

California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: November 9, 2007
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator:	Dr. Michael Jerrett	
Organization:	University of California Berkeley	
Reporting Period:	Quarter No: 1	June 15, 2007 through September 30, 2007
Project Description:		
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Progress by Task

Task#	Task Description:	Acquisition of data from ARB	
4			
% Task Completed this Quarter:	70%	% Task Remaining:	30%

Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
List of Data Acquired: <ul style="list-style-type: none"> • PM2.5 IDW interpolation surfaces • Geocoordinates of Monitoring Locations • Monthly averages for monitored pollutants • Teacher's Cohort Study Data 			
Work Ongoing			
List of data still to be acquired: <ul style="list-style-type: none"> • Emissions data • Blanchard data • Meteorology data • Remaining IDW surfaces from Cynthia • Truck traffic info • Port Activity info • Speciated particle data • Land Use • Daily monitoring data 			
Summary of Changes to the Work Plan, Schedule or Milestones			

None			
Describe Work Planned for the Upcoming Quarter			
Acquire remaining data			

Task# 5	Task Description:	Apply previous ACS analysis to California cohort	
% Task Completed this Quarter:	30%	% Task Remaining:	70%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Assignment of year 2000 average PM2.5 estimated using inverse distance weighting method from CARB			
Work Ongoing			
Apply additional exposure metrics and run health analysis on data			
Summary of Changes to the Work Plan, Schedule or Milestones			

None			
Describe Work Planned for the Upcoming Quarter			
After acquiring the remaining data and modeling other data, the exposure models will be assigned and health effects analysis will be conducted			

Task# 6	Task Description:	Constructing NDVI estimates for California	
% Task Completed this Quarter:	100%	% Task Remaining:	0%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			

Work Ongoing			
none.			

Tasks 2007-2008	% Completed	% Remaining
Geocoding 95112 Subjects	0	100
Assignment of Exposures from ARB	15	85
Preparation of Spatial Weight Matrices	0	100
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	0	100
Preparation of Paper for Publication	0	100
Initial Spatiotemporal Modeling	0	100
Compilation of California-wide Land Use Data	3	97
Programming Code for Exposure Windows	0	100
Total	2.00%	98.00%

Budget Summary	Category Totals	Amount Charged to Date	% Spent	% Remaining
	206,786.0			
1 Labor & Employee Fringe Benefits	0	1,958.42	0.95%	99.05%
	474,708.0			
2 Subcontractors/Consultants	0	0.00	0.00%	100.00%
3 Travel & Subsistence	10,000.00	0.00	0.00%	100.00%

4	Electronic Data Processing	16,400.00	0.00	0.00%	100.00%
5	Materials & Supplies	6,200.00	0.00	0.00%	100.00%
6	Miscellaneous	574.00	7.70	1.34%	98.66% *
	Total Direct Cost	\$714,668.00	\$1,966.12	0.28%	99.72%
	Total Indirect Cost	\$35,306.00	\$196.61	0.56%	99.44%
	Grand Total	\$749,974.00	\$2,162.73	0.29%	99.71%

* General and Employment Liability



Principal Investigator Signature

Date



California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: February 13, 2008
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator:	Dr. Michael Jerrett	
Organization:	University of California Berkeley	
Reporting Period:	Quarter No: 2	October 1, 2007 through December 31, 2007
Project Description:		
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Progress by Task

Task# 4	Task Description:	Acquisition of data from ARB	
% Task Completed this Quarter:	90%	% Task Remaining:	10%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
List of Data Acquired (including all previous quarters): <ul style="list-style-type: none"> • PM2.5 IDW interpolation surfaces • Geocoordinates of Monitoring Locations • Monthly averages for monitored pollutants • Teacher's Cohort Study Data • Remaining IDW surfaces from Cynthia • Speciated particle data • Criteria Air Pollutants & VOCs 			
Work Ongoing			

List of data still to be acquired: <ul style="list-style-type: none"> . Emissions data . Blanchard data . Meteorology data . Truck traffic info . Port Activity info . Land Use . Daily monitoring data 			
Summary of Changes to the Work Plan, Schedule or Milestones			
None			
Describe Work Planned for the Upcoming Quarter			
Acquire remaining data			

Task# 5	Task Description:	Apply exposures from previous ACS analysis to California cohort	
% Task Completed this Quarter:	40%	% Task Remaining:	70%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Worked on creating California-wide kriging estimates for subject zipcodes.			
Work Ongoing			
Finish up kriging modeling, apply exposure metrics and run health analysis on data			
Summary of Changes to the Work Plan, Schedule or Milestones			
None			
Describe Work Planned for the Upcoming Quarter			

After data modeling is complete, the exposure models will be assigned and health effects analysis will be conducted			
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Task# 7	Task Descripti on:	Acquire Land Use Datasets for California	
% Task Completed this Quarter:	80	% Task Remaining:	20
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			

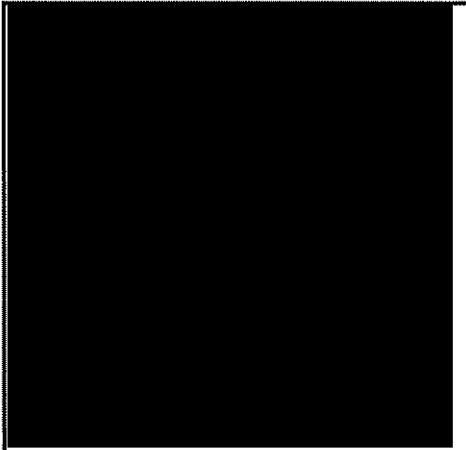
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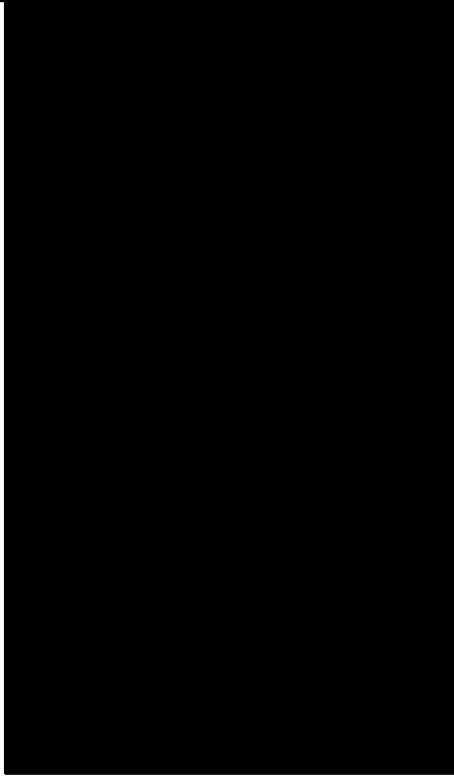
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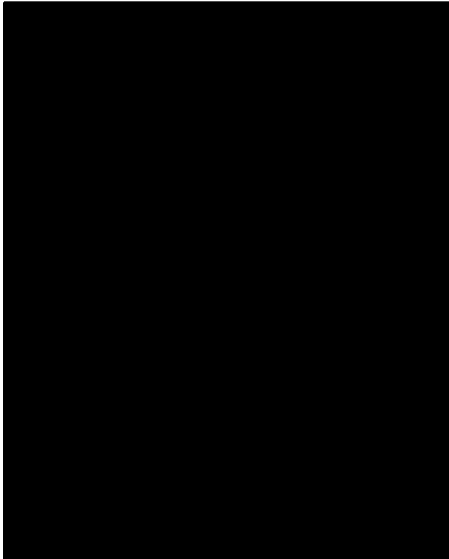
			
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Work Ongoing			
			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
Finish ongoing work listed above.			

Task# 8	Task Description:	Acquire datasets and activity metrics for ports and waterways	
% Task Completed this Quarter:	40	% Task Remaining:	60
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
A number of datasets and other information describing ports and waterways have been acquired from the Bureau of Transportation Statistics, the USCG and others.			
Work Ongoing			
Additional data regarding emissions and metrics of activity (containers per annum, truck ADTs, economic activity, # employees, and any air pollution data, etc.) is being sought.			
Summary of Changes to the Work Plan, Schedule or Milestones			

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N/A.			
Describe Work Planned for the Upcoming Quarter			
			

Task# 9	Task Description:	Assemble Composite Land Use Datasets (actual and planned).	
% Task Completed this Quarter:	5	% Task Remaining:	95
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Acquiring data on general plans, ports, and actual land uses (separate tasks herein) and assessing pieces for compatibility with other datasets.			
Work Ongoing			
Continue to assemble best possible composite land use datasets.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Continue to assemble best possible composite land use datasets.			
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Tasks 2007-2008	% Completed	% Remaining
Geocoding 95112 Subjects	0	100
Assignment of Exposures from ARB	20	80
Preparation of Spatial Weight Matrices	0	100
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	20	80
Preparation of Paper for Publication	0	100
Initial Spatiotemporal Modeling	0	100
Compilation of California-wide Land Use Data	85	15
Programming Code for Exposure Windows	0	100
Total	13.89%	86.11%

Bdgt Summary	Caggy Totls	Amnt	Amnt	Amnt	%Spnt	%Remaining
		Caggy's Qtr	Caggy's the Qtr	Caggy's Dte		
Labor & Employee Fringe Benefits	2067800	337294	190842	356736	17.23%	82.73%
Subcontractors/Consultants	4747000	000	000	000	0.00%	100.00%
Travel & Subsistence	100000	000	000	000	0.00%	100.00%
Electronic Data Processing	164000	000	000	000	0.00%	100.00%
Materials & Supplies	62000	219676	000	219676	35.43%	64.57%
Miscellaneous	5400	10044	770	10814	188.4%	81.13%
Total Direct Cost	\$7146800	\$360104	\$190842	\$379626	53%	94.63%
Total Indirect Cost	\$530800	\$318186	\$96661	\$37849	95%	90.43%
Grand Total	\$7677600	\$391922	\$216273	\$4139475	55%	94.49%

*Grand and Employment Liability

Breakdown of Materials and Supplies:

1. Teletlas Road Network and Traffic Data: \$2100.00
2. Computer Supplies: \$96.76



California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: June 6, 2008
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator:	Dr. Michael Jerrett	
Organization:	University of California Berkeley	
Reporting Period:	Quarter No: 3	January 1, 2008 – March 31, 2008
Project Description:		
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Progress by Task

Task# 4	Task Description:	Acquisition of data from ARB	
% Task Completed this Quarter:	95%	% Task Remaining:	5%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
List of Data Acquired (including all previous quarters): <ul style="list-style-type: none"> . Acquired IDW surfaces and data for all pollutants 			
Work Ongoing			
List of data still to be acquired: <ul style="list-style-type: none"> . Emissions data . Blanchard data . Meteorology data . Truck traffic info . Port Activity info . Land Use . Daily monitoring data 			
Summary of Changes to the Work Plan, Schedule or Milestones			

None			
Describe Work Planned for the Upcoming Quarter			
Acquire remaining data			

Task# 5	Task Descripti on:	Apply exposures from previous ACS analysis to California cohort	
% Task Completed this Quarter:	30%	% Task Remaining:	30%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Continued worked on creating California-wide kriging estimates for subject zipcodes.			
Work Ongoing			
Finish up kriging modeling, apply exposure metrics and run health analysis on data			
Summary of Changes to the Work Plan, Schedule or Milestones			
None			
Describe Work Planned for the Upcoming Quarter			

After data modeling is complete, the exposure models will be assigned and health effects analysis will be conducted			
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Task# 7	Task Description:	Acquire Land Use Datasets for California	
% Task Completed this Quarter:	15	% Task Remaining:	5
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Collection of data mostly complete.			
Work Ongoing			
Continue to pursue additional land use datasets for California when knowledge of their existence becomes known.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
N/A			

Task# 8	Task Description:	Acquire datasets and activity metrics for ports and waterways	
% Task Completed this Quarter:	20	% Task Remaining:	40
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Additional datasets other information describing ports and waterways have been collected from the Bureau of Transportation Statistics, the USCG and others.			
Work Ongoing			
Pursue additional data from Traffic Atlas data group.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Described above.			
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Task# 9	Task Description:	Assemble Composite Land Use Datasets (actual and planned).	
% Task Completed this Quarter:	50	% Task Remaining:	50
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Acquiring data on general plans, ports, and actual land uses (separate tasks herein) and assessing pieces for compatibility with other datasets.			
Work Ongoing			
Continue to assemble best possible composite land use datasets.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Continue to assemble best possible composite land use datasets.			
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Task# 9	Task Description:	Remote Sensing Data	
% Task Completed this Quarter:	75	% Task Remaining:	25
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Acquired and processed Landsat data for NDVI			
Work Ongoing			
Continue to assemble remote sensing data sets for other land condition indicators			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			

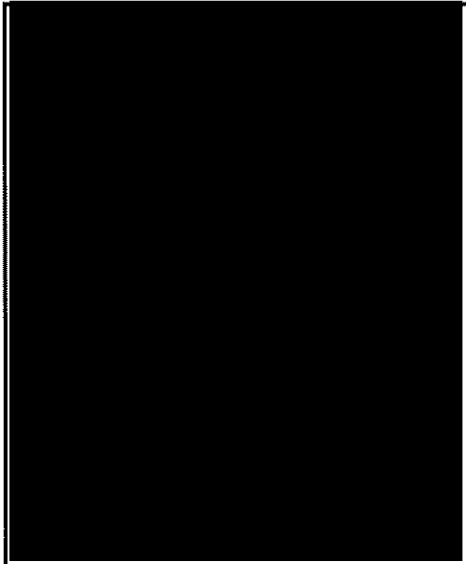
Describe Work Planned for the Upcoming Quarter			
described above			

Task# 9	Task Description:	Industrial Land use classification	
% Task Completed this Quarter:	50	% Task Remaining:	50
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractor		
Work Accomplished in this Quarter			

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Work Ongoing			
Continue refining industrial landuse classification			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
Continue refining industrial landuse classification			

Task# 9	Task Description:	Traffic Layer Calculation	
% Task Completed this Quarter:	50	% Task Remaining:	50
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractor		
Work Accomplished in this Quarter			

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Work Ongoing			

Continue refining traffic calculations			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
described above			

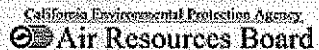
Tasks 2007-2008	% Completed	% Remaining
Geocoding 95112 Subjects	0	100
Assignment of Exposures from ARB	25	75
Preparation of Spatial Weight Matrices	0	100
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	25	75
Preparation of Paper for Publication	0	100
Initial Spatiotemporal Modeling	0	100
Compilation of California-wide Land Use Data	95	5
Programming Code for Exposure Windows	0	100
Total	16.11%	83.89%

Budget Summary	Award		Award		% Spent	% Remaining
	Change Order	Change Order	Change Order	Change Order		
	Total	This Quarter	This Quarter	Date		
Labor & Employee Fringe Benefits	205,760.00	30,482.41	35,671.36	66,153.00	32.00%	68.00%
Subcontractors/Consultants	474,700.00	7,889.00	0.00	7,889.00	1.65%	98.35%
Travel & Subsistence	10,000.00	0.00	0.00	0.00	0.00%	100.00%
Electronic Data Processing	16,400.00	0.00	0.00	0.00	0.00%	100.00%
Materials & Supplies	6,200.00	53.37	0.00	53.37	0.85%	99.14%
Miscellaneous	5,400.00	698.50	1,081.40	1,779.90	31.01%	68.99%
Total Direct Cost	\$746,860.00	\$39,063.46	\$36,752.76	74,832.96	10.39%	89.61%
Total Indirect Cost	\$353,360.00	\$2,707.90	\$3,384.90	6,159.28	1.74%	88.26%
Grand Total	\$1,100,220.00	\$41,771.36	\$40,137.66	\$80,992.24	10.72%	89.28%

*Grand and Employment Liability

Breakdown of Materials and Supplies:

1. Wireless Mouse 53.37



California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: June 25, 2008
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator: Dr. Michael Jerrett
Organization: University of California Berkeley

Reporting Period: Quarter No: 4 April 1, 2008 - June 30, 2008

Project Description:

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Progress by Task

Task# 4	Task Description:	Acquisition of data from ARB	
% Task Completed this Quarter:	95%	% Task Remaining:	5%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
List of Data Acquired (including all previous quarters):			
Work Ongoing			
List of data still to be acquired: <ul style="list-style-type: none"> . PM2.5 speciation data . Meteorology data . Truck traffic info . Port Activity info . Land Use . Daily monitoring data 			
Summary of Changes to the Work Plan, Schedule or Milestones			
None			

Describe Work Planned for the Upcoming Quarter			
Acquire remaining data			

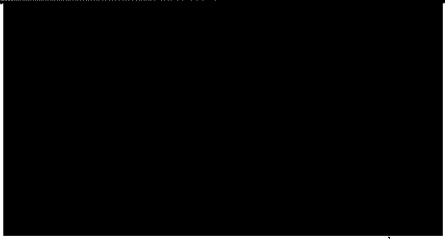
Task# 5	Task Description:	Apply exposures from previous ACS analysis to California cohort	
% Task Completed this Quarter:	30%	% Task Remaining:	0%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Finished creating California-wide kriging estimates and applied exposure metrics and run health analysis on data. Initial health analyses completed.			
Work Ongoing			
Summary of Changes to the Work Plan, Schedule or Milestones			
None			
Describe Work Planned for the Upcoming Quarter			

Task# 7	Task Description:	Acquire Land Use Datasets for California	
% Task Completed this Quarter:	0	% Task Remaining:	5
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Collection of data mostly complete.			
Work Ongoing			
Continue to pursue additional land use datasets for California when knowledge of their existence becomes known.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
N/A			

Task# 8	Task Descripti on:	Acquire datasets and activity metrics for ports and waterways	
% Task Completed this Quarter:	0	% Task Remaining:	40
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Additional datasets other information describing ports and waterways have been collected from the Bureau of Transportation Statistics, the USCG and others.			
Work Ongoing			
Pursue additional data from Traffic Atlas data group.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Described above.			
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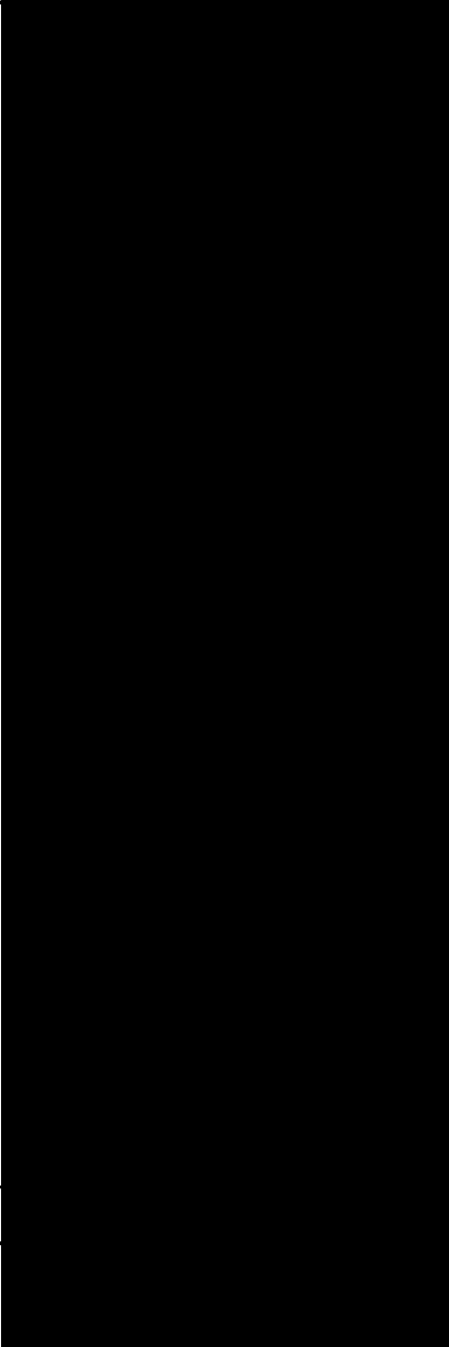
Task# 9	Task Description:	Assemble Composite Land Use Datasets (actual and planned).	
% Task Completed this Quarter:	0	% Task Remaining:	50
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Work Ongoing			
Continue to assemble best possible composite land use datasets.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
Continue to assemble best possible composite land use datasets.			

Task# 9	Task Description:	Remote Sensing Data	
% Task Completed this Quarter:	20	% Task Remaining:	5
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
			
Work Ongoing			
Complete mosaicing of the remote sensing tiles for the remainder of California			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

described above			
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Task# 9	Task Descripti on:	Industrial Land use classification	
% Task Completed this Quarter:	40	% Task Remaining:	10
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontr actor		
Work Accomplished in this Quarter			

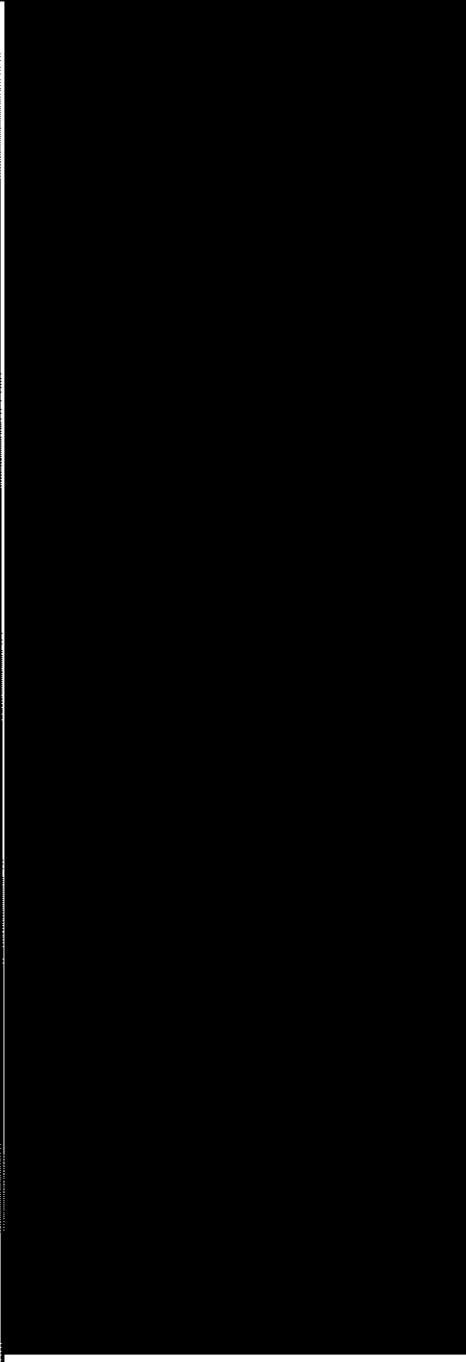
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Summary of Changes to the Work Plan, Schedule or Milestones			

N/A.			
Describe Work Planned for the Upcoming Quarter			
Continue refining industrial landuse classification			

Task# 9	Task Description:	Traffic Layer Calculation	
% Task Completed this Quarter:	40	% Task Remaining:	10
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractor		
Work Accomplished in this Quarter			

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Work Ongoing			
Continue refining traffic calculations			

Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
described above			

Task# 9	Task Description:	Geocoding	
% Task Completed this Quarter:	100%	% Task Remaining:	0%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractor		
Work Accomplished in this Quarter			

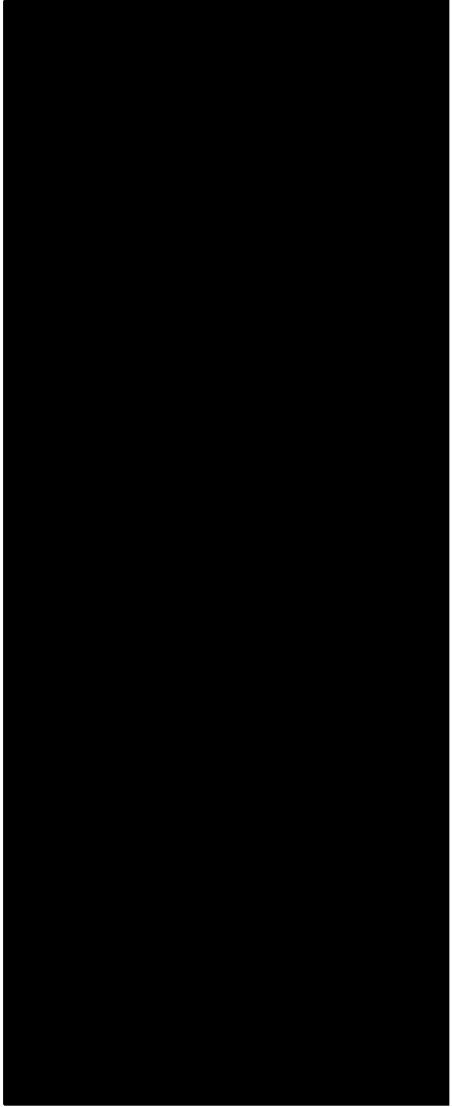
Work Ongoing			
N/A			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
N/A			

Task# 10	Task Descripti on:	Replication of LA analysis for all California Zipcodes	
% Task Completed this Quarter:	75%	% Task Remaining:	25%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontr actors		
Work Accomplished in this Quarter			

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Work Ongoing			
Additional investigation into the relationships between exposure and disease			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
See "Work Ongoing"			

Tasks 2007-2008	% Completed	% Remaining
Geocoding 95112 Subjects	100	0
Assignment of Exposures from ARB	95	5
Preparation of Spatial Weight Matrices	0	100
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	75	25
Preparation of Paper for Publication	0	100
Initial Spatiotemporal Modeling	0	100
Compilation of California-wide Land Use Data	95	5
Programming Code for Exposure Windows	0	100
Total	40.56%	59.44%

Budget Summary	Avant Gagdy Tots	Avant Gagdy's Qatr	Avant Gagdy's HisQatr	Avant Gagdy's Die	%Spent	%Remaining
Labor & Employee Fringe Benefits	215,760.00	22,353.24	65,139.60	88,522.84	42.81%	57.19%
Subcontractors/Consultants	474,708.00	98,332.00	7,839.00	101,171.00	21.31%	78.69%
Travel & Subsistence	10,000.00	0.00	0.00	0.00	0.00%	100.00%
Electronic Data Processing	15,400.00	0.00	0.00	0.00	0.00%	100.00%
Materials & Supplies	62,000.00	477,188.00	53.37	482,525.00	77.83%	22.17%
Miscellaneous	5,400.00	67.48	177.99	2,547.00	47.15%	52.85%
Total Direct Cost	\$714,668.00	\$20,521.60	\$42,399.60	194,764.56	27.25%	72.75%
Total Indirect Cost	\$53,395.00	\$8,104.71	\$6,132.28	14,258.99	40.43%	59.57%
Grand Total	\$768,063.00	\$28,626.31	\$48,531.88	\$209,023.55	27.89%	72.11%

*Grand and Employment Liability

Breakdown of Materials and Supplies:

1. Computer Usage Fee \$4500.00
2. Reimbursement for supplies \$271.88

California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: April 23, 2009 resubmitted with revisions
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator:	Dr. Michael Jerrett	
Organization:	University of California Berkeley	
Reporting Period:		July 1-31, 2008 & Nov 1- Dec 31, 2008
Project Description:		
#		

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Progress by Task

Task# 7	Task Description:	Acquire Land Use Datasets for California	
% Task Completed this Quarter:	5	% Task Remaining:	0
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Collection of data complete.			
Work Ongoing			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
N/A			

Task# 8	Task Description:	Acquire datasets and activity metrics for ports and waterways	
% Task Completed this Quarter:	5	% Task Remaining:	35
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Additional datasets other information describing ports and waterways have been collected from the Bureau of Transportation Statistics, the USCG and others.			
Work Ongoing			
Pursue additional data from Traffic Atlas data group.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Described above.			
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Task# 9	Task Description:	Assemble Composite Land Use Datasets (actual and planned).	
% Task Completed this Quarter:	50	% Task Remaining:	0
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Work Ongoing			
Continue to assemble best possible composite land use datasets.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
Continue to assemble best possible composite land use datasets.			

Task# 9	Task Description:	Remote Sensing Data	
% Task Completed this Quarter:	2.5	% Task Remaining:	2.5
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Mosaicing of some of the remote sensing data			
Work Ongoing			
Complete mosaicing of the remote sensing tiles for the remainder of California			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
described above			

Task# 9	Task Description:	Industrial Land use classification	
% Task Completed this Quarter:	10	% Task Remaining:	0
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractor		
Work Accomplished in this Quarter			
Kernal density industrial land use data completed			
Work Ongoing			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
Continue refining industrial landuse classification			

Task# 9	Task Description:	Traffic Layer Calculation	
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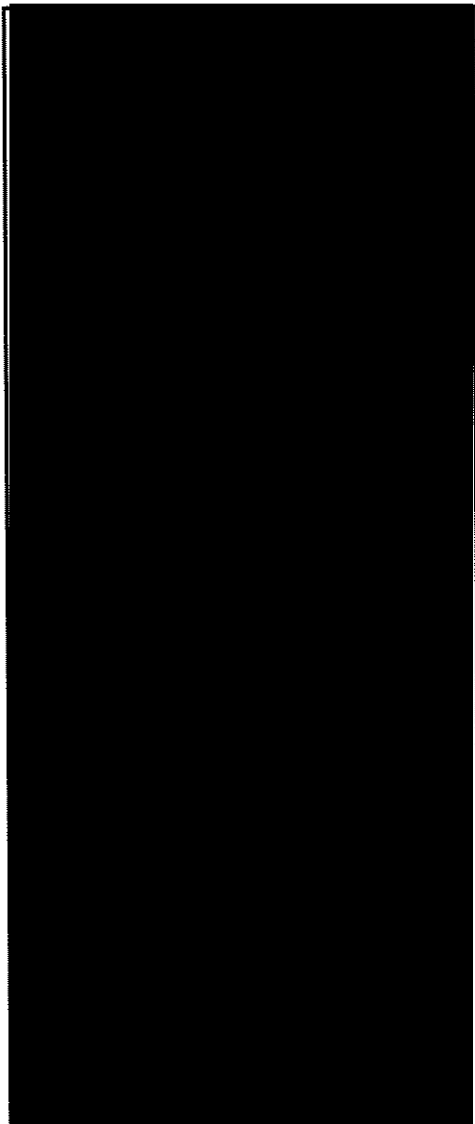
% Task Completed this Quarter:	10	% Task Remaining:	0
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractor		
Work Accomplished in this Quarter			
Traffic completed			
Work Ongoing			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
described above			

Task# 10	Task Description:	Replication of LA analysis for all California Zipcodes	
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% Task Completed this Quarter:	0	% Task Remaining:	25%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			

2

[Redacted]			
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Work Ongoing			
Additional investigation into the relationships between exposure and disease			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
See "Work Ongoing"			

Tasks 2007-2008	% Completed	% Remaining
Geocoding 95112 Subjects	100	0
Assignment of Exposures from ARB	95	5
Preparation of Spatial Weight Matrices	0	100
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	75	25
Preparation of Paper for Publication	0	100
Initial Spatiotemporal Modeling	0	100
Compilation of California-wide Land Use Data	100	0
Programming Code for Exposure Windows	0	100
Total	41.11%	58.89%

Budget Summary	Avant		Avant		Avant	
	Category Title	Qtr 1's Qtr 2's	Qtr 3's Qtr 4's	Qtr 1's Qtr 2's	Qtr 3's Qtr 4's	% Spent
Labor & Employee Fringe Benefits	206,766.00	33,985.74	85,434.50	120,402.24	55.22%	44.78%
Subcontractors/Consultants	474,708.00	20,414.87	101,171.00	121,585.87	25.61%	74.39%
Travel & Subsistence	10,000.00	5,547.88	2,299.78	7,817.86	78.18%	21.82%
Electronic Data Processing	16,400.00	0.00	5,175.00	5,175.00	31.53%	68.47%
Materials & Supplies	6,200.00	7,123.39	3,525	7,486.4	120.14%	-20.14%
Miscellaneous*	5,740.00	3,897.3	2,305	6,030	108.07%	-8.07%
Total Direct Cost	\$714,684.00	\$67,411.61	\$95,636.10	263,047.71	36.88%	63.12%
Total Indirect Cost	\$35,316.00	\$6,741.81	\$13,999.83	20,671.39	58.53%	41.47%
Grand Total	\$749,999.00	\$74,153.42	\$109,635.93	\$283,719.10	37.83%	62.17%

*Includes General and Employment Liability

Breakdown of Materials and Supplies:

1. Safe \$4950+\$445
2. Safe moving \$ 832.52
3. 3 Seagate Hard Drives \$895.87



California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: May 13, 2009
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator:	Dr. Michael Jerrett	
Organization:	University of California Berkeley	
Reporting Period:		January 1, 2009 - March 31, 2009
Project Description:		
#		

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Progress by Task

	Task Description:	Assemble Composite Land Use Datasets (actual and planned).	
% Task Completed this Quarter:	3	% Task Remaining:	2
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
NLCD data is completed and transferred to UCB faculty and staff by Zev Ross.			
Work Ongoing			
Acquisition of LandScan Population data still ongoing.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Continue to assemble best possible composite land use datasets.			
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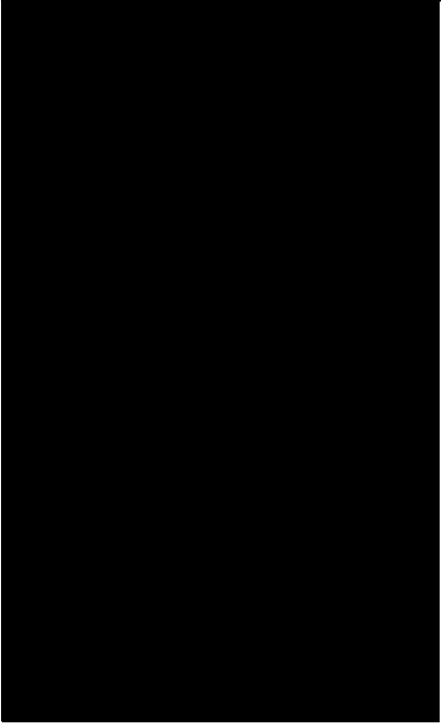
	Task Description:	Remote Sensing Data	
% Task Completed this Quarter:	2.5	% Task Remaining:	2.5
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Mosaicing of some of the remote sensing data. Some work had to be repeated due to unintended data issues. The work is now back on track.			
Work Ongoing			
Complete mosaicing of the remote sensing tiles for the remainder of California			
Summary of Changes to the Work Plan, Schedule or Milestones			

N/A.			
Describe Work Planned for the Upcoming Quarter			
described above			

	Task Description:	Replication of LA analysis for all California Zipcodes	
% Task Completed this Quarter:	5	% Task Remaining:	15%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			
Additional modeling of the relationships between exposure and disease			
Work Ongoing			

Additional investigation into the relationships between exposure and disease			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
See "Work Ongoing"			

	Task Description:	Assignment of Exposures from CARB (IDW) to the residential geocodes and assignment of PM2.5 Kriging Model for 2000	
% Task Completed this Quarter:	100%	% Task Remaining:	100%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			

			
Work Ongoing			
Completed			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
See "Work Ongoing"			

	Task Description:	Initial Health Effects Modeling from Assignment of Exposures from CARB (IDW) to the residential geocodes and assignment of PM2.5 Kriging Model for 2000	
% Task Completed this Quarter:	10%	% Task Remaining:	90%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			
Initial health effects modeling of exposures outlined above.			
Work Ongoing			
Continued health effects modeling			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

See "Work Ongoing"			
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Tasks 2009	% Completed	% Remaining
Geocoding 95112 Subjects	100	0
Assignment of Exposures from ARB	100	0
Preparation of Spatial Weight Matrices	0	100
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	85	15
Preparation of Paper for Publication	0	100
Initial Spatiotemporal Modeling	0	100
Compilation of California-wide Land Use Data	98	2
Programming Code for Exposure Windows	0	100
Total	42.56%	57.44%

Budget Summary	Amount		Amount		Amount	
	Copy Total	Qtr to Date	Copy to Date	Qtr to Date	Copy to Date	Qtr to Date
Labor & Employee Fringe Benefits	2067660	1398118	12040024	13436142	6499%	3501%
Subcontractors/Consultants	4747080	1340000	12193587	13493587	2844%	7156%
Travel & Subsistence	100000	300511	781766	1082277	10823%	-823%
Electronic Data Processing	134000	2000	517500	537500	3277%	6723%
Materials & Supplies	62000	20568	744984	766432	12346%	-2346%
Miscellaneous*	5400	6435	62030	63465	11928%	-1928%
Total Direct Cost	\$7146660	\$3083632	\$26904771	29890403	4112%	5668%
Total Indirect Cost	\$353060	\$270909	\$2067139	2338048	6622%	3878%
Grand Total	\$7499720	\$3354541	\$28971910	\$31728451	4231%	5769%

*Includes General and Employment Liability

Breakdown of Materials and Supplies:

1. Seagate hard-drive - 205.68

California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: May 13, 2009
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator: Dr. Michael Jerrett
Organization: University of California Berkeley

Reporting Period: April 1, 2009 - June 30, 2009

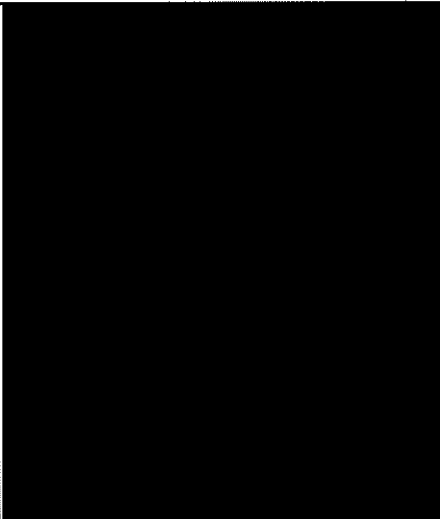

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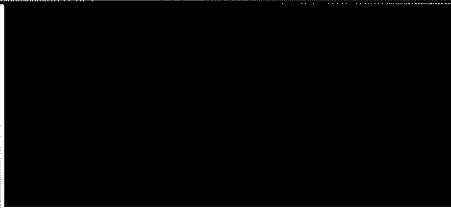
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Progress by Task

	Task Description:	Land Use Regression Modeling of NO2, PM2.5 and O3	
% Task Completed this Quarter:	20%	% Task Remaining:	80%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Work Ongoing			

			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
			

	Task Description:	Assemble Composite Land Use Datasets (actual and planned).	
% Task Completed this Quarter:	2%	% Task Remaining:	1%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
Traffic and Industrial Proxy Kernel Estimates acquired from Zev Ross.			
Work Ongoing			
			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

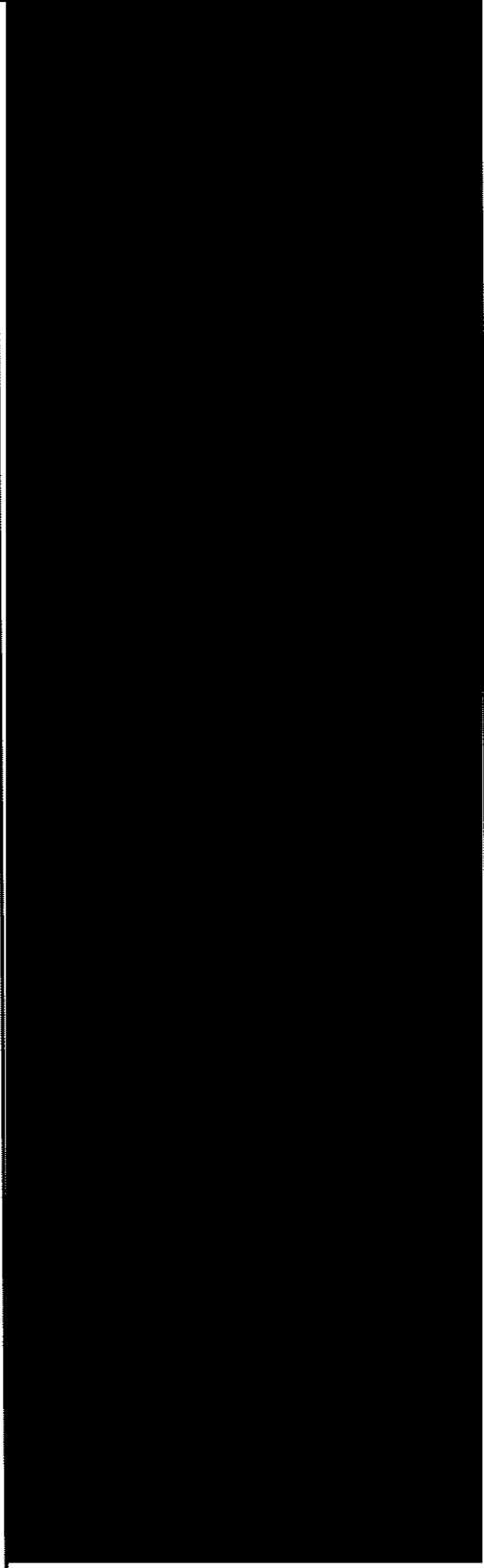
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	Task Description:	Remote Sensing Data	
% Task Completed this Quarter:	1%	% Task Remaining:	2.5
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
			
Work Ongoing			
Complete mosaicing of the remote sensing tiles for the remainder of California			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			

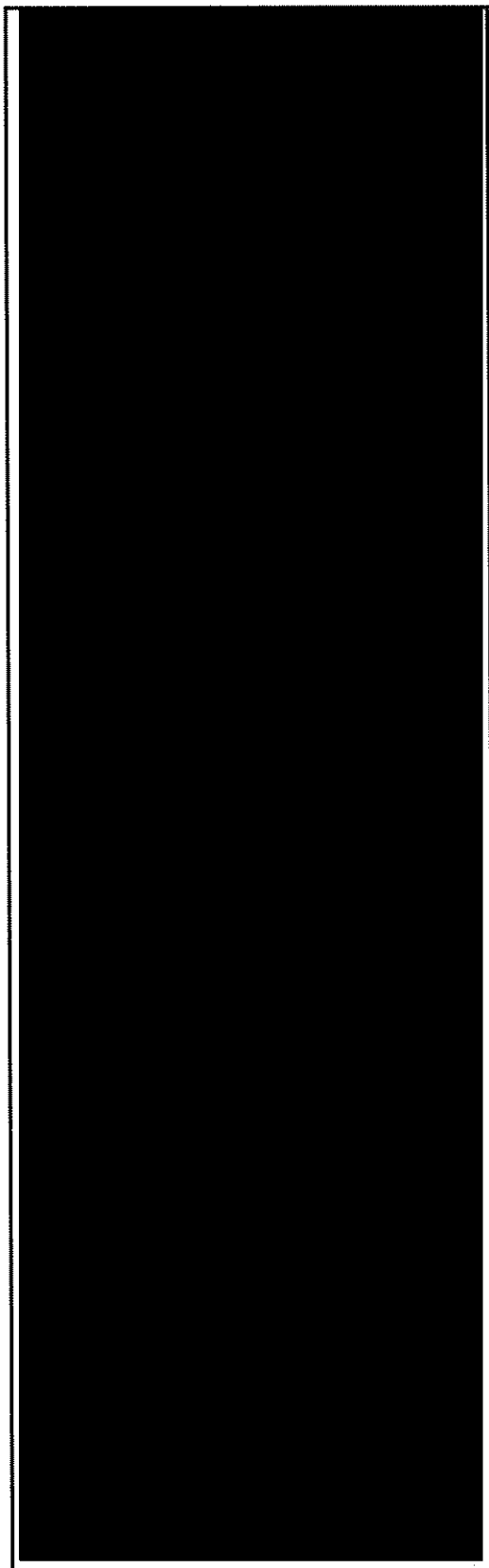
Describe Work Planned for the Upcoming Quarter			
described above			

	Task Description:	Replication of LA analysis for all California Zipcodes	
% Task Completed this Quarter:	5%	% Task Remaining:	10%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			

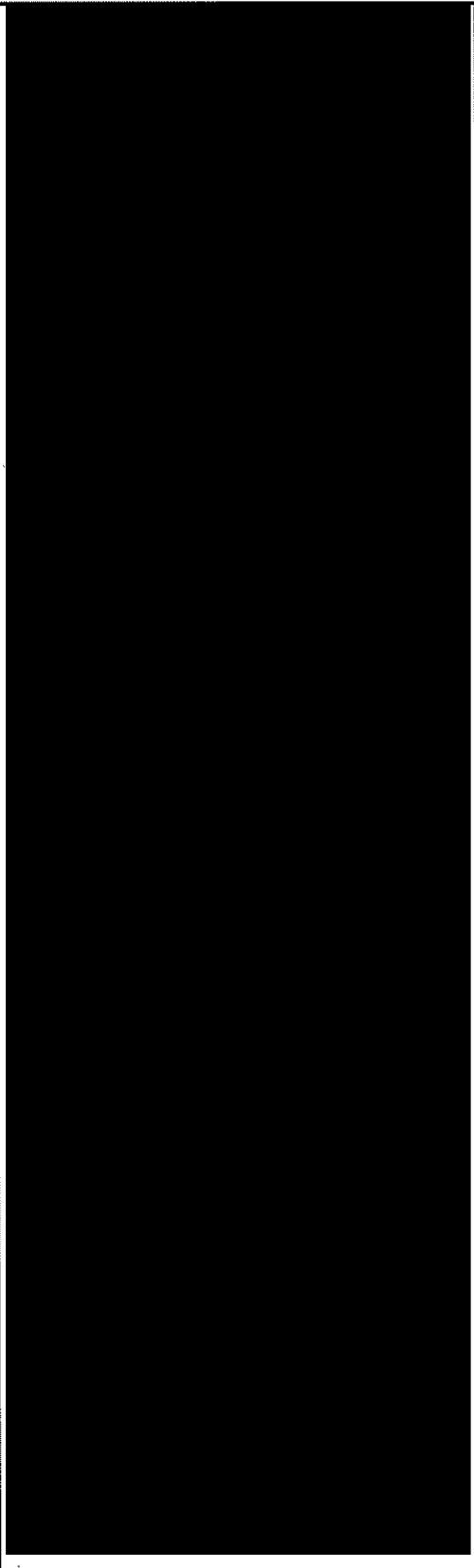
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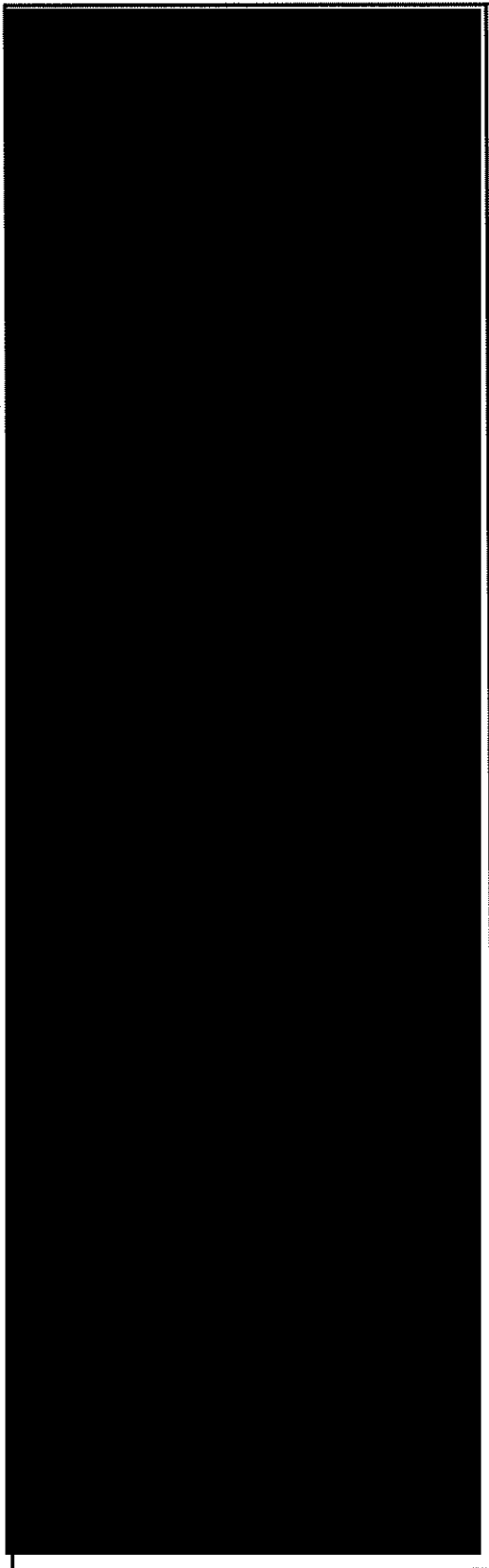
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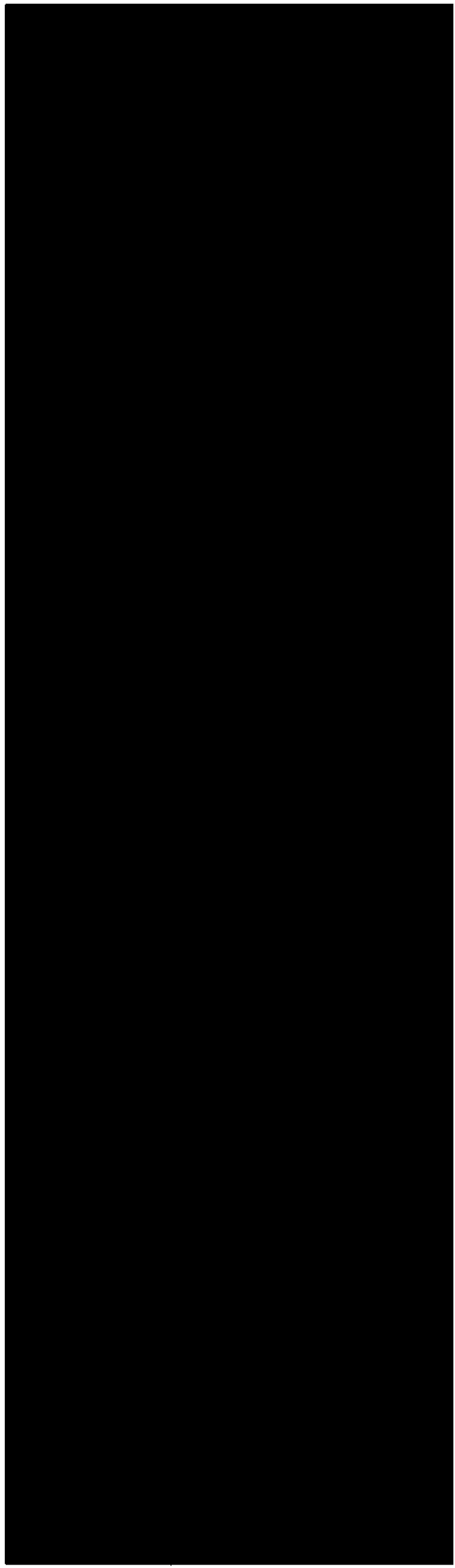
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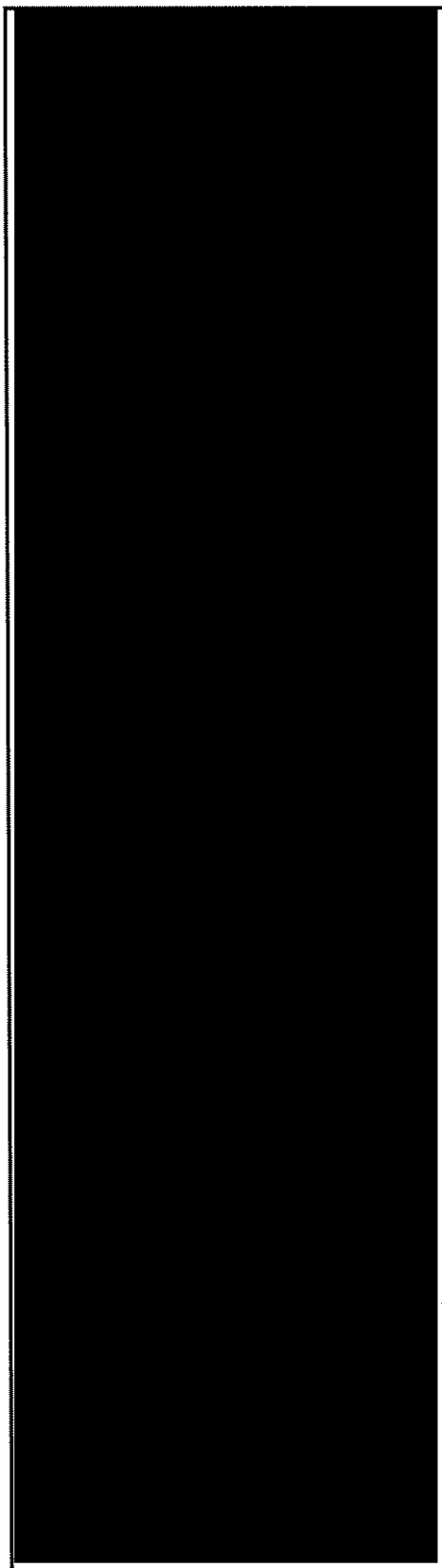
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107

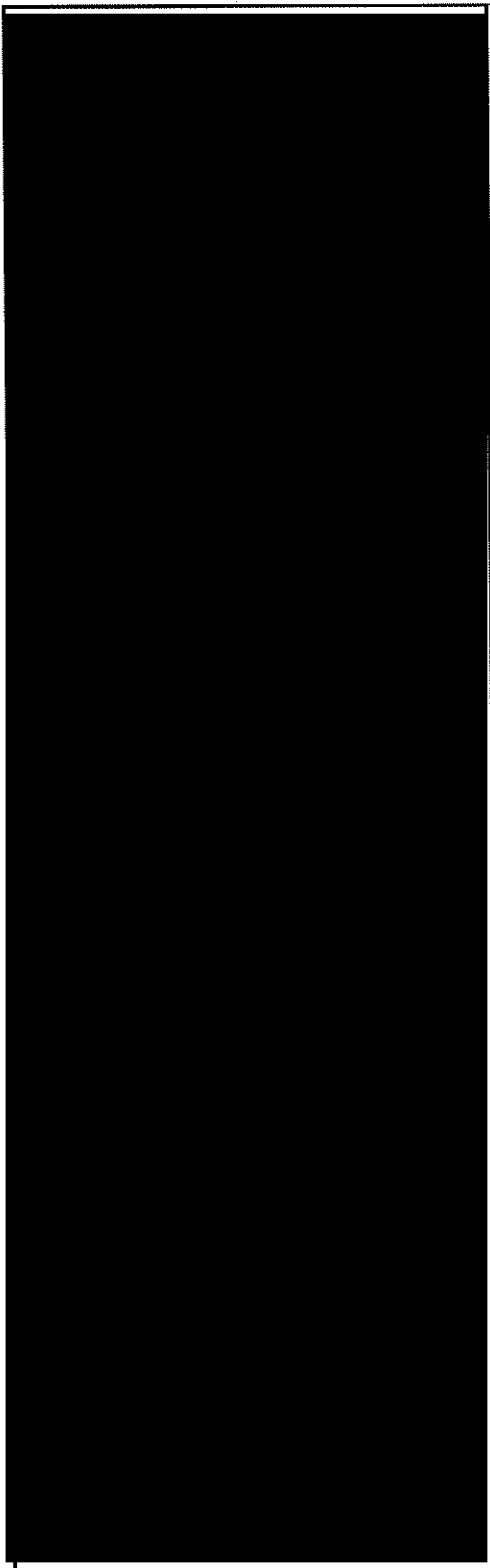
			
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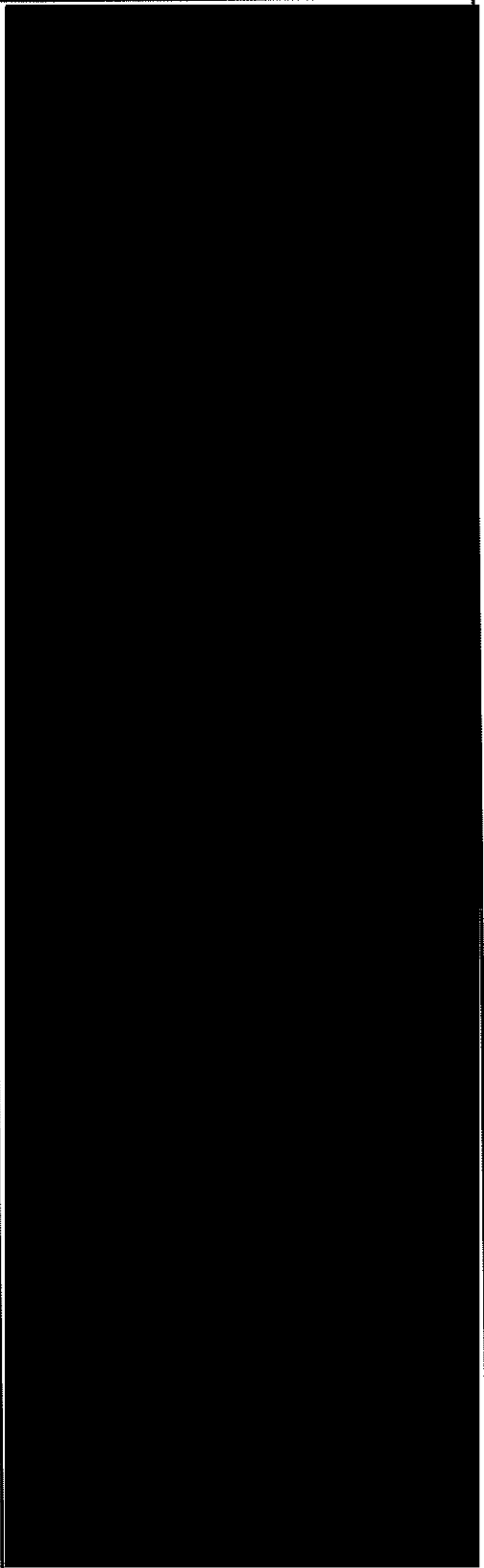
				
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105

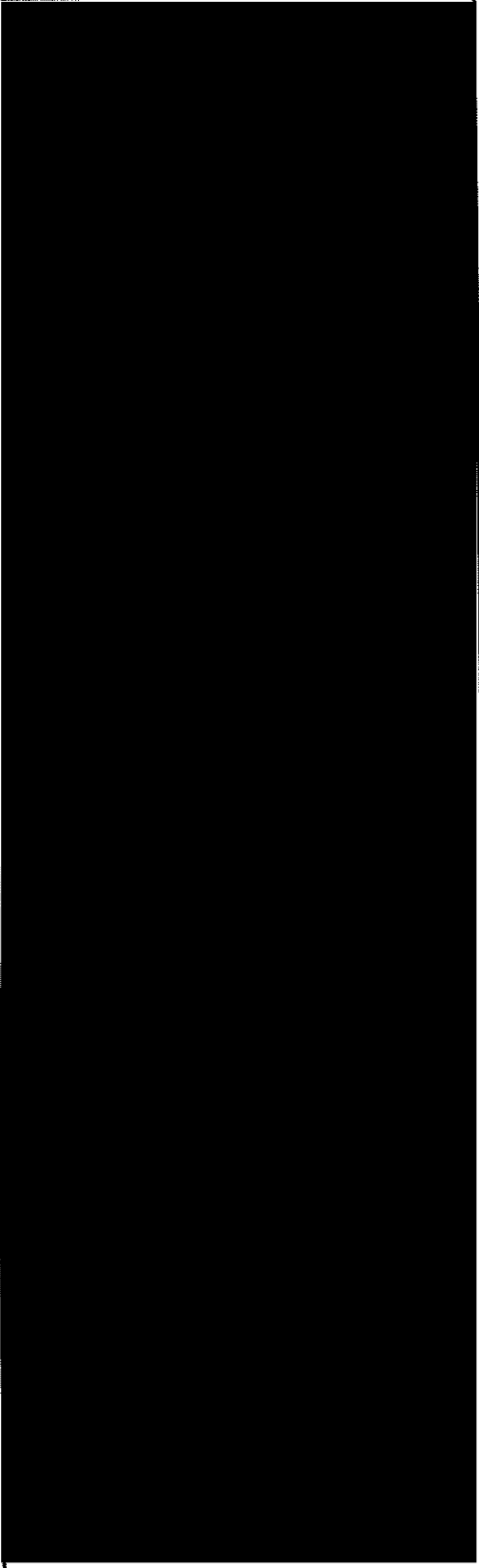
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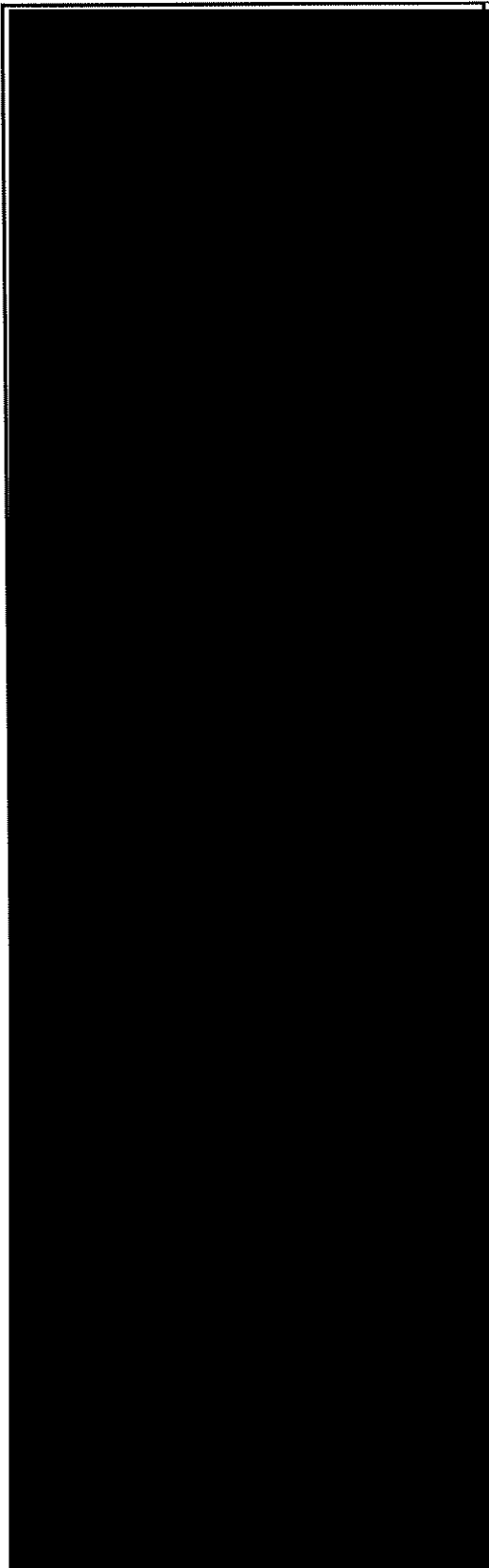
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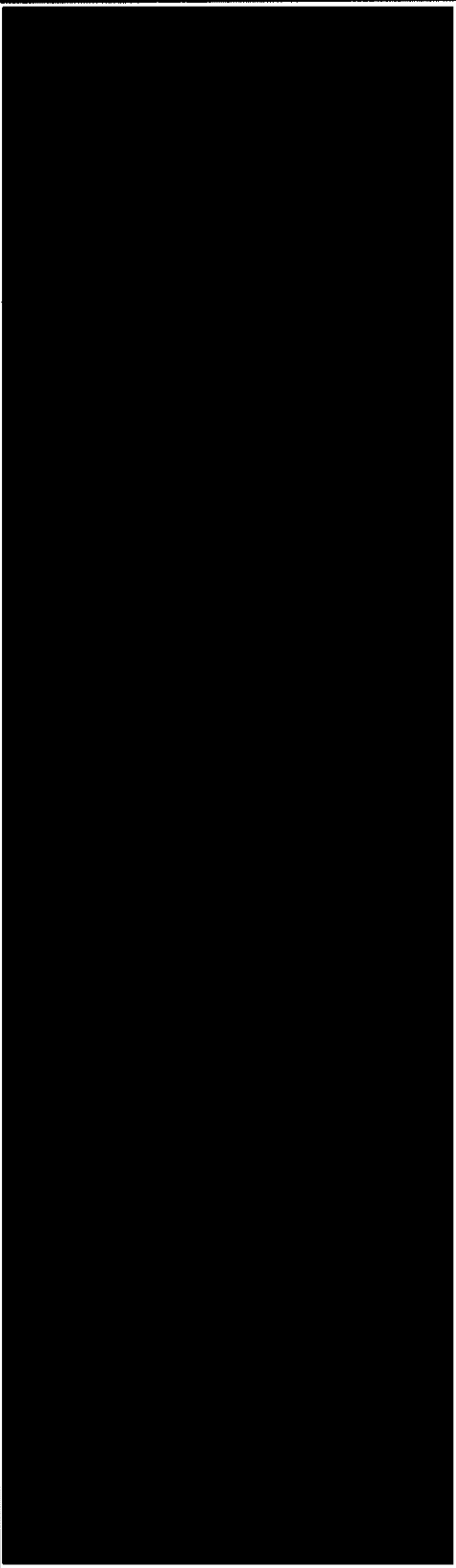
			
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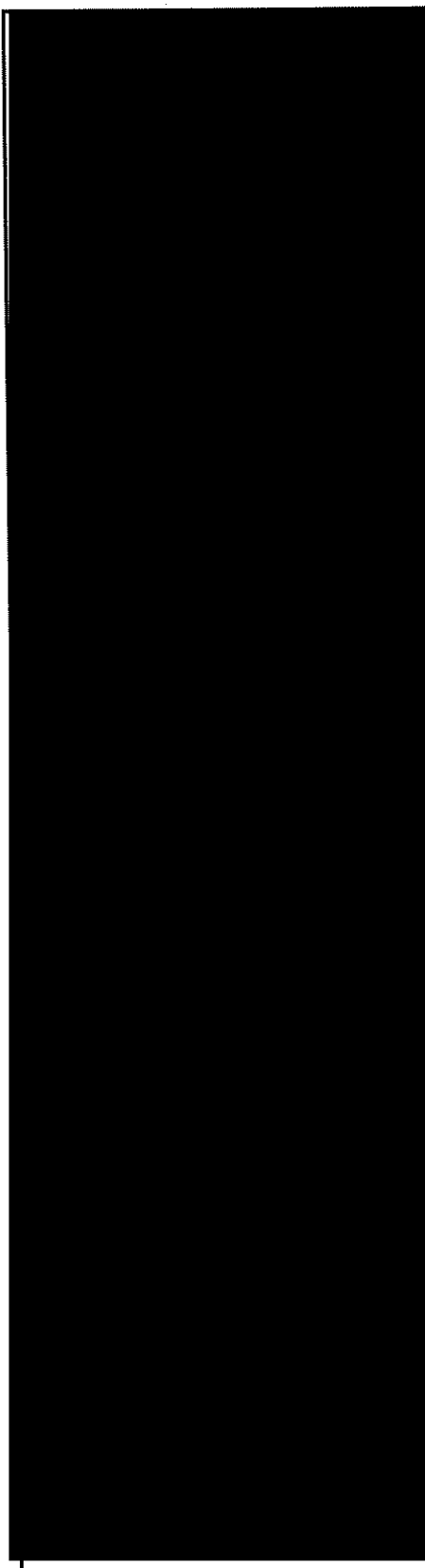
			
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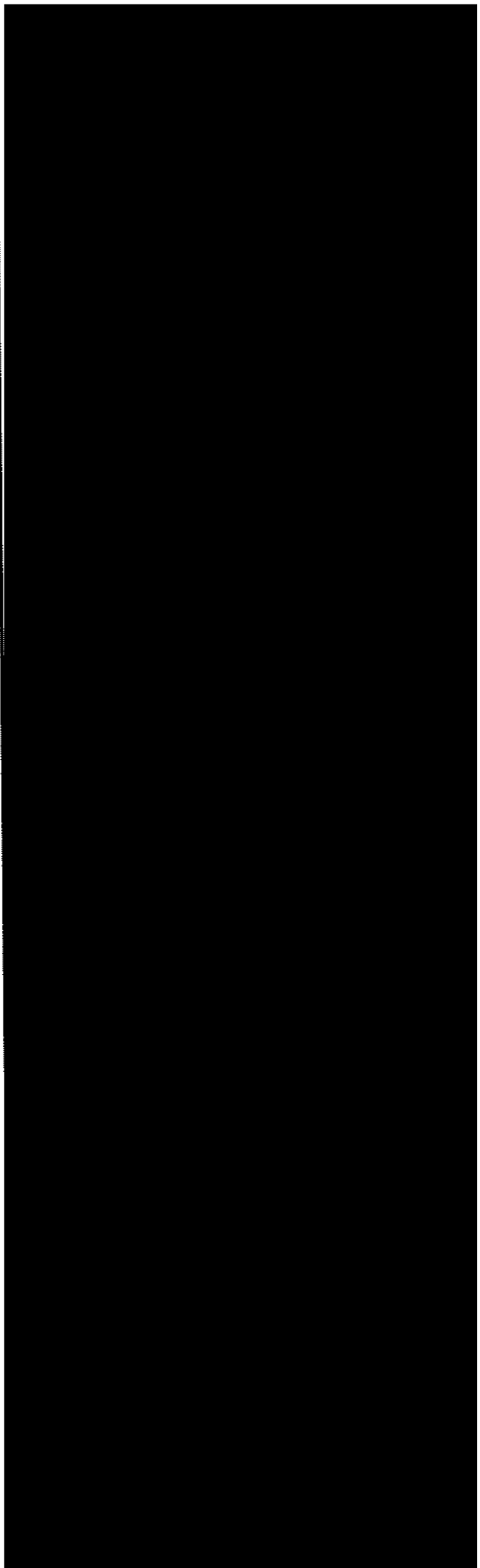
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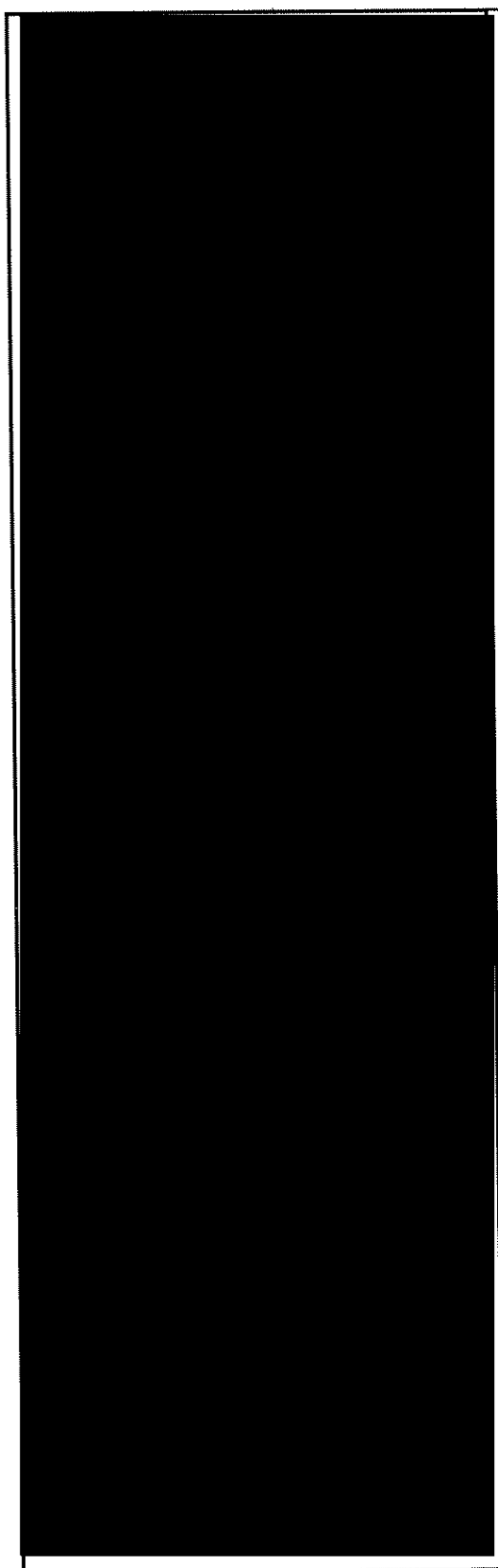
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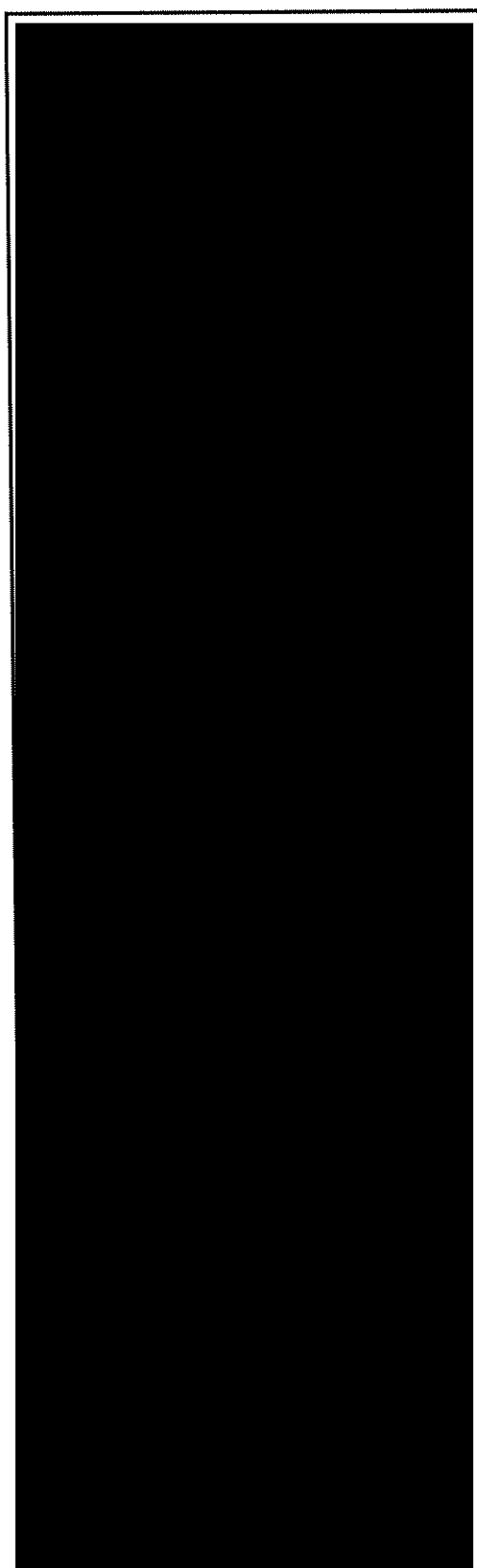
				
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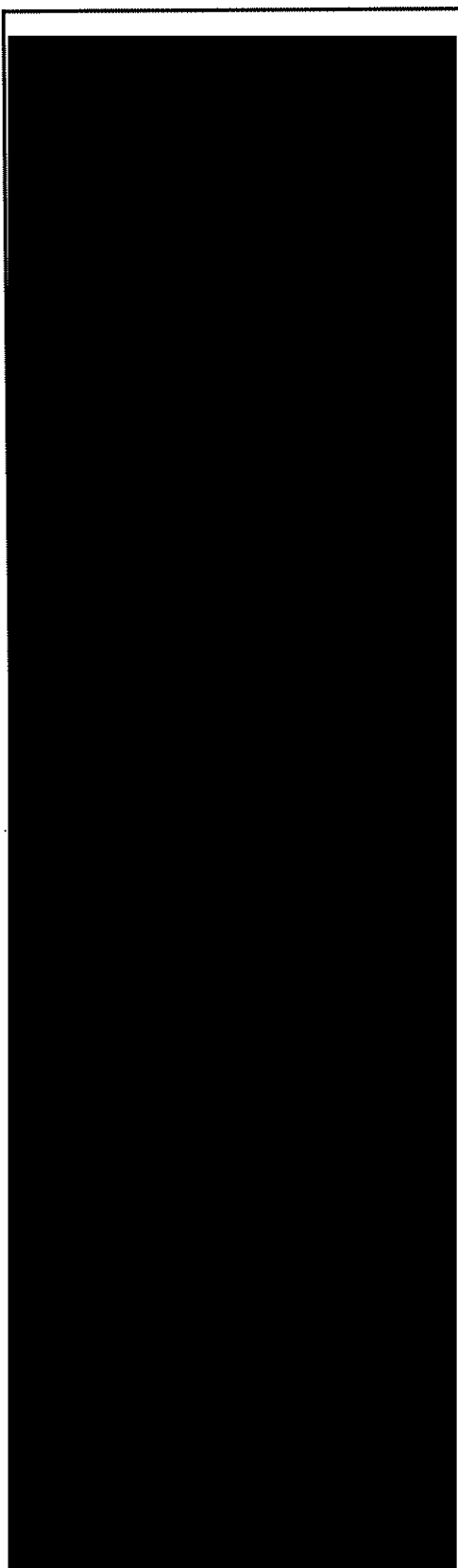
			
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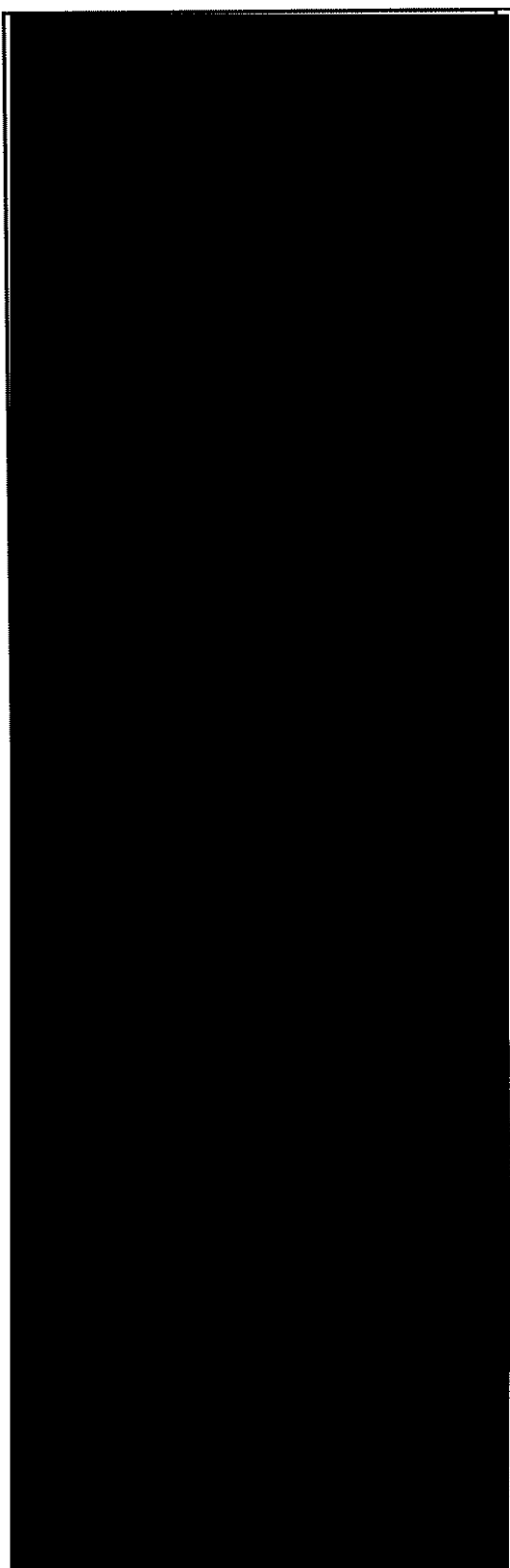
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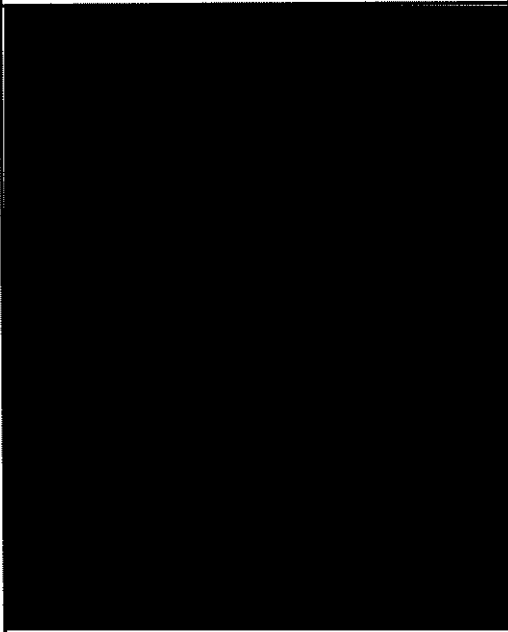
			
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115

			
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Work Ongoing			
Additional investigation into the relationships between exposure and disease			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
			

	Task Description:	Initial Health Effects Modeling from Assignment of Exposures from CARB (IDW) to the residential geocodes and assignment of PM2.5 Kriging Model for 2000	
% Task Completed this Quarter:	5%	% Task Remaining:	85%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			
Date retrieval and formatting after technical computer issues at Ottawa U.			
Work Ongoing			
Continued health effects modeling			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

See "Work Ongoing"			
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	Task Description:	Preparation of Papers for publication	
% Task Completed this Quarter:	15%	% Task Remaining:	85%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			
<p>Paper outlining the BME Kriging methods for Ozone modeling have been submitted, accepted and published in Atmospheric Environment.</p> <p>Bogaert P, Christakos G, Jerrett M, Yu H-L. 2009. Spatiotemporal modeling of ozone distributions in the State of California. Atmospheric Environment. 43:15(May), 2471-2480.</p>			
Work Ongoing			

Prepare publications as results become available.			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Tasks 2009	% Completed	% Remaining
Preparation of Spatial Weight Matrices	0	100
Land Use Regression Modeling	20	80
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	90	10
Preparation of Paper for Publication	15	85
Initial Spatiotemporal Modeling	15	85
Compilation of California-wide Land Use Data	99	1
Programming Code for Exposure Windows	0	100

77636 CARB Costs		4/1/09-6/14/09		April	May	June	Total
	Desc	Doc Date	Doc Id				
SALARIES AND WAGES							
ACTUAL	KONTGIS, CAITLIN PATRICIA	4/30/09	Salaries & Wages	930.00			930.00
ACTUAL	BECKERMAN, BERNARD S.	4/30/09	Salaries & Wages	2,207.25			2,207.25
ACTUAL	GIRARD, JUSTIN	4/30/09	Salaries & Wages	307.80			307.80
PROJECTED	KONTGIS, CAITLIN PATRICIA	5/31/09	Salaries & Wages		744.00		744.00
PROJECTED	BECKERMAN, BERNARD S.	5/31/09	Salaries & Wages		2,746.80		2,746.80
PROJECTED	GIRARD, JUSTIN	5/31/09	Salaries & Wages		307.80		307.80
PROJECTED	BECKERMAN, BERNARD S.	6/14/09	Salaries & Wages			2,229.55	2,229.55
PROJECTED	GIRARD, JUSTIN	6/14/09	Salaries & Wages			139.91	139.91
PROJECTED	JERRETT, MICHAEL	6/14/09	Salaries & Wages			6,330.35	6,330.35
Subtotal				3,446.05	3,798.60	8,699.81	15,943.46
Benefits							
ACTUAL	BECKERMAN, BERNARD S.	4/30/09	Benefits	1,312.49			1,312.49
ACTUAL	GIRARD, JUSTIN	4/30/09	Benefits	79.07			79.07
ACTUAL	KONTGIS, CAITLIN PATRICIA	4/30/09	Benefits	865.34			865.34
PROJECTED	KONTGIS, CAITLIN PATRICIA	5/31/09	Benefits		12.65		12.65
PROJECTED	BECKERMAN, BERNARD S.	5/31/09	Benefits		46.70		46.70
PROJECTED	GIRARD, JUSTIN	5/31/09	Benefits		79.07		79.07
PROJECTED	BECKERMAN, BERNARD S.	6/14/09	Benefits			37.91	37.91
PROJECTED	GIRARD, JUSTIN	6/14/09	Benefits			35.94	35.94
PROJECTED	JERRETT, MICHAEL	6/14/09	Benefits			803.95	803.95
Subtotal				2,256.90	139.42	877.80	3,273.12
Subawards							
PROJECTED	San Diego State University	6/14/09	Subawards			44,000.00	44,000.00
PROJECTED	University of Ottawa	6/14/09	Subawards			60,753.00	60,753.00
PROJECTED	New York University	6/14/09	Subawards			4,090.00	4,090.00
Subtotal				0.00	0.00	108,843.00	108,843.00
Supplies/Misc Services							
ACTUAL	APR GAEL INS ASSESSMENT	4/30/09	Supplies/Misc Service	24.11			24.11
PROJECTED	MAY GAEL INS ASSESSMENT	5/31/09	Supplies/Misc Services		26.59		26.59
PROJECTED	JUNE GAEL INS ASSESSMEN	6/14/09	Supplies/Misc Services			60.90	60.90
ACTUAL	HYPER MICROSYSTEMS INC	3/12/09	Supplies/Misc Service	88.54			88.54
ACTUAL	POPE, C. ARDEN III	4/21/09	Supplies/Misc Service	4,999.00			4,999.00
ACTUAL	ZEVROSS SPATIAL ANALYSIS	4/22/09	Supplies/Misc Service	13,100.00			13,100.00
Subtotal				18,211.65	26.59	60.90	18,299.14
Indirect Cost							
ACTUAL	IDC JOURNAL	4/30/09	Indirect Cost	2,203.09			2,203.09
PROJECTED	IDC JOURNAL	5/31/09	Indirect Cost		396.36		396.36
PROJECTED	IDC JOURNAL	6/14/09	Indirect Cost			2,395.10	2,395.10
Subtotal				2,203.09	396.36	2,395.10	4,994.55
				May	Apr	June	May-June
TOTAL				26,116.69	4,359.97	120,876.81	151,353.27

Edgt Summary	Category Totals	Avant Cagallo's Quater	Avant Cagallo's this Quater	Avant Cagallo Date	%Spent	%Remaining
Labor & Employee Fringe Benefits	2067800	1921688	13438142	15359800	7428%	2572%
Subcontractors/Consultants	47470800	12694200	13498587	26192787	5518%	4482%
Travel & Subsistence	100000	000	1082277	1082277	10823%	-823%
Electronic Data Processing	164000	000	537500	537500	3277%	6723%
Materials & Supplies	62000	8854	766432	774286	12488%	-2488%
Miscellaneous*	5400	11160	68465	78625	13872%	-3872%
Total Direct Cost	\$7146800	\$14633872	\$29399403	44026275	6160%	3840%
Total Indirect Cost	\$5530600	\$199455	\$2338048	2637508	803%	1968%
Grand Total	\$29,944,000	\$151,353,277	\$317,284,511	\$466,637,783	6249%	3751%

*Includes Credit and Employment Liability



California Air Resources Board Research Division Contract Quarterly Progress Report

Contract Information

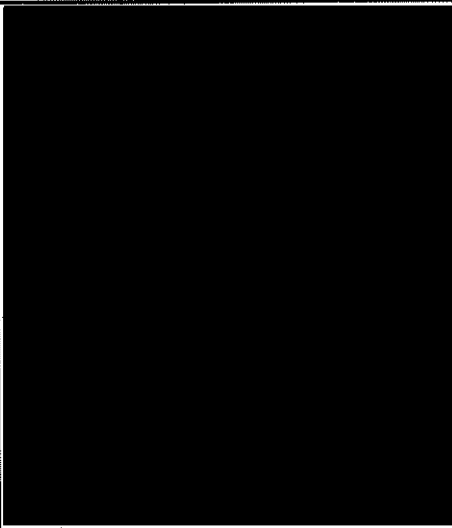
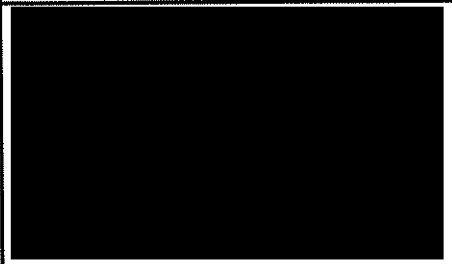
Title: Spatiotemporal Analysis of Air Pollution and Mortality in California Based on the American Cancer Society Cohort
Date Submitted: November 3, 2009
Agreement Number: 06-332
CARB Contract Manager: Cynthia Garcia
Prepared by: Bernard Beckerman

Principal Investigator:	Dr. Michael Jerrett	
Organization:	University of California Berkeley	
Reporting Period:		July 1, 2009 – September 30, 2009.
Project Description:		
#		

Disclaimer: *The statements and conclusions in this report are those of the University of California Berkeley and not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as actual or implied endorsement of such products.*

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Progress by Task

	Task Description:	Land Use Regression Modeling of NO2, PM2.5 and O3	
% Task Completed this Quarter:	15%	% Task Remaining:	65%
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		
Work Accomplished in this Quarter			
			
Work Ongoing			
			

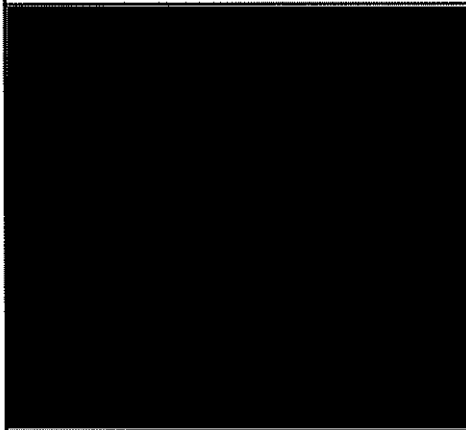
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

	Task Description:	Remote Sensing Data	
% Task Completed this Quarter:	2.5%	% Task Remaining:	0
Funds Spent on Task (this quarter):		Remaining Task Funds:	
Sub-contractor Assigned:	UCB Faculty and Staff		

Work Accomplished in this Quarter			
Remote Sensing Complete			
Work Ongoing			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			
described above			

	Task Description:	Replication of LA analysis for all California Zipcodes	
% Task Completed this Quarter:	1%	% Task Remaining:	9%
Funds Spent on Task (this quarter):		Remaining Task Funds:	

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Sub-contractor Assigned:	UCB Faculty and subcontractors		
Work Accomplished in this Quarter			
			
Work Ongoing			
Additional investigation into the relationships between exposure and disease			
Summary of Changes to the Work Plan, Schedule or Milestones			
N/A.			
Describe Work Planned for the Upcoming Quarter			

Tasks 2009	%Completed	%Remaining
Preparation of Spatial Weight Matrices	0	100
Land Use Regression Modeling	35	65
Modeling of ACS for California Covariates	0	100
Replication of LA Analysis for California	91	9
Preparation of Paper for Publication	15	85
Initial Spatiotemporal Modeling	15	85
Compilation of California-wide Land Use Data	100	0
Programming Code for Exposure Windows	0	100

Edgt Summary	Agency Totals	Actual Chgo this Quarter	Actual Chgo to this Quarter	Actual Chgo to Date	% Spent	% Remaining
Labor & Employee Fringe Benefits	267,860	19,572	133,580	172,652	65.49%	16.51%
Subcontractors/Consultants	447,080	0	261,927	261,927	58.59%	41.41%
Travel & Subsistence	10,000	1,051	10,827	11,845	118.45%	-18.45%
Electronic Data Processing	15,400	0	5,350	5,350	34.74%	65.26%
Materials & Supplies	6,200	788	7,428	7,821	126.10%	-26.10%
Miscellaneous*	5,400	1,325	7,525	9,860	182.78%	-82.78%
Total Direct Cost	\$746,940	\$20,335	\$140,292	\$405,837	64.45%	35.55%
Total Indirect Cost	\$353,060	\$1,870	\$28,358	30,228	85.69%	14.31%
Grand Total	\$1,100,000	\$22,205	\$168,650	\$436,065	65.15%	34.85%

*Includes General and Employer Liability