

Common Sense Initiative, Automobile Manufacturing Sector

*U.S. Automobile Assembly Plants and Their Communities:
Environmental Economic, and Demographic Profile*

**Part III: Automobile/Light Duty Truck Assembly
Plant-Community Profiles**

**25. General Motors
Lake Orion, MI**

December 1997

Contents and Guidelines for Use

Users of this profile should carefully review the description of methods, data limitations, and guidelines for use and interpretation of the data presented in Part I of the report.

Contents:

Plant Locations (National and Michigan maps)
Plant Location, Database Identification Numbers, 1994 Production and Employment
1991 and 1993 RCRA Biennial Report Summary
1991-1994 TRI Releases and Transfers Summary
1994 TRI Releases and Transfers by Chemical
1991-1994 Volatile Organic Compound and Nitrogen Oxide Emissions
1994 Summary of TRI Chemical Releases and Transfers from Sources within 3 Miles of Assembly Plant
Air Quality Attainment Status for Criteria Pollutants (as of 1994)
Community Demographic and Economic Characteristics
Facility Location (map)
Area Wide 1994 TRI Emission Profile (map)
1994 TRI Releases and Transfers from Sources within 3 Miles of Assembly Plant, by Chemical
Demographic Characteristics (maps)

General Guidelines for Use

Efforts have been made to ensure that the data presented here are accurate. The Project Team could not independently verify data accuracy in all cases, however, and some errors may remain. The following is a partial list of factors that should be considered in using these profiles:

1. Current releases presented in this report represent only some of the contamination sources in a given area. Data on historical releases (prior to 1991) were not included, and releases from non-assembly plant emission sources were identified only through the Toxics Release Inventory (TRI). TRI data do not cover all sources of releases. Considering only TRI data for a given community may mis-state the relative contribution of plants and their neighboring TRI facilities to an area's total releases.
2. Care must be taken to distinguish true changes over time in environmental releases from apparent changes, due, for example, to changes in the scope of reporting requirements.
3. TRI data are often based on engineering estimates and are reported on an annual basis. Data on releases over shorter time frames are not available.
4. TRI, the Biennial Report and other databases do not include all substances and environmental releases of concern.

Notes on Comparisons Across Facilities

1. The following factors can affect an assembly plant's environmental profile, among other things: the number of vehicles produced, plant age, process equipment age, and vehicle size and configuration.
2. Some plants are highly-integrated, performing some parts and all assembly steps in-house. Others obtain parts from other manufacturing facilities, or share assembly operations with another plant.
3. States differ in how they define hazardous waste and how they treat recycled wastes and small quantity generators. Therefore, data on quantities of BRS wastes generated may not be comparable for plants located in different states.
4. Area-wide averages for economic and demographic characteristics may be better or worse measures of the plant's immediate community, depending on the specific location of a plant within the reporting area.

**Plant-Community Profile:
General Motors
Lake Orion MI**

12/2/97

LOCATION	Address	4555 Giddings Rd., Lake Orion MI 48359		DESCRIPTION	Produced Buick Rivera, Olds Aurora, Olds 88 & 98, and Pontiac Bonneville in 1994.	
	Lat/Long:	latitude (degrees N)	42 43' 10"		ID NUMBERS	RCRA ID
		longitude (degrees W)	83 15' 13"	AIRS ID		AFS2612500260
	County:	Oakland	MSA:	Detroit MI	NPDES ID	MI0042099
	Other counties within 3 miles of plant:			none	TRI	48055GNRLM4555G
OPERATIONS		Production	Employment			
	Calendar Year: 1991	235,585				
	1992	149,232				
	1993	128,861				
	1994	233,227	5,557			

PLANT ENVIRONMENTAL PROFILE

RCRA BIENNIAL REPORT

<i>Waste Code(s)</i>	<i>Wastewater?</i>	<i>Physical Form</i>	<i>Source</i>	<i>Mgd. On/Off-Site</i>	<i>Management Method</i>	<i>Quantity Generated (tons)</i>	<i>Quantity Shipped (tons)</i>	<i>Quantity Mgd. On-Site (tons)</i>
<i>1991</i>								
D001 (ignitable)	N	B203 org. liquids	A59 1x/intermittent	Off	M029 solvents recov.	7.9	7.9	0.0
D001 (ignitable)	N	B203 org. liquids	A73 solvents recovery	Off	M029 solvents recov.	92.0	92.0	0.0
D001 (ignitable)	N	B210 org. liquids	A58 1x/intermittent	Off	M041 incineration	1.1	1.1	0.0
D001 (ignitable)	N	B219 org. liquids	A57 1x/intermittent	Off	M041 incineration	0.9	0.9	0.0
D001 (ignitable)	N	B409 org. solids	A09 clean out equip	Off	M043 incineration	8.2	8.2	0.0
D001 (ignitable)	N	B409 org. solids	A09 clean out equip	Off	M061 fuel blending	5.9	5.9	0.0
D001, D005, D035	N	B203 org. liquids	A73 solvents recovery	Off	M029 solvents recov.	805.5	805.5	0.0
D008 (lead)	N	B210 org. liquids	A53 1x/intermittent	Off	M111 stabilization	2.5	2.5	0.0
D008 (lead)	N	B310 inorg. solids	A71 poll cntl/waste trt	Off	M111 stabilization	20.7	20.7	0.0
D008 (lead)	N	B504 inorg. sludges	A75 wastewater trt	Off	M111 stabilization	39.1	39.1	0.0
F002 (halog. solvents) D001 (ignitable)	N	B202 org. liquids	A01 stripping	Off	M029 solvents recov.	50.6	50.6	0.0
F002 (halog. solvents) D001 (ignitable)	N	B202 org. liquids	A01 stripping	Off	M041 incineration	2.8	2.8	0.0
F003, D001, D006, D007, D010, D035	N	B203 org. liquids	A73 solvents recovery	Off	M029 solvents recov.	313.1	313.1	0.0
F019 (WWT sludges)	N	B504 inorg. sludges	A24 phosphating	Off	M111 stabilization	6.1	6.1	0.0
F019 (WWT sludges)	N	B504 inorg. sludges	A75 wastewater trt	Off	M132 landfill	18.7	18.7	0.0
TOTAL - 1991						1,375.2	1,375.2	0.0

**Plant-Community Profile:
General Motors
Lake Orion MI**

12/2/97

PLANT ENVIRONMENTAL PROFILE (continued)

RCRA BIENNIAL REPORT (continued)

<i>Waste Code(s)</i>	<i>Wastewater?</i>	<i>Physical Form</i>	<i>Source</i>	<i>Mgd. On/Off-Site</i>	<i>Management Method</i>	<i>Quantity Generated (tons)</i>	<i>Quantity Shipped (tons)</i>	<i>Quantity Mgd. On-Site (tons)</i>
<i>1993</i>								
D001 (ignitable)	N	B203 org. liquid	A73 solvents recovery	Off	M051 energy recov.	66.7	66.7	0.0
D001 (ignitable)	N	B210 org. liquid	A58 1x/intermittent	Off	M043 incineration }	4.3	0.3	0.0
D001 (ignitable)	N	B210 org. liquid	A58 1x/intermittent	Off	M053 energy recov. }		7.6	0.0
D001 (ignitable)	N	B219 org. liquid	A09 clean out equip	Off	M041 incineration	3.9	3.9	0.0
D001 (ignitable)	N	B409 org. solids	A09 clean out equip	Off	M043 incineration	8.3	8.3	0.0
D001, D008, D018	N	B203 org. liquid	A59 1x/intermittent	Off	M051 energy recov.	3.0	3.0	0.0
D001, D039, D040	N	B203 org. liquid	A73 solvents recovery	Off	M021 solvents recov.	122.2	122.2	0.0
D001, D039, D040	N	B203 org. liquid	A73 solvents recovery	Off	M022 solvents recov.	71.6	71.6	0.0
D008 (lead)	Y	B113 inorg liquid	A53 1x/intermittent	Off	M111 stabilization	27.9	27.9	0.0
D008 (lead)	N	B310 inorg. solids	A32 product filtering	Off	M111 stabilization	7.9	7.9	0.0
F002 (halog. solvents)	N	B202 org. liquid	A58 1x/intermittent	Off	M051 energy recov.	1.5	1.5	0.0
F003, D001, D006, D010, D035, D039	N	Not rep't	Not rep't	Off	M029 solvents recov.	33.2	33.2	0.0
F003, D001, D006, D010, D035, D039	N	Not rep't	Not rep't	Off	M051 energy recov.	195.2	195.2	0.0
F019	N	B504 inorg sludges	A75 wastewater trt	Off	M111 stabilization	58.1	58.1	0.0
F019	N	B504 inorg sludges	A75 wastewater trt	Off	M132 landfill	447.6	447.6	0.0
TOTAL - 1993						1,051.5	1,055.1	0.0

TOXICS RELEASE INVENTORY

<i>Total lbs of TRI chemicals:</i>	<i>Air-Fugitive Emissions</i>	<i>Air-Stack Emissions</i>	<i>Total Releases</i>	<i>Discharge to POTW</i>	<i>Off-Site Energy Recovery</i>	<i>Off-Site Recycling</i>	<i>Off-Site Treatment</i>	<i>Off-Site Disposal</i>	<i>Total Transfers</i>
1991	330,542	1,592,100	1,922,642	44,800	75,100	845,774	5,449	37,524	1,008,647
1992	317,019	1,534,110	1,851,129	1,070	16,300	329,911	21,454	12,095	380,830
1993	177,624	953,879	1,131,503	1,522	2,060	315,887	6,637	39,435	365,541
1994	154,412	1,024,101	1,178,513	983	116,755	38,324	2,551	38,901	197,514
Lbs. per vehicle produced:									
1991	1.40	6.76	8.16	0.19	0.32	3.59	0.02	0.16	4.28
1992	2.12	10.28	12.40	0.01	0.11	2.21	0.14	0.08	2.55
1993	1.38	7.40	8.78	0.01	0.02	2.45	0.05	0.31	2.84
1994	0.66	4.39	5.05	0.00	0.50	0.16	0.01	0.17	0.85

**Plant-Community Profile:
General Motors
Lake Orion MI**

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PLANT ENVIRONMENTAL PROFILE (continued)

1994 TRI Emissions/Releases by Chemical (lbs.)

<i>Chemical Name</i>	<i>Air-Fugitive Emissions</i>	<i>Air-Stack Emissions</i>	<i>Total Releases</i>	<i>Discharge to POTW</i>	<i>Off-Site Energy Recovery</i>	<i>Off-Site Recycling</i>	<i>Off-Site Treatment</i>	<i>Off-Site Disposal</i>	<i>Total Transfers</i>
METHANOL	800	7,600	8,400	0	4	300	290	120	714
N-BUTYL ALCOHOL	1,100	14,000	15,100	0	0	0	0	0	0
BENZENE	230	2,200	2,430	0	1	7	0	0	8
DICHLORODIFLUOROMETHANE	12	0	12	0	0	0	0	0	0
METHYL ETHYL KETONE	31,000	1	31,001	0	0	44	1,500	2	1,546
ETHYLENE GLYCOL	0	0	0	0	0	0	460	0	460
METHYL ISOBUTYL KETONE	77,000	710,000	787,000	0	110,000	28,000	0	12	138,012
TOLUENE	20,000	1,300	21,300	63	300	53	1	350	767
XYLENE (MIXED ISOMERS)	20,000	110,000	130,000	120	850	920	300	53	2,243
COPPER	0	0	0	0	0	0	0	33,031	33,031
HYDROCHLORIC ACID	0	130,000	130,000	0	0	0	0	0	0
PHOSPHORIC ACID	870	0	870	0	0	0	0	0	0
GLYCOL ETHERS	3,400	49,000	52,400	0	5,600	9,000	0	2,640	17,240
NICKEL COMPOUNDS	0	0	0	800	0	0	0	961	1,761
ZINC COMPOUNDS	0	0	0	0	0	0	0	1,732	1,732
TOTAL	154,412	1,024,101	1,178,513	983	116,755	38,324	2,551	38,901	197,514

**VOC/NOx Emissions:
(lbs/year)**

	<i>VOCs</i>	<i>NO2</i>
1990	4,815,836	779,392
1991	4,582,474	783,560
1992	4,198,708	1,607,486
1993	1,877,728	859,910
1994	3,348,834	971,430

**Plant-Community Profile:
General Motors
Lake Orion MI**

12/2/97

COMMUNITY ENVIRONMENTAL PROFILE

TRI Chemical Releases & Transfers from Sources Within 3 Miles of Auto/LDT Plant (lbs.)

<i>Facility (w. map #)</i>	<i>Air-Fugitive Emissions</i>	<i>Air-Stack Emissions</i>	<i>Total Releases</i>	<i>Discharge to POTW</i>	<i>Off-Site Transfers</i>	<i>Total Transfers</i>
1 HARRY S. PETERSON CO. INC.	12	0	12	0	0	0
3 SPECIALTY SYSTEMS INC.	2,250	0	2,250	0	505	505
4 AUTOMOTIVE PRODS. USA INC.	0	0	0	0	26,933	26,933
5 BECKER GROUP	21	16,003	16,024	0	12	12
Total	2,283	16,003	18,286	0	27,450	27,450

**Air Quality Attainment Status
(as of 1994)**

ozone - nonattainment (moderate)*
carbon monoxide - attainment or unclassifiable
particulates - unclassifiable
lead - unclassifiable
NO2 - cannot be classified or better than national standards
SO2 - attainment

* redesignated attainment effective 4/6/95 (60 FR 12459)

**Plant-Community Profile:
General Motors
Lake Orion MI**

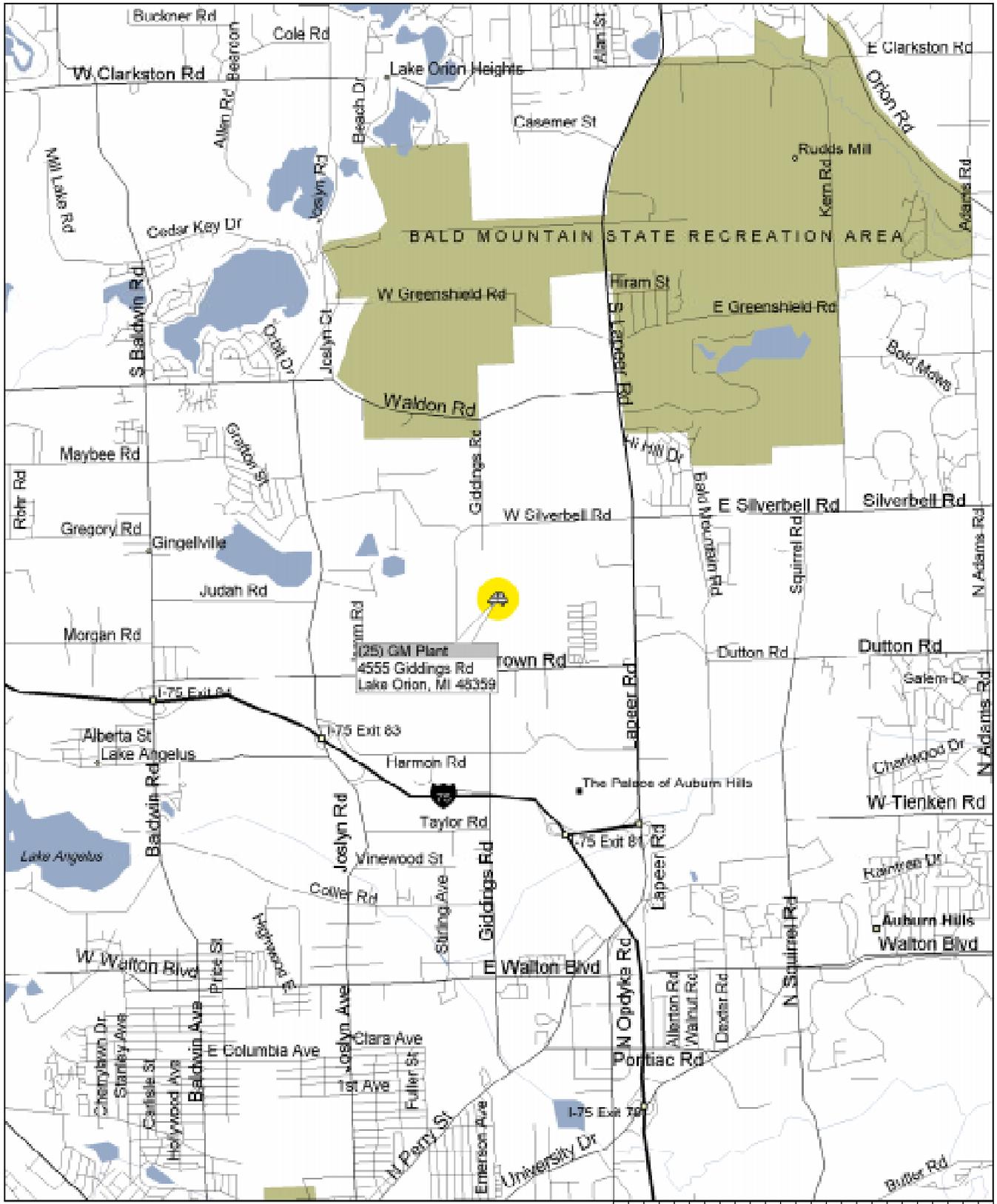
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COMMUNITY DEMOGRAPHIC AND ECONOMIC CHARACTERISTICS

	<i>Census Block</i>	<i>0-1 Mile</i>	<i>0-3 Miles</i>	<i>1-3 Miles</i>	<i>3-5 Miles</i>	<i>County</i>	<i>State</i>	<i>U.S.</i>
Total Population (1994)	NA	NA	NA	NA	NA	1,142,013	9,496,539	260,340,990
Total Population (1990)	851	905	18,590	17,685	60,186	1,083,592	9,295,297	248,709,873
% Change 1990-1994	NA	NA	NA	NA	NA	5	2	5
Total Area (sq. mi.) (1990)	2.6	3.1	28.2	25.1	50.2	872.7	56,809.2	3,536,278.1
Population/sq. mi. (land area) (1990)	323	289	682	733	1,345	1,242	164	70
Median Household Income (1994)						NA	35,284	32,264
Median Household Income (1989)						43,407	31,020	30,056
% Change 1979-1989 (constant \$)						2	-4	7
% Change 1989-1994 (constant \$)						NA	14	7
Per Capita Personal Income (1993)						29,781	20,584	20,800
Per Capita Personal Income (1989)						26,193	17,546	17,690
% Change 1989-1993 (current \$)						14	17	18
Minority Percentage (1990)	2	1	7	8	15	10	16	20
Pct. of Households Below Poverty Level (1989)	10	6	6	6	14	12	23	20
Pct. Not Completing High School (1990)	30	25	15	14	19	15	23	25
Total Employment (1994) (civilian nonfarm)						624,067	4,753,000	131,056,000
Unemployment Rate (1994)						4	6	6
Manufacturing Employment (1993)						104,973	906,672	18,183,381
Mfgr. as % Total Employment (1993)						17	26	19
Manufacturing Employment (1992)						105,500	917,000	18,253,000
Production Workers (1992)						59,600	574,000	11,654,000
% Change in Mfgr. Employment 1987-1992						-5	-7	-4
Assembly Plant as % Total Mfgr. Workers						5		

Data sources used were not always complete or current.
Attempts have been made to verify data, but errors may still exist.

Lake Orion, MI, GM Plant



Microsoft MapData
Streets98

GENERAL MOTORS CORP
4555 GIDDINGS RD
ORION MI
Tri Number: 48055GNRLM4555G

Map #	SIC	Name	Address	City	State
0	3711	GMC CADILLAC CAR DIV./ORION PLANT	4555 GIDDINGS RD.	LAKE ORION	MI
1	2821	HARRY S. PETERSON CO. INC.	4150 S. LAPEER RD.	ORION	MI
3	2899	SPECIALTY SYSTEMS INC.	4520 GLENEMADE LN.	AUBURN HILLS	MI
4	3714	AUTOMOTIVE PRODS. USA INC.	4000 PINACLE CT.	AUBURN HILLS	MI
5	3089	BECKER GROUP	3800 LAPEER RD.	AUBURN HILLS	MI

AREA WIDE 1994 TRI EMISSION PROFILE

GENERAL MOTORS CORP
OAKLAND COUNTY, Michigan

Latitude: 42 43 10
Longitude: 83 15 13



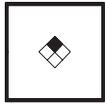
Map Key:
Auto
Plant
Truck



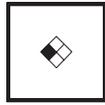
Air
Release



Land
Release

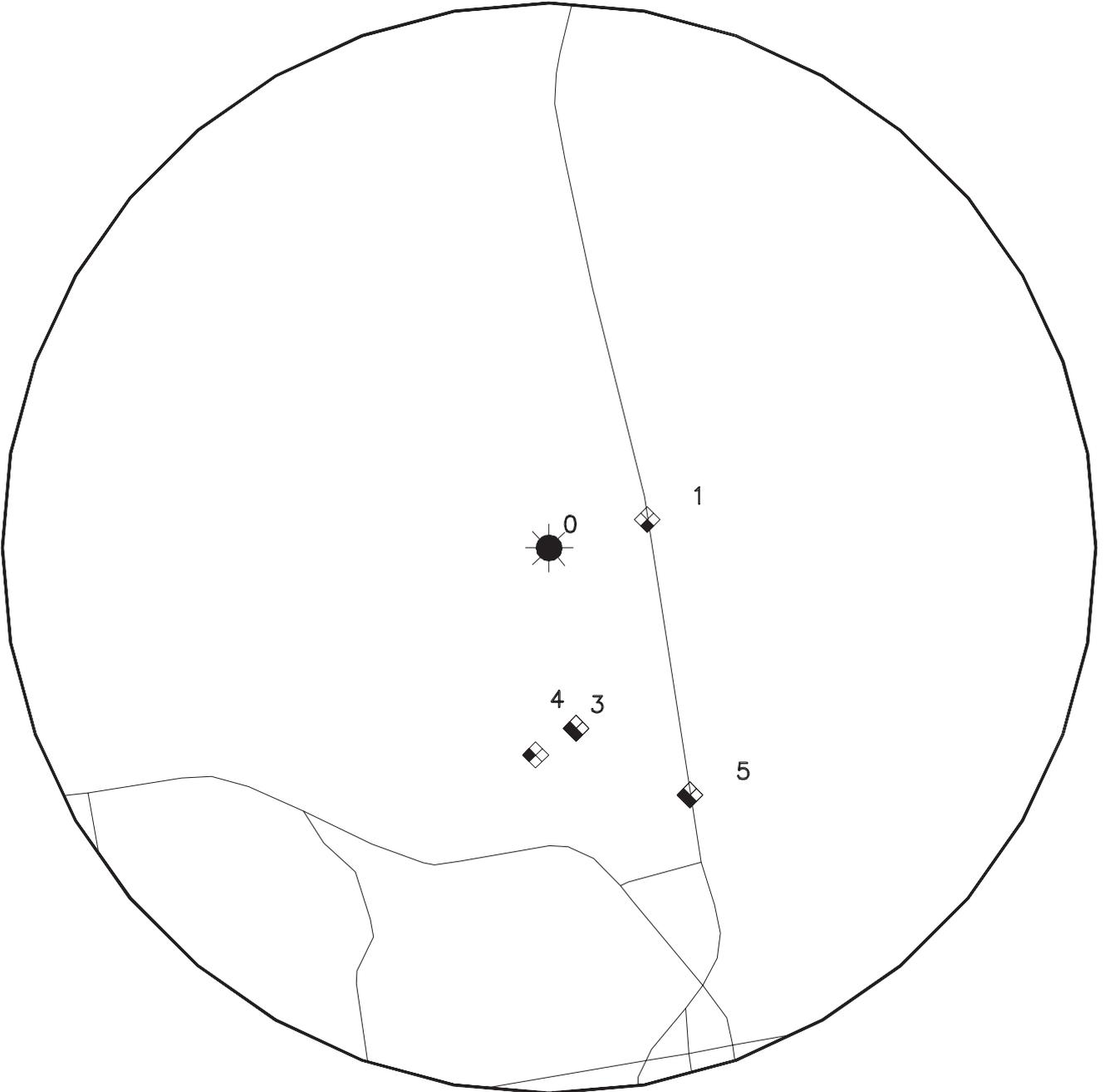


Water
Release



Transfer
location
To offsite

3 Mile Buffer



Number without a Symbol denotes no reported emissions over 0.5 pounds per year

1994 TRI EMISSIONS (LB/YEAR) AT FACILITIES WITHIN THREE MILES OF
 GENERAL MOTORS CORP TRI NO: 48055GNRLM4555G

Chemical Name	Air Fugitive (Non-Point Source) Emissions	Air Stack (Point Source) Emissions	Discharge to Surface Water	On-Site Land Disposal	TOTAL RELEASES	Discharge to POTW	Transfer	TOTAL TRANSFERS	
GMC CADILLAC CAR DIV./ORION PLANT									
			SIC DESCRIPTION: MOTOR VEHICLES & CAR BODIES		MAP LOCATION NO: 0				
			SIC CODE: 3711						
4555 GIDDINGS RD. LAKE ORION MI 48359									
METHANOL	800	7,600	0	0	8,400	0	714	714	
N-BUTYL ALCOHOL	1,100	14,000	0	0	15,100	0	0	0	
BENZENE	230	2,200	0	0	2,430	0	8	8	
DICHLORODIFLUOROMETHANE	12	0	0	0	12	0	0	0	
METHYL ETHYL KETONE	31,000	1	0	0	31,001	0	1,546	1,546	
ETHYLENE GLYCOL	0	0	0	0	0	0	460	460	
METHYL ISOBUTYL KETONE	77,000	710,000	0	0	787,000	0	138,012	138,012	
TOLUENE	20,000	1,300	0	0	21,300	63	704	767	
XYLENE (MIXED ISOMERS)	20,000	110,000	0	0	130,000	120	2,123	2,243	
COPPER	0	0	0	0	0	0	33,031	33,031	
HYDROCHLORIC ACID	0	130,000	0	0	130,000	0	0	0	
PHOSPHORIC ACID	870	0	0	0	870	0	0	0	
GLYCOL ETHERS	3,400	49,000	0	0	52,400	0	17,240	17,240	
NICKEL COMPOUNDS	0	0	0	0	0	800	961	1,761	
ZINC COMPOUNDS	0	0	0	0	0	0	1,732	1,732	
	SUBTOTALS	154,412	1,024,101	0	0	1,178,513	983	196,531	197,514
HARRY S. PETERSON CO. INC.									
			SIC DESCRIPTION: PLSTC MAT./SYN RESINS/NV ELAST		MAP LOCATION NO: 1				
			SIC CODE: 2821						
4150 S. LAPEER RD. ORION MI 48359									
TOLUENEDIISOCYANATE (MIXED ISO	12	0	0	0	12	0	0	0	
	SUBTOTALS	12	0	0	12	0	0	0	

1994 TRI EMISSIONS (LB/YEAR) AT FACILITIES WITHIN THREE MILES OF
 GENERAL MOTORS CORP TRI NO: 48055GNRLM4555G

Chemical Name	Air Fugitive (Non-Point Source) Emissions	Air Stack (Point Source) Emissions	Discharge to Surface Water	On-Site Land Disposal	TOTAL RELEASES	Discharge to POTW	Transfer	TOTAL TRANSFERS	
SPECIALTY SYSTEMS INC. SIC DESCRIPTION: CHEMICALS & CHEM PREP, NEC MAP LOCATION NO: 3									
4520 GLENEMADE LN. SIC CODE: 2899									
AUBURN HILLS MI 48326 1766									
1,1,1-TRICHLOROETHANE	250	0	0	0	250	0	0	0	
DICHLOROMETHANE	250	0	0	0	250	0	0	0	
1,2,4-TRIMETHYLBENZENE	750	0	0	0	750	0	250	250	
XYLENE (MIXED ISOMERS)	250	0	0	0	250	0	5	5	
GLYCOL ETHERS	750	0	0	0	750	0	250	250	
SUBTOTALS	2,250	0	0	0	2,250	0	505	505	
AUTOMOTIVE PRODS. USA INC. SIC DESCRIPTION: MOTOR VEHICLE PARTS & ACCESSOR MAP LOCATION NO: 4									
4000 PINACLE CT. SIC CODE: 3714									
AUBURN HILLS MI 48326 1754									
METHYL ETHYL KETONE	0	0	0	0	0	0	250	250	
GLYCOL ETHERS	0	0	0	0	0	0	26,683	26,683	
SUBTOTALS	0	0	0	0	0	0	26,933	26,933	
BECKER GROUP SIC DESCRIPTION: PLASTICS PRODUCTS, NEC MAP LOCATION NO: 5									
3800 LAPEER RD. SIC CODE: 3089									
AUBURN HILLS MI 48326									
METHYL ETHYL KETONE	5	6,200	0	0	6,205	0	3	3	
STYRENE	5	0	0	0	5	0	0	0	
ACRYLONITRILE	5	0	0	0	5	0	0	0	
XYLENE (MIXED ISOMERS)	5	9,800	0	0	9,805	0	3	3	
GLYCOL ETHERS	1	3	0	0	4	0	6	6	
SUBTOTALS	21	16,003	0	0	16,024	0	12	12	

General Motors Lake Orion Oakland County, Michigan

Latitude: 42 43 10 N
Longitude: 83 15 13 W

MAP KEY:

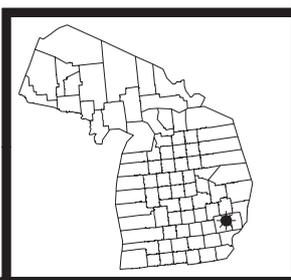
-  County Boundaries
-  Inter State Highway
-  US Highway
-  Rail Road
-  One Mile
-  Three Miles
-  Five Miles

POPULATION DENSITY / SQ. MILE

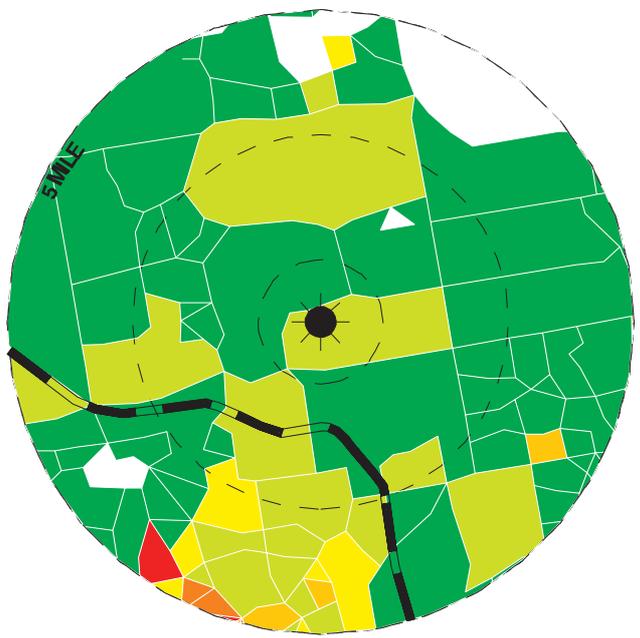
-  Greater than 10000
-  1000 - 10000
-  100 - 1000
-  10-100
-  1-10

Minority, poverty, and High School Incomplete percentages

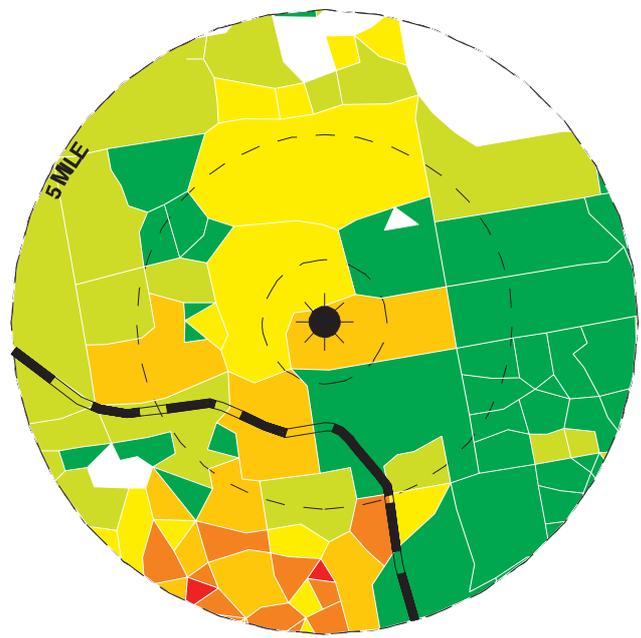
-  Greater than 50
-  40 - 50
-  30 - 40
-  20 - 30
-  10 - 20
-  0 - 10



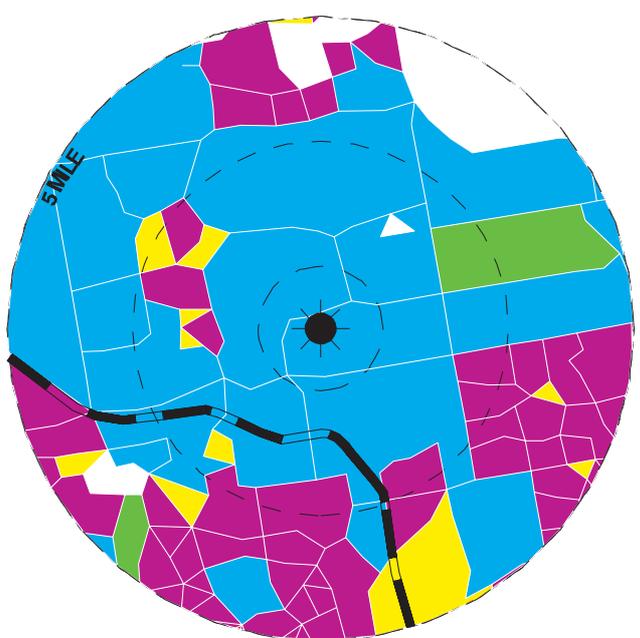
Percentage of Total Population Below Poverty Level



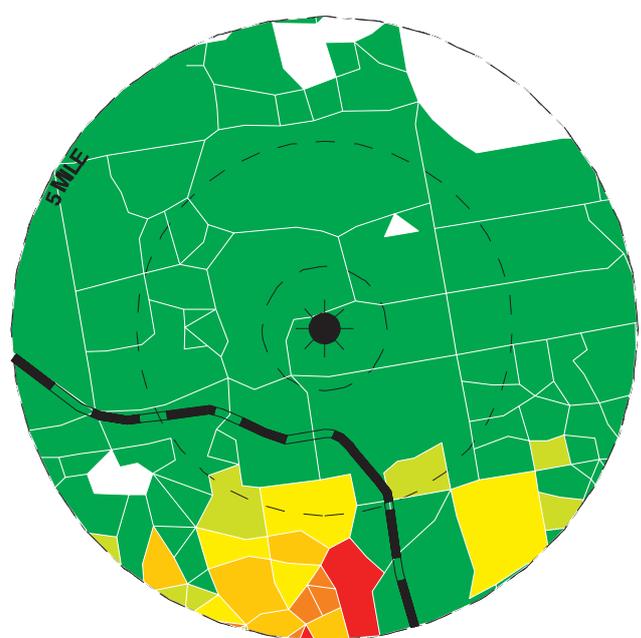
Percentage of Population not Completing High School



Population Density
People Per Sq. Mile



Minority Population
Percent of Total Population



General Motors Lake Orion Oakland County, Michigan

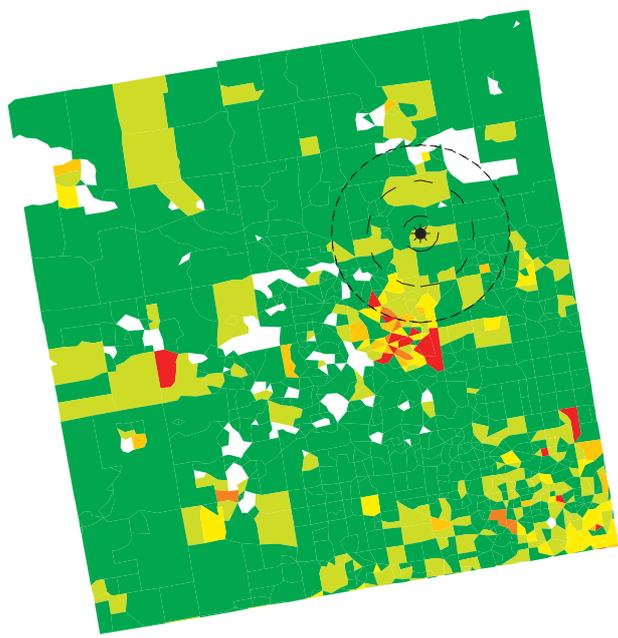
Latitude: 42 43 10 N
Longitude: 83 15 13 W

- MAP KEY:**
- County Boundaries
 - Inter State Highway
 - US Highway
 - Rail Road
 - One Mile
 - Three Miles
 - Five Miles
- POPULATION DENSITY / SQ. MILE**
- Greater than 10000
 - 1000 - 10000
 - 100 - 1000
 - 10-100
 - 1-10

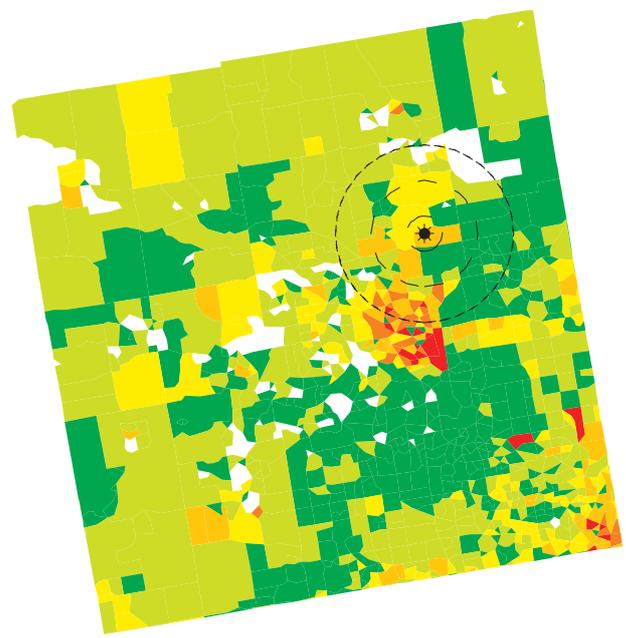
- Minority, poverty, and High School Incomplete percentages**
- Greater than 50
 - 40 - 50
 - 30 - 40
 - 20 - 30
 - 10 - 20
 - 0 - 10



Percentage of Total Population Below Poverty Level



Percentage of Population not Completing High School



Population Density
People Per Sq. Mile



Minority Population
Percent of Total Population

