

TABLE OF CONTENTS

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT GOVERNING BOARD

Chairman: WILLIAM A. BURKE, Ed.D.
Speaker of the Assembly Representative

Vice Chairman: NORMA J. GLOVER
Councilmember, City of Newport Beach
Cities Representative, Orange County

MEMBERS

MICHAEL D. ANTONOVICH
Supervisor, Fifth District
Los Angeles County Representative

HAL BERNSON
Councilmember, City of Los Angeles
Cities Representative, Los Angeles County, Western Region

JANE CARNEY
Senate Rules Committee Appointee

BEATRICE J. S. LAPISTO – KIRTLEY
Councilmember, City of Bradbury
Cities Representative, Los Angeles County, Eastern Region

RONALD O. LOVERIDGE
Mayor, City of Riverside
Cities Representative, Riverside County

JON D. MIKELS
Supervisor, Second District
San Bernardino County Representative

LEONARD PAULITZ
Councilmember, City of Montclair
Cities Representative, San Bernardino County

JAMES W. SILVA.
Supervisor, Second District
Orange County Representative

CYNTHIA VERDUGO-PERALTA
Governor’s Appointee

S. ROY WILSON, Ed.D.
Supervisor, Fourth District
Riverside County Representative

EXECUTIVE OFFICER

BARRY WALLERSTEIN, D. Env.

TABLE OF CONTENTS

**EQUILON LOS ANGELES REFINERY
FINAL ENVIRONMENTAL IMPACT REPORT**

VOLUME I	Page No.
1.0 INTRODUCTION AND EXECUTIVE SUMMARY	1-1
INTRODUCTION	1-1
PURPOSE/LEGAL REQUIREMENTS	1-2
SCOPE AND CONTENT	1-2
LEAD AGENCY	1-3
RESPONSIBLE AGENCIES	1-3
INTENDED USES OF THE EIR	1-4
EXECUTIVE SUMMARY – CHAPTER 2: PROJECT DESCRIPTION	1-4
Project Applicant	1-4
Project Description.....	1-5
EXECUTIVE SUMMARY – CHAPTER 3: EXISTING ENVIRONMENTAL SETTING.....	1-6
EXECUTIVE SUMMARY – CHAPTER 4: SUMMARY OF IMPACTS AND MITIGATION MEASURES.....	1-8
EXECUTIVE SUMMARY – CHAPTER 5: CUMULATIVE IMPACTS	1-17
EXECUTIVE SUMMARY - CHAPTER 6: PROJECT ALTERNATIVES.....	1-17
 2.0 PROJECT DESCRIPTION	 2-1
PROJECT OBJECTIVES	2-1
A. REGULATORY BACKGROUND	2-1
B. NEED FOR EMISSION REDUCTIONS	2-4
C. PROJECT LOCATION AND LAND USE.....	2-5
D. EXISTING EQUILON OPERATIONS	2-8
E. PROPOSED PROJECT	2-13
Modifications to Refinery Existing Units.....	2-13
Hydrotreater Unit No. 2 (HTU2)	2-13
C4 Isomerization Unit.....	2-13
Catalytic Reforming Unit (CRU2).....	2-17
Alkylation Unit	2-17
Hydrotreating Unit No. 4 (HTU4)	2-17
Fractionator Changes	2-17
Merox Unit.....	2-20
New Units	2-20
Pentane Sphere.....	2-20
Auxiliary Systems.....	2-20
Storage Tank Modifications.....	2-20
Flare and Vapor Recovery Systems	2-21
Steam Production System Modifications.....	2-21
Terminal Modifications	2-21

TABLE OF CONTENTS

VOLUME I

Page No.

Carson Terminal.....	2-21
Mormon Island.....	2-24
Wilmington Terminal.....	2-26
Signal Hill Terminal	2-26
Van Nuys Terminal.....	2-26
Colton Terminal.....	2-26
Rialto Terminal	2-26
F. CONSTRUCTION OF THE PROPOSED PROJECT	2-32
G. PERMITS AND APPROVALS.....	2-32
Federal Approvals.....	2-34
State Approvals.....	2-34
Local Approvals.....	2-34
3.0 EXISTING ENVIRONMENTAL SETTING	3-1
INTRODUCTION	3-1
A. AIR QUALITY.....	3-1
Meteorological Conditions.....	3-1
Temperature and Rainfall	3-1
Windflow Patterns	3-1
Existing Air Quality.....	3-2
Criteria Pollutants	3-2
Regional Air Quality.....	3-4
Local Air Quality	3-4
Facility Criteria Air Emissions	3-8
Toxic Air Contaminants.....	3-9
Refinery Baseline Health Risk Assessment.....	3-13
Carson Terminal Baseline Health Risk Assessment.....	3-18
Signal Hill Terminal Baseline Health Risk Assessment.....	3-21
Van Nuys Terminal Baseline Health Risk Assessment	3-22
Colton Terminal Baseline Health Risk Assessment	3-22
Rialto Terminal Baseline Health Risk Assessment	3-23
Regulatory Background	3-24
Federal Regulations	3-24
California Regulations	3-25
Local Regulations	3-26
B. GEOLOGY	3-26
Topography and Soils	3-26
Earthquake Faults.....	3-28
San Andreas Fault Zone.....	3-29
The Newport-Englewood Fault Zone	3-29
Malibu-Santa Monica-Raymond Hills Fault Zone	3-31
The Palos Verdes Fault Zone.....	3-31
Whittier-Elsinore Fault Zone	3-31

TABLE OF CONTENTS

VOLUME I

Page No.

Sierra Madre Fault System.....	3-32
San Fernando Fault	3-32
Elysian Park Thrust System.....	3-32
Torrance-Wilmington Fault Zone	3-32
Earthquake Probability.....	3-33
Liquefaction	3-34
Other Geological Issues	3-34
Subsidence	3-34
Regulatory Background	3-35
C. HAZARDS & HAZARDOUS MATERIALS	3-35
Types of On-Site Hazards.....	3-36
Toxic Gas Clouds.....	3-37
Torch Fires, Flash Fires, Pool Fires, and Vapor Cloud Explosions	3-37
Thermal Radiation	3-37
Explosion/Overpressure.....	3-37
Hazards Related to MTBE.....	3-38
Transportation Risks	3-39
Regulatory Background	3-40
D. NOISE.....	3-41
Existing Noise Levels	3-43
Refinery and Wilmington Terminal.....	3-43
Carson Terminal.....	3-47
Mormon Island Terminal	3-47
Signal Hill Terminal	3-47
Van Nuys Terminal.....	3-47
Colton and Rialto Terminals.....	3-47
Regulatory Background	3-48
City of Los Angeles	3-48
City of Carson	3-48
Signal Hill	3-50
Rialto.....	3-50
E. SOLID/HAZARDOUS WASTE	3-51
Non-Hazardous Solid Waste.....	3-51
Regulatory Background	3-51
F. TRANSPORTATION/TRAFFIC	3-53
Regional Circulation	3-53
Local Circulation	3-54
Regulatory Background	3-56
4.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	4-1
INTRODUCTION	4-1
A. AIR QUALITY.....	4-1
Significance Criteria	4-1

TABLE OF CONTENTS

VOLUME I

Page No.

Construction Impacts	4-3
Construction Equipment	4-4
Equipment Delivery/On-Site Travel	4-4
Heavy Diesel Trucks	4-6
Construction Workers Commuting	4-6
Fugitive Dust Associated with Site Construction Activities	4-6
Fugitive Dust Associated with Travel on Paved and Unpaved Roads.....	4-6
Miscellaneous Emissions	4-7
Construction Emission Summary	4-7
Operational Impacts	4-8
Refinery Emissions	4-8
Process Pumps	4-10
Process Valves	4-10
Process Drains.....	4-11
Flanges	4-11
Pressure Relief Devices (PRDs)	4-11
Carson Terminal Emissions	4-12
Mormon Island Terminal Emissions.....	4-12
Wilmington Terminal Emissions	4-12
Signal Hill Terminal Emissions	4-12
Van Nuys Terminal Emissions	4-13
Colton Terminal Emissions.....	4-13
Rialto Terminal Emissions.....	4-13
Operational Emission Summary	4-13
Impacts to Ambient Air Quality	4-15
CO Hot Spots	4-15
Consistency with the Air Quality Management Plan.....	4-16
Toxic Air Contaminants.....	4-16
Refinery HRA	4-16
Hazard Identification	4-16
Emission Estimations and Sources	4-17
HRA Methodology.....	4-17
Proposed Project HRA Results - Carcinogenic Health Impacts	4-17
Maximum Exposed Individual Resident.....	4-17
Maximum Exposed Individual Worker	4-17
Sensitive Receptors.....	4-17
Cancer Burden	4-19
Proposed Project HRA Results – Non Carcinogenic	
Health Impacts	4-19
Acute Hazard Index	4-19
Chronic Hazard Index	4-19
Carson Terminal HRA	4-19
Maximum Exposed Individual Resident.....	4-20
Maximum Exposed Individual Worker	4-21

TABLE OF CONTENTS

VOLUME I

Page No.

Sensitive Receptors	4-21
Acute Hazard Index	4-21
Chronic Health Effects.....	4-21
HRA for Other Equilon Terminals	4-21
Cancer Risk.....	4-21
Chronic Health Effects.....	4-22
Acute Health Effects	4-22
Health Risk from Diesel Exhaust Particulate Matter	4-22
Odors	4-23
Mitigation Measures	4-23
Construction Mitigation Measures.....	4-24
Operational Mitigation Measures	4-25
Level of Significance After Mitigation.....	4-27
Construction.....	4-27
Operations.....	4-28
B. GEOLOGY AND SOILS	4-28
Significance Criteria	4-28
Construction Impacts	4-29
Operational Impacts	4-30
Mitigation Measures	4-32
Level of Significance After Mitigation.....	4-32
C. HAZARDS AND HAZARDOUS MATERIALS	4-32
Significance Criteria	4-32
Proposed Project Impacts.....	4-33
Process Units.....	4-33
Hazard Identification	4-33
Methodology	4-33
Modeling.....	4-34
Results.....	4-35
Transportation of Hazardous Materials	4-38
Ethanol/MTBE.....	4-39
Alkylate.....	4-41
Ammonia.....	4-41
Pentane.....	4-41
Sulfuric Acid.....	4-42
Perchloroethylene	4-42
Compliance Issues	4-43
Impacts on Water Quality	4-43
Mitigation Measures	4-44
Level of Significance After Mitigation.....	4-45
D. NOISE.....	4-45
Significance Criteria	4-45
Construction Impacts	4-45
Operation Noise	4-48

TABLE OF CONTENTS

VOLUME I

Page No.

Traffic Noise	4-49
Mitigation Measures	4-50
Level of Significance After Mitigation.....	4-50
E. SOLID /HAZARDOUS WASTE	4-50
Significance Criteria	4-50
Construction Impacts	4-50
Operational Impacts	4-51
Mitigation Measures	4-51
Level of Significance After Mitigation.....	4-51
F. TRANSPORTATION/TRAFFIC	4-52
Significance Criteria	4-52
Construction Impacts	4-53
Operational Impacts	4-55
Mitigation Measures	4-56
Level of Significance After Mitigation.....	4-57
5.0 CUMULATIVE IMPACTS	5-1
A. INTRODUCTION	5-1
B. OTHER EQUILON PROJECTS	5-4
C. LOCAL REFINERIES.....	5-5
1. Ultramar	5-5
2. Exxon-Mobil.....	5-5
3. Tosco	5-6
4. Chevron.....	5-7
5. ARCO	5-8
D. PROJECTS NEAR THE EQUILON REFINERY/WILMINGTON TERMINAL/MARINE TERMINAL	5-9
6. Port of Los Angeles/Port of Long Beach 2020 Plan.....	5-10
7. Alameda Corridor Transportation Authority (ACTA).....	5-11
Dominguez Channel Project	5-12
Henry Ford Avenue Grade Separation.....	5-12
Alameda Street Widening	5-13
Henry Ford Avenue Widening.....	5-13
Pacific Coast Highway Grade Separation.....	5-13
Street Improvements by Other Agencies	5-13
8. City of Long Beach.....	5-14
E. PROJECTS NEAR THE CARSON TERMINAL.....	5-14
9. Sepulveda Boulevard Improvement.....	5-14
10. 223 rd Street Re-Development Projects.....	5-14
11. California State University Dominguez Hills Sports Complex	5-15
12. Watson Land Company Project	5-15
13. Former Proposed Metro 2000 Site.....	5-16
14. Other City of Carson Projects	5-16

TABLE OF CONTENTS

VOLUME I

Page No.

F. PROJECTS NEAR THE SIGNAL HILL TERMINAL	5-16
G. PROJECTS NEAR THE VAN NUYS TERMINAL	5-18
H. PROJECTS NEAR THE COLTON AND RIALTO TERMINALS	5-18
I. AIR QUALITY	5-18
Construction Impacts	5-19
Operational Impacts – Criteria Pollutants	5-20
Operational Impacts – Toxic Air Contaminants	5-23
Refinery Post - Project Scenario	5-24
Hazard Identification	5-24
Emission Estimations and Sources	5-24
HRA Methodology.....	5-24
Post-Project HRA Results – Carcinogenic Health Impacts	5-25
Maximum Exposed Individual Risk	5-25
Maximum Exposed Individual Worker	5-25
Sensitive Receptors.....	5-27
Cancer Burden	5-27
Acute Hazard Index	5-27
Chronic Hazard Index	5-28
Carson Terminal Post-Project Scenario	5-28
Maximum Exposed Individual Risk	5-28
Maximum Exposed Individual Worker	5-28
Sensitive Receptors.....	5-28
Cancer Burden	5-28
Acute Hazard Index	5-29
Chronic Hazard Index	5-29
Signal Hill Terminal Post-Project Scenario	5-29
Maximum Exposed Individual Risk	5-29
Maximum Exposed Individual Worker	5-29
Acute Hazard Index	5-29
Chronic Hazard Index	5-29
Van Nuys Terminal Post-Project Scenario	5-30
Maximum Exposed Individual Risk	5-30
Maximum Exposed Individual Worker	5-30
Acute Hazard Index	5-30
Chronic Hazard Index	5-30
Colton Terminal Post-Project Scenario	5-30
Maximum Exposed Individual Risk	5-31
Maximum Exposed Individual Worker	5-31
Acute Hazard Index	5-31
Chronic Hazard Index	5-31
Rialto Terminal Post-Project Scenario.....	5-31
Maximum Exposed Individual Risk	5-31
Maximum Exposed Individual Worker	5-31

TABLE OF CONTENTS

VOLUME I

Page No.

Chronic Hazard Index	5-32
Mormon Island Terminal Post-Project Scenario.....	5-32
Overlap of Impact Areas with Other CARB RFG Phase 3 Projects.....	5-32
Mitigation Measures	5-33
Level of Significance After Mitigation.....	5-33
J. GEOLOGY/SOIL	5-33
Project Impacts.....	5-33
Seismicity.....	5-33
Contaminated Soils	5-34
Mitigation Measures	5-35
Level of Significance After Mitigation.....	5-35
K. HAZARDS AND HAZARDOUS MATERIALS	5-36
Project Impacts.....	5-36
Mitigation Measures	5-38
Level of Significance After Mitigation.....	5-38
L. NOISE.....	5-38
Construction Impacts	5-38
Operational Impacts	5-39
Mitigation Measures	5-40
Level of Significance After Mitigation.....	5-40
M. SOLID/HAZARDOUS WASTE	5-40
Hazardous Waste	5-40
Non-Hazardous Waste	5-41
Mitigation Measures	5-41
Level of Significance	5-41
N. TRANSPORTATION/TRAFFIC	5-41
Construction Impacts	5-42
Operational Impacts	5-43
Mitigation Measures	5-45
Level of Significance After Mitigation.....	5-46
6.0 PROJECT ALTERNATIVES	6-1
INTRODUCTION	6-1
ALTERNATIVES REJECTED AS INFEASIBLE	6-2
Alternate Oxygenates.....	6-2
Alternative Terminals	6-2
DESCRIPTION OF THE PROJECT ALTERNATIVES	6-2
Alternative 1 – Purchase Additional Alkylate	6-2
Alternative 2 – New Alkylation Unit.....	6-3
Alternative 3 - Alternate Location for Ethanol Railcar Unloading Facilities	6-3
ALTERNATIVE 1 – PURCHASE ADDITIONAL AKLYLATE.....	6-3
Air Quality	6-3

TABLE OF CONTENTS

VOLUME I

Page No.

Geology/Soils.....	6-6
Hazards	6-6
Noise	6-7
Solid/Hazardous Waste.....	6-7
Transportation.....	6-7
ALTERNATIVE 2 – NEW ALKYLATION UNIT	6-7
Air Quality	6-7
Geology/Soils.....	6-9
Hazards	6-10
Noise	6-10
Solid/Hazardous Waste.....	6-10
Transportation.....	6-10
ALTERNATIVE 3 – ALTERNATE ETHANOL RAILCAR UNLOADING SITE	6-10
Air Quality	6-11
Biological Resources	6-14
Cultural Resources	6-14
Energy.....	6-14
Geology/Soils.....	6-15
Hazards	6-15
Hydrology and Water Quality.....	6-15
Land Use	6-16
Noise	6-16
Solid/Hazardous Waste.....	6-17
Transportation.....	6-17
CONCLUSION.....	6-17
7.0 REFERENCES.....	7-1
REFERENCES	7-1
ORGANIZATIONS AND PERSONS CONSULTED	7-5
8.0 ACRONYMS AND GLOSSARY	8-1
ACRONYMS AND ABBREVIATIONS.....	8-1
GLOSSARY	8-5

APPENDICES:

APPENDIX A: NOTICE OF PREPARATION (NOP) AND COMMENTS RECEIVED ON NOP	A-1
APPENDIX B: AIR QUALITY EMISSION CALCULATIONS.....	B-1
APPENDIX C: TRAFFIC LEVEL OF SERVICE ANALYSES	C-1
APPENDIX D: COMMENTS RECEIVED ON DRAFT EIR AND RESPONSES TO COMMENTS	D-1

TABLE OF CONTENTS

VOLUME I

Page No.

TABLES:

1-1	SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS.....	1-11
2-1	EMISSION BENEFITS ASSOCIATED WITH RFG PHASE 2 REGULATIONS	2-2
2-2	RFG PHASE 2 AND 3 REQUIREMENTS	2-2
2-3	OZONE PRECURSOR CONTRIBUTION FROM MOTOR VEHICLES.....	2-4
2-4	PROPOSED PROJECT MODIFICATIONS.....	2-18
2-5	PROPOSED TERMINAL CHANGES.....	2-23
2-6	FEDERAL, STATE AND LOCAL AGENCY PERMITS AND APPLICATIONS	2-36
3-1	AMBIENT AIR QUALITY STANDARDS.....	3-3
3-2	AMBIENT AIR QUALITY SOUTH COASTAL LOS ANGELES COUNTY MONITORING STATION (1995-1999).....	3-5
3-3	AMBIENT AIR QUALITY EAST SAN FERNANDO VALLEY MONITORING STATION (1995-1999).....	3-6
3-4	AMBIENT AIR QUALITY CENTRAL SAN BERNARDINO VALLEY MONITORING STATION (1995-1999).....	3-7
3-5	EQUILON FACILITIES BASELINE CRITERIA POLLUTANT EMISSIONS	3-8
3-6	AMBIENT AIR QUALITY TOXIC AIR CONTAMINANTS NORTH LONG BEACH	3-10
3-7	CANCER RISK BASED ON CARB – NORTH LONG BEACH MONITORING STATION DATA.....	3-11
3-8	TOXIC COMPOUNDS MODELED AND MEASURED UNDER THE SCAQMD MATES II STUDY	3-12
3-9	EQUILON REFINERY EMISSIONS OF INDIVIDUAL CHEMICALS	3-14
3-10	SUMMARY OF CANCER RISK	3-18
3-11	CARSON TERMINAL - EMISSION OF INDIVIDUAL CHEMICALS	3-19
3-12	MAJOR ACTIVE OR POTENTIALLY ACTIVE FAULTS SOUTHERN CALIFORNIA	3-29
3-13	SIGNIFICANT HISTORICAL EARTHQUAKES IN SOUTHERN CALIFORNIA ..	3-33
3-14	SUMMARY OF EXISTING HAZARDS	3-38
3-15	TRUCK ACCIDENT RATES FOR CARGO ON HIGHWAYS.....	3-39
3-16	NOISE LEVEL MEASUREMENT LOCATIONS	3-44
3-17	SAMPLING RESULTS, BACKGROUND AMBIENT NOISE LEVELS, dBA	3-46
3-18	CITY OF LOS ANGELES NOISE ORDINANCE.....	3-48
3-19	CITY OF CARSON NOISE ORDINANCE THRESHOLDS	3-50
3-20	LOS ANGELES COUNTY LANDFILL STATUS	3-52
3-21	EQUILON REFORMULATED FUELS PROGRAM EXISTING LEVEL OF SERVICE ANALYSIS AND VOLUME TO CAPACITY RATIOS.....	3-56
4-1	AIR QUALITY SIGNIFICANCE THRESHOLDS	4-2
4-2	SIGNIFICANCE THRESHOLDS FOR NO _x and SO _x	4-3
4-3	SUMMARY OF CONSTRUCTION ACTIVITIES.....	4-5
4-4	EQUILON CARB PHASE 3 PROPOSED PROJECT PEAK DAY CONSTRUCTION EMISSIONS	4-7

TABLE OF CONTENTS

VOLUME I

Page No.

TABLES (Continued)

4-5 EQUILON CARB PHASE 3 PROPOSED PROJECT STATIONARY SOURCE OPERATIONAL EMISSIONS..... 4-9

4-6 EQUILON CARB PHASE 3 PROPOSED PROJECT MARINE VESSEL EMISSION INCREASES 4-13

4-7 EQUILON CARB PHASE 3 PROPOSED PROJECT OPERATIONAL EMISSIONS SUMMARY 4-14

4-8 SUMMARY OF PROPOSED PROJECT CANCER RISK EQUILON WILMINGTON REFINERY/TERMINAL..... 4-19

4-9 SUMMARY OF PROPOSED PROJECT CANCER RISK EQUILON CARSON TERMINAL..... 4-20

4-10 HRA SUMMARY – EQUILON MORMON ISLAND, SIGNAL HILL, VAN NUYS, COLTON AND RIALTO TERMINALS 4-22

4-11 PEAK DAY CONSTRUCTION EMISSIONS FOLLOWING MITIGATION..... 4-27

4-12 PROCESS UNITS AND FACILITIES INVOLVED IN THE PROPOSED PROJECT..... 4-34

4-13 ENDPOINT CRITERIA FOR CONSEQUENCE ANALYSIS 4-35

4-14 MAXIMUM HAZARD DISTANCES 4-36

4-15 HEALTH ASSESSMENT VALUES AND HEALTH PROTECTIVE CONCENTRATIONS 4-40

4-16 CONSTRUCTION NOISE SOURCES..... 4-46

4-17 PROJECT CONSTRUCTION NOISE LEVELS 4-47

4-18 EQUILON REFINERY OPERATION NOISE LEVELS 4-48

4-19 ESTIMATED WASTE STREAMS GENERATED BY THE CARB PHASE 3 PROPOSED PROJECT 4-52

4-20 EQUILON CONSTRUCTION TRAFFIC IMPACTS LEVEL OF SERVICE ANALYSIS AND VOLUME-TO-CAPACITY RATIOS..... 4-54

4-21 EQUILON OPERATIONAL TRAFFIC IMPACTS LEVEL OF SERVICE ANALYSIS AND VOLUME-TO-CAPACITY RATIOS..... 4-56

5-1 AVAILABLE CUMULATIVE PROJECT PEAK DAY CONSTRUCTION EMISSIONS 5-21

5-2 CUMULATIVE PROJECT STATIONARY AND INDIRECT SOURCES OPERATIONAL EMISSIONS 5-23

5-3 CARB PHASE 3 EXPECTED EMISSION CHANGES..... 5-24

5-4 CUMULATIVE REFINERY SCENARIO..... 5-27

5-5 CUMULATIVE OPERATIONAL TRAFFIC IMPACTS 5-44

6-1 ALTERNATIVE 1 - OPERATIONAL EMISSIONS 6-5

6-2 ALTERNATIVE 1 – MARINE VESSEL EMISSION INCREASES..... 6-6

6-3 ALTERNATIVE 2 – CONSTRUCTION ACTIVITIES 6-8

6-4 ALTERNATIVE 2 - OPERATIONAL EMISSIONS 6-9

6-5 ALTERNATIVE 3 - CONSTRUCTION EMISSIONS 6-11

6-6 ALTERNATIVE 3 - PEAK DAY CONSTRUCTION EMISSIONS 6-12

6-7 ALTERNATIVE 3 - STATIONARY SOURCE OPERATIONAL EMISSIONS 6-13

TABLE OF CONTENTS

VOLUME I

Page No.

TABLES (Continued)

6-8 ENVIRONMENTAL IMPACTS OF ALTERNATIVES AS COMPARED TO THE PROPOSED PROJECT 6-18

FIGURES:

2-1 EQUILON PROPOSED PROJECT LOCATION MAP 2-6

2-2 SITE LOCATIONS – EQUILON LOS ANGELES REFINERY & WILMINGTON TRUCK TERMINAL 2-7

2-3 SIGNAL HILL TERMINAL 2-9

2-4 CARSON TERMINAL 2-10

2-5 VAN NUYS TERMINAL 2-11

2-6 COLTON AND RIALTO TERMINALS 2-12

2-7 EQUILON EXISTING REFINERY FLOW DIAGRAM 2-14

2-8 EQUILON PROPOSED REFINERY FLOW DIAGRAM 2-15

2-9 EQUILON REFINERY PLOT PLAN 2-16

2-10 EQUILON CARSON TERMINAL PLOT PLAN 2-22

2-11 EQUILON MORMON ISLAND TERMINAL PLOT PLAN 2-25

2-12 EQUILON WILMINGTON TERMINAL PLOT PLAN 2-27

2-13 SIGNAL HILL TERMINAL PLOT PLAN 2-28

2-14 VAN NUYS TERMINAL PLOT PLAN 2-29

2-15 EQUILON COLTON TERMINAL PLOT PLAN 2-30

2-16 RIALTO TERMINAL PLOT PLAN 2-31

2-17 EQUILON RFG PHASE 3 REFINERY CONSTRUCTION MANPOWER ... 2-33

3-1 CANCER RISK ISOPLETH – EQUILON LOS ANGELES REFINERY 3-16

3-2 LOCATIONS OF MAXIMUM IMPACT AREAS
EQUILON LOS ANGELES REFINERY 3-17

3-3 MAXIMUM IMPACT LOCATIONS – CARSON TERMINAL 3-20

3-4 MAJOR FAULT SYSTEMS IN THE SOUTHERN CALIFORNIA AREA.... 3-30

3-5 GENERAL NOISE SOURCES AND THEIR SOUND PRESSURE LEVELS..... 3-42

3-6 NOISE MONITORING LOCATIONS
EQUILON LOS ANGELES REFINERY 3-45

3-7 LAND USE COMPATIBILITY FOR COMMUNITY
NOISE ENVIRONMENTS 3-49

3-8 LOCAL CIRCULATION 3-55

4-1 SITE LOCATIONS, EQUILON LOS ANGELES REFINERY,
WILMINGTON TRUCK TERMINAL & MAXIMUM IMPACT AREAS 4-18

5-1 SOUTHERN CALIFORNIA REFINERIES REFORMULATED
FUELS PROJECTS 5-2

5-2 RELATED PROJECTS 5-3

TABLE OF CONTENTS

VOLUME I

Page No.

FIGURES (Continued)

- 5-3 ONE PER MILLION CANCER RISK ISOPLETH – EQUILON REFINERY
POST-PROJECT SCENARIO, CUMULATIVE REFINERY EMISSIONS ... 5-26
- 6-1 LOMITA RAIL OFF-LOADING FACILITIES GENERAL PLOT PLAN 6-4

VOLUME II

HEALTH RISK ASSESSMENT

VOLUME III

WORST-CASE CONSEQUENCE ANALYSIS

DAB:WORD:1994TOC1