #2 HOBUSCH 9400 SO. 1100 EAST	33.4	0.9	8.3	42.6
CPC #3 2200 NO. BOUNTIFUL	15.5	0.2	2.0	17.7
CPC WALKER WASATCH BLVD.	34.7	1.3	17.4	53.4
CPC WHITEHILL PIT ORCH DR. BOUNTIFUL	48.0	0.9	9.8	58.7
CRYSEN	2.7	206.0	156.0	364.7
FLYING J	22.0	864.6	278.7	1,165.3
GENEVA ROCK 350 W. 3900 SO.	4.5	0.5	5.3	10.3
GENEVA ROCK PT. OF MT.	81.0	9.6	21.4	112.0
HARPER PIT #1	7.8	1.9	18.4	28.1
HARPER PIT #10	16.3	1.6	17.9	35.8
HARSHAW FILTROL	34.9	31.5	94.5	160.9
HERCULES	318.1	1.5	240.9	560.5
INTERSTATE BRICK	95.9	0.0	46.5	142.4
KMC BARNEY'S	159.5	23.4	216.1	399.0
KMC BONN CONC.	234.1	0.0	0.0	234.1
KMC COPP CONC.	5.0	114.9	20.6	140.5
KMC MINE	2,801.0	78.0	4,048.1	6,927.1
KMC POWER PLANT	257.3	6,219.3	5,085.3	11,561.9
KMC REFINERY	51.9	162.6	121.0	335.5
KMC TALL STACK	876.0	14,191.2	0.0	15,067.2
KMC LOW LEVEL FUG.	464.0	4,383.8	145.0	4,992.8
LDS HOSPITAL	6.2	156.9	74.3	237.3
LDS WELFARE SQ.	11.2	0.5	1.4	13.0
LONE STAR	111.0	200.0	762.0	1,073.0
MONROC BECK ST.	69.5	8.0	17.2	94.7
* MONROC KEARNS	21.4	0.6	7.6	29.7
MORTON SALT	49.1	0.9	18.3	68.3
MOUNTAIN BELL	0.3	0.5	3.9	4.7
MOUNTAIN FUEL 100S 180W.	2.5	1.4	71.1	75.0
MOUNTIAN FUEL 100S. 1078 W.	1.1	0.4	31.2	32.7
MURRAY CITY POWER	1.6	2.4	250.0	254.0
OSTLER ROCKY MOUNTAIN	5.8	0.0	3.8	9.6
PARSONS KERNS	4.9	0.4	4.6	9.9
PARSONS WOODSCROSS	6.9	0.4	4.6	11.9
PHILLIPS	160.9	2,016.0	693.0	2,869.0
PIONEER SAND & GRAVEL	21.8	0.9	9.1	31.8
SALT LAKE CITY ASPHALT	5.3	0.1	5.7	11.1
SALT LAKE CO. ASPHALT	29.3	0.6	12.8	42.7
SALT LAKE VALLEY SAND & GRAVEL	43.9	13.9	21.4	79.2
SAVAGE ROCK 6200S. 3100EAST	28.5	1.2	14.1	43.8
STAKER BECK ST.	54.5	34.6	58.6	147.7

Table 9.A.13 (page 4 of 6)

STAKER DRAPER	13.4	1.1	16.5	31.0
STAKER WEST PIT	13.3	1.1	16.5	30.9
U OF U	74.3	219.3	245.8	539.4
UNION PACIFIC RESOURCES	28.1	1.5	15.3	44.9
UP&L 40N. 100W.	2.0	0.2	54.8	57.0
UP&L GADSBY	61.3	67.7	2,983.0	3,112.0
UTAH METAL WORKS	4.3	0.0	1.0	5.3
VA HOSPITAL	0.5	0.0	9.9	10.4
W.W. & W.B. GARDNER	24.1	6.2	13.0	43.2
WOLF EXCAVATING	3.3	0.3	3.4	7.0
TOTALS:	6,726.4	33,632.0	18,143.1	58,501.5

Table 9.A.13 (page 5 of 6)

UTAH STATE DEPARTMENT OF HEALTH
Division of Environmental Health
Bureau of Air Quality
PM10 S.I.P.
Control Strategy Worksheet

Date: 25-Jun-91

INVENTORIED EMISSIONS FROM 1988:	PM-10	SOx	NOx	TOTAL
FROM INDUSTRY:	5,619.4	95,702.1	10,967.6	112,289.1
FROM VEHICLES:	13,210.5	2,630.0	16,579.3	32,419.8
FROM SPACE HEATING:	2,083.3	976.5	2,523.2	5,583.0
FROM OTHERS:	169.9	285.8	2,074.6	2,530.2
TOTALS:	21,083.0	99,594.4	32,144.7	152,822.1

ITEMIZED PERCENTAGES OF REDUCTION:	PM-10	SOx	NOx	TOTAL
FROM INDUSTRY:	-19.70%	64.86%	-65.42%	47.90%
FROM VEHICLES:	-2.57%	41.49%	34.50%	19.96%
FROM SPACE HEATING:	47.93%	-19.56%	-19.56%	5.62%
FROM OTHERS:	0.00%	0.00%	0.00%	0.00%

PROJECTED ANNUAL EMISSIONS TOTALS:	PM-10	SOx	NOx	TOTAL
FROM INDUSTRY:	6,726.4	33,632.0	18,143.1	58,501.5
FROM VEHICLES:	13,550.0	1,538.8	10,859.4	25,948.2
FROM SPACE HEATING:	1,084.8	1,167.5	3,016.8	5,269.2
FROM OTHERS:	169.9	285.8	2,074.6	2,530.2
TOTALS:	21,531.1	36,624.1	34,093.8	92249.1

OVERALL PERCENTAGE OF REDUCTION:

EQUALS .....((INVENTORIED 1988 TOTAL) - (PROJECTED ANNUAL TOTAL)) / (INVENTORIED 1988 TOTAL)

EQUALS ..... A 39.64% REDUCTION FROM 1988 LEVELS

APPLICATION TO ANNUAL DESIGN VALUE: 56.0 ug/m^3 * (100 - 39.64) / 100 = 33.80 ug/m^3

COMPARISON WITH ANNUAL NATIONAL AMBIENT AIR QUALITY STANDARD: 33.80 ug/m^3 IS LESS THAN 50.0 ug/m^3

Table 9.A.13 (page 6 of 6)