UNITED STATES OF AMERICA
BEFORE THE FEDERAL TRADE COMMISSION

In the Matter of **UNION OIL COMPANY OF CALIFORNIA,** **a corporation.**	Docket No. 9305 **PUBLIC**

COMPLAINT COUNSEL'S POST-TRIAL BRIEF

Susan A. Creighton
Director

Bernard A. Nigro
Deputy Director

Geoffrey Oliver
Assistant Director

Patrick Roach
Deputy Assistant Director

Chong S. Park
Sean Gates
Lore Unt
Peggy Bayer Femenella
Lisa Fialco
Dean Graybill
John Roberti
David Conn
Counsel Supporting the Complaint

Thomas Krattenmaker
Office of Policy & Coordination

John T. Delacourt
Office of Policy Planning

Bureau of Competition
FEDERAL TRADE COMMISSION
Washington, D.C. 20580

Dated: March 9, 2005

TABLE OF CONTENTS[1]

I. INTRODUCTION 1

II. THE ELEMENTS OF THE CLAIMS 5

A. The Monopolization Count 6

1. Monopoly Power 6

2. Relevant Market 7

3. Willful Acquisition of Monopoly Power 7

B. The Attempted Monopolization Counts 8

C. The Independent FTC Act Section 5 Counts 9

D. The *Noerr* Defense 10

STATEMENT OF THE CASE 11

I. THE BACKDROP FOR UNOCAL'S CONDUCT 11

A. Gasoline, Pollution, and Automobile Emissions 12

B. CARB and the RFG Rulemaking Process 13

1. The Legislative Mandates for CARB 14

2. CARB Had Limited Discretion in its Rulemaking 15

a. Policy decisions were made by the Legislature, not CARB 15

b. CARB had to support its regulations with sound scientific and technical data 17

c. CARB's regulations had to meet specific enforceable standards and were subject to review by the Office of Administrative Law and to judicial review 19

3. CARB Depended on Receiving Truthful and Accurate Information from Interested Parties. 20

[1] Sections marked with an asterisk provide the legal authority on the issues Your Honor requested in the Revised Scheduling Order (Sept. 9, 2004) and/or in Your Honor's instructions at Trial, Tr. 8579-8582 (Trial Volume 43).

4. CARB's Mandate Required it to Consider Carefully the Costs of its Regulation and to Preserve Competition in the Marketplace 24

a. CARB carefully considered several aspects of costs 24

b. CARB depended on receiving truthful and accurate cost information from the industry 26

c. CARB sought to preserve competition in the marketplace that would produce CARB-compliant gasoline 30

C. Unocal Was Well Aware That Refining Costs and Preserving Competition Were Material to CARB's Decisionmaking Process 32

1. Unocal Knew That CARB Was Concerned About Refining Costs and That CARB Needed Accurate Information About These Costs 32

2. Unocal Knew CARB Was Concerned About Ensuring Adequate Supply and Maintaining Competition in the Industry 34

3. Unocal Knew That Technology License Fees Were Part of the Costs Being Considered By CARB 34

D. Cooperative Industry Efforts During the Phase 2 Rulemaking Process 35

1. The Auto/Oil Group 35

2. The Western States Petroleum Association 36

II. UNOCAL PLANNED TO USE THE REGULATORY PROCESS TO GAIN A COMPETITIVE ADVANTAGE 37

A. Unocal Was Under Severe Financial Pressures 38

B. As Early As 1989, Unocal Began to Seek Ways to Exploit Reformulated Gasoline Technology 38

C. Unocal Created the Cross-Management Fuels Issues Team to Decide How to Use New Regulations to Its Advantage 39

III. UNOCAL'S DISCOVERIES AND INVENTION: THE 5/14 PROJECT 41

A. Unocal's Scientists Conducted Experiments to Determine the Effects of Gasoline Properties on Automotive Emissions, And Found Significant Relationships Just from Reviewing the Data 43

B. The Experimental Data Showed the Relationships Between Key Gasoline

Properties and Automotive Emissions 44

C. Unocal's Scientists Discovered Mathematical Equations That Express These Relationships 46

D. Unocal's Research Data Allow a Practitioner to Identify, Make, and Use Gasoline Compositions to Reduce Emissions, and to Predict Emissions for Any Given Gasoline 47

E. Unocal's Scientists Presented the Emissions Research, Which Became Known as the "5/14 Project" to Roger Beach, Unocal's CEO Richard Stegemeier and Unocal's Executive Committee 50

IV. UNOCAL DETERMINED TO USE THE 5/14 PROJECT TO GAIN A "COMPETITIVE ADVANTAGE" 51

A. The Patent Path – Seeking Licensing Revenue Through Patenting 52

1. Unocal's Management Authorized Preparation of a Patent Application 52

2. In December 1990, Unocal Filed a Patent Application on the Results of the 5/14 Project. 53

3. Unocal Believed From the Very Start That It Would Obtain a Valuable Patent That it Intended to Enforce 56

B. Unocal Saw That to Gain a Competitive Advantage Through the Patent Path it Must Influence the Regulations and Publicize its Research Results 57

C. The Commercial Path – Using the 5/14 Project Internally 60

1. Unocal Considered Using the 5/14 Project Internally to Gain a Competitive Advantage in its Refineries 61

2. Unocal sought to introduce an interim RFG product based on the 5/14 Project 62

3. Unocal Abandoned the Commercial Path Because the Patenting Path Was Far More Profitable 63

4. Unocal Could Not Gain Any Competitive Advantage by Using the 5/14 Concepts Internally; It Decided to Use the 5/14 Project to Influence the CARB Regulations and the Actions of Industry Groups and Their Members 64

5. $1 Billion Pot of Gold 65

6. Drs. Jessup and Croudace participated in renewed patent prosecution activities to maximize the effectiveness of the patent path 66

7. Unocal's decision to disclose the 5/14 Project to CARB came from the highest levels of Unocal management 67

V. UNOCAL MET WITH CARB TO INFLUENCE THE CARB REGULATIONS . 68

A. The Time was Ripe for Unocal to Influence the Regulations 68

B. Unocal's Two Related Purposes: Influence CARB to Adopt a Predictive Model and Convince CARB to Include T50 in its Regulations 69

C. The June 20, 1991 Meeting 70

D. Unocal's June 1991 Presentation Provided CARB With All the Critical Aspects of Unocal's 5/14 Project Inventions 71

1. Unocal Showed CARB Its 5/14 Project Test Design and Experiments . 72

2. Unocal Showed CARB the Relationships it Discovered Between Properties and Emissions 72

3. Unocal Showed CARB that Mathematical Equations Express The Relationships Between Properties and Emissions 74

4. Unocal's Presentation Taught CARB How to Identify Gasoline Compositions with Reduced Emissions (Many of Which Were Covered By Unocal's Pending Patent Claims), and How to Predict Emissions . . 74

E. Unocal's Presentation Was Effective: CARB Was "Stunned" 77

F. At the June 1991 Meeting, Unocal Concealed the Fact That it Had a Pending Patent Application and Planned to Charge Royalties 77

VI. UNOCAL LIED TO CARB 78

A. CARB Sought Permission to Use the Technology Presented to it by Unocal . . . 78

1. At CARB's Request, Unocal Provided the Full Equations With Coefficients, But On a Confidential Basis Stating That They Represent a "Competitive Advantage" 78

2 CARB Requested that Unocal Provide to CARB its Research Results on a Disk 79

3. Unocal Knew That CARB Could Not Use Unocal's Research to Develop the Regulations Unless the Research Results Were Made Freely Available to the Public 80

4. CARB Requested That Unocal Release Any Proprietary Claim to All of the Research That Unocal Had Provided 81

B. Unocal Represented That Everything it Presented to CARB Was "Non-Proprietary" and Available to the Public to Induce CARB to Adopt Regulations Incorporating Key Features of Unocal's Pending Patent Rights 82

1. Unocal Knew That CARB's Use of its 5/14 Results Would Lead to Regulations That Intersected Unocal's Pending Patent Rights 82

2. Unocal Nonetheless Represented to CARB That Unocal's Research was "Non-Proprietary" and Available to the Public 83

3. Unocal Understood That Its Release Applied to All of the Materials and Information Given to CARB 84

a. Peter Jessup testified that before Denny Lamb's letter went to CARB, Unocal's management had decided to disclose to the public the slides, equations, and the raw data from the 5/14 Project 84

b. Peter Jessup testified that "data" was a "loose way" of referring to Unocal's raw data and the results from that data 85

c. Mike Kulakowski testified that Unocal granted to CARB permission to use Unocal's predictive equations in the CARB technical support document 85

d. Wayne Miller testified that Unocal decided to release both the slides and the data to CARB at an August 22, 1991 Fuel Issues Team Meeting 86

e. Roger Beach testified that he instructed Denny Lamb to give to CARB Unocal's predictive equations 86

f. Denny Lamb's contemporaneous memorandum shows that he believed that "data" included Unocal's equations 87

g. Denny Lamb admitted on cross-examination that his August 27, 1991 letter referred to the data in the presentation to CARB at the June 1991 meeting 87

h. Unocal represented in the ’393 litigation that the term “data” in the letter also applied to the equations 88

i. Unocal’s patent application and patents use the term “data” to include analysis and charts 88

j. Unocal’s reaction when it saw CARB using the 5/14 Project materials shows that Unocal intended the release to cover everything given to CARB 89

4. CARB Reasonably Understood Unocal’s Representation to Apply to All of the Materials and Research Unocal Had Given to CARB 90

a. Unocal’s July 1, 1991 letter offered to make publicly available Unocal’s equations and data 90

b. CARB specifically requested that Unocal give permission to CARB to use everything Unocal had given to CARB 91

c. The equations, results, charts, and graphs that Unocal presented to CARB were developed from the “data” 91

d. The slides Unocal presented to CARB presented “data” 92

e. CARB witnesses consistently testified that they understood that all of Unocal’s analysis, conclusions, materials, and research were included in Unocal’s release 93

5. Unocal Understood That “Non-Proprietary” Meant Free of Property Rights 94

a. Unocal’s own internal policies used the term “proprietary” to mean subject to intellectual property rights 94

b. Unocal used the term “proprietary” in both internal and external documents to refer to patent-pending technologies 95

c. Unocal’s CEO used “proprietary” to refer to patent rights 95

d. Unocal viewed the 5/14 Project as proprietary because of its property rights in the Project 96

e. Denny Lamb repeatedly used the term “proprietary” to refer to property rights 96

f. Unocal entered into and considered several agreements equating

"proprietary rights" with "patent applications" 96

6. CARB Reasonably Understood "Non-Proprietary" to Mean Free of Patent Claims and Could Be Freely Used Without Charge or Limitations 97

a. CARB witnesses uniformly testified that they understood Unocal had released any proprietary claims and that Unocal's research and materials were available to the public with "no strings attached" 98

b. Other industry members understood "proprietary" to mean subject to property rights 100

c. Unocal had entered into a contemporaneous agreement with CARB that equated "proprietary rights" with "patent applications" 101

d. Other companies were providing research to CARB without any strings attached 102

7. Unocal's Management Made a Conscious, Strategic Decision Not to Inform CARB That Unocal Had a Patent Pending on the Inventions from the 5/14 Project and That It Intended to Charge Royalties 102

a. Unocal had disclosed to CARB the existence of another patent application in a previous CARB proceeding 102

b. Unocal management, including Roger Beach, decided not to disclose to CARB the fact that Unocal had a pending patent on the results of the 5/14 Project 103

8. Unocal's Representations Were Deliberately False 104

a. Unocal intended its deliberate false representations to influence CARB 104

b. Denny Lamb admitted to John Courtis that Unocal made a "business/management" decision to deceive CARB 107

VII. UNOCAL'S LIES WERE SUCCESSFUL: CARB BASED ITS REGULATION OF T50 ON UNOCAL'S RESEARCH 107

A. CARB Justified Its Regulation of T50 With Unocal's Research Results 107

1. CARB Did Not Have an Independent T50 Parameter in Any Proposal Before CARB's Meeting With Unocal 108

2. CARB Did Not Have a Sufficient Basis for a T50 Specification Without Unocal's Research 109

3. Unocal's Research Provided The Basis for CARB's T50 Specification. 110

4. Unocal Itself Has Asserted That The CARB Regulations Were the Result of Using the Unocal Research 112

a. Unocal's Chief Patent Counsel believed that the CARB regulations "validated" Unocal's invention and relied on them to help obtain Unocal's patents 112

b. Unocal represented to a District Court and jury that the CARB regulations were based on Unocal's work 113

B. CARB Would Not Have Adopted the Phase 2 Regulations in the Same Form Had CARB Known of Unocal's Patent Application and Intent to Charge Royalties 115

1. CARB Witnesses Uniformly Testified That They Would Not Have Granted the Necessary Approval for the Phase 2 Regulations Had They Known of Unocal's Patents 115

a. Peter Venturini would not have approved forwarding the Phase 2 regulations to the CARB Board 114

b. CARB general counsel Michael Kenny would not have approved forwarding the Phase 2 regulations to the Board 116

c. CARB executive officer James Boyd would not have forwarded Phase 2 to the Board in November 1991 116

d. CARB Chairwoman Jananne Sharpless and the CARB Board would not have approved the Phase 2 proposal presented to them in November 1991 117

2. CARB Had Options That Would Have Avoided Unocal's Patent Trap 118

VIII. UNOCAL DID NOTHING TO REMEDY CARB'S OBVIOUS BELIEF THAT UNOCAL'S INFORMATION AND MATERIALS WERE NON-PROPRIETARY AND AVAILABLE FOR USE WITHOUT LIMITATIONS 120

A. By October 1991, Unocal Knew CARB Was Using the 5/14 Project Information and Materials to Support the Phase 2 Regulations 120

B. Unocal Took No Steps to Remedy CARB's Misconception 120

C. Despite Giving Detailed Comments to CARB Regarding the Costs of the Phase 2 Specifications, Unocal Concealed the Costs It Knew Its Patent Would Impose 121

IX. UNOCAL LIED TO OTHER INDUSTRY MEMBERS 122

A. Unocal Presented to Auto/Oil and Told The Members That the Unocal Information Was "In the Public Domain" 123

1. Unocal's Presentation to Auto/Oil Was Essentially the Same as the Presentation Unocal Gave to CARB, but with the Full Predictive Equations 124

2. Unocal Led the Auto/Oil Members to Believe That the 5/14 Information and Materials Could Be Used Without Cost 124

a. Dr. Jessup represented to the members of Auto/Oil that all the presented information was "in the public domain" 124

b. "In the public domain" means free of intellectual property rights 126

c. Unocal understood that presenting the research results meant that they could be freely used, yet placed no caveats on its presentation 127

d. The Auto/Oil Agreement embodies the underlying purpose of Auto/Oil: Information presented to the organization became part of the public domain 129

e. Auto/Oil had a means to preserve proprietary rights, which Unocal did not use 130

f. Auto/Oil members in fact used Unocal's research under the false impression that there were no associated proprietary interests . 131

B. Unocal Led WSPA Members To Believe That They Could Use Unocal's Information Free of Charge and Worked Through WSPA to Influence the CARB Regulations 132

1. Unocal Presented Its 5/14 Project To WSPA Leading WSPA Members To Believe That the Information Could Be Used Free of Charge 132

2. Unocal Knew That Technology Licensing Fees Were Included in WSPA Studies Given to CARB, But Unocal Never Revealed its Intent to Charge Royalties 134

3. Unocal Countered Criticisms of the T50 Specification, Though Doing So Was Against The Interests of Its Refining Business 137

4. Unocal Used WSPA to Ensure That CARB's Predictive Model Included a T50 Parameter 137

X. AFTER THE CARB BOARD ADOPTED THE PHASE 2 REGULATIONS, BUT BEFORE FINAL APPROVAL, UNOCAL CONTINUED TO BOLSTER ITS PATENT TRAP 139

A. Final Approval of the Phase 2 Regulations Awaited Confirmation That The Regulations Met the Statutory Requirements 140

B. Though Unocal Knew That its Presentation Had Led CARB to Develop Regulations That Were Covered by its Pending Patent, Unocal Failed to Tell CARB of its Intent to Charge Royalties Even While Advocating Against Other Provisions That Raised Cost or Reduced Competition 141

1. When the Board Approved the CARB Regulations, Unocal Knew it Had Pending Claims that Would Cover Most Gasolines Compliant with the Regulations 141

2. In March 1992, Unocal Amended its Pending Application to Ensure Extensive Coverage of Phase 2 Gasoline 141

3. In the Summer of 1992 Unocal's Senior Management Knew that the Patent Office Allowed Patent Claims "Broad Enough to Cover All Gasoline Fuels Sold in California" 143

4. Unocal's CEO Personally Called Unocal's Chief Patent Counsel to Congratulate Him on the Patent Allowance 144

5. In the Summer of 1992, Unocal Retained Outside Counsel to Prepare to Enforce its Patent Claims in Litigation 144

6. By the Fall of 1992, Unocal Considered Future Plans to Market its Gasoline as "Patented Reformulated Gasoline Formulas." 144

7. Unocal Continued to Advocate for Changes to the Regulations to Reduce Costs and Ensure Competition, but it Withheld Information About its Pending Patent and Intent to Charge Royalties 145

C. Had Unocal Informed CARB of Unocal's Intentions Before September 1992,

CARB Could Have Prevented Unocal's Monopoly by Delaying or Amending the Phase 2 Regulations and Taking Steps to Guard Against Unocal's Royalty Demands 146

D. After Choosing Not to Tell CARB About its Intentions, Unocal Filed For Additional, More Expansive Patents on CARB-Compliant Gasolines and Methods of Making and Using Them 147

XI. CALIFORNIA REFINERS, MISLED INTO BELIEVING THAT UNOCAL'S RESEARCH WAS IN THE PUBLIC DOMAIN, SPENT BILLIONS TO COMPLY WITH CARB'S REGULATIONS 149

A. The Refiner Investment Decisions Were Carefully Calibrated Based on Expected Compliance Costs 150

B. By Late 1993, the Refiners Had Made Irreversible Investments to Produce Phase 2 Gasoline 150

C. Had the Refiners Known of Unocal's Patent Application and Intent to Charge Royalties, They Would Have Informed CARB, Considered Alternative Modifications, Sought to Negotiate Licenses From Unocal, or Modified Their Investment Plans 152

XII. AFTER ITS FIRST PATENT ISSUED, UNOCAL CONTINUED TO MAXIMIZE THE EFFECTIVENESS OF ITS INITIAL DECEPTION 152

A. Unocal's '393 Patent Issued, But Unocal Sought to Keep Its Licensing Plans Secret Because It Did Not Want To "Make a Press Release Too Far Ahead of the Implementation of CARB Phase 2 Gasoline" 152

B. Unocal Stonewalled the Few Refiners That Discovered the Patent and Asked Whether Unocal Would Seek to Enforce the Patent 154

C. After Being Forced to Publicly Acknowledge Its Patent, Unocal Sought To Assure Both CARB and the California Governor That Unocal Would Not Impact the Phase 2 Regulations 155

D. Despite CARB's and Industry's Concern about Unocal's First Patent, Unocal's Management Made a Conscious Decision Not to Tell CARB about its Other Patent Applications 158

E. Unocal and the Law Firm Representing Unocal's RFG Patent Interests Participated in CARB's Phase 3 Proceedings to Oppose Any Relaxation of the T50 Specification 159

F. Unocal Eventually Obtained Four Additional, More Expansive, Patents on its

5/14 Project Research Results 161

XIII. UNOCAL'S PATENTS COVER VIRTUALLY ALL GASOLINE COMPLIANT WITH CARB'S PHASE 2 REGULATIONS 162

A. Over 92% of All Phase 2 Gasoline Falls under the Property Limits of the Patents 163

B. Unocal's Own Expert Admitted That 50.4% of All Gasoline Produced in California Infringed Either the '393 Patent or the First 40 Claims of the '126 Patent 163

XIV. UNOCAL HAS SOUGHT TO COLLECT ROYALTIES FOR ITS PATENTS THROUGH LITIGATION AND LICENSING 164

A. The '393 Litigation 164

B.* The '393 Litigation: Issues Litigated in Other Tribunals 165

C. The '393 Litigation: Claim Construction and Infringement Issues 169

D. The Valero Litigation 172

E. Unocal's Licensing Efforts 172

LIABILITY 175

I. THE BURDEN OF PROOF 175

A.* The Preponderance-of-Evidence Standard Applies to Section 5 Cases Challenging Exclusionary Deceit 175

B. The Standard of Proof Is No Different Merely Because Patents Are Involved 178

C. The Preponderance-of-Evidence Standard Applies to the Misrepresentation Exception to *Noerr* 181

II. UNOCAL'S CONDUCT WAS EXCLUSIONARY 185

A. Exclusionary Conduct Is Behavior That Attempts to Exclude Rivals on Some Basis Other Than Efficiency 185

B.* Deceptive Conduct, Such As Lying, With the Purpose and Intent To Hinder Rivals May be Exclusionary Conduct 186

C. Unocal's Lies Were Exclusionary Conduct 192

1. Unocal's conduct was deceptive 192

2. Unocal's Deception Tended To Impair the Opportunities of Rivals . . . 194

a. Unocal's lies to CARB were aimed at influencing the regulation to exclude competing technologies 194

b. Unocal's lies to other refiners prevented them from taking actions to avoid Unocal's patents or otherwise reduce its monopoly power 195

3. Unocal's Deception Did Not Further Competition on the Merits 196

4. There is No Efficiency Justification for Unocal's Lies 196

5. Unocal's Deception Was "Willful"and Unocal had the Specific Intent to Monopolize 197

III. UNOCAL'S EXCLUSIONARY CONDUCT IS NOT SHIELDED FROM ANTITRUST LIABILITY 198

A.* Unocal's Conduct is Not Protected By the First Amendment 198

B. The Purposes of the *Noerr* Doctrine 200

C. Given the Purposes of the *Noerr* Doctrine, Unocal's Conduct Does Not Fall Within the Zone of Behavior Governed by *Noerr* 203

1. CARB Did Not Intend to Supplant Competition; Indeed, CARB's Stated Purpose Was to Preserve Competition in the Market 203

2. Unocal's Exclusionary Conduct Can Be Remedied Without Disrupting or Burdening Any Government Program or Any Communication to or from the Government 204

D. Even if Unocal's Conduct Fell Within the Zone of Behavior Protected by *Noerr* in the Sherman Act Context, That Conduct Does Not Fall Within the Narrower Zone of Protected Behavior in the FTC Act Context 205

E. Even if Unocal's Conduct Fell Within the Zone of Behavior Protected by *Noerr*, and the Scope of Protected Conduct Was Identical in Both Sherman Act and FTC Act Cases, That Conduct Is Still Not Protected by *Noerr* Because of the Misrepresentation Exception 207

1.* The Misrepresentation Exception 207

a. The misrepresentation exception is available where the context of the proceeding is non-political 208

b. The misrepresentation exception is available where the nature of the relevant communications is deliberate, factually verifiable, and central to the proceeding's legitimacy 210

2. Unocal's Lies to CARB Fall Within the Misrepresentation Exception to *Noerr* Protection 211

a. The CARB proceeding was non-political 211

(1) CARB expected truthful representations 211

(2) CARB had limited discretion because central policy determinations were made elsewhere 213

(3) CARB necessarily and reasonably relied on Unocal's factual assertions 216

(4) Unocal's misrepresentations clearly affected CARB's decisions 217

b. Unocal's misrepresentations were deliberate, verifiable, and central to the CARB proceeding's legitimacy 219

(1) They were deliberate 219

(2) They were factually verifiable 220

(3) They were central to the outcome of CARB's rulemaking 221

F. Unocal's Lies to Auto/Oil and WSPA are Not *Noerr* Protected 222

1. Unocal's Lies to Auto/Oil and WSPA Were Distinct Exclusionary Acts That, Independent of any Lies to CARB, Contributed Materially to Unocal's Monopoly Power and Entailed No Communication to Government 222

a. The refiners made investment decisions to maximize volume production of CARB Phase 2 gasoline based on Unocal's misrepresentations 222

b. The refiners were precluded from bargaining ex ante for a

license 223

c. The refiners were precluded from considering alternative technologies to reduce overlap 224

2. To the Extent that Unocal's Communications with Auto/Oil and WSPA Were Intended to Influence CARB, They Are Still Not Protected by *Noerr* 224

a. Even if Unocal's lies to Auto/Oil and WSPA were intended to influence CARB, they are not the type of communications ordinarily protectible by Noerr 225

b. Even if Unocal's lies to Auto/Oil and WSPA were the type of communications ordinarily protected by Noerr, they are not protected in this case due to application of the misrepresentation exception 225

IV. UNOCAL HAS GAINED, OR IS DANGEROUSLY CLOSE TO OBTAINING, MONOPOLY POWER 228

A. Opportunistic, Self-Seeking Behavior Through Lying (or "Guile") Can Lead to Monopoly Power, Especially When the Conduct Affects Regulations 231

B. The Relevant Markets 232

1. The Technology Market 234

2. The CARB Gasoline Market 235

C. Unocal Has Gained or Is Dangerously Close To Gaining The Ability to Control Prices in the Technology Market 236

1. The Refiners Have Made Specific Investments to Produce Phase 2 Gasoline, Which Unocal May Now Exploit 238

2. Unocal Has Obtained and is Seeking Royalties Above the Competitive Level 239

3. There Are Not Sufficient Economic Substitutes For Unocal's Technology to Which Refiners May Turn to Restrain Supracompetitive Pricing . . . 243

a.* Market power is an economic issue that may be resolved without resolving substantial issues of patent law 247

b. The evidence shows that matching rates demonstrate market

power 247

(1) **{**

} 247

(2) Industry participants make business decisions based on matching rates 250

c. It is undisputed that over 92% percent of all CARB Phase 2 summertime gasoline meets the numerical limitations of the five Unocal patents 250

d. Unocal's five patents cover most regulatory specifications for the production of CARB Phase 2 summertime gasoline 252

e.* Even if infringement or likely infringement is necessary to show market power, the record evidence easily supports such a finding 255

(1) To the extent necessary, the Commission has jurisdiction to decide substantial issues of patent law 256

(2) Unocal's own expert testified that 50.4% of all CARB Phase 2 gasoline infringes the composition claims of Unocal's first two patents 259

(3) The evidence shows that the additional limitations in Unocal's claims are met, which, combined with evidence of matching, shows likelihood of infringement 260

f. Refiners cannot avoid Unocal's patents 262

(1) Refiners cannot blend around the patents 262

(2) Refiners cannot downgrade Phase 2 gasoline for export 264

4. The Lack of Economic Substitutes Demonstrates That Unocal Has Gained or Is Dangerously Close to Gaining Monopoly Power, Even if Unocal's "Market Share" Were Low 265

a. To produce Phase 2 gasoline, refiners cannot avoid Unocal's patents 266

b. Unocal has monopoly power even if the overlap rate is relatively

low 266

c. Because refiners will at least produce covered gasoline episodically, Unocal has the power the enjoin all production . . 267

D. Unocal Is Dangerously Close to Gaining the Ability to Control Prices in the Downstream CARB Gasoline Market 268

V. UNOCAL'S DECEPTION, NOT ITS INNOVATION, CREATED ITS MARKET POWER 273

A. Unocal's Misrepresentations Were Material 276

1. The Evidence Shows That Knowledge of Unocal's Patent Application and Intent to Charge Royalties Would Have Affected CARB's Decisionmaking 276

2. The Evidence Shows That Knowledge of Unocal's Patent Application and Intent to Charge Royalties Would Have Affected Refiners' Investment Decisions 277

B. CARB Witnesses Consistently Testified That CARB Would Not Have Knowingly Adopted Regulations That Gave Unocal Monopoly Power; CARB Had Other Options 280

C. Had They Known of Unocal's Patent Application, The Other Refiners Could Have Avoided or Lessened the Effect of Unocal's Patents 283

1. The Other Refiners Would Have Warned CARB 283

2. The Other Refiners Could Have Considered Alternative Refinery Modifications That Would Have Reduced Infringement 283

3. The Other Refiners Would Have Sought to Negotiate Licenses From Unocal Before They Made Investments 284

4. The Other Refiners Would Have Considered Reducing Their Investments, Causing CARB to Intervene 285

D. The Economic Evidence Shows that Unocal Gained Monopoly Power From Deception and That There is No Need to Prove any Hypothetical "Competitively Superior Regulation" 287

VI. UNOCAL'S MARKET POWER IS DURABLE: THE INDUSTRY IS LOCKED IN 288

A. Economic and Regulatory Lock In 289

B. By the Time CARB Found out about Unocal's Patent and Intent to Charge Royalties, CARB Could Not Change the Regulations to Avoid the Patent . . . 289

1. By 1995, the Phase 2 Regulations Were Incorporated into the State Implementation Plan, Which Undermined CARB's Ability to Change the Regulations 290

2. CARB Knew That Changing the Regulations in 1995 Would Have Caused Massive Disruptions and Involved Substantial Delay for Refiners and Others 291

3. CARB Could Not Change the Regulations to Avoid the Unocal Patents, Even Through the Phase 3 Regulations 293

C. The Other Refiners Were Already Locked In 294

1. The Refiners Had Already Made Their Specific Investments 294

2. Phase 2 Modifications Had Pushed Refiners Towards the Claims of the Unocal Patents 295

3. By January 1995 It Was Too Late to Restart the Planning and Permitting Process to Avoid Unocal's Patent Claims and Still Meet the CARB Phase 2 Compliance Date 296

4. There are No Economically Feasible Modifications or Other Steps that Refiners Can Make to Avoid Unocal's Patents 297

REMEDY 298

I. ENJOINING UNOCAL FROM OBTAINING ROYALTIES FROM OR ENFORCING ITS RFG PATENTS AGAINST PRODUCERS OF CARB-COMPLIANT GASOLINE IS NECESSARY TO RESTORE COMPETITION . 298

II.* THE COMMISSION HAS THE AUTHORITY TO ORDER THE REQUESTED RELIEF 299

A. Congress Has Given the Commission the Authority to Adopt Measures That Effectively Remedy Violations of Section 5, Restore Competition, and Prevent Harm to Consumers 300

1. The Commission's Enabling Statutes Provide It With "Broad Discretion Akin to that of a Court of Equity" To Cure Antitrust Violations 301

2. The Commission's Broad Authority Extends to Remedying Anti-Competitive Harm from Patents 302

3. Courts and Agencies Have the Power to Enjoin Enforcement from Patents 304

a. Authority Based on Antitrust Doctrines 304

b. Authority Based on Patent Doctrines 307

(1) Equitable Estoppel 307
(2) Implied License 308
(3) Patent / Copyright Misuse 309

c. Compulsory Licensing Antitrust Remedies 310

B. The Proposed Remedial Provisions Are Carefully Tailored to Restore Competition and to Prevent Further Harm to Consumers 312

CONCLUSION 318

TABLE OF AUTHORITIES

FEDERAL CASES

ABB Robotics, Inc. v. GMFanuc Robotics Corp.,
52 F.3d 1062 (Fed. Cir. 1995) 307

A.C. Aukerman Co. v. R.L. Chaides Constr. Co.,
960 F.2d 1020 (Fed. Cir. 1992) 178, 306

AFG Indus., Inc. v. Cardinal IG Co., Inc.,
239 F.3d 1239 (Fed. Cir. 2001) 251

Allied Tube & Conduit Corp. v. Indian Head, 486 U.S. 492 (1988)
486 U.S. 492 (1988) 207

AMP, Inc. v. United States,
182 Ct. C 389 F.2d 448 (1968) 308

Adelberg Lab., Inc. v. Miles, Inc.,
921 F.2d 1267 (Fed. Cir. 1990) 307

In re Adventist Health System/West,
117 F.T.C. 224 174

Affiliated Ute Citizens of Utah v. United States,
406 U.S. 128 (1972) 273

American Council of Certified Podiatric Physicians and Surgeons v. American Bd. of Podiatric Surgery, Inc.,
185 F.3d 606 (6th Cir. 1999) 264

American Cyanamid Co. v. FTC,
363 F.2d 757 (6th Cir. 1966) . . . . . passim

American Prof'l Testing Service, Inc. v. Harcourt Brace Jovanovich Legal and Prof'l. Publications, Inc.,
108 F.3d 1147 (9th Cir. 1997) 187

American Tobacco Co. v. United States,
328 U.S. 781 (1946) 228

FTC v. Cement Inst.
333 U.S. 683 (1948) 205

In re Amrep Corp.,

102 F.T.C. 1362, 1983 FTC LEXIS 17, 491 (1983) 174

In re Apple Computer Security Litigation,
886 F.2d 1109 (9th Cir. 1989) 190

In re Apte,
96 F.3d 1319 (9th Cir. 1996) 273

Aspen Skiing Co. v. Aspen Highlands Skiing Corp.,
472 U.S. 585 (1985) 7, 184, 196

Assoc. Radio Service Co. v. Page Airways Inc.,
624 F.2d 1342 (5th Cir. 1980) 183

Atlantic Refining Co. v. FTC,
381 U.S. 357 (1965) 204, 299

B. Braun Med., Inc. v. Abbott Lab.,
124 F.3d 1419 (Fed. Cir. 1997) 308, 309

BE&K Constr. Co. v. NLRB,
536 U.S. 516 (2002) 182, 204

Ball Mem'l Hosp. v. Mutual Hosp. Ins.,
784 F.2d 1325 (7th Cir. 1986) 196

Bank of Montreal v. Signet Bank,
193 F.3d 818 (4th Cir. 1999) 189

Barry Wright Corp. v. ITT Grinnell Corp.,
724 F.2d 227 (1st Cir. 1983) 184

Baskin v. Hawley,
807 F.2d 1120 (2d Cir. 1986) 189

Berkey Photo v. Eastman Kodak Co.,
603 F.2d 263 (2d Cir. 1979) 228

Bigelow v. RKO Radio Pictures, Inc.,
327 U.S. 251 (1946) 274, 287

Bill Johnson's Restaurants, Inc. v. NLRB,
461 U.S. 731 (1983) 205

Broadway Delivery Corp. v. United Parcel Serv. of Am., Inc.,
651 F.2d 122 (2d Cir. 1981) 264

Bruno Indep. Living Aids, Inc. v. Acorn Mobility Serv., Ltd.,
394 F.3d 1348 (Fed. Cir. 2005) 257

Brunswick Corp. v. Riegel Textile Corp.,
752 F.2d 261 (7th Cir. 1984) 240, 243, 244

California Motor Transp. v. Trucking Unlimited,
404 U.S. at 508 (1972) 204, 207

Caribbean Broad. Sys., Ltd. v. Cable & Wireless PLC,
148 F.3d 1080 (D.C. Cir. 1998) 186

Central Hudson Gas v. Public Serv. Comm'n,
447 U.S. 557 (1980) 204

In the Matter of Certain Recordable Compact Discs and Rewritable Compact Disks, 2004 WL 1435791 (2004), USITC Inv. No. 337-TA-474, Pub. No. 3686, *appeal docketed, U.S. Philips Corp. v. Int'l Trade Comm'n*, No. 04-1361 (May 10, 2004) 309

Charles Pfizer & Co., Inc. v. FTC,
401 F.2d 574 (6th Cir. 1968) 181, 182, 311

Cheminor Drugs, Ltd. v. Ethyl Corp.,
168 F.3d at 119 (3rd Cir. 1999) 209

Christianson v. Colt Indust. Operating Corp.,
486 U.S. 800 (1988) 256

City of Columbia v. Omni Outdoor Adver., Inc.,
499 U.S. 365 (1991) 200, 201, 209

Clipper Exxpress v. Rocky Mountain Motor Tariff Bureau, Inc.,
690 F.2d 1240 (9th Cir. 1982) . . . . . passim

Consolidated World Housewares, Inc. v. Finkle,
831 F.2d 261 (Fed. Cir. 1987) 243

Conwood Company v. U.S. Tobacco Co.,
290 F.3d 768 (6th Cir. 2002) 186

Cullen v. Whitman Med. Corp.,
188 F.R.D. 226 (E.D. Pa. 1999) 273

Dayco Products, Inc. v. Total Containment, Inc.,
329 F.3d 1358 (Fed. Cir. 2003) 257

De Forest Radio Tel. Co. v. United States,
273 U.S. 236 (1927) 308

Deauville Corp. v. Federated Dep't Stores, Inc.,
756 F.2d 1183 (5th Cir. 1985) 177

In re Dell Computer Corp.,
121 F.T.C. 616 (1996) 8, 302, 305, 306

E.I. duPont de Nemours v. FTC,
729 F.2d 128 (2d Cir. 1984) 10

Eastman Kodak Co. v. Image Technical Serv., Inc.,
504 U.S. 451 (1992) . . . . . passim

In re Ekco Products Co.,
65 F.T.C. 1163 (1964), *aff'd, Ekco Prods. Co. v. FTC*, 347 F.2d 745
(7th Cir. 1965) 301

Ellis v. Bhd. of Railway Employees,
466 U.S. 435 (1984) 182

FTC v. Indiana Fed'n of Dentists,
476 U.S. 447 (1986) 6, 10, 174

FTC v. International Diamond Corp., 1983 WL 1911 at 5-6, 1983-2 Trade Cas. (CCH) ¶
65,725 (N.D. Cal. 1983) 273

FTC v. Nat'l Lead Co.,
352 U.S. 419 (1957) 312

FTC v. Sperry & Hutchinson Co.,
405 U.S. 233 (1972) 9, 300

FTC v. Standard Oil Co. of Cal.,
449 U.S. 232 (1980) 175, 180

FTC v. Superior Court Trial Lawyers Ass'n,
493 U.S. 411 (1990) 198

FTC v. World Travel Vacation Brokers, Inc.,
861 F.2d 1020 (7th Cir. 1988) 273

First Nat'l Monetary Corp. v. Weinberger,
819 F.2d 1334 (CA6 1987) 176

Ford Motor Co. v. United States,
405 U.S. 562 (1972) 299, 303

Forest Labs., Inc. v. Abbott Labs., 1999 U.S. Dist. WL 33299123 (W.D.N.Y. 1999) 307

Forsyth v. Humana, Inc.,
114 F.3d 1467 (9th Cir. 1997), *aff'd*, 525 U.S. 299 (1999) 228

Garrison v. Louisiana,
379 U.S. 64 (1964) 193, 198

Gen. Motors Acceptance Corp. v. Cent. Nat'l Bank of Mattoon,
773 F.2d 771 (7th Cir. 1985) 192

Gen. Motors Corp. v. Gen. Electric Co.,
275 F. Supp. 2d 850 (E.D. Mich. 2003) 307

In re Great Southern Life Ins. Co. Sales Practices Litigation,
192 F.R.D. 212 (N.D. Tex. 2000) 273

Grogan v. Garner,
498 U.S. 279 (1991) 176, 180, 184

H.J., Inc. v. Intern. Telephone & Telegraph Corp.,
867 F.2d 1531 (8th Cir. 1989) 196

Handgards, Inc. v. Ethicon, Inc.,
601 F.2d 986 (9th Cir. 1979) 177

Hardy v. City Optical, Inc.,
39 F.3d 765 (7th Cir. 1994) 200

Hartford-Empire Co. v. United States,
323 U.S. 386 (1945) 309, 310

Herman and McLean v. Huddleson,
459 U.S. 375 (1983) 176, 177, 179

Herzfeld v. FTC,
140 F.2d 207 (2d Cir. 1944) 300

Hospital Corp. of Am. v. FTC,
807 F.2d 1381 (7th Cir. 1986) 300

Hunter Douglas, Inc. v. Harmonic Design, Inc.,
153 F.3d 1318 (Fed. Cir. 1998) 257

Ill. Tool Works, Inc., v. Grip-Pak, Inc.,
906 F.2d 679 (Fed. Cir. 1990) 258

In re Bristol-Meyers Squibb Co.,
2003 F.T.C. LEXIS 59, at 66-67 (2003) 301

In re Cephalon, Inc., and Cima Labs Inc.,
2004 F.T.C. LEXIS 162, at 22 (2004) 301

In the Matter of Am. Cyanamid Co.,
63 F.T.C. 1747, 1963 FTC LEXIS 77 (1963) 181, 255

In the Matter of Am. Cyanamid Co.,
72 F.T.C. 623, 1967 FTC LEXIS 43 (1967) 181, 303, 311

In re Ind. Fed'n of Dentists,
101 F.T.C. 57, 1983 FTC LEXIS 112, 210 (1983) 174

Intel Corp. v. VIA Technologies, Inc.,
2001 WL 777085 (N.D. Cal. 2001) 302

In re Int'l Harvester Co.,
104 F.T.C. 949 (1984) 190

Int'l Salt Co. v. United States,
332 U.S. 392 (1947) 304

Int'l Travel Arrangers, Inc. v. Western Airlines, Inc.,
623 F.2d 1255 (8th Cir. 1980) 187

In the Matter of Union Oil Co. of Cal.,
2004 FTC Lexis 115 (2004) . . . . . passim

Israel v. Baxter Lab.,
466 F.2d 272 (D.C. Cir. 1972) 181

Jacob Siegel Co. v. FTC,
327 U.S. 608 (1946) 300, 304, 311

Juster Assoc. v. City of Rutland, Vt.,
901 F.2d 266 (2d Cir. 1990) 206

Kottle v. Northwest Kidney Centers,
146 F.3d 1056 (9th Cir. 1998) 206, 208, 209

Kungys v. United States,
485 U.S. 759 (1988) 273

L.G. Balfour Co. v. FTC,
442 F.2d 1 (7th Cir. 1971) 301

Litton Sys., Inc. v. Am. Tel. & Tel. Co.,
700 F.2d 785 (2d Cir. 1983) 183

M & M Med. Supplies and Serv., Inc. v. Pleasant Valley Hosp., Inc.,
981 F.2d 160 (4th Cir. 1992) 9, 196, 269

Market Street Assoc. Ltd. v. Frey,
941 F.2d 588 (7th Cir. 1991) 186

Markman v. Westview Instruments, Inc.,
517 U.S. 370 (1996) 54

Mass. v. Microsoft,
373 F.3d 1199 (D.C. Cir. 2004) 196

McDonald v. Smith,
472 U.S. 479 (1985) 193, 198, 200

McGahee v. Northern Propane Gas Co.,
858 F.2d 1487 (11th Cir. 1988) 9, 269

Mercoid Corp. v. Mid-Continent Inv. Co.,
320 U.S. 661 (1944) 309

Metro. Cable Co. v. CATV of Rockford, Inc.,
516 F.2d 220 (7th Cir. 1975) 206, 208

Midwest Indus., Inc. v. Karavan Trailers, Inc.,
175 F.3d 1356 (Fed. Cir. 1999) 257

Morton Salt Co. v. Suppiger Co.,
314 U.S. 488 (1942) 303, 308, 309

Multiflex, Inc. v. Samuel Moore & Co.,
709 F.2d 980 (5th Cir. 1983) 267

New York Times Co. v. Sullivan,
376 U.S. 254 (1964) 198

Nobelpharma AB v. Implant Innovations, Inc.,
141 F.3d 1059 (Fed. Cir. 1998) 187, 209, 243

Nordek Corp. v. Garbe Iron Works, Inc.,
1982 U.S. Dist. WL 147, at 3-5 (N.D. Ill. 1982) 307

In re Novartis Corp.,
1999 FTC LEXIS 63, 49 (1999) 174

Eastern R. Presidents Conference v. Noerr Motor Freight, Inc.,
365 U.S. 127 (1961) 197, 199

Northern Tel., Inc. v. Datapoint Corp.,
908 F.2d 931 (Fed. Cir. 1990) 251

Prof'l Real Estate Investors v. Columbia Pictures Indus.,
508 U.S. 49 (1993) 204, 206

PepsiCo, Inc. v. Coca-Cola Co.,
315 F.3d 101 (2d Cir. 2002) 231

Porous Media Corp. v. Pall Corp.,
186 F.3d 1077 (8th Cir. 1999) 206

Potter Instr. Co. v. Storage Tech. Corp.,
1980 U.S. Dist. LEXIS 14348 (E.D. Va. 1980), *aff'd*, 641 F.2d 190 (4th Cir. 1981) 307

Potters Med. Center v. City Hosp. Assoc.,
800 F.2d 568 (6th Cir. 1986) 206

Purdue Pharma L.P. v. Boehringer Ingelheim GMBH,
237 F.3d 1359 (Fed. Cir. 2001) 257, 258

Re/Max Intern., Inc. v. Realty One, Inc.,
173 F.3d 995 (6th Cir. 1999) 6, 228, 238

Reazin v. Blue Cross and Blue Shield of Kansas, Inc.,
899 F.2d 951 (10th Cir. 1990) 7

Rebel Oil Co. v. Atlantic Richfield Co.,
51 F.3d 1421 (9th Cir. 1995) 228, 265

Rochez Brothers, Inc. v. Rhoades,
491 F.2d 402 (3d Cir. 1974) 273

Rodime PLC v. Seagate Tech., Inc.,
174 F.3d 1294 (Fed. Cir. 1999) 206

Roper Corp. v. Litton Syst., Inc.,
757 F.2d 1266 (Fed. Cir. 1985) 258

Rothery Storage & Van Co. v. Atlas Van Lines Inc.,
792 F.2d 210 (D.C. Cir. 1986) 231, 233

SEC v. C.M. Joiner Leasing Corp.,
320 U.S. 344, 64 S. Ct. 120, 88 L. Ed. 88 (1943) 176

SEC v. Dresser Indus.,
628 F.2d 1368 (D.C. Cir. 1980) 185

Scholle Corp. v. Blackhawk Molding Co., Inc.,
133 F.3d 1469 (Fed. Cir. 1998) 307

Sedima, S.P.R.L. v. Imrex Co.,
473 U.S. 479, 105 S. Ct. 3275, 87 L. Ed. 2d 346 (1985) 177

In re Simeon Mgmt. Corp.,
87 F.T.C. 1184 (1976) 190

Spectrum Sports, Inc. v. McQuillan,
506 U.S. 447 (1993) 9

Standard Oil Co. v. United States,
337 U.S. 293 (1949) 233

Standard Sanitary Manufacturing Co. v. United States of America,
226 U.S. 20 (1912) 304

Steadman v. SEC,
450 U.S. 91 (1981) 175, 176, 180, 183

Stearns Airport Equip. v. FMC Corp.,
170 F.3d 518 (5th Cir. 1999) 184, 185

Sterling Drug, Inc. v. FTC,
741 F.2d 1146 (9th Cir. 1984) 301

Stryker Corp. v. Zimmer, Inc.,
741 F. Supp. 509 (D. N.J. 1990) 191, 307

TSC Indust., Inc. v. Northway, Inc.,
426 U.S. 438 (1976) 273

Tampa Elec. Co. v. Nashville Coal Co.,
365 U.S. 320 (1961) 233

Tenneco Oil Co. v. Joiner,
696 F.2d 768 (10th Cir. 1982) 192

In re The Roberts Co.,
56 F.T.C. 1569 (1960) 179, 304

Thompson v. Metro. Multi-List, Inc.,
934 F.2d 1566 (11th Cir. 1991) 244, 245

Times-Picayune Publ'g Co. v. United States,
345 U.S. 594 (1953) 196

Tops Markets, Inc. v. Quality Markets, Inc.,
142 F.3d 90 (2d Cir. 1998) 228

Town of Concord v. Boston Edison,
915 F.2d 17 (1st Cir. 1990) 184, 185

Transamerica Computer Co. v. IBM,
698 F.2d 1377 (9th Cir. 1983) 9

U.S. v. American Airlines,
743 F.2d 1114 (5th Cir. 1984) 267

U.S. v. Rivera,
55 F.3d 703 (1st Cir. 1995) 183

Union Oil Co. of Cal. v. Atlantic Richfield Co.,
208 F.3d 989 (Fed. Cir. 2000) . . . . . passim

Union Oil Co. of California v. Atlantic Richfield Co.,
203 F.3d 989 (Fed. Cir.), *cert. denied*, 69 U.S.L.W. 3556 (U.S. Feb. 20, 2001) 302

Union Oil Co. v. Atlantic Richfield Co.,
531 U.S. 1183 (2001) 163

Union Pacific Res. Group v. Rhone-Poulenc, Inc.,
247 F.3d 574 (5th Cir. 2001) 189

United Shoe Mach. Corp. v. United States,
258 U.S. 451 (1922) 304

United States ex rel. Riley v. St. Luke's Episcopal Hosp.,
355 F.3d 370 (5th Cir. 2004) 183

United States v. Aluminum Co. of Am.,
377 U.S. 271 (1964) 7, 231

United States v. Aluminum Co. of Am.,
148 F.2d 416 (2d Cir. 1945) 7, 196

United States v. E. I. duPont de Nemours & Co.,
351 U.S. 377 (1956) 6, 231

United States v. E. I. duPont de Nemours & Co.,
366 U.S. 316 (1961) 299, 300

United States v. Gen. Elec.,
82 F. Supp. 753 (D. N.J. 1949) 179

United States v. Gen. Elec. Co.,
115 F. Supp. 835 (D.N.J. 1953) 179, 311

United States v. Glaxo Group,
410 U.S. 52 (1973) 310

United States v. Grinnell Corp.,
384 U.S. 563 (1966) 6, 7, 231, 264

United States v. Microsoft,
84 F. Supp. 2d 9 (D. D.C. 2000) 178, 187, 188

United States v. Microsoft,
253 F.3d 34 (D.C. Cir. 2001) . . . . . passim

United States v. Nat'l Lead Co.,
63 F. Supp. 513 (S.D.N.Y. 1945), *aff'd*, 332 U.S. 319 (1947) 178

United States v. Nat'l Lead Co.,
332 U.S. 319 (1947) . . . . . passim

United States v. Singer Mfg. Co.,
231 F. Supp. 240 (S.D.N.Y. 1964) 310

United States v. Singer Mfg. Co.,
374 U.S. 174 (1963) 310

United States v. U.S. Gypsum Co.,
333 U.S. 364 (1948) 178

United States v. United Shoe Mach. Corp.,
391 U.S. 244 (1968) 299

United States v. United States Gypsum Co.,
340 U.S. 76 (1950) 299

Unitherm Food Sy. v. Swift-Eckrich, Inc.,
375 F.3d 1341 (Fed. Cir. 2004) 232, 245

Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko, LLP,
124 S. Ct. 872 (2004) 6

Vivid Techs., Inc. v. Am. Science & Engineering, Inc.,
200 F.3d 795 (Fed. Cir. 1999) 251

Volvo North Am. Corp. v. Men's Int'l Prof'l Tennis Council,
857 F.2d 55 (2d Cir. 1988) 9

Walker Process Equip. v. Food Mach. & Chemical Corp.,
382 U.S. 172 (1965) 177, 200, 202

Wang Lab., Inc. v. Mitsubishi Elec. Am., Inc.,
103 F.3d 1571 (Fed. Cir. 1997) 307, 308

Warner-Lambert Co. v. FTC,
562 F.2d 749 (D.C. Cir. 1977) 301

Whelan v. Abell,
48 F.3d 1247 (D.C. Cir. 1995) 181, 198, 206

Woods Exploration & Producing Co. v. Aluminum Co. of Am.,
438 F.2d 1286 (5th Cir. 1971) 206

STATE CASES

Agric. Labor Relations Bd. v. Exeter Packers, Inc.,
184 Cal. App. 3d 483 (1986) 19

Lacher v. Superior Court,
230 Cal. App. 3d 1038 (1991) 190

Liodas v. Sahadi,
19 Cal. 3d 278 (1977) 177

Morris v. Int'l Yogurt Co.,
729 P.2d 33 (Wash. 1986) 273

Randi W. v. Muroc Joint Unified School Dist.,
14 Cal. 4th 1066 (1997) 190

Warner Constr. Corp. v. City of Los Angeles,
466 P.2d 996 (Cal. 1970) 189

DOCKETED CASES

U.S. Philips Corp. v. Int'l Trade Comm'n,
No. 04-1361 (Aug. 20, 2004) 309

In re Rambus Inc.,
No. 9302 (FTC Feb. 23, 2004) 302

FEDERAL STATUTES

5 U.S.C. § 551, *et seq* 175

5 U.S.C. § 556(d) 175

31 U.S.C. § 3731(c) 176, 183

42 C.F.R. § 1003.114(a) 176

12 U.S.C.A. § 1833a(e) 176

15 U.S.C. § 45(b) 205, 299

35 U.S.C. § 134(b) 163

35 U.S.C. § 141 163

35 U.S.C. § 154 . . . . . 266, 269

35 U.S.C. § 271(d) 309

35 U.S.C. §§ 305, 132, and 133 163

37 C.F.R. § 1.56(b) 257

28 U.S.C. § 1338(a) 255

15 U.S.C. § 45(b) 205, 299

35 U.S.C.S. § 154 269

STATE STATUTES

Ala. Code 1975 § 6-5-104(b)(3) (2004) 190

Cal. Health & Safety Code § 43013(a) 14

Cal. Health & Safety Code § 43018(b) 15, 16, 23

Cal. Health & Safety Code § 43018(c) 16, 23, 24

Cal. Health & Safety Code §§ 43013(a) and (e) 220, 226

Cal. Civ. Code § 1709, 1710 (2005) 190

Cal. Health & Safety Code § 39650(d))). 20

Mont. Code Ann. § 27-1-712(2)(c) (2004) 190

N.D. Cent. Code § 9-10-02(A)(3) (2003) 190

76 Okl. St. Ann. tit. 76, § 3(A)(3) 190

MISCELLANEOUS

Michael Asimow, *The Scope of Judicial Review of Decisions of California Administrative Agencies*, 42 UCLA L. Rev. 1157, 1230 (1995) 19

Neil W. Averitt, *The Meaning of 'Unfair Acts or Practices" in Section 5 of the Federal Trade Commission Act*, 70 Geo. L.J. 225 (1981) 206

3 Philip Areeda & Ernest Hovenkamp, *Antitrust Law* (1996) 272

3 Philip Areeda & Herbert Hovenkamp, *Antitrust Law* (2002) 8

IIA Philip Areeda & Herbert Hovenkamp, *Antitrust Law* (2002) 229, 267

ABA Section of Antitrust Law, *Handbook on the Antitrust Aspects of Standards Setting* (2004) 230

Dennis W. Carlton & Jeffrey M. Perloff, *Modern Industrial Organization* 592-95 (2d ed. 1994) 268

Benjamin Klein, Robert Crawford & Armen Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & Econ. 297 (1978) 186

Thomas G. Krattenmaker, Robert H. Lande & Steven C. Salop, *Monopoly Power and Market Power in Antitrust Law*, 76 Geo. L.J. 241 (1987) 229

Raymond Ku, *Antitrust Immunity, the First Amendment and Settlements: Defining the Boundaries of the Right to Petition*, 33 Ind. L. Rev. 385, 404 (2000) 199

6 Ernest B. Lipscomb III, *Walker on Patents*, 20:16 at 39 (3d. ed. 1985) 191, 308

John McGee, *Patent Exploitation: Some Economic and Legal Problems*, 9 J. of Law and Economics 135, 139 (1966) 268

Timothy Muris, *Opportunistic Behavior and the Law of Contracts*, 65 U. Minn. L. Rev. 521, 521(1981) 186

Restatement (Second) of Torts (1977) . . . . . passim

Roget's II, *The New Thesaurus* (3d ed. 1995) 106

Lawrence Schlam, *Compulsory Royalty-Free Licensing As An Antitrust Remedy for Patent Fraud: Law, Policy and the Patent-Antitrust Interface Revisited*, 7 Cornell J.L. & Pub. Pol'y 467 (1998) 302

Edward F. Sherry & David J. Teece, *Some Economic Aspects of Intellectual Property Damages*, 573 PLI/Pat 399 (1999) 186

F. M. Sherer, *Industrial Market Structure and Economic Performance* (2d ed. 1980) 268

Oliver E. Williamson, *The Economic Institutions of Capitalism: Firms, Markets, and Relational Contracting* 47 (1985) 186

Oliver E. Williamson, *Transaction Cost Economics: The Governance of Contractual Relations*, 22 J.L. & Econ. 233 (1979) 186

I. INTRODUCTION

This is a simple case wrapped up in a complex background of technology, patents, and regulation. Once this background is understood, however, the evidence tells a straightforward story. Unocal lied. Its lies were effective. Its lies allowed Unocal to obtain monopoly power. Unocal now stands ready to force California gasoline refiners to pay billions of dollars in patent royalties, costs that will ultimately be borne by California consumers. Though the evidence necessarily delves into complicated technical and regulatory concepts, this simple story – which demonstrates a violation of Section 5 of the FTC Act – clearly shows through.

Unocal lied to a state regulatory agency, and it lied to industry groups. Unocal developed important internal emissions research. It used this research to influence reformulated gasoline ("RFG") regulations being developed by the California Air Resources Board ("CARB"). Unocal presented its research results to CARB staff as well as to industry groups. Unocal then told CARB and the industry that the research results were "non-proprietary," "in the public domain," and available to the general public free of charge. These representations were false, and Unocal knew it. When it made these representations, Unocal was busily prosecuting a confidential patent application that would ensure that its research results would be proprietary, out of the public domain, and would allow Unocal to impose substantial royalties on anyone seeking to comply with CARB's regulations. Unocal therefore knew that its plan to "influence the regulations" would lead to a "competitive advantage" – a "huge licen[s]ing potential," a "pot of gold."

The mountain of evidence demonstrating Unocal's plan and intent to deceive CARB includes a startling out-of-court admission by Unocal's Denny Lamb. When CARB engineer John Courtis confronted Mr. Lamb and said that Unocal had deceived him, Mr. Lamb did not deny at all that Unocal deceived CARB. Rather, Mr. Lamb, the point person for Unocal's regulatory efforts, responded that Unocal's conduct was a "business management decision." (Courtis, Tr. 5771-5772).

It was nothing personal, just "business."

But it was not just "business" for CARB; Unocal's lies were effective. CARB officials believed what Unocal told them – that CARB could freely use the results of Unocal's research with "no strings attached." CARB officials therefore used Unocal's study in developing the "Phase 2" summertime[2] reformulated gasoline regulations and in relying on open, competitive markets to supply the gasoline called for by those regulations. CARB incorporated into the regulations a key parameter (known as T50) that was one of the "main discoveries" in Unocal's research, but was not sufficiently supported by any other data. CARB also followed Unocal's suggestion to develop and specify what is known as a "predictive model," which reduced compliance costs but would not allow refiners to escape Unocal's patents. And, in doing so, CARB unwittingly created a set of regulations that would force refiners to produce gasoline that fell squarely into the heart of Unocal's then-pending patent claims.

As this was occurring, Unocal watched, waited, and did nothing to remedy the train wreck that Unocal had set in motion. Of course Unocal now characterizes all this as one big misunderstanding. It only meant to allow CARB to use certain raw "data," not everything Unocal had given to CARB. "Non-proprietary" only meant "non-confidential," not free of property rights.

But Unocal did not protest when it saw CARB using the research to shape the regulations. It did nothing when CARB publicly used the supposedly "confidential" parts of Unocal's research. Nor did Unocal warn CARB that using the research would inevitably lead to a collision with Unocal's patent rights. To the contrary, Unocal asked CARB why it did not make more extensive use of Unocal's research. Unocal inundated CARB with suggestions as to how to make the regulations less costly – suggestions that did not affect Unocal's patent position but bolstered the

[2] CARB's "summertime" regulations apply to gasoline sold in California between March and October, though the exact dates vary by county.

false impression that Unocal was forthcoming. Unocal even went so far as to represent to CARB that Unocal would not receive any "windfall" from the regulations. Internally, however, Unocal discussed how the regulations enhanced the licensing potential of its pending patent application, added more patent claims that "resembled" the regulations, received notice that its claims would be allowed, determined that those claims were "broad enough to cover all gasoline fuels to be sold in California under current CARB regulations," and geared up to enforce its patent rights against refiners of those gasoline fuels.

Unocal's lies also effectively prevented its competitors, other refiners, from avoiding the patent trap. Misled by Unocal into believing that Unocal's research was "in the public domain," the other refiners missed substantial and decisive opportunities to avoid or counteract Unocal's monopoly strategy. The refiners missed opportunities to inform CARB of Unocal's pending patent and its intention to extract royalties. The refiners missed opportunities to modify their investment decisions in light of Unocal's patent rights. They missed opportunities to consider alternative technologies that would have reduced infringement. And they missed opportunities to negotiate for a license from Unocal before the regulations were final and before their refinery modifications were irreversibly underway – *i.e.*, when a competitive market for the necessary technology was still available.

Unocal's lies, therefore, allowed it to acquire monopoly power – the durable power to profitably raise price above, and reduce output below, competitive levels. Unocal has obtained and is currently demanding supracompetitive royalties from refiners of CARB-compliant summertime gasoline. In fact, Unocal has already won a patent infringement suit against the major California refiners, garnering a royalty damages award of 5.75 cents per gallon. Likewise, Unocal has reduced output. The California Energy Commission has determined that Unocal's patents have reduced the supply of CARB-compliant summertime gasoline. Gasoline importers avoid supplying California

because of the Unocal patents. Over 92% of all CARB Phase 2 summertime gasoline falls within the key limitations of the Unocal patents – the limitations that both Unocal and refiners use to make real-world business decisions about pricing and supply. The refiners uniformly testified that their "best minds" cannot find any way substantially to avoid Unocal's patents while still complying with the CARB regulations. The evidence also shows that CARB has been and is currently unable to modify its regulations to permit refiners to avoid the patents.

Seeking cover, Unocal tries to cower behind the *Noerr* doctrine. Unocal claims that its lies and the monopoly power resulting from those lies are shielded from scrutiny because CARB is a government agency. But *Noerr* does not stretch that far; the First Amendment does not protect lies. Any broader protection granted by *Noerr* does not apply here for a number of reasons, not the least of which is that the Commission has held that *Noerr* does not protect deliberate, factually verifiable lies central to the outcome of proceeding at certain government agencies (such as CARB, which is not a political arena) where the effects (as here) can be remedied without undermining the integrity of government regulation. Further, Unocal's lies to the industry – which were separate and distinct from the lies to CARB and had separate effects – do not implicate *Noerr* at all.

Unocal's conduct therefore violates Section 5 of the FTC Act. As the evidence shows, Unocal engaged in anticompetitive, exclusionary conduct – *viz.*, Unocal made misrepresentations and engaged in deceptive acts aimed at excluding rival technologies and giving Unocal the ability to dictate the terms on which its rivals produced gasoline. Through this anticompetitive conduct, Unocal gained monopoly power. Its deception caused CARB to issue regulations that intersect with Unocal's patents and prevented industry members from avoiding this trap. Unocal can now demand supracompetitive prices for its patents and raise the price of gasoline sold in California. As explained in detail below, these facts show that Unocal has monopolized, attempted to monopolize, and engaged in unfair methods of competition in violation of Section 5.

II. THE ELEMENTS OF THE CLAIMS

Much is at stake in this case. California consumers face over $1 billion in costs never contemplated by CARB. More generally, Unocal's defense of its conduct implies that companies can opportunistically game the government administrative process by lying to the government, thereby twisting government programs intended for the benefit of society as a whole to serve their own private purposes. When a company deliberately, and successfully, lies in order to obtain monopoly power, thus imposing long-term economic harm on consumers, such conduct violates the antitrust laws.

The resolution of this momentous matter turns on the simple application of settled law to the key facts overwhelmingly established by the record. In short, those facts establish that Unocal controls the market for technology required to make, use, and sell gasoline that may be sold to California automobile drivers in the "summertime" months, March through October. Unocal acquired this monopoly power by lying to CARB and, separately, by lying to other refiners. This monopoly over the technology also gives Unocal the ability to control the price of summertime gasoline.

More specifically, the record evidence shows that Unocal monopolized (or at least attempted to monopolize) the market for technology to make, use, and sell CARB-compliant summertime gasoline (the "Technology Market"). Unocal also attempted to monopolize the market for summertime gasoline that can be sold in California (the "CARB Gasoline Market"). Each of these actions constitutes separate violations of Section 5 of the FTC Act. Further, the same conduct also constitutes an unfair method of competition, which is an independent violation of Section 5.

A. The Monopolization Count

The Sherman Act provides that it is unlawful to "monopolize, or attempt to monopolize . . . any part of the trade or commerce among the several States." 15 U.S.C. § 2. A violation of Section

2 of the Sherman Act is also an unfair method of competition under Section 5 of the Federal Trade Commission Act. *See FTC v. Indiana Fed'n of Dentists*, 476 U.S. 447, 454 (1986). Settled law establishes that the offense of monopolization consists of: (1) the possession of monopoly power, (2) in a relevant market, (3) where that power was acquired or maintained willfully as distinguished from power obtained as a consequence of superior product, business acumen, or historic accident. *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966); *see also Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 124 S. Ct. 872, 878-79 (2004); (JX 3A at 001-002). Each of these elements is further defined by well-settled and controlling precedent.

1. Monopoly Power

Monopoly power is the "power to control prices or exclude competition." *United States v. E.I. duPont de Nemours & Co.*, 351 U.S. 377, 391 (1956). Thus, one has monopoly power if one can persistently and profitably price above competitive levels or prevent price from falling to competitive levels. *See* U.S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, Part 0.1 ("Market power to a seller is the ability profitably to maintain prices above competitive levels for a significant period of time."). Monopoly power may be proved directly, by showing that defendants have in fact priced profitably and persistently above competitive levels. *See, e.g., Re/Max Intern., Inc. v. Realty One, Inc.*, 173 F.3d 995, 1016 (6th Cir. 1999); *see also Indiana Fed'n of Dentists*, 476 U.S. at 461-62 (stating that evidence that restriction was "likely enough to disrupt the proper functioning of the price-setting mechanism of the market" was sufficient to support a violation even absent evidence of higher prices). Alternatively, market power may be inferred from market structure factors that show that potential substitutes are not likely to constrain the firm's ability to profitably raise prices above the competitive level. *See Grinnell*, 384 U.S. at 570-71; *United States v. Microsoft*, 253 F.3d 34, 57 (D.C. Cir. 2001) (explaining that "[s]tructural market power analyses are meant to determine whether potential

substitutes constrain a firm's ability to raise prices above the competitive level").

2. Relevant Market

A relevant market is the "area of effective competition" in which the respondent operates and consists of two dimensions: (1) a relevant product market and (2) a relevant geographic market. *United States v. Aluminum Co. of Am.*, 377 U.S. 271, 283 (1964). A firm can possess monopoly power only in a relevant antitrust market. An antitrust market is a group of products in a relevant geographic area such that, if all those products were controlled by one firm, which was not subject to price regulation, that firm would be able profitably to price above competitive levels for an extended period. *See Horizontal Merger Guidelines,* at Part 1.0.

3. Willful Acquisition of Monopoly Power

A monopoly is unlawful if it is due, in whole or in part, to willful behavior that is exclusionary, as opposed to competition on the merits. *See Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 596-97 (1985).[3] Deceptive conduct that tends to impair the opportunities of rivals does not constitute competition on the merits and is exclusionary.[4] *See, e.g., Microsoft*, 253 F.3d at 76-77; *In re Dell Computer Corp.*, 121 F.T.C. 616 (1996). Unocal's misrepresentations excluded rival technologies from the market and enable Unocal to engage in opportunistic predatory behavior against competing refiners.

To constitute an antitrust violation, wrongful or exclusionary conduct must "reasonably appear capable of making a significant contribution" to obtaining or maintaining monopoly power.

---

[3] The behavior must be "willful" in the sense that the monopolist intends "to do the act." *Aluminum Co. of Am.*, 148 F.2d at 431-32. Thus, specific intent is not an element of monopolization. *See, e.g., Reazin v. Blue Cross and Blue Shield of Kansas, Inc.*, 899 F.2d 951, 973 (10th Cir. 1990).

[4] Exclusionary deception may include affirmative false statements, misleading omissions, and creating a misleading impression by making statements but withholding information. *See* Liability Section II.C.).

Microsoft, 253 F.3d at 79. Detailed proof of the world as it would have existed "but for" the deception is not required. "[N]o case . . . stand[s] for the proposition that, as to § 2 liability in an equitable enforcement action, plaintiffs must present direct proof that a defendant's continued monopoly power is precisely attributable to its anticompetitive conduct."[5] *Microsoft*, 253 F.3d at 79; *see* 3 Philip Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 651 (2002). In the case of exclusion by deception, the element of causation is proved by showing that the deception was material.

B. The Attempted Monopolization Counts

The same evidence that shows that Unocal has unlawfully monopolized the Technology Market also shows that Unocal has attempted to monopolize both the Technology and the CARB Gasoline Markets. Evidence that proves monopolization necessarily proves even more forcefully attempted monopolization. Because of the linkage between the two markets, evidence that proves monopolization of the Technology Market proves at least an attempt to monopolize the CARB Gasoline Market.

The essential elements of an attempt to monopolize under Sherman Act Section 2 are: (1) specific intent to control price or to destroy competition in some part of commerce; (2) predatory or anticompetitive conduct directed to accomplishing the unlawful purpose; and (3) a dangerous probability of success. *See Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 456 (1993); (*see also* JX 3A at 002).

With respect to the second element, the standard for showing that the conduct was predatory or anticompetitive in attempted monopolization cases is the same as in monopolization cases. *See*

[5] Antitrust law therefore defines what is needed to show causation and what level of intent is required for monopolization. It would therefore be improper to overlay the well-defined elements of monopolization with the elements of common-law fraud. Antitrust law is not supplanted merely because the exclusionary conduct involves deceit; Complaint Counsel need not prove all of the elements of common-law fraud. *See* Liability Section II.

Transamerica Computer Co. v. IBM, 698 F.2d 1377, 1382 (9th Cir. 1983). The third element, dangerous probability of success, requires less proof of market power than in a monopolization count. *See McGahee v. Northern Propane Gas Co.*, 858 F.2d 1487, 1505 (11th Cir. 1988) ("Determining whether a defendant possesses sufficient market power to be dangerously close to achieving a monopoly requires . . . proof of the same character, but not the same quantum, as . . . an actual monopolization claim"). The same evidence that proves that Unocal achieved monopoly power more than suffices to show that Unocal had a dangerous probability of success in obtaining market power in both the Technology and the CARB Gasoline Markets.[6]

C. The Independent FTC Act Section 5 Counts

Again, the law is settled and clear. As explained above, conduct that constitutes monopolization or attempted monopolization under Section 2 of the Sherman Act violates Section 5 of the FTC Act. But the Commission is vested with broader powers. Section 5 of the FTC Act proscribes unfair competition in a manner that extends beyond the strict boundaries of the Sherman and Clayton Acts. *See FTC v. Sperry & Hutchinson Co.*, 405 U.S. 233, 239 (1972) (stating that FTC may "define and proscribe an unfair competitive practice, even though the practice does not infringe either the letter or the spirit of the antitrust laws"). The FTC Act thus proscribes "not only practices that violate the Sherman Act and the other antitrust laws, but also practices that the Commission determines are against public policy for other reasons." *Indiana Fed'n of Dentists*, 476 U.S. at 454. Specifically, in order to succeed under a Section 5 complaint aimed at unilateral conduct, Complaint Counsel must demonstrate conduct that (1) is collusive, coercive, predatory or exclusionary, *E.I.*

[6] The specific intent required to prove attempted monopolization may be shown either by direct evidence, or it may be inferred from exclusionary conduct. *See, e.g., M & M Med. Supplies and Serv., Inc. v. Pleasant Valley Hosp., Inc.*, 981 F.2d 160, 166 (4th Cir. 1992) ("Specific intent may be inferred from the defendant's anti-competitive practices."); *Volvo North Am. Corp. v. Men's Int'l. Prof'l Tennis Council*, 857 F.2d 55, 74 (2d Cir. 1988) ("exclusionary conduct, may be used to infer . . . specific intent to monopolize").

duPont de Nemours v. FTC, 729 F.2d 128, 139-42 (2d Cir. 1984); and (2) has materially caused or threatened to cause substantial harm to competition and will, in the future, materially cause or threaten to cause further substantial injury to competition and consumers.

D. The *Noerr* Defense

Unocal has claimed that, *because it lied to a government agency*, it is shielded from antitrust liability for all the foregoing claims under the *Noerr* doctrine. That assertion is untenable.

First, Unocal's campaign of deceit with respect to the refiner members of private industry groups ("Auto/Oil" and "WSPA") constitutes a separate and distinct exclusionary course of conduct that is wholly divorced from any purported government petitioning. Unocal explicitly told refiners that its emissions research was in the "public domain." If the refiners had known the truth about Unocal's research, they would have made substantially fewer investments to their refineries to produce CARB Phase 2 gasoline (and thus infringed less and made less Phase 2 gasoline). CARB staff testified that CARB would have discovered this supply reduction and would have stopped the regulations in its tracks. These undisputed facts – which prove the allegations in the complaint – have nothing to do with petitioning or *Noerr*, as the Commission has recognized. Opinion of the Commission, *In the Matter of Union Oil Co. of Cal.*, FTC Dkt. No. 9305, 2004 FTC Lexis 115 at *46-47 (2004) ("*Unocal Noerr Ruling*").

Second, to the extent that *Noerr* reaches beyond the narrow scope of First Amendment protection, which it does not, Unocal's lies to CARB cannot qualify for *Noerr* protection for four separate and distinct reasons.[7]

---

[7] *First, Noerr* protection does not extend to cases in which the government is unaware that the petitioner seeks the government to adopt or participate in a restraint of trade. The evidence shows that, in selecting the particular technology advocated by Unocal, CARB intended to rely on competitive markets to supply the gasoline called for by its Phase 2 regulations. CARB had no knowledge that its regulations would confer monopoly power in the distribution of CARB-compliant gasoline and no intention to do so. *Second, Noerr* protection does not extend to anticompetitive conduct that, as here, can be remedied without enjoining

Finally, any *Noerr* defense is unavailable to Unocal because Unocal's exclusionary, deceitful conduct falls within the "misrepresentation" exception to *Noerr*, recognized by the Commission in the *Unocal Noerr Ruling*.

As detailed below, the evidence at trial shows that Unocal's representations to CARB: (a) were false; (b) occurred outside the political arena; (c) were deliberate, factually verifiable, and central to the outcome of the CARB proceeding; and, (d) led to demonstrable effects that can be remedied without undermining the integrity of a government regulation. According to the law set forth in the *Unocal Noerr Ruling*, 2004 FTC Lexis 115 at *115-16, that evidence proves that Unocal's conduct before CARB does not merit *Noerr* protection.

STATEMENT OF THE CASE

I. THE BACKDROP FOR UNOCAL'S CONDUCT

Unocal's conduct took place in the midst of substantial regulatory changes in the oil refining industry. In the late 1980s, California was seeking ways to reduce automotive exhaust emissions. (CCPF Section I.D, II.).[8] The regulations at issue in this case stem from a legislative directive to deal with this problem.

A. Gasoline, Pollution, and Automobile Emissions

Standard automotive gasoline is produced at oil refineries. (CCPF 188-189). Refiners first split and process crude oil into different streams of hydrocarbon mixtures, then blend these streams into gasoline. (CCPF 192). Refineries produce gasoline in "batches," typically on the order of 50,000 barrels or more. (CCPF 2676).

---

any communicative activity to or from government and without disrupting or burdening any government program. *Finally, Noerr* protection is not implicated by administrative proceedings brought under Section 5 of the FTC Act. Only communicative conduct that is protected by the First Amendment enjoys immunity under Section 5.

[8] Complaint Counsel's Proposed Findings of Fact ("CCPF").

When used to power automobiles, gasoline produces pollution. (CCPF 193). More specifically, automobile fuel emissions are a significant source of carbon monoxide ("CO"); volatile organic compounds ("VOC"), also known as unburned hydrocarbons ("HC"); and nitrogen oxide ("NOx"). (CX 5 at 007; CX 142 at 003, 009).

In the late 1980s, the California legislature was seeking ways to combat automotive exhaust pollution. One means under consideration was the replacement of gasoline with a methanol-gasoline mixture called "M85." (CCPF 234-37). At that time, however, both regulators and oil industry members began to consider whether changing various properties of gasoline would limit the amount of harmful emissions produced by motor vehicles. (RX 922 at 144-145). In other words, they hoped to "reformulate" gasoline to produce fewer polluting emissions. (RX 922 at 144-145).

Reformulated gasoline takes advantage of the fact that there are several properties of gasoline that affect emissions. (CCPF 195). These include the distillation temperatures, Reid Vapor Pressure ("RVP"), olefin content, paraffin content, aromatic content, oxygen content, benzene content and sulfur content. (CCPF 870-71, 198). Distillation temperatures refer to the temperatures at which a certain portions of the gasoline will evaporate. (CX 1709 at 013; CX 617 at 021). Thus, "T10" is the temperature at which 10% of a volume of gasoline will boil off; "T50" the temperature at which 50% of a volume of gasoline will boil off; etc. (RX 922 at 145).

To reduce emissions, CARB's reformulated gasoline ("RFG") regulations set bounds for some or all of these properties. (CCPF 211-22). For example, one type of regulation simply sets maximum or minimum "flat" limits for each property, that all gasoline a refiner produces must meet. (CX 10 at 014; CX 52 at 008). The regulations also allow refiners to meet certain limits by "averaging." In the averaging method refiners comply with the regulations so long as the average property values of their batches of gasoline within a certain time period meet the averaging standards. (CCPF 214-15). Finally, the regulations define mathematical equations that predict

emissions based on a combination of regulated properties subject to certain boundaries – an approach that Unocal demonstrated to be possible. (CCPF 218-21). As long as the equations (a so-called "predictive" or "complex" model) predict that the properties of a refiner's gasoline will produce emissions within determined levels, the refiner complies with the regulation. (CX 53 at 009-010). Under CARB's RFG regulations, refiners who use the averaging or predictive model methods of compliance still must comply with "caps." (CCPF 216-17, 221). Caps set the maximum or minimum outer limits for the fuel properties of any given batch of gasoline under the averaging and predictive model methods. (CCPF 216, 221).[9]

B. CARB and the RFG Rulemaking Process

To deal with the air pollution problem caused by automobile emissions in the late 1980s, the California legislature promulgated a set of specific and detailed statutes. (CCPF 268-82). It tasked the California Air Resources Board ("CARB") with the technical implementation of those statutes. (CCPF 268-82).

CARB's mission (as a department of the California Environmental Protection Agency) is to improve air quality by conducting research into the causes of, and solutions to, air pollution. (CCPF 223-24). By statute, CARB was directed to conduct certain specified, technical activities, including rulemaking to regulate various emissions sources, and non-rulemaking studies, reports, and standard setting. (CCPF 225-28). CARB's purpose, therefore, is the technical implementation of statutes promulgated by the legislature. (CCPF 225-28).

The composition of the CARB Board and CARB staff reflects CARB's technical focus. By statute, the Board is comprised of members with technical backgrounds, such as chemistry,

[9] The regulations also offer the option for compliance based on results of a vehicle emissions testing program. (CX 1709 at 016). For a variety of reasons, this option is unattractive to refiners and no refiner has ever sought approval under the vehicle testing option. (Venturini, Tr. 691).

automotive engineering, and medicine. (CCPF 342; Kenny, Tr. 6499; CX 7063 (Sharpless, Dep. at 42-43)). This mandate ensures that the Board has the requisite expertise to deal with the highly technical issues before it. (*Id*). CARB is staffed mainly by scientists and engineers. (CCPF 229; Kenny, Tr. 6498-6499). In fact, individuals with technical backgrounds composed the entire staff of CARB's Stationary Source Division, which developed the Phase 2 regulations. (Venturini, Tr. 83-84).

CARB's reputation also reflects its technical focus. CARB is "viewed as the preeminent if not the eminent air quality agency around the world." (Kenny, Tr. 6500-6501; *see also* Boyd, Tr. 6691). This reputation has been built on the technical credibility of CARB's regulations. (Venturini, Tr. 96-97).

1. The Legislative Mandates for CARB

In 1988, the California legislature passed legislation (amendments to the California Clean Air Act) that authorized CARB to adopt, among other measures, "motor vehicle fuel specifications for the control of air contaminants." (CX 1665 at 152 (Health & Safety Code § 43013(a)); CX 52 at 0008). The California Clean Air Act required these regulations to be "necessary, cost-effective, and technologically feasible" to carry out specific goals set forth by the legislature. (CX 1665 at 152 (Health & Safety Code § 43013(a))). The legislature also mandated that CARB consider the effect of its regulations "on the economy of the state." (*Id*).

Pursuant to this directive, CARB sought to define a reformulated gasoline ("RFG"). (CCPF 240-241). CARB accomplished this task in two regulatory phases. In Phase 1, CARB established a modest set of standards limiting certain gasoline properties. These regulations required only minimal compliance costs. In Phase 2, CARB set about to fully define reformulated gasoline. This case concerns CARB's Phase 2 summertime RFG regulations. (CCPF 241)

2. CARB Had Limited Discretion in its Rulemaking

Although the overarching legislative directive to CARB was ambitious in scope, the legislature expressly limited CARB's discretion in a number of ways.

Both the detailed substantive requirements of the California legislature's charge and the procedural requirements of California administrative law limited CARB's discretion. (CCPF 263-408). Substantively, the California legislature's mandate included restrictive, detailed instructions regarding both the goals of the regulations and the means by which those goals must be achieved. Procedurally, California administrative law required that CARB's rulemaking proceeding demonstrate that substantial evidence supported the regulations and subjected the regulations to both administrative and judicial review. CARB's discretion was therefore "severely constrained." (CCPF 263-408).

a. Policy decisions were made by the Legislature, not CARB

The record evidence shows that the California legislature, not CARB, made the overall policy determinations for CARB's regulations. (CCPF 263-297). The legislature detailed its policy decisions and gave specific instructions as to how CARB would implement those decisions. These policy decisions and specific instructions are reflected in the statutes directing CARB to regulate automobile emissions:

- The legislature determined the specific emissions reduction goal for CARB's regulations. CARB was directed to reduce "reactive organic gases [by] at least 55 percent" and "oxides of nitrogen [by] at least 15 percent from motor vehicles." (CX 1665 at 153 (Health & Safety Code § 43018(b))).

- The legislature determined that 1987 would be the specific baseline for the mandated emissions reductions. (CX 1665 at 153 (Health & Safety Code § 43018(b))).

- The legislature determined the specific types of pollution that CARB's regulations would address. In addition to specific goals for reducing "reactive organic gases" and "oxides of nitrogen," CARB's regulations were to "achieve the maximum feasible reductions in particulates, carbon monoxide, and toxic air contaminants from vehicular sources." (CX 1665 at 153 (Health & Safety Code § 43018(b))).

- The legislature determined the timeline for CARB's regulations. While CARB was directed to "endeavor to achieve the maximum degree of emission reduction possible . . . to accomplish the attainment of the state standards at the earliest practicable date," the legislature placed deadlines on CARB to take actions "[n]ot later than January 1, 1992" that would achieve specific emissions reductions "not later than December 31, 2000." (CX 1665 at 153 (Health & Safety Code § 43018(a) and (b))).

- The legislature determined that CARB would adopt "measures on *all* classes of motor vehicles and motor vehicle fuel." (CX 1665 at 154 (Health & Safety Code § 43018(c))) (emphasis added).

- The legislature specified that emissions reductions must include reductions from specific sources, including (1) motor vehicle exhaust and evaporative emissions, (2) emission system durability and performance, (3) state fleet operators, and (4) vehicular fuel composition. (CX 1665 at 154 (Health & Safety Code § 43018(c))).

- The legislature mandated that CARB's regulations be "cost-effective." (CX 1665 at 153 (Health & Safety Code § 43018(b))).

- The legislature directed CARB to "consider the effect of the standards and regulations on the economy of the state," and any impact on "motor vehicle efficiency." (CX 1665 at 154 (Health & Safety Code § 43018(e))).

- The legislature specified the procedures CARB was to follow, and mandated that CARB hold workshops and hearings regarding the regulations according to a prescribed schedule. (CX 1665 at 154 (Health & Safety Code § 43018(d))).

- The legislature determined that the use of "performance standards," where possible, was preferable to "prescriptive standards." (CX 7029 at 007 (Gov't Code § 11340(d))). Therefore, were CARB regulations to mandate the use of specific technologies or equipment, CARB would have to state why it believed that "prescriptive standards are required," describe the alternatives CARB considered, and state that the reasons why the alternatives were rejected. (CX 7029 at 046 (Gov't Code § 11346.14(a) and (b))).

- The legislature required CARB to address each comment received from the public, explaining "how the proposed action has been changed to accommodate each objection or recommendation, or the reasons for making no change." (CX 7029 at 060 (Gov't Code § 11346.7(b) (3))).

As CARB's former general counsel and executive officer, Judge Michael Kenny, described it, CARB's discretion was "severely constrained" by these statutory mandates. (Kenny, Tr. 6671-6673). Or, as CARB's then-Chairwoman put it, CARB operated in the "framework" of the legislature's policy goals and was tasked to "come up with strategies, directions, implementation

plans to meet those goals." (CX 7063 (Sharpless, Dep. at 46-47)). CARB's task, therefore, was to employ technical and engineering judgment to implement the legislature's mandate. (Kenny, Tr. 6671-6673).

In short, the California legislature made the policy decisions underlying CARB's regulations. CARB brought to bear its technical competence to implement those policy decisions.

b. CARB had to support its regulations with sound scientific and technical data

CARB's technical decisions were also constrained by California law requiring that the regulations be supported by substantial evidence. (CCPF 298-340). State law mandated that CARB's regulations would not be "valid or effective unless consistent and not in conflict with" the California Clean Air Act and "*reasonably necessary to effectuate the purpose* of the statute." (CX 7029 at 020 (Gov't Code § 11342.2)) (emphasis added). Thus, before CARB's regulations could become effective, state law required that "substantial evidence," including "facts, studies, and expert opinion," demonstrate "the need for" the regulations. (CX 7029 at 072-073 (Gov't Code §§ 11349(a), 11349.1(a)(1))).

California administrative law also included a number of procedural requirements that ensured CARB's technical decisions would be subject to scrutiny and comment by affected parties. Under these administrative laws, CARB had to:

- issue "an initial statement of reasons," including (1) a "description of the public problem" that the regulations are intended to address; (2) a statement of the "specific purpose" of the regulations and CARB's "rationale" for determining that they are "reasonably necessary" to carry out that purpose; (3) the identity of "each technical, theoretical, and empirical study, report, or similar document" that CARB relied upon; and (4) a description of any alternatives that would lessen any adverse impact on small businesses. (CX 7029 at 059-060 (Gov't Code § 11346.7(a)));
- receive public "statements, arguments, or contentions" regarding the proposed regulations (CX 7029 at 062-063 (Gov't Code § 11346.8(a))).

These requirements ensured that CARB's technical decisions were well grounded in

objective scientific and technical facts, fully explained and justified in written reports based on clearly-identified, publicly-available data, and responsive to all written public comments received during the administrative rulemaking proceding.

Indeed, Unocal itself recognized that CARB's focus was on technical implementation. In a 1991 article, Roger Beach, the then-President of Unocal's Refining and Marketing Division, commended CARB for "building its regulations on a strong technical foundation" and "its effort to maintain scientific credibility." (CX 1578 at 001; Beach, Tr. 1679). He went on to describe how CARB was "carefully supporting" the Phase 2 regulations "with technical data." (CX 1578 at 002). Finally, he contrasted the "scientific approach taken by CARB" with the federal government's "'political' specification," which "lacks any significant technical support." (CX 1578 at 002; *see also* Jessup, Tr. 1296 (Unocal inventor admitting that CARB staff was focused on science and wanted to get the science right)).

c. CARB's regulations had to meet specific enforceable standards and were subject to review by the Office of Administrative Law and to judicial review

CARB's regulations were subject to review both by an independent state agency, the California Office of Administrative Law ("OAL"), and by California courts. (CCPF 298-302). Before CARB's regulations became effective, the OAL had to ensure that the regulations met a number of requirements. (CCPF 300). In addition, private parties could seek judicial review of CARB's regulations in state court. (CX 7029 at 084 (Gov't Code § 11350 (a))). Both the OAL and the courts had the authority to invalidate CARB's regulations if those regulations did not meet specific standards. These standards did not merely involve CARB's rulemaking procedures, but also governed the content of CARB's regulations.

The OAL measured CARB's regulations against specific substantive requirements. As stated by the legislature, the intent of OAL review was to "reduce the number of administrative regulations

and to improve the quality of those regulations which are adopted." (CX 7029 at 008 (Govt Code § 11340.1)). The OAL therefore reviewed CARB's rulemaking record to ensure that the regulations were: (1) supported by a record that "demonstrates by substantial evidence the need for a regulation"; (2) within CARB's authority as set forth by the statutes requiring the adoption the regulations; (3) clear; (4) "in harmony with, and not in conflict with or contradictory to" existing law; (5) consistent with the statute they seek to implement; and (6) not duplicative of other laws. (CX 7029 at 072-074 (Gov't Code §§ 11349, 11349.1(a))). Only after the OAL was satisfied that these standards were met could it approve the regulations. (CX 7029 at 073-074 (Gov't Code § 11349.1(a))).[10]

CARB's regulations were also subject to judicial review. A court could invalidate the regulations if it found that "[t]he agency's determination that the regulation is reasonably necessary to effectuate the purpose of the statute . . . is not supported by substantial evidence." (CX 7029 at 084 (Gov't Code §11350(b)(1))). This provision allowed CARB's technical decisions to be challenged as unfounded. As one commentator observed, "[t]he legislative history of the 1982 amendment makes clear that the legislature intended a significant intensification of review of the factual support for a regulation." Michael Asimow, *The Scope of Judicial Review of Decisions of California Administrative Agencies*, 42 UCLA L. Rev. 1157, 1230 (1995); *see also Agricultural Labor Relations Bd. v. Exeter Packers, Inc.*, 184 Cal. App. 3d 483, 492 (1986) (stating that legislative history shows intent to change standard of review).

3. CARB Depended on Receiving Truthful and Accurate Information from Interested Parties

To fulfill all of these statutory mandates, CARB had to rely on industry members for

[10] Even after a regulation was approved, either the governor or a legislative committee could order the OAL to perform a priority review to determine whether the regulation should be repealed for failure to meet the statutory standards. (CX 7029 at 009, 078 (Gov't Code §§ 11340.15, 11349.5)).

information. In fact, the legislature directed CARB to consult with industry in the development of the Phase 2 regulations. (CCPF 248, 935-36). With respect to toxic air contaminants in particular, the legislature directed CARB to "utilize the best available scientific evidence gathered from the public, private industry, the scientific community, and [government] agencies." (CX 1665 at 016 (Health & Safety Code § 39650(d))). In relying on the industry for information, CARB (as it always had and still does) needed and expected to receive truthful and accurate information. (CCPF 935-1014, 3977-91). CARB did not compel industry members to give information, but when those members chose to do so, CARB reasonably expected that it would not be lied to. (CCPF 987-1014, 3977-91).

The record clearly demonstrates that CARB relied heavily on industry input in promulgating the Phase 2 regulations. (CCPF 303-307, 378-396). As James Boyd, CARB's executive officer during the development of the Phase 2 regulations, told the CARB Board, CARB staff had held "three public consultation meetings and numerous informal meetings with representatives of the oil refining industry, auto manufacturers, and a host of other interest groups . . . .These meetings, quite frankly, have been extremely helpful, and we're particularly appreciative of the efforts of the industry and all others who have assisted us in the development of this proposal." (CX 773 at 007).

This industry assistance is manifest in CARB's documents. For instance, a January 1991 Phase 2 work plan describes the numerous outside studies that CARB staff was relying on at the time for the proposed regulation of specific fuel properties. (CX 785 at 003-005). These included studies by Auto/Oil, WSPA, API, and ARCO. (*Id.*). Similarly, the "substantial evidence" underlying CARB's Phase 2 regulations is replete with information, studies, and research from industry members. (*See, e.g.*, CX 5, CX 10, CX 52). For instance, the Technical Support Document for CARB's proposed Phase 2 regulations cited over 70 different studies or articles contributed by

outside parties. (CX 5 at 168-173).

CARB's need to rely on industry to provide truthful and accurate information was particularly acute in the Phase 2 proceedings. As Peter Venturini, the Chief of CARB's Stationary Source Division, described the situation, the Phase 2 regulations were "a kind of technical and scientific tour de force... . It was a very exciting time for these engineers and scientists, because we were on the cutting edge."[11] (Venturini, Tr. 126-127). Similarly, James Boyd, CARB's then-executive officer, explained that CARB had to rely on receiving accurate and truthful information because of the complexity of the science.[12]

CARB relied on industry members not only for data and information, but also guidance on what additional information should be considered. (CCPF 935-61; Venturini, Tr. 124-25). In fact, CARB would often solicit additional studies, tests, or data collection based on industry recommendations. (*Id.*). This interaction was an essential part of CARB's regulatory process.

The truthfulness and accuracy of the information provided in these outside studies was

---

[11] Technical issues that CARB needed to resolve in the Phase 2 regulations included determining the manner and degree to which gasoline parameters not previously regulated by CARB would independently reduce certain vehicle emissions (*e.g.*, olefins, T50, T90, aromatics), how combinations of parameters, working together as a fuel system, would reduce pollution, how reductions in benzene or other constituents would affect cancer rates, and the degree to which numerous vehicle test results gave results representative of the California mobile sources fleet. (CCPF 947).

[12]

> Q. And sir, did the ARB, in your experience and tenure there, rely on the truthfulness and accuracy of facts brought before it during its rulemaking process?
>
> A. Very definitely. This is an incredibly scientifically and technically complex arena, and we relied very heavily on those factors in dealing with all the various communities that were regulated.
>
> Q. Was that the case during the Phase 2 regulations?
>
> A. Probably more so than most since a very cooperative, mutually agreed-upon program had been initiated with the effective stakeholders.

(Boyd, Tr. 6705; *see also* Kenny, Tr. 6530-6531 (it was important for CARB to receive truthful information from the public and the affected industry); Courtis, Tr. 5731-5732 ("very important" that CARB receive truthful and accurate information from industry members)).

critical to CARB's work. (*Id.*). CARB relied on these outside studies to ensure that its regulations were based on robust scientific information. (Venturini, Tr. 124-125 (stating that CARB used outside studies to establish regulations)).

In short, CARB's entire rulemaking process rested on the premise that parties would not provide false or misleading information to gain a competitive advantage. As Mr. Venturini testified, without this premise, CARB's rulemaking system could not have functioned:

> We operate under the expectation – and it's the only way our system can operate, Your Honor, is to operate on the expectation that people will be truthful in dealing with us. Our whole system, the whole integrity of our regulatory process would just collapse if it were okay for people to use our regulatory process to gain an unfair competitive advantage. It just wouldn't work.

(Venturini, Tr. 863).

CARB did not compel parties to disclose information. But it reasonably expected that parties would not lie to CARB when they voluntarily chose to provide information.[13] As Judge Kenny explained, this mutually-held expectation permeated CARB's rulemaking proceedings. (Kenny, Tr. 6521 ("The practice of the board and the history of the board has been one in which the parties dealt with one another in good faith in an honest and reliable manner.")). (CCPF 3977-91).

The need for industry members to provide to CARB truthful and accurate information was well recognized in the industry. (CCPF 378-96). For instance, Don Bea of Chevron testified that Chevron provided information to CARB "to make sure that whatever regulations CARB adopted were . . . based on sound science and cost effective," because such regulations would "be of benefit to Chevron's business interests." (CX 7042 (Bea, Dep. at 20, 97)). Similarly, Douglas Youngblood

[13] CARB expected industry members to provide truthful and accurate information in part because it was in the industry members' interests to do so. Industry members would bear part of the cost of the regulations: "a cost that industry is going to have to bear and a cost that the consumer is going to have to bear." (Venturini, Tr. 124-125).

of Texaco testified that Texaco "was interested in CARB having good scientific information to make their regulations, not speculative information." (CX7076 (Youngblood, Dep. at 32)). Texaco therefore shared technical information with CARB that could make the regulations more cost effective and less disruptive to the public. (CX 7076 (Youngblood, Dep. at 22-23)). Along these lines, the core purpose of the Auto/Oil group was to provide research data to CARB in order to assist in the development of scientifically sound and cost-effective regulations. (CCPF 182-84). Similarly, WSPA sought to provide CARB with technically sound information. (CCPF 186-87).

With the exception of its dealings with Unocal, CARB's expectation that it receive truthful and accurate information has been fulfilled. Mr. Venturini, who has been at CARB for almost 33 years, and Judge Kenny both testified that they were not aware of any other instance in which a party has made any misrepresentation to CARB. (Venturini, Tr. 123-125; Kenny, Tr. 6522). Unocal is the sole exception.

4. CARB's Mandate Required it to Consider Carefully the Costs of its Regulation and to Preserve Competition in the Marketplace

In addition to resolving technical issues, the legislature's mandate required CARB to calculate and justify the economic impacts of the Phase 2 regulations. (CCPF 409-20; 3948-76). The Phase 2 regulations had to "result in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel." (CX 1665 at 154 (Health & Safety Code § 43018(c)); *see also* CX 1665 at 153 (Health & Safety Code § 43018(b)) (regulations had to be "cost-effective")). Moreover, CARB had to account for the effect of the Phase 2 regulations on "the economy of the state." (CX 1665 at 154 (Health & Safety Code § 43018(e))). These directives caused CARB to consider several aspects of costs. (CCPF 409-20). They also caused CARB to ensure that its regulations preserved competition in the marketplace and avoided creating monopolies. (CCPF 421-32, 4032-35).

a. CARB carefully considered several aspects of costs

The legislature's directives required CARB to evaluate the cost impact of the Phase 2 regulations from several different perspectives, including cost-effectiveness, compliance costs, and costs to consumers. The effect on the California economy and the absolute cost to the consumer, however, were the paramount considerations.

Total cost, not cost-effectiveness,[14] was therefore the driving cost measure behind the Phase 2 regulations. The industry and CARB both recognized that the Phase 2 regulations were the most costly regulations ever implemented in California. (CCPF 3962, CX 33 at 001). As CARB's then-executive officer, James Boyd, testified, the total cost of the regulations was critically important to CARB because it would impact consumers:

> But more importantly I think was the cost to the regulated community, which eventually would be transferred to the California public and thus affect the California economy. So cost was uppermost I think in our mind at all times relative to regulations because the California public, who was very supportive of us and our programs, nonetheless had to absorb costs, and they had to be reasonable if we were to be successful and to be sustained as an organization.

(Boyd, Tr. 6706). Similarly, Mr. Venturini explained that the absolute cost of the regulations was paramount because of the impact on the economy of the state:

> One of the things that was very important to us in this regulation was basically the cost, the ultimate cost to the consumer…. We were talking about a measure that could impact California's refineries to the tune of maybe $5 billion or more, a regulation that could impact the consumer of ten or more cents per gallon…. So we were extremely concerned and very sensitive [about cost], and that is why we had so many meetings, so many discussions with not only the oil industry but the auto industry and others, because we knew basically we had one shot to get this right.

---

[14] The term "cost-effective" was used by CARB and the industry in two ways. The term sometimes referred to guidance given to CARB that the cost-effectiveness of its regulations fall within the range of other air pollution regulations. (CCPF 412). The term was more often used to describe particular technologies as being less costly than others of similar effectiveness. (*See, e.g.,* CX 33 at 011 (Unocal's comments recommending approach to allow flexibility so refiners would develop "more cost effective ways" to meet regulation)).

(Venturini, Tr. 109).

The "economy of the state" legislative directive therefore drove CARB to minimize the consumer cost impact of the regulations. (CCPF 409-16, 3948-76; Venturini, Tr. 200-201 (it was important to Venturini and his staff to minimize cost to the consumer); CX 52 at 006 (Phase 2 Staff Report: "A further objective is to meet these emission reduction goals in a manner that provides flexibility for fuel producers to provide the 'cleanest' possible gasoline at the least cost to the consumer."); CX 817 at 003 (CARB Board resolution: "Phase 2 reformulated gasoline regulations which would define the 'cleanest' possible gasoline . . . at the lowest cost to the consumer.")). CARB staff therefore sought to "evaluate the costs of the proposed regulation to the consumers by analyzing the costs" and to "minimize the cost to the consumer," *i.e.*, to achieve "the least cost to the consumer with the cleanest possible gasoline." (Courtis, Tr. 5721, 5787).

To meet this goal, CARB scrutinized the potential costs for refiners to comply with the Phase 2 regulations. (CCPF 3948-91). This scrutiny was vital for two reasons. First, CARB understood that a portion of any compliance costs would be passed on by the refiners to California consumers. (CCPF 3948-76; Venturini, Tr. 262-263 (the costs to the refinery "could be translated to what the consumer could see potentially as cost increases.")). Second, CARB knew that the cost of compliance could affect the supply (and therefore the price) of Phase 2 gasoline. (CCPF 433-46, 4045-56; Venturni, Tr. 263-264 ("we were sensitive to making sure . . . that refiners would still have the capability to produce sufficient quantities of gasoline to meet the demand in California.")). As Mr. Venturini explained, compliance costs that were too high could cause refiners to decide not to make the necessary investments, which could lead to supply shortfalls and consumer harm:

> We certainly did not want to be responsible for fuel shortages and gas lines, and so forth, so it was very important to us to make sure that we had the proper balance in the regulations between the emission reductions, the ability to produce product and the cost to the consumer.

(Venturini, Tr. 262-264). CARB staff therefore sought to ensure that compliance costs would not induce even one major refiner to reduce its participation in the California gasoline market. (Venturini, Tr. 263 (CARB needed all of the major refineries to be on board with the Phase 2 regulations; CARB could not have gone forward with Phase 2 without all of the major refiners because of the risk of a significant supply shortfall)).

b. CARB depended on receiving truthful and accurate cost information from the industry

Because of the importance of costs in setting the Phase 2 regulations, CARB's need for truthful and accurate information from industry members extended to information regarding costs. (CCPF 3977-91). To satisfy its statutory directives, CARB had to find "out as much about refinery operations and the impact of changes in fuels specifications on those refinery operations" as they could to determine the overall cost of Phase 2 regulations. (Fletcher, Tr. 6447). Since CARB staff were not "experts in the refining industry," they had to seek information from the industry. (CX 7040 (Aguila, Dep. at 87-88)). CARB then relied on this cost information in setting its regulations, and the effectiveness of CARB's programs depended on the accuracy of this information. (CCPF Section XXVII.A-B). As Mr. Venturini explained, CARB used the cost information it received from industry members to assess the impact of specifications that it was considering:

> Q. And where did you get the cost information that relates to how to make gasoline at refineries, for example, for Phase 2?
>
> A. We basically relied on information that was submitted to us by refineries.
>
> Q. And was it important to you at the time in drafting the Phase 2 regulation in 1991 whether the cost information was truthful?
>
> A. Yes.
>
> Q. Why, sir?
>
> A. Because that was the information that we would use to base our assessment of the impact of this regulation on the – not only the regulated community but also

> on the public, and that information is important to us because based on that information we may – it's used in helping us set our specifications.

(Venturni, Tr. 163; *see also* Venturini, Tr. 273 ("It's very important for people [who submit cost information] to be truthful with us because we rely on that information. As an organization, our programs are only as effective as the input and the information and the dialogue we have with the people that we interact with.")).

CARB obtained cost information from the industry for development of the Phase 2 regulations in several ways. First, CARB requested generally that refiners give to CARB specific information about their projected costs of production for Phase 2 gasoline. (CCPF 780-86; CX 10 at 082-083). Through this means, CARB obtained compliance cost information from six representative refiners – large refiners, independent refiners, and small refiners – that CARB used to estimate the potential costs of complying with the proposed regulations. (CX 52 at 065-066; CX 5 at 129, 130, 137). Second, CARB considered cost studies submitted by the refining industry through WSPA, including reports by Turner Mason (which estimated refiner compliance costs (CX 1517)), Sierra Research (which estimated cost-effectiveness (RX 273)), and DRI-McGraw Hill (which estimated the economic impact of the regulation on the California economy (CX 801; CCPF 962-79). Third, CARB constantly received comments from industry members concerning the potential costs and economic impact of specific aspects of its regulations. (CCPF 4004-14). For instance, during the summer of 1991 CARB staff had a number of meetings with company representatives to discuss issues such as costs. (CX 7040 (Aguila, Dep. at 90-91)).

CARB's Phase 2 regulations were based substantially on the cost information it received through these various means. As reflected in the October 1991 CARB Staff Report, in developing cost information for the regulations, CARB staff "generally relied on information presented to us by the refiners." (CX 52 at 070). Similarly, the CARB October 1991 Technical Support Document

for the Phase 2 regulations states that CARB staff "utilized data submitted from refiners, in addition to other sources of data, to estimate the fiscal impact on the refining industry." (CX 5 at 151).

More specifically, CARB used the cost information it obtained from industry members to set the specifications in the Phase 2 regulations. (CCPF 962-1014, 4001-03). CARB repeatedly rejected strict limitations that would further reduce emissions due to cost concerns. (CCPF 4004-14). For example, CARB staff rejected more stringent T50 limits based on cost concerns even though the lower limits would have substantially reduced emissions. (CX 5 at 033). CARB rejected a suggestion for more stringent sulfur limits – which would provide greater emissions benefits – because the stricter limits "would have significantly increased the costs of producing Phase 2 reformulated gasoline." (CX 10 at 034). CARB rejected more stringent aromatics standards because "the additional emissions reductions that would be achieved . . . would not be sufficient to justify the significant increases in costs." (CX 10 at 038-039). Further, CARB rejected several proposals for more stringent overall requirements based on cost concerns. (CX 10 at 027 ("While the MVMA proposal includes more stringent criteria for some gasoline properties and would achieve greater emissions reductions, it is sufficiently less cost-effective to make the proposed specifications not justified at this time"); CX 10 at 029 ("We have concluded that the adopted Phase 2 RFG standards are at levels which will result in the most cost-effective emissions reductions . . . . The additional emissions reductions that may be derived as a result of the specifications proposed by Ford are not cost-effective.")).

The cost information that CARB considered included information about potential patent royalties. (CCPF 3979-91). CARB staff understood that "patent costs and royalty costs are . . . part and parcel of doing business within the refining industry." (CX 7040 (Aguila, Dep. at 129)). For instance, when CARB was researching deposit control additive technology, CARB was aware of patents on specific technologies (CX 7040 (Aguila, Dep. at 8-11)), and acknowledged this in the

technical support document for the relevant regulations. (CX 840 at 152). By asking about costs, therefore, CARB staff was necessarily asking about potential patent license fees. (CX 7040 (Aguila, Dep. at 130)). Thus, CARB reasonably expected that industry members would not conceal information about potential patent license fees associated with technologies the members were advocating. (Venturini, Tr. 189 ("Q: Now, sir, in the Phase 1 and Phase 2 regulations when you had twelve companies coming in and talking to you, did you expect at the time that if companies had a proprietary interest in a development and intended to charge for it that they would tell you about it? A: Yes. I think anything that was significantly important to our rulemaking, particularly if it had a cost implication, I believe we should – we should have been told of that, yes."); Boyd, Tr. 6904-6905 (explaining that CARB expected not be misled about the existence of patent applications "when those patent applications have cost ramifications")).

The refiners understood this to be the case. For instance, the Turner Mason report (commissioned by WSPA to evaluate the costs of compliance with the Phase 2 regulations) included technical license fees. (CCPF 1942-62, 3987). Even further, industry members understood that "costs" included potential license fees associated with *pending* patents. Companies disclosed to CARB pending patent applications that applied to the technologies being proposed. (Venturini, Tr. 187). In fact, Unocal had, in the past, itself disclosed to CARB the existence of a pending patent on technology it was proposing. (CCPF 3982; Venturini, Tr. 187-188; CX 1093 at 027).

With the exception of the Unocal misconduct at issue here, this mutual understanding has always been respected. There has been no other instance in which a company has told CARB that it may use the company's research or technology and later sought to charge for the use of that research or technology. (Venturini, Tr. 191 ("Q: Except for Unocal, sir, has any company ever told you or your staff, to your knowledge, that you and your staff could use their research and later come in and say, by the way, there's a charge for that? A: No, not to my knowledge.")).

c. CARB sought to preserve competition in the marketplace that would produce CARB-compliant gasoline

Information about potential patent rights was important to CARB not only because of the cost implications, but also because of potential effects on competition. The "economy of the state" legislative directive required CARB to ensure that its regulations preserved competition in the marketplace and avoided creating monopolies. (CCPF 421-32, 4032-35). Information of potential patent rights, therefore, was critical to CARB's formulation of its regulations.

CARB's concern about preserving competition permeates the record. (CCPF 3971-76). For instance, in the Final Statement of Reasons for the Phase 2 regulations, CARB justified a limited exception to the regulations for small refiners based on competitive concerns. (CCPF 3975). As that document explains, without the exception some small refiners might go out of business, which "could have significant anticompetitive effects because small refiners contribute to competition in the petroleum industry." (CX 10 at 015; *see also* CX 10 at 187 (stating concern that regulation not "reduce competition in the gasoline market" because of resulting "increase in gasoline prices")). Similarly, at the public hearing to adopt the CARB regulations, CARB Board members expressed their concern about the potential impacts on competition of the proposed Phase 2 regulation. (Kenny, Tr. 6512 (The CARB Board was concerned about the impact of the Phase 2 regulations on competition, including the impact on the major refiners, on small refiners and on the independent refiners.)). At that hearing, CARB Chairwoman Jananne Sharpless explicitly addressed concerns about maintaining a competitive balance within the refining industry. (CX 774 at 060-061; *see also* Kenny, Tr. 6513-6514 ("the board actually stated during the hearing . . . that they had concerns about losing small and independent refiners and the impacts that that would have upon the marketplace by providing the majors with the sole ability to provide fuel in the state")).

This concern about preserving competition naturally meant that CARB sought to avoid

creating a situation where one firm could obtain monopoly power by taking advantage of the regulations. (CCPF 421-32). As CARB's then-general counsel, Judge Kenny, explained at trial, the CARB Board developed a policy to avoid actions that allowed individual firms to gain a monopoly or other market power. (Kenny, Tr. 6511-6512). He went on to explain that this policy was driven by the "economy of the state" legislative directive in the statutes governing CARB's regulatory efforts. (Kenny, Tr. 6512). Information about the existence of potential patent rights pertaining to technologies being proposed to CARB was therefore critical to CARB. (CCPF 3977-91; Venturini, Tr. 151 ("Because if that were the case, it would have had a significant impact on the cost of the regulation, the cost to the consumer, and also would have had an implication on if we went forward about what would we – we'd be basically giving one entity basically a monopoly.")).

C. Unocal Was Well Aware That Refining Costs and Preserving Competition Were Material to CARB's Decisionmaking Process

The importance of costs and preserving competition to CARB's rulemaking decisions was not lost on Unocal. The evidence demonstrates that Unocal was not only well aware of these concerns but that Unocal highlighted these concerns when presenting information to CARB.

1. Unocal Knew That CARB Was Concerned About Refining Costs and That CARB Needed Accurate Information About These Costs

The evidence demonstrates that Unocal was well aware of CARB's concerns about costs and its efforts to obtain accurate cost information. (CCPF 1350-1435, 3992-4003). Denny Lamb, Unocal's point person for dealing with CARB, admitted that he knew CARB was concerned about costs during the development of the Phase 2 regulations. (Lamb, Tr. 1945). He admitted that he knew refiners' compliance costs specifically were a major consideration for CARB. (Lamb, Tr. 1945-1946). And he admitted that he knew CARB was concerned about the impact the regulations would have on consumer prices. (Lamb, Tr. 1945). Other Unocal personnel who interacted with

CARB regarding the Phase 2 regulations also admitted that they knew CARB was both concerned about compliance costs and interested in information about such costs. (Kulakowski, Tr. 4451-4453; Miller, Tr. 1397).

Unocal was intimately familiar with the reasons for CARB's cost concerns and CARB's need to obtain accurate cost information. Specifically, Unocal knew from CARB staff that CARB needed to obtain an accurate estimate of costs because of the legislative requirements to determine the cost and cost-effectiveness of the regulations. (Kulakowski, Tr. 4453). Moreover, Unocal knew that CARB was serious about obtaining accurate cost estimates. (CCPF 1350-1435, 3993; Kulakowski, Tr. 4468-4469). This was evident by the steps Unocal personnel observed CARB taking to evaluate cost. (Kulakowski, Tr. 4469).

Unocal's knowledge is clearly reflected in Unocal's submissions to CARB. (CCPF 1412-35, 4015-31). For instance, in a November 21, 1991 letter to CARB Chairwoman Sharpless, Roger Beach emphasized the cost of the Phase 2 regulations in order to convince CARB that changes were needed. (CX 33 at 001; Beach, Tr. 1681-1682). He described the Phase 2 regulations as "the most costly regulation proposed to date by any California regulatory body." (CX 33 at 001). He went on to emphasize that the estimates "of the cost of compliance are as high as $10 billion for our industry" and that Unocal was "strongly opposed to the imposition of measures that are not cost effective." (CX 33 at 001). Recognizing CARB's cost concerns, Unocal made a number of specific recommendations to ensure that the regulations were less costly. (*See, e.g.*, CX 33 at 011 (recommending approach for oxygen specification to "provide flexibility for gasoline producers to develop more cost effective ways to reduce distillation temperatures"); CX 33 at 012 ("We are concerned that greater reductions will require very costly reductions in aromatics and T90.").

Unocal also knew that CARB needed and expected any cost information from Unocal to be truthful. (CCPF 1350-1435, 4015-31). Roger Beach, Unocal's former CEO, admitted that CARB

needed truthful information from Unocal during the Phase 2 proceedings. (Beach, Tr. 1784). Along these lines, Mr. Kulakowski, who dealt extensively with CARB regarding the Phase 2 regulations, testified that when he was working at Unocal in 1991 on the CARB Phase 2 regulations, CARB should have been informed of any costs the industry would incur to comply with the regulations. (Kulakowski, Tr. 4494-4495).

2. Unocal Knew CARB Was Concerned About Ensuring Adequate Supply and Maintaining Competition in the Industry

Unocal understood CARB was seeking to ensure that the regulations resulted in an adequate supply of Phase 2 gasoline. As Denny Lamb admitted at trial, he was personally aware that supply was a "big-time" concern at CARB. (Lamb, Tr. 1917-1918) (CARB expressed "big-time concerns" as to whether there would be an adequate supply of reformulated gasoline upon the rollout in 1996.)).

In addition, in opposing a small refiner exception to CARB's Phase 2 rules, Unocal argued that the small refiner exception "could affect the decisions of other refiners on how to invest to make CARB gasoline. It could affect the volume that they decided to try to produce and the extent to which they modified their refineries to produce that gasoline." (Kulakowski, Tr. 4489).

Similarly, Unocal knew CARB was seeking to preserve competition. (CCPF 1423-35, 4036-44). In fact, Denny Lamb admitted that he understood this to be the case. (Lamb, Tr. 2050). Unocal's presentations to CARB also reflect this understanding. For instance, Mr. Lamb purported to warn CARB of potential unscrupulous behavior in the marketplace and cheating on the regulations. (Lamb, Tr. 1806-1807; *see also* CX 612 at 001 (warning that regulations could "create significant opportunity for cheating")). Further, Unocal argued against a proposed "independent" refiner exemption on the basis that CARB should not adopt regulations that would impose costs on some refiners but not others. (Kulakowski, Tr. 4492-4493; CX 311 at 001).

3. Unocal Knew That Technology License Fees Were Part of the Costs Being Considered By CARB

Finally, Unocal understood that the costs CARB was considering included fees for the licensing of technology. (CCPF 1380-1403). Specifically, Unocal knew that a cost study created for an industry trade association to be submitted to CARB included the cost of license fees related to patents that would be used to comply with the Phase 2 regulations. (CCPF 1380-1403; Kulakowski, Tr. 4498). In fact, as part of that study, Unocal was specifically asked for an update of Unocal's technology licensing fees. (Kulakowski, Tr. 4500). In addition, when Unocal presented its gasoline detergent technology to CARB, Unocal informed CARB that the technology was subject to a pending patent application. (Croudace, Tr. 544-545; CX 131 at 012).

D. Cooperative Industry Efforts During the Phase 2 Rulemaking Process

During the Phase 2 rulemaking process, Unocal participated in two cooperative industry efforts that were intended to provide information and research to CARB for development of the Phase 2 regulations: the Auto/Oil Group and the Western States Petroleum Association ("WSPA").

1. The Auto/Oil Group

In October 1989, Unocal and 13 of the other largest domestic oil companies and the three big domestic automobile manufacturers created the Auto/Oil joint venture ("Auto/Oil"). (CX 4001 at 001-002). At the time Auto/Oil was formed, its members perceived that concern over automobile emissions in California posed a grave threat to their businesses. (Kiskis, Tr. 3820-3822; *see also* CCPF 1449). The California state government was considering mandating the use of methanol to replace gasoline. (CCPF 1450). This action would have made the oil companies' refineries obsolete without substantial modifications, and it would have forced the automobile companies to re-engineer all of their vehicles. (CCPF 1450).

With this threat in mind, the members formed Auto/Oil to pool their individual research and

to conduct joint research so that Auto/Oil could "provide sound and reliable data with which . . . various state governments can fairly and accurately compare the costs and benefits of the various alternatives to reducing emissions." (CX 140 at 003-004; *see also* CCPF 1439-43, 1455). This effort was costly: the total budget for the venture was $40 million. (Burns, Tr. 2409-2410).

The goal of Auto/Oil was not only to develop reliable and technically sound data, but also to identify cost-effective means of satisfying any regulations. (CCPF 1441-43). Auto/Oil therefore sought to develop recommendations based upon publicly available data and technologies, so that there was no need to use expensive, patented processes. (Kiskis, Tr. 3830-3834; CX 7076 (Youngblood, Dep. at 10-11, 80)). Ron Kiskis, the co-chair of the Research Program Committee, testified that "the overall driver [of Auto/Oil] was to find a solution that was the lowest cost to society and still being effective [on lowering emissions], so cost-effectiveness was as important as just technical effectiveness." (Kiskis, Tr. 3833-3834). In keeping with this goal, the Auto/Oil joint venture agreement required that all of the research conducted by Auto/Oil or donated to Auto/Oil through a presentation would be in the public domain and free for everyone to use. (CX 4001 at 007; CCPF 1590-1608).

2. The Western States Petroleum Association

The Western States Petroleum Association ("WSPA") was a trade organization representing oil producers as well as refiners and marketers in five western states. (CX 7059 (Moyer, Dep. at 10-11)). WSPA's primary purpose was to represent the interests of the industry and to "be a conduit of communication to the California Air Resources Board and to provide technical information to the Air Resources Board." (CX 7059 (Moyer, Dep. at 10-11)). As summarized in a WSPA memorandum, "the industry, and the public, have a legitimate concern that agency-imposed regulations be technically sound . . . . One of the more valuable functions WSPA has always

performed for its members is to assure that costly environmental regulations are based on good science." (RX 523 at 005).

WSPA was heavily involved in the Phase 2 rulemaking process. (CCPF 1394-1411, 1750). For instance, WSPA commissioned several cost studies that it provided to CARB. (CCPF 1395). These included a compliance cost study conducted by Turner Mason, a cost-effectiveness study conducted by Sierra Research, and an economic impact study conducted by DRI McGraw-Hill. (CCPF 1394-1411). In addition, WSPA worked extensively to provide information to CARB to support the use of a predictive model. (CCPF 1843-1933).

In addition, WSPA also joined with CARB and General Motors ("GM") in a joint research study. Since CARB was only interested in using research that was free of proprietary rights, the governing agreement stated: "The results of research and testing of the Program shall be disclosed to the Members, and otherwise placed in the public domain." (CX 1711 at 003; Lamb, Tr. 2040). The agreement further provided that "[n]o proprietary rights shall be sought nor patent applications prosecuted on the basis of the work of the Program unless required for the purpose of ensuring that the results of the research by the Program shall be freely available, without royalty, in the public domain." (CX 1711 at 003-004; Lamb, Tr. 2040-2041). Unocal was a party to this agreement. (CX 1711 at 022).

II. UNOCAL PLANNED TO USE THE REGULATORY PROCESS TO GAIN A COMPETITIVE ADVANTAGE

Within the backdrop of impending regulation and the formation of the Auto/Oil and WSPA collaborations, Unocal began to consider ways to obtain competitive advantage through developing and licensing its own proprietary low-emissions fuels technology. Any fuel regulations would impact Unocal's refining operations; thus, Unocal's Refining and Marketing Division – then headed by Roger Beach – was extremely concerned about Unocal's ability to respond to regulations while

minimizing capital expenditures and compliance costs. (CCPF 78, 451, 482). At the same time, scientists and managers in Unocal's Science and Technology Division also were considering plans to use the development of reformulated gasoline regulations to build revenues for the company. These individuals included Dr. Peter Jessup and Dr. Michael Croudace, the eventual inventors of Unocal's patents and presenters to CARB and Auto/Oil, and their management, including Wayne Miller and Kess Alley. (CCPF 101-04, 109-14, 119-127, 159-161). In the late 1980s, members of these divisions joined to form the Fuels Issues Team, a cross-management team that created the strategy that lead to the regulatory and industry capture at issue in this case. (CCPF 481-94).

A. Unocal Was Under Severe Financial Pressures

Throughout the CARB RFG regulatory development, Unocal faced severe financial pressures. These pressures created an incentive for Unocal to monetize its RFG technology and seek out new sources of licensing revenue.

In 1984, T. Boone Pickens had attempted a hostile takeover of Unocal. (Beach, Tr. 1652). In substantial part to avoid the takeover attempt, Unocal incurred about $4 billion in new debt. (Beach, Tr. 1653). This new debt burden forced Unocal's bond rating down – from Aa1 to Baa1. (Beach, Tr. 1653). In the ensuing years, Unocal scaled back its corporate structure and cut back its number of employees as it sold off assets. (Beach, Tr. 1653-1654).

Unocal's financial condition specifically impacted the Science and Technology Division from the late 1980s through the 1990s. (CX7062 (Schmale, Dep. at 29-30)). Science and Technology personnel were concerned about job cuts, as Unocal was contracting the division. (Croudace, Tr. 588). In the words of Dr. Croudace, employees of Unocal's Science and Technology Division realized that it "was pretty much our sole purpose" to make money for the company. (Croudace, Tr. 461-462).

B. As Early As 1989, Unocal Began to Seek Ways to Exploit Reformulated Gasoline Technology

As early as 1989, Unocal began to consider plans to develop technology for reformulated gasoline that it could license to the industry. In early 1989, for example, Unocal considered a proposed joint research project with General Motors to study emission reduction. (Croudace Tr. 514; CX 493). An internal Unocal memorandum dated January 23, 1989, from Dr. Croudace to various managers in the Science and Technology Division, stated that:

> The benefit of this joint study to Unocal would be two fold. First, it would allow us to continue to produce petroleum based gasolines in the future that would compete in the marketplace with alternative fuels like methanol. ***Second, it would allow Unocal to be the first to develop a low emission petroleum based fuel which could allow us to patent these products and force all other gasoline marketers to license our technology. If all gasoline produced currently in the United States were made via a Unocal formulation, under a licensing agreement that netted $.0001 per gallon of gasoline sold, Unocal would realize $1 billion per year in revenue.***

(CX 493 at 002; Croudace, Tr. 516-518) (emphasis added).

C. Unocal Created the Cross-Management Fuels Issues Team to Decide How to Use New Regulations to Its Advantage

By mid-1989, Unocal realized that California appeared likely to adopt regulations requiring use of reformulated gasoline. (*See, e.g.*, CX 139 at 001-003) (CARB declared "that reformulated gasoline will be the ultimate winner.")). In June 1989, Unocal scientist and co-inventor Michael Croudace submitted to management an internal Unocal memorandum that addressed in part the question "Can Unocal Use New Regulations To Our Advantage?" (CX 124). Dr. Croudace wrote that "[i]t is time for senior level management to take control to guide our handling of pending and future government regulations which will affect how Unocal produces its products." (CX 124 at 004). Dr. Croudace therefore urged the formation of a task force to review regulations affecting

Unocal so that Unocal can take "full advantage" of these regulations.[15]

In line with Dr. Croudace's recommendation, Senior Vice President Roger Beach created a "Fuels Issues Management Team." (CX 474 at 001). The Fuels Issues Team included management from key areas of Unocal's business, including the Refining and Marketing and the Science and Technology Division. (CX 474 at 001). Mr. Beach hand-picked Dennis Lamb to lead the team, and appointed Dr. Wayne Miller as the Science & Technology Division representative. (CX 474 at 001). Mr. Lamb reported directly to Mr. Beach concerning the activities of the Fuels Issues Team. (Lamb, Tr. 2110).

By forming the Fuels Issues Management Team, Mr. Beach sought close coordination between the Science and Technology Division and the Refining and Marketing Division in order to turn the government regulations "into opportunities" that would give Unocal an advantage over its competitors:

> Federal, state, and local governments and regulatory bodies are now considering, proposing and implementing actions that impact almost every aspect of light oil specifications. Refining, Marketing and Science and Technology will need to work in close coordination if we are to turn these challenges into opportunities.
>
> Denny Lamb will assume leadership of a Fuels Issues Management Team. This team will enable us to get out in front of such issues, influence external forces, consolidate and integrate our best thinking, and minimize senior management time demands.

---

[15] Dr. Croudace's memorandum stated:

> HOW SHOULD GOVERNMENT REGULATIONS BE HANDLED FOR UNOCAL:
>
> * * *
>
> To take full advantage of legislation it is important that the company makes its policy positions at very high levels so that all levels of the corporation are working together on the issues. A task force should be set up at the outset of discussions on new product regulations. This task force would include representatives from all divisions of the company that the regulation affects. Also included in this group would be high level management so that work between division[s] can be coordinated.

(CX 124 at 004).

(CX 540 at 001; Beach, Tr. 1676-1677).

As Mr. Beach admitted at trial, such opportunities included obtaining a patent that would cover at least some of the gasoline mandated by CARB regulations. (Beach, Tr. 1678).

By the fall of 1989, it was clear that CARB would develop regulations requiring the production of reformulated gasoline (CX 139 at 001). In light of this development, an internal Unocal memorandum dated October 20, 1989, urged Unocal management to undertake an "aggressive program for the development of a ***proprietary*** reformulated gasoline." (CX 139 at 001) (emphasis in original).

Consistent with Unocal's understanding that CARB's regulation of gasoline provided opportunities, Unocal considered ways to obtain competitive advantage, starting first with CARB's early Phase 1 RFG regulations. For example, on March 12, 1990, an internal Unocal memorandum recognized that Unocal could take advantage of CARB's phase-out of leaded gasoline in the CARB Phase 1 RFG regulations. (CX 165). This memorandum stated: "THIS MAY BE AN EXCELLENT OPPORTUNITY FOR UNOCAL TO EXPLOIT FOR HUGE PROFITS WITH VALVE-SAVER."[16] (CX 165 at 004-005; Croudace, Tr. 524).

Unocal also considered how to influence CARB's RFG regulations on a longer-term basis. Unocal focused in particular on how to gain an advantage with respect to the anticipated Phase 2 regulations. The Fuels Issues Team had as its express goal to "influence external forces" regarding future regulations. (CX 540 at 001). Unocal's "Clean Fuels Strategy" was based on Unocal's understanding that "California will mandate that all gasoline be reformulated in 1996," and that "[c]ertain specification changes will be required prior to 1996." (CX 188 at 001; Lamb, Tr. 2112). As part of its "strategy . . . to gain competitive advantage," Unocal intended to seek "competitive

[16] Valve-Saver was a proprietary gasoline additive that could be used to comply with CARB's Phase 1 RFG regulations. (Croudace, Tr. 521-522).

advantage" and "influence regulations." (CX 188 at 001-002; Lamb, Tr. 2112).[17]

III. UNOCAL'S DISCOVERIES AND INVENTION: THE 5/14 PROJECT

In response to CARB's impending regulations, Unocal in late 1989 authorized its scientists to research how best to reformulate gasoline to reduce automotive emissions. Unocal's scientists, Dr. Peter Jessup and Dr. Michael Croudace, were dissatisfied with the Auto/Oil reformulated gasoline research program. (CX 142 at 001). They proposed to their management, including Dr. Alley and Dr. Miller, an alternative research program to measure the effects of gasoline compositions and properties on automotive engine emissions. (CX 142 at 001-002, 007). This program sought to discover how to change gasoline properties to minimize the three major categories of automotive engine emissions: carbon monoxide (CO), nitrogen oxide (NOx) and unburned hydrocarbons (HC). (CX 142 at 003, 009). Drs. Jessup and Croudace knew that this research, if successful, could be used to make reduced-emissions reformulated gasoline. (CX 142 at 003-004).

To this end, Drs. Jessup and Croudace designed a study to independently isolate the effects of ten gasoline properties on these emissions. (CX 142 at 004; CX 186 at 002-005). The ten properties they chose to study are the T10 distillation point, T50 distillation point, T90 distillation point, Reid Vapor Pressure, paraffin content, olefin content, aromatics content, MTBE (oxygen) content, Research Octane Number, and Motor Octane Number. (CX 142 at 004; CX 186 at 002-005).[18] Although other industry members had studied the impact of varying some of these gasoline

---

[17] This "Clean Fuels Strategy" memorandum was circulated among top-level Unocal management, including Mr. Beach, Mr. Beach's senior staff, and Dr. Kess Alley, Unocal's Vice President of Science and Technology. (CX 188; Lamb, Tr. 2111).

[18] The distillation points of gasoline (T10, T50, T90) are the temperatures at which a specified volume of gasoline evaporates, *e.g.*, 10% (T10), 50% (T50) and 90% (T90). (CX 1709 at 013; CX 617 at 021, col. 18, ll. 29-35 ('393 patent); CX 186 at 009). The Reid Vapor Pressure ("RVP") refers to the volatility of gasoline (the partial pressure of gasoline when heated to 100º F in a sealed container). *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989, 992 (Fed. Cir. 2000); CX 617 at 021, col. 18, ll. 43-54 ('393 patent).

properties on vehicle emissions, they had not isolated the effect of each individual property or component or studied such a large number of them. (*See, e.g.,* CX 186 at 005-006).

A. Unocal's Scientists Conducted Experiments to Determine the Effects of Gasoline Properties on Automotive Emissions, And Found Significant Relationships Just from Reviewing the Data

Beginning in January 1990, Unocal's scientists conducted experiments to determine the effects of these gasoline properties on emissions. (Jessup, Tr. 1154-1155, 1158). These experiments consisted of a one-car test followed by a ten-car test, with additional tests done thereafter. (Jessup, Tr. 1154-55). This emissions research later became known as the "5/14 Project." (Croudace, Tr. 526-27).

Drs. Jessup and Croudace conducted the one-car test in January 1990, and completed it by March 1990. (Jessup, Tr. 1154-55, 1158). They chose fifteen test fuels with a wide range of property values, and combusted them in an 1988 Oldsmobile Regency automobile to determine their emissions outputs. (CX 186 at 006-007 (Invention Disclosure); CX 617 at 016, col. 7, l. 60 - col. 8, l. 68 ('393 patent); Jessup, Tr. 1154-1155). Just by looking at the data from the one-car test, Drs. Jessup and Croudace were "absolutely amazed" and "blown away" by what they saw. (Jessup, Tr. 1156).

By looking at that data, they saw changes in emissions of up to 300% just by changing the fuel. (Jessup, Tr. 1156). By comparison, the maximum effect of changing fuel parameters shown by the Auto/Oil study was only 25%. (Jessup, Tr. 1156). By simply plotting the data from the one-

---

Olefins, paraffins and aromatics are the three hydrocarbon components of gasoline, and are typically measured by their percentage volume. *Union Oil Co. of Cal.*, 208 F.3d at 992; (CX 1709 at 003-004; Wirzbicki, Tr. 964, 1085-1086). Octane is a traditional engine performance specification that measures gasoline's ability to resist auto-ignition or "engine knock" in use. (CX 1709 at 012; 208 F.3d at 992). Research Octane Number (RON) and Motor Octane Number (MON) are two different components of octane measurements. (CX 1709 at 012-013). Finally, MTBE is a component that adds oxygen content to gasolines. (CX 142 at 005; CX 1709 at 015).

car test, Dr. Jessup was able to see tremendous variations in emissions. (Jessup, Tr. 1157).

Taking the raw data from the one-car test, Drs. Jessup and Croudace then used a commercially-available computer program to run a regression analysis of the emissions outputs for the test fuels against the ten gasoline property variables. (CX 617 at 016, col. 8, ll. 46-57 ('393 patent); CX 186 at 009). The computer program produced a set of simple linear equations, set forth below, that show the correlations between emissions outputs and the property variables. (CX 186 at 002, 009; CX 617 at 015, col. 5, ll. 36-37; 016, col. 8, ll. 57-61 ('393 patent)).

Unocal's scientists then conducted a second set of tests on a fleet of 10 cars at the Southwest Research Institute ("SwRI"). This testing was completed in the fall of 1990. (Jessup, Tr. 1161; CX 617 at 018-019, col. 11, l. 14 - col. 13, l. 6; Wirzbicki, Tr. 913-914). Drs. Jessup and Croudace ran 15 test fuels in six recent-model automobiles and four pre-1990 but post-1980 technology cars. (CX 617 at 018, col. 11, l. 14 - col. 12, l. 15). They tested the fuels in the same way as in the one-car study, with a few minor differences. (CX 617 at 018, col. 11, l. 53 - col. 12, l. 15). They then plotted the CO, NOx and HC "emission data" from the tests in graphs. (CX 617 at 018, col. 11, l. 45 - col. 12, l. 15). From the graphs, they found that it was "clearly evident" that the "general effect of a given fuel is the same for different vehicles, with only the magnitude of the effect varying." (CX 617 at 018, col. 11, l. 45-col. 12. l. 15).

Unocal's scientists then analyzed the raw data from 10-car study data using the same computer program they had used in the one-car study, to again generate equations for each car correlating emissions with fuel properties. (CX 617 at 018, col. 12, ll. 60-65). Although the equations they generated differed slightly from car to car, the "data overall validated the fact that the most important factors as shown in . . . [the first equations they developed] proved almost universally most significant for each automobile." (CX 617 at 018-019, col. 12, l. 65 - col. 13, l.6). Finally, Unocal later directed a related 13 car set of tests in the spring of 1991 to determine whether

the 5/14 results could be practically used to produce RFG in Unocal's Los Angeles refinery. (CX 238; Jessup, Tr. 1162).

B. The Experimental Data Showed the Relationships Between Key Gasoline Properties and Automotive Emissions

Through the data from the one-car study, later confirmed by the ten-car study, Drs. Jessup and Croudace identified "the key gasoline properties that, when adjusted properly in gasoline blends, reduce gross output of regulated emissions from modern engines." (CX 186 at 002, 006-007 (7/10/90 Invention Disclosure); CX 617 at 013, col. 1, ll. 41-58). The studies revealed which gasoline properties affect emissions, which particular emissions were affected by those properties, and how to modify the gasoline using those properties to adjust emissions from an automobile. (Jessup, Tr. 1158-1159; *see also* CX 186; CX 617 at 016, col. 7, ll. 49-55). In other words, they showed "how to make low emission gasoline." (CX 186 at 002-003, 006-007). This initial discovery was the basis for the invention in all five of Unocal's RFG patents. (Jessup, Tr. 1158).

More specifically, the data showed that:

* Decreasing T50 is of primary importance for reducing CO and HC emissions. (CX 617 at 015, col. 5, l. 31 - col. 6, l. 50; Jessup, Tr. 1227; CX 1792 at 104-109).

* Decreasing RVP is of primary importance, and decreasing T10 and olefin content are of secondary importance, for reducing NOx emissions. (CX 617 at 013, col. 2, ll. 21-29).

* Decreasing T50 and increasing paraffin content are most effective for reducing CO emissions, and decreasing T90 has a lesser impact on reducing those emissions. (CX 617 at 015, col. 6, ll. 12-28).

* Decreasing both olefin content and RVP are most effective for reducing NOx emissions, though decreasing T10 and increasing paraffin content also reduces NOx emissions to a lesser extent. (CX 617 at 015, col. 6, ll. at ll. 28-31).

* HC emissions are most practically reduced by decreasing olefins and/or T50, and increasing RON less practically reduces such emissions. (CX 617 at 015, col. 6, ll. 46-50).

* Any combination of these eight characteristics can be increased or decreased as

described, and the greater any individual characteristic is changed in the directions indicated, the better the result. (CX 617 at 015, col. 6, ll. 51-63; 020 at col. 15, ll. 1-28).

As Unocal later represented in its patents, it was "evident" from the "data" in Dr. Jessup and Dr. Croudace's one-car and ten-car experiments that T50 is the most important variable for reducing CO and HC emissions, and RVP is most important for reducing NOx, with olefin content and T10 having secondary importance. (*See, e.g.*, CX 617 at 016, col. 7, ll. 49-55). The effect of T50 on emissions had not been studied before. (Jessup, Tr. 1227). Similarly, as Unocal later stated in its patents "from the data in" Unocal's ten-car study "it can be seen that for automobiles in general that decreasing any of [T50, olefins, RVP or T10] will have a positive effect, especially for any large population of automobiles." (CX 617 at 019, col. 13, ll. 59-62; 010-012).

C. Unocal's Scientists Discovered Mathematical Equations That Express These Relationships

The equations that Dr. Jessup and Dr. Croudace generated from their one-car and confirmatory ten-car regression analyses demonstrate all of these relationships. (CX 617 at 015-16, 016-018; CX 186 at 002-003; CCPF 540-49). These general predictive equations are set forth below.[19] They show that to minimize a given type of emissions, one should minimize fuel variables

---

[19] Carbon Monoxide = - 0.00828 * (Vol.% Paraffins)
+ 0.00937 * (D-86 Distillation 50% Point in ^{o}F)
+ 0.00133 * (D-86 Distillation 90% Point in ^{o}F)

Nitrogen Oxide = + 0.00503 * (Vol.% Olefins)
- 0.00060 * (Vol.% Paraffins)
+ 0.00087 * (D-86 Distillation 10% Point in ^{o}F)
+ 0.0159 * (RVP in PSI)

Hydrocarbon = + 0.00245 * (Vol.% Olefins)
- 0.00104 * (Research Octane Number)
+ 0.00109 * (D-86 Distillation 50% Point in ^{o}F)

(CX 186 at 002; CX 617 at 015, col. 5, ll. 36-37; 016, col. 8, ll. 57-61 ('393 patent)). Equations 1, 2, and 3 in Unocal's patents are these equations, with letter variables in lieu of numerical coefficients, and equations 4, 5 and 6 in Uncoal's patents are these equations containing the numerical coefficients set forth above.

with positive coefficients and maximize fuel variables with negative coefficients. (CX 186 at 002, 007). For example, to minimize CO emissions, one should minimize T50 and decrease paraffins. (CX 186 at 002; CX 617 at 015; col. 5, l. 31 - col. 6, l. 31).

The size of the coefficients in the equations then shows the magnitude of the impact of the particular fuel property. (CX 186 at 002). The exact size of the coefficients depends on the particular car that is combusting the gasoline. (CX 617 at 018, col. 6, ll. 31-67). Despite some differences between individual cars, Unocal's scientists found in their ten-car equations that the fuel properties they identified in their one-car equations as having the greatest impacts on emissions "proved almost universally most significant for each automobile." (CX 617 at 018-019, col. 12, l. 65 - col. 13, l.6). In other words, the same general magnitudes indicated by the coefficients in their one-car study equations applied to the ten-car pool of cars as well.

Unocal later provided these equations, with letter variables and with the coefficients for an average of a pool of ten cars, to CARB. (CX 386 at 001-002). As Drs. Jessup and Croudace admitted in their patents and patent applications, these equations provide those skilled in the art with the directional relationships that Unocal discovered, and show "how to lower the reductions of not just CO, NOx, or hydrocarbons, but also of any combination thereof." (*See, e.g.*, CX 617 at 015-016, col. 5, l. 36 - col. 7, l. 45; CX 1788 at 023-27; CX 617 at 015, col. 6, l. 1 ("From the foregoing equations . . .); CX 617 at 015, col. 6, l. 51 ("The foregoing equations provide . . .); CX 617 at 015, col. 6, l. 64 ("The above equations also lead to the following conclusions . . .)).

D. Unocal's Research Data Allow a Practitioner to Identify, Make, and Use Gasoline Compositions to Reduce Emissions, and to Predict Emissions for Any Given Gasoline

From Unocal's research data, one can identify, make and use reduced emissions gasolines,

---

These numerical coefficients were generated from the one-car study for a 1988 Oldsmobile Regency. (CX 617 at 015, col. 5, ll. 35-67; *see also* CX 618, CX 619, CX 620, CX 621; Wirzbicki, Tr. 881, 994-995).

as well as predict the emissions of any given gasoline fuel. (CCPF 550-62). Unocal's inventors, Drs. Jessup and Croudace, understood that the data they discovered are sufficient to allow one to implement these numerous practical applications of their research. (CX 186 at 002-003; CX 171, *e.g.* at 001, 050-56; Jessup, Tr. 1162-1172; CX 617 at 019, col. 13, l. 62 - col. 14, l. 2). Indeed, they stated that low emissions fuel produced using their research "is most easily defined in the form of the formulas" from their study. (CX 186 at 002). They later explained these facts to their management, and in the patents they obtained on these practical applications of the 5/14 research results. (*See, e.g.,* CX 186 at 002-003; CX 171, *e.g.* at 001, 050-56; Jessup, Tr. 1162-1172; CX 617 at 019, col. 13, l. 62 - col. 14, l. 2).

As Dr. Jessup admitted at trial, even charts that merely just plot the data from the one-car study "show what the invention is" and "where the new compositions of gasoline are." (Jessup, Tr. 1170-1172; CX 171 at 056). To get to "the new compositions of gasoline," one adjusts the gasoline properties "against any starting point you want" – such as the then-average gasoline fuel (the "Auto/Oil average fuel") – in accordance with the directional relationships that Drs. Jessup and Croudace discovered. (Jessup, Tr. 1171-1172, 1164, 1166-1167; CX 171 at 050-056; *see also* Jessup, Tr. 1254-1255). As Dr. Jessup conceded, "that's the forerunner to many of the [patent] claims." (Jessup, Tr. 1171-1172, 1164, 1166-1167; CX 171 at 050-056). Indeed, Unocal's patent application later explained that one adjusts gasoline properties to reduce automotive emissions as compared to the emissions levels of a "typical" unleaded gasoline fuel at the time of the patent application (such as the Auto/Oil average fuel) (CX 1788 at 049), or as compared to the results achievable with other fuels. (CX 1788 at 019).

Similarly, in June 1990, Drs. Jessup and Croudace wrote a memorandum describing their invention based on the studies they had completed at that point. (CX 186 at 002-003, 007). Unocal's management used this "Disclosure of Invention" to evaluate whether to file a patent

application on the invention. (CX 186, Wirzbicki, Tr. 874). In that disclosure, Drs. Jessup and Croudace explained that their "*equation allows one to determine how to make low emission gasoline*." (CX 186 at 003) (emphasis added). They stated that there are a "multitude" of uses for their equations, including allowing one to identify gasoline blends where "all fuel would have low emissions." (CX 186 at 003). They conceded that, by using their equations with "standard linear program blending programs," a refinery could make "low emitting fuels." (CX186 at 002). In fact, the memorandum itself is entitled, "A New Method for Blending Conventional Gasoline Fuel Components Into Low Emission / Reformulated Gasolines." (CX 186 at 002).

In addition to identifying and making low-emissions fuels, Drs. Jessup and Croudace also stated that their equations "predict[] emissions results" for any given fuel in a particular car. (CX 186 at 003). The equations also can be used on a large scale to "determine the emission characteristics of any gasoline formulation" and to "calculate emissions from standard fuel properties." (CX 186 at 002-003). In this respect, as Dr. Jessup admits, Unocal's equations provide a "predictive model" that allows one to predict emissions through mathematical equations. (Jessup, Tr. 1165-1166).

The patents that Unocal later obtained on its research results confirm that the data permitted engineers to determine how to make low emission gasoline. As Unocal's patents state, "from the data in" Unocal's ten-car study "it can be seen that for automobiles in general that decreasing any of [T50, olefins, RVP or T10] will have a positive effect [on reducing emissions], especially for any large population of automobiles." (*See, e.g.*, CX 617 at 019, col. 13, ll. 59-62; 010-012). The patent continues, "[i]n turn, it can be appreciated that the preferred fuels of the invention [in the patent] will be prepared (e.g., by appropriate blending in a refinery) so as to decrease each of [T50, olefins, RVP or T10] . . . ." (CX 617 at 019, col. 13, l. 62 - col. 14, l. 2). As the patents themselves admit, the data from Unocal's ten-car study allows one to identify gasoline fuel compositions that reduce

emissions, to blend these compositions in a refinery, and to use these fuels in a large group of automobiles to reduce emissions.

E. Unocal's Scientists Presented the Emissions Research, Which Became Known as the "5/14 Project" to Roger Beach, Unocal's CEO Richard Stegemeier and Unocal's Executive Committee

On May 11, 1990, Unocal scientists Drs. Jessup and Croudace, accompanied by management of Unocal's Science and Technology Division, gave a presentation on their emissions research results to Roger Beach, then-President of Unocal's Refining and Marketing Division, and other management of that division. (CCPF 563-67). Mr. Beach had requested that members of this staff attend the meeting on the "emissions results" to "discuss what UNOCAL should do with this data." (CX 172 at 001; Beach, Tr. 1667-1668). Drs. Jessup and Croudace's manager, Dr. Miller, and the head of the Fuel Issues Team, Denny Lamb, were among the meeting participants. (CCPF 565). At the May 11, 1990 meeting, Dr. Jessup explained the invention that he and Dr. Croudace had discovered based on the one-car study completed at that time. (Beach, Tr. 1668). Mr. Beach was "very excited" by what he saw. (Beach, Tr. 1668).

On May 14, 1990, Drs. Jessup and Croudace then presented the results of their emissions research to Unocal's Executive Committee.[20] (CCPF 568-69).

At the presentation, Dr. Jessup explained the results that he and Dr. Croudace had discovered from the one-car test study. (CX 171, *e.g.* at 001, 050-56; Jessup, Tr. 1162-1172). Based on that data, Dr. Jessup explained that T50 was the most important variable for HC emissions. (Jessup, Tr.

[20] The Executive Committee is Unocal's top management committee, and includes Unocal's Chairman and Chief Executive Officer (at the time, Richard Stegemeier), as well as its Chief Financial Officer and Chief Legal Officer. (CCPF 570-71, 150)). Drs. Jessup and Croudace's emissions research became known as the "5/14 Project" based on the date of their presentation. (Jessup, Tr. 1160; CX 176; CX 181). The participants at the May 14, 1990 Unocal Executive Committee meeting included Richard Stegemeier, Roger Beach, Denny Lamb, Wayne Miller, Michael Croudace, Peter Jessup, and Neil Schmale. (CCPF 571).

1164-1165; CX 171 at 042). He also listed T50 first among the most important gasoline factors. (Jessup, Tr. 1165; CX 171 at 043). Further, based on these research results, Dr. Jessup told the Unocal Executive Committee that one can "predict emissions through a mathematical equation," *e.g.*, through "a predictive model." (Jessup, Tr. 1162,1165-1166). As Dr. Jessup admitted, the charts of the one-car data that he showed to the Executive Committee "show what the invention is" and "where the new compositions of gasoline are." (Jessup, Tr. 1170-1172). Drs. Jessup and Croudace also recommended the Unocal Executive Committee to "[t]ake the results of this current study" to CARB. (CX 171 at 007; Jessup, Tr. 1162-1164).

The 5/14 Project generated considerable excitement at Unocal. Based on the presentation, Roger Beach agreed that his Refining and Marketing Division would sponsor the filing of a patent application based on the 5/14 Project. (Beach, Tr. 1751-1754). He also agreed that his division would fund additional emissions research. (Beach, Tr. 1668-1669). On May 23, 1990, Unocal's Board of Directors, including Roger Beach and Richard Stegemeier, formally approved additional funding for this research. (CCPF 573, 582).

IV. UNOCAL DETERMINED TO USE THE 5/14 PROJECT TO GAIN A "COMPETITIVE ADVANTAGE"

At the May 14, 1990 presentation of Unocal's scientists' research results to Unocal's Executive Committee, Unocal management immediately recognized the import of the research results. Indeed, the scientists' emissions research became known within Unocal as the 5/14 Project, after the date on which the results were presented to the Executive Committee. (CX 181 at 001).

Unocal management thereafter considered various options to gain a competitive advantage from the 5/14 Project. One option was to patent the results of the 5/14 Project, influence CARB to adopt regulations requiring the manufacture and sale of gasoline covered by those patents, and collect license fees from competing refiners. A second option was to use the results of the 5/14

Project internally to produce CARB's own "interim" reformulated gasoline, which Unocal could sell to environmentally-conscious consumers before CARB's regulations came into effect. (*See* Miller, Tr. 1352-1354).

Unocal pursued both of these paths in parallel. (Miller, Tr. 1355). Thus, Unocal filed a patent application on the 5/14 Project results and initially preserved the secrecy of the 5/14 Project. At the same time, however, it monitored the development of the CARB RFG regulations to determine how best to use those results. In the end, by May 1991, Unocal definitively decided to pursue the patenting strategy, and determined to present the results of its 5/14 Project to CARB as part of that strategy. At the same time, Unocal decided not to pursue the commercial introduction of an interim reformulated gasoline (although it continued to seek future flexibility for its own refineries – but not for its competitors – through the adoption of a predictive model).

A. The Patent Path – Seeking Licensing Revenue Through Patenting

1. Unocal's Management Authorized Preparation of a Patent Application

At the May 14, 1990 meeting, the President of Unocal's 76 Products Company, Roger Beach, agreed that his Refining and Marketing Division would sponsor the filing of a patent application based on the 5/14 Project. (CCPF 579, 578-80). In the months following the May 14, 1990 presentation, Unocal management, including Mr. Stegemeier (Unocal's CEO), Mr. Beach (its President of Refining and Marketing), Mr. Schmale (a member of senior management and later CFO), Steve Lipman (President of Science and Technology), Dr. Alley (Vice President of Science and Technology), Gregory Wirzbicki (Unocal's Chief Patent Counsel), and Denny Lamb (head of the Fuels Issues Team), participated in and directed the prosecution of a patent application based on the 5/14 Project.[21] (CCPF 681, 701-714, 735; Miller, Tr. 1352-1353, 1371-

[21] Mr. Beach was "in favor of getting all the coverage we can on this work." (CX 193 at 001, Wirzbicki, Tr. 897-899). Dr. Miller, the Science and Technology representative on the Fuels Issues Team,

1372).

To start the patenting process, on June 29, 1990, Dr. Jessup and Dr. Croudace filed a Disclosure of Invention memorandum with Unocal's Patent Department. (CX 186 at 002; Wirzbicki, Tr. 879-880). The invention disclosure described the results of their one-car study, including their equations and their evident practical applications for identifying, making and using low emissions gasoline. (CX 186 at 002-009; Wirzbicki, Tr. 879-880). Meanwhile, Drs. Jessup and Croudace continued with their ten-car confirmatory tests, which were completed in time to be included in Unocal's patent application. (Jessup, Tr. 1161; Wirzbicki, Tr. 913-14; CX 1788 at 035-039).

Based on the Disclosure of Invention, a Unocal management committee – consisting of the President of Unocal's Science and Technology Division and Unocal's Chief Patent Counsel, among others – in August 1990 gave the invention its highest ranking, an A. (CCPF 701-12). Unocal's Chief Patent Counsel, Mr. Gregory Wirzbicki, assigned himself to handle the patent application process ("patent prosecution") for the invention. (Wirzbicki, Tr. 882-883, 871).

2. In December 1990, Unocal Filed a Patent Application on the Results of the 5/14 Project

On December 13, 1990, Unocal's Chief Patent Counsel, Mr. Wirzbicki filed the first patent application, Application No. 07/628,488, on Drs. Jessup and Croudace's reformulated gasoline invention. (CX 1788 at 013-076; 078 ('393 patent file history)). Unocal was the assignee of the patent application, and Drs. Jessup and Croudace were the named inventors. (Wirzbicki, Tr. 907-

---

personally recommended to Mr. Wirzbicki that Unocal pursue a patent regarding the 5/14 Project. It was unusual for Mr. Wirzbicki to receive direction of this sort from Unocal management regarding the prosecution of a particular patent application. (Wirzbicki, Tr. 898-900; Miller, Tr. 1356-1357). Denny Lamb, the key liaison with CARB, also supported following the path of patenting the inventions. (Miller, Tr. 1352-1353, 1371-1372). Mr. Lamb understood that the patent application represented a proprietary opportunity. (Lamb, Tr. 1825-1826). Unocal's management also continued to keep their CEO, Mr. Stegemeier, apprised of the progress of the 5/14 Project. (CX 201 at 001; CX 217 at 001; Miller, Tr. 1384-1385).

908; CX 1788 at 075-082). Drs. Jessup and Croudace participated closely with Mr. Wirzbicki in drafting all aspects of the initial patent application. (Wirzbicki, Tr. 914-920).[22]

As is required, the patent application contained a "specification" containing a written description of the main features of Drs. Croudace and Jessup's invention.[23] (CX 1788 at 013-086; Wirzbicki, Tr. 908-909). Unocal eventually obtained five reformulated gasoline patents containing the identical specification. (Joint Stipulations of Law and Fact, ¶ 7 (Oct. 12, 2004); CCPF 865). All five of these patents are "based on the same invention." (Wirzbicki, Tr. 880-881).

Among other things, the specification explained that "[*t*]*he present invention, in its broadest aspect*, is founded on the discovery that, when gasoline fuels are produced … improvements in emissions of one or more pollutants selected from the group consisting of CO, NOx, and hydrocarbons … can be attained by controlling certain chemical and/or physical properties of said gasoline product." (CX 1788 at 015, Wirzbicki, Tr. 911) (emphasis added). The specification then more specifically described the relationships that Drs. Jessup and Croudace discovered, including the ways in which gasoline properties can be adjusted to reduce emissions. (CX 1788 at 015-016). It discussed the aspects of the invention, including:

- the equations that Drs. Jessup and Croudace discovered and their implications in demonstrating relationships between emissions and properties, (CX 1788 at 023-027;

---

[22] Significantly, Denny Lamb, Unocal's chief liaison to CARB, knew that a patent application had been filed based on the 5/14 Project results shortly after the filing of the application. (Lamb, Tr. 1824-1825). Mr. Lamb understood that the patent application represented a "proprietary opportunity." (Lamb, Tr. 1825-1826).

[23] There are two main elements of a patent:

> First, it contains a specification describing the invention 'in such full, clear, concise, and exact terms as to enable any person skilled in the art… to make and use the same.'… Second, a patent includes one or more 'claims,' which 'particularly poin[t] out and distinctly clai[m] the subject matter which the applicant regards as his invention.'"

Markman v. Westview Instruments, Inc., 517 U.S. 370, 373 (1996).

see also CX 186 at 002, 006-009);[24]

- the one-car and ten-car test studies, (CX 1788 at 027-044; Wirzbicki, Tr. 913-914);
- the relationships and the practical applications "that can be seen" from the "data" from those tests: including gasoline fuels, methods of blending such fuels in a refinery, and using these fuels in cars to reduce emissions, (CX 1788 at 040, l. 29 - 041, l. 5; 043, l. 8 - 044, l.30);
- a "drawing" section with graphs and tables that provide "data" from the tests, admitting that "[t]he invention can be best understood with reference to the drawing . . . ," (CX 1788 at 019-20; 065-073; Wirzbicki, Tr. 912-913).

The patent application also contains a number of "claims," which more specifically describe the bounds of the requested patent coverage. (CX 1788 at 051-063 (claims); Wirzbicki, Tr. 910). The claims in the application consisted of a series of combinations of the properties and practical applications discussed in the specification of the patent application. (CX 1788 at 051-063). The claims included both "composition" claims to gasoline having various properties and claims to "methods" of blending and using that gasoline. (Wirzbicki, Tr. 917-918; CX 1788 at 051-063). Unocal later cancelled the method claims, but then applied for additional patents on the methods described in this patent application. (CX 1788 at 043-049; Wirzbicki, Tr. 917-918).

The original claims of Unocal's RFG patent application were extremely broad and would cover essentially all specifications of reformulated gasoline that CARB could regulate to reduce emissions. For example, claim 1 in the original application was a composition claim that covered:

> 1. An unleaded gasoline fuel, suitable for combustion in an automotive engine having the following properties:
>
> (1) a 50% D-86 distillation point no greater than 215º F. (101.7º C.); and
>
> (2) a Reid Vapor Pressure no greater than 8.0 psi (0.54 atm).

[24] Equations "4, 5 and 6 " in the patent application are the equations with the coefficients from the one-car study, and Equations "1, 2, and 3 " are the same equations with letter variables in lieu of numerical coefficients. (CX 1788 at 023-024; *see also* CX 186 at 002, 006-009).

As Unocal knew, it could also amend its claims to cover almost any combination of the properties and methods discussed in its broad patent specification, so long as the subject matter of those claims were not already in existence in the "prior art."

3. Unocal Believed From the Very Start That It Would Obtain a Valuable Patent That It Intended to Enforce

From the beginning, Unocal believed it would obtain valuable patents that it intended to enforce. Not surprisingly, there were discussions within Unocal in the 1990-91 time frame regarding the potential value of patents from the 5/14 Project. (Miller, Tr. 1369-1370). Unocal representatives understood that patents from the 5/14 Project could allow Unocal to collect substantial royalties from other refiners.[25]

Indeed, as early as 1990, Unocal representatives recognized that, depending on the contents of CARB and EPA regulations, patents from the 5/14 Project could permit Unocal to collect up to $1 billion in royalties from other refiners to produce gasoline in compliance with the regulations. For example, Drs. Jessup and Croudace informed Unocal management in a December 11, 1990 memorandum that regulations promulgated by either CARB or the EPA, "will leave the door open for Unocal to use our results from the 5/14 Project, that is, that T50 is the true key variable for exhaust CO and HC emissions reductions." (CX 210 at 002; Jessup, Tr. 1212-1214, 1218-1219). They continued:

> "Setting a regulation based on [an index that includes a T50 specification] leaves the door open for other oil companies to use our gasoline formulas through licensing agreements. Potential royalties from such agreements are as high as

[25] Mr. Beach understood from the time Unocal first authorized pursuing a patent application on the 5/14 Project that if the patent that Unocal was seeking was granted and upheld, it could result in a cash-flow stream as a result of license fees. (Beach, Tr. 1700-1701). Similarly, Dr. Miller, the Science and Technology representative to the Fuels Issues Team, told Mr. Wirzbicki, Unocal's Chief Patent Counsel, that patenting the 5/14 invention would be worth "a lot of money" to the company. (Miller, Tr. 1356, 1359-1360). "[F]rom the time [he] started prosecuting the patent application in December 1990," Unocal's Chief Patent Counsel, Mr. Wirzbicki, believed that "one of the viable options was to license the patent and obtain royalties for Unocal if the patent was approved." (Wirzbicki, Tr. 932-933).

> **$114,000,000/year** ($0.001/gallon) in the United States alone. This is far more than could [be] gained from any other competitive advantage. To this end we have applied for a patent based on the 5/14 results, and have a good chance of getting it."

(CX 210 at 002; Jessup, Tr. 1214-1215). From the time that Unocal filed the patent application on the 5/14 Project research, Unocal also had "great confidence" and believed it would obtain a patent on that research, and anticipated litigation to enforce it. (CCPF 738, 743, 746-48).

B. Unocal Saw That to Gain a Competitive Advantage Through the Patent Path it Must Influence the Regulations and Publicize its Research Results

Unocal personnel consistently recognized that monetization of the 5/14 research results could be achieved by taking advantage of (or, indeed, creating) overlap between Unocal's RFG technology and the impending RFG regulations. Throughout the 1990-1991 time frame, there were discussions within Unocal concerning the achievement of competitive advantage by obtaining patents from the 5/14 Project. (*See, e.g.*, Miller, Tr. 1352-1355; 1369-1370).

Consistent with these discussions, several alternative strategies were initially proposed to exploit economic advantage by creating an overlap between the 5/14 research results and impending RFG regulations. One of the initial proposals was to publicize the research results so as to convince CARB to make the Unocal specifications required in the industry. By October 2, 1990, suggestions had been made within Unocal "that the information from 514 should be taken immediately upon confirmation to both EPA and CARB in an effort to have the specifications adopted reflect the 514 conclusions." (CX 194 at 002). Unocal management understood at that time that "[t]iming may not allow the opportunity to impact the Clean Air Act or EPA with 514." (CX 194 at 003). But Unocal management understood that "[t]iming is favorable to influence CARB." (CX 194 at 003). It understood that "[f]or Unocal, CARB will be the dominating Agency." (CX 194 at 003).

In late 1990, Unocal management, specifically including Denny Lamb, wanted to maximize the "competitive advantage" resulting from the 5/14 research findings. (CX 194 at 003). A

November 1990 presentation to Unocal management explicitly suggested such a course of action. At that time, Drs. Jessup and Croudace presented their latest emissions research results to senior Unocal management in a presentation entitled "Product Specifications for Low Emissions Gasolines – Results from the 5/14 Project." (CX 203 at 001). This November 1990 presentation recommended that Unocal "Show Emissions Work To Regulators - Make Unocal Specifications ***Required*** In The Industry." (CX 203 at 012 (emphasis added); Croudace, Tr. 558-559).[26]

Consistent with this proposal, Unocal personnel emphasized the potential licensing value of Unocal's RFG technology and the need to influence the CARB regulators. For example, on December 11, 1990, just days before Unocal filed for a patent on the 5/14 research results, Drs. Jessup and Croudace further explained in a memorandum that it was clearly in Unocal's economic interest to influence CARB. (CX 3005 at 002 (Unocal memorandum from Michael C. Croudace and Peter J. Jessup to J.W. Miller, dated December 11, 1990)). At this time, Drs. Jessup and Croudace were assisting Unocal's Chief Patent Counsel, Greg Wirzbicki, with the drafting of the patent application. (Wirzbicki, Tr. 914-920).

This document clearly sets forth the strategy, subsequently implemented by Unocal, to seek competitive advantage (and over $100 million in licensing fees) through influencing regulators to promulgate standards or specifications for reformulated gasoline that correspond to Unocal's 5/14 research results:

> **It would be in the best interest of Unocal to input into and help shape regulations made by the EPA and the CARB by December 17, 1990**, or we will be stuck with a costly and unnecessary T90 specification for our gasolines. . . . Regulations based on driveability index will leave the door open for Unocal to use

[26] The "Proposed Specifications" of RFG presented to Unocal management were: (1) T50 less than or equal to 205˚ F and greater than 180˚F; (2) olefins of 0% by volume; and (3) RVP of 7.5 psi. (CX 203 at 004). Not coincidentally, claim 1 of the patent application filed a month later covered these proposed specifications inasmuch as it claimed gasolines with a T50 no greater than 215˚ F**?**and an RVP equal of no greater than 8.0 psi. (CX 1788 at 051 ('393 patent file history)).

> our results from the 5/14 project, that is, that T50 is the true key variable for exhaust CO and HC emissions reductions. . . .
>
> Setting a regulation based on driveability index rather than T90 leaves the door open for other oil companies to use our gasoline formulas through licensing agreements. **Potential royalties from such agreements are as high as $114,000,000/year ($0.001/gallon) in the United States alone.** This is far more than could [be] gained from any other competitive advantage. **To this end we have applied for a patent based on the 5/14 results, and have a good chance of getting it.**

(CX 3005 at 001) (emphasis added).

This memorandum also reflected the critical importance to Unocal of persuading private industry groups, such as Auto/Oil, to support Unocal's position in order to obtain competitive advantage. The memorandum further states:

> If the A/O committee endorse our findings and presents our analysis to the EPA there is a far better likelihood that regulations will be more palatable to us. If we have to fight the battle without the weight of the A/O group it will be a long up hill struggle which may ultimately be unwinnable.

(CX 3005 at 002).

This memorandum further reflects a consistent theme of exploiting Unocal's intellectual property rights for competitive advantage in tandem with influencing the regulatory process:

> **Once the patent is issued then Unocal can seek licensing agreements with our competitors.** These agreements are only possible if the other companies know about our low emission gasoline products. We must publish to influence regulators and advertise the Unocal advantage. **These licensing agreements could be worth 10's of millions of dollars every year, far more than any other competitive advantage could yield.**
>
> **For example, 114,000,000,000 gallons of gasoline were sold in the United States in 1988. A $0.001/gallon royalty on all that product would yield $114,000,000 per year in fees.**

(CX 3005 at 002-003) (emphasis added).

Contrary to Unocal's assertions, such consideration of influencing the regulators in order to monetize potential patent claims was never quashed or "put to bed" in October 1990. Significantly,

these internal memos were written and submitted to Unocal management in November and December 1990. Moreover, in December 1990, the scientists' proposals were being discussed in internal meetings that involved personnel outside of Unocal's Science and Technology Division. In an email that discussed the inventors' December 11, 1990 memorandum (CX 3005), an employee of the Technology and Sales Licensing Group described the 5/14 Project as "one of the most lucrative licensing opportunities this company has ever seen" and recited the inventors' "conservative figure of $114 million per year in royalties" from Unocal's maintenance of a "proprietary position" on gasoline compositions that would be mandated for reduced emissions fuels. (CX 3004 at 001; Croudace, Tr. 532-535). Discussion during an internal Unocal meeting confirmed "a tremendous opportunity to . . . significantly impact the corporations [sic] bottom line." (CX 3004 at 001).

Briefings to Unocal high-level management regarding the competitive significance, and potential use, of the 5/14 Project research results continued through the early part of 1991. These briefings are reflected in slides prepared by Unocal management for a presentation on January 14, 1991 to Richard Stegemeier, then CEO and Chairman of the Board of Unocal. (*See* CX 219). This document reflects Unocal's overall objective to "Use Technology to Gain a Competitive Advantage." (CX 219 at 002). This document sets forth "Three Key Points Offered": (1) the conclusions from the 10 car test conducted by the Southwest Research Institute (SwRI) confirmed the conclusions presented at the May 14, 1990 Executive Committee meeting; (2) that the "'5/14' equations apply widely;" and (3) that the "'5/14' results ready to use for competitive advantage." (CX 219 at 004). Unocal management (specifically including Wayne Miller) believed that the "three key points offered" were accurate. (CX 219 at 004).

C. The Commercial Path – Using the 5/14 Project Internally

A second option pursued by Unocal to obtain competitive advantage from the results of the 5/14 Project was to use them in Unocal's own refineries to assist in the production of reformulated gasoline. This was possible in two ways: Unocal could use the 5/14 Project results (1) to facilitate compliance with the CARB regulations, once they were adopted; or (2) to produce an interim reformulated gasoline for sale to environmentally conscious consumers prior to the adoption of the CARB Phase 2 regulations. In either event, the commercial path was predicated on keeping the 5/14 Project results secret for as long as possible.

1. Unocal Considered Using the 5/14 Project Internally to Gain a Competitive Advantage in its Refineries

Unocal considered using the results of the 5/14 Project internally to assist in complying with whatever RFG regulations CARB adopted. Two of the principal discoveries of the 5/14 Project – *viz*., that controlling T50 and olefins were important factors for emissions reductions – dovetailed well with the unique capabilities of Unocal's refineries at that time. Unocal's scientists' management knew that Unocal had a competitive advantage over its competitors with respect to producing gasolines that had low olefins and low T50. (*See* CX 220 at 001 ("Unocal, on average, produces a regular unleaded gasoline with a significantly lower 50% distillation point and olefin content tha[n] our competition"); Beach, Tr. 1743 (Unocal's SF refinery produced low olefins)).

In fact, Unocal scientists and inventors had informed Unocal management on December 10, 1990, that one of the advantages of trying to influence the content of the CARB regulations would be to achieve a competitive edge specifically by urging olefin reductions that would raise its rivals' costs. In an internal memorandum dated December 10, 1990, Unocal scientists and inventors Drs. Jessup and Croudace stated: "Unocal could push other companies into olefin reductions which Unocal would not have to do. This will give us a competitive edge by making our competitor's product more costly." (CX 210 at 004).

Unocal thus considered options based on keeping the 5/14 Project knowledge secret, and for its own use. (CX 210 at 002; Croudace, Tr. 528). But Unocal management made the decision ***not*** to keep its RFG knowledge and technology as a trade secret.

To be sure, the highest levels of Unocal management had initially determined to preserve the secrecy of the 5/14 Project. (CX 172 at 001; Lamb, Tr. 2042-2044). Even within the company itself, Unocal limited the number of people who knew about the 5/14 Project. (Miller, Tr. 1361-1362). "Unocal was careful internally and externally as to who they disclosed" information about the 5/14 Project. (Miller, Tr. 1362-1363).

2. Unocal sought to introduce an interim RFG product based on the 5/14 Project

Similarly, Unocal explored the option of using the results of the 5/14 Project to produce an "interim" version of reformulated gasoline. Unocal considered producing an "Interim RFG" that might appeal to environmentally conscious consumers and give it a competitive advantage in the marketplace. (CX 229; *see also* CX 231; Miller, Tr. 1373, 1375-1376). After management reviewed the preliminary data and models from the 5/14 Project, Dr. Miller immediately suggested that Unocal explore using the 5/14 Project to "see if Unocal can produce low-emission" gasolines. (CX 175).

Unocal management started consideration of an interim reformulated gasoline strategy by May 1990. (CCPF 776-78). In November 1990, Roger Beach instructed members of the Fuels Issues Team to develop a premium interim reformulated gasoline to be introduced in Southern California in early 1991. (CX 208 at 001).

Throughout the latter half of 1990 and early 1991, Unocal continued to consider creating and marketing an interim RFG in response to competitors' introduction of cleaner-burning gasolines prior to the implementation of CARB's Phase 2 regulations. (Kulakowski, Tr. 4410; CX 231; CX

1639). Unocal's management considered bringing an interim RFG on the market in Southern California by May 1, 1991. (CX 215 at 003; CX 229 (Memo to Roger Beach, dated February 25, 1991 re: "Interim RFG Strategy); CX 231; CX 1639). Unocal even specifically considered using the advertising claim "Unique Patent Pending Gasolines" for the interim RFG that Unocal sought to develop using the 5/14 Project. (CX 157 at 001; Miller, Tr. 1416-1417; *see also* CCPF 784-85).

3. Unocal Abandoned the Commercial Path Because the Patenting Path Was Far More Profitable

Nonetheless, by the spring of 1991, Unocal management abandoned any thoughts of keeping the teachings of the 5/14 Project as a trade secret. First, Unocal decided to terminate its plans to produce an interim reformulated gasoline. In May 1991, the interim RFG project was put "on the shelf." (CX 3054 at 002-003; Miller, Tr. 1391-1392; Lamb, Tr. 2145-2147). According to Denny Lamb, Roger Beach made the decision to kill the project. (Lamb, Tr. 1977). Unocal chose not to market an interim RFG because the company determined that doing so would have been unprofitable. (Beach, Tr. 1683-1684). Unocal would not be able to recover the one cent per gallon incremental cost of producing such a product. (Kulakowski, Tr. 4410).

At about the same time, Unocal abandoned any thought of keeping the 5/14 Project secret for use in facilitating Unocal's production of CARB-compliant gasoline. Instead, Unocal management recognized the most profitable use of the results of the 5/14 Project would be to use the data to influence the content of the CARB RFG regulations, and then to enforce its patents in order to collect royalties from refiners producing CARB compliant gasoline. Thus, at the Fuels Issues Team meeting on May 17, 1991, where Denny Lamb announced that the interim RFG project had been placed "on the shelf" (CX 3054 at 002-003), the only "on going use" of the 5/14 research results discussed related to a "CARB consultation/presentation to influence regs." (CX 3054 at 003; Lamb, Tr. 2145-2147).

4. Unocal Could Not Gain Any Competitive Advantage by Using the 5/14 Concepts Internally; It Decided to Use the 5/14 Project to Influence the CARB Regulations and the Actions of Industry Groups and Their Members

After Unocal realized that using its 5/14 research results internally would not be commercially successful, it launched its fateful scheme: to use these results to make Unocal's proprietary reformulated gasoline technology required in the industry by influencing CARB's regulations, and to secretly obtain patents covering the regulations with the ultimate goal of extracting royalty rents from competitor refiners.

Several documents created and presented in the May 1991 time period reflect Unocal management's understanding of this strategy. These Unocal internal business documents specifically refer to the potential use of 5/14 Project results to influence CARB and the licensing potential of patents based on the 5/14 Project. (*See* CX 2; CX 238 at 020; CX 239 at 008).

In a presentation dated May 1, 1991, Dr. Jessup stated that potential uses of the 5/14 Project included: "Influence Regulations"; "Increased Market Share For Unocal Gasolines"; "Increased Profits For Unocal Gasolines"; and "License Technology" (which referred to licensing the patents from the 5/14 Project and under which he suggested a 1 cent/gallon royalty). (CX 238 at 018; Jessup, Tr. 1221-1223). In that same May 1, 1991 presentation, Dr. Jessup wrote that "[n]ow is the time to publish to influence CARB" and "Huge licencing [sic] income potential exist." (CX 238 at 020; Jessup, Tr. 1225-1226). A different presentation also dated May 1, 1991 contains these same statements and recommendations. (CX 239 at 008; Jessup, Tr. 1227-1228). When Mr. Beach saw the statement that a "[h]uge licencing [sic] potential exist[s]" for the 5/14 Project, he found it "exceedingly interesting" given his belief that there was a sufficient probability of potential licensing income. (Beach, Tr. 1695-1696; CX 239 at 008). Mr. Beach admitted at trial that he believed at the time that if the patent issued, it could impact Unocal's profitability. (Beach, Tr.

1698).

5. $1 Billion Pot of Gold

The most telling document created in this time period is the 4 foot by 8 foot "pot of gold" posterboard (CX 2) created by Dr. Jessup for an "in-house poster session." (CX 2; Jessup, Tr. 1235). The "pot of gold" poster recounted the history of the 5/14 Project and summarized the results of the Unocal program: (1) it defined key fuel properties that reduce regulated tailpipe emissions; (2) it developed a series of equations that predict emissions from physical properties (one of the aspects of the invention), and (3) it resulted in patent pending formulations (referring to the patent application). (Jessup, Tr. 1237, 1240; CX 2).

Dr. Jessup estimated that Unocal could achieve $100 million a year from introducing reformulated gasoline in the market and resultant cost saving at its Los Angeles refinery. (Jessup, Tr. 1241-1242; CX 2). But he estimated a $1 billion per year royalty stream from licensing the patents from the 5/14 Project. (Jessup, Tr. 1242; CX 2). As Dr. Jessup admitted, the $1 billion number was put on the poster for management to see. (Jessup, Tr. 1242). In fact, Neil Schmale, a senior member of Unocal's management team, saw this posterboard and the $1 billion figure, as did Greg Wirzbicki, Unocal's Chief Patent Counsel. (Jessup, Tr. 1236; Wirzbicki, Tr. 933-934). The $1 billion revenue stream depicted on the "pot of gold" poster board was more than 10% of Unocal's overall revenues in 1990. (Miller, Tr. 1429).

The $1 billion dollar royalty figure was not plucked out of thin air. It was calculated based on a 1 cent/gallon royalty. (Miller, Tr. 1427-1428; CX 2)[27]. Dr. Miller participated in the creation

[27] Significantly, Dr. Jessup created the "pot of gold" poster in or about May 1991, prior to the presentation to CARB of the 5/14 Project. Indeed, the "pot of gold" poster board contains bar charts that Dr. Jessup later showed to CARB. (Jessup, Tr. 1239; *see also* Jessup, Tr. 1285 (stating that CX 24 at 044-046 "are the same three frequency charts that we looked at yesterday at CX 2"); CX 245; Jessup, Tr. 1248-1249 (CARB should include "results a la [pot of gold] poster")).

of the posterboard, and he reviewed and approved the posterboard prior to its display. (Miller, Tr. 1425; Jessup, Tr. 1243). In fact, working with the Dr. Jessup and Dr. Croudace, Dr. Miller (their supervisor at the time) reduced the original royalty figure number to make it "more credible." (Miller, Tr. 1428).

6. Drs. Jessup and Croudace participated in renewed patent prosecution activities to maximize the effectiveness of the patent path

Almost immediately, the decision to use Unocal's patent-pending technology to influence CARB's regulations resulted in renewed patent prosecution activities. On May 22, 1991, five days after Mr. Lamb had informed the Fuels Issues Team that the interim RFG project had been "put on the shelf" (CX 3054 at 002-003), Unocal filed its first amendment to its pending patent application with the Patent and Trademark Office. (CX 1788 at 189-201; Wirzbicki, Tr. 937-938). This preliminary amendment proved significant in at least two respects.

First, it shows that Drs. Jessup and Croudace were aware of the contents of their patent application in May 1991, and remained so throughout that year as they were making presentations to CARB and Auto/Oil. Drs. Jessup and Croudace filed an affidavit on May 22, 1991, with the amendment, declaring under oath that they were "the inventors of the subject matter . . . described and claimed in the application at the time." (CX 1788 at 203-204). During the period from May 23, 1991 to November 19, 1991, during Unocal's communications with CARB concerning the formulation of the initial Phase 2 regulations, there were no changes in the status of Unocal's patent application. (CX 1788 at 209-231).

Second, these filings show that not only did Unocal have broad patent claims, but that it added others in accordance with its goal to "Make Unocal Specifications Required in the Industry."

(CX 203 at 012).[28] These claims cover the specifications – set forth in the November 16, 1990 presentation slides – that Unocal sought to make required. (CX 203 at 004, 012).

7. Unocal's decision to disclose the 5/14 Project to CARB came from the highest levels of Unocal management

Unocal's decision to use the 5/14 Project results to influence CARB came from the highest levels of Unocal management. Specifically, Roger Beach – then Unocal's Chief Operating Officer – approved of the disclosure of the 5/14 data to CARB in order to influence the regulations. (Beach, Tr. 1658-1659, 1671-1673, 1678). Once Unocal abandoned its interim RFG project, the 5/14 Project had no business value, other than that through patents. (Kulakowski, Tr. 4411). Unocal's Chief Patent Counsel, Greg Wirzbicki also knew that the 5/14 Project research results that formed the basis for the patent application were going to be disclosed to regulators at CARB. (Wirzbicki, Tr. 936).

Consistent with Unocal's strategy to obtain competitive advantage, Unocal showed CARB the 5/14 Project results and directional relationships – with the understanding that Unocal's presentation would influence CARB to adopt RFG regulations that incorporated Unocal's predictive equations or predictive model, and a specification for T50. To maximize its competitive advantage, however, Unocal never informed CARB of the pending patent application or Unocal's adherence to a patent strategy. Similarly, as set forth below, Unocal participated in, and made presentations to, industry groups such as Auto/Oil and WSPA following its June 20, 1991 presentation to CARB. Here, again, Unocal's disclosure of its 5/14 Project data reflected a deliberate effort to control the

[28] In the May 22, 1991 amendment, Unocal's Chief Patent Counsel amended and cancelled a few claims, but left intact Claim 1 (which claimed gasoline compositions with RVP no greater than 8 psi and T50 no greater than 215˚ F). (CX 1788 at 051, 196, 189-190). The amendment also added several claims, including claim 90: "An unleaded gasoline fuel suitable for combustion in an automotive engine, said fuel having a Reid Vapor pressure no greater than 7.5 psi, and a 50% D-86 distillation point [T50] no greater than 210º F." (CX 1788 at 191).

timing and manner of the information disclosure. Unocal touted the flexibility that could be achieved through use of its 5/14 Project data including, but not limited to, use of the predictive mathematical equations and the specific knowledge that T50 was a big driver of exhaust emissions. Consistent with what emerged as Unocal's overall strategy for competitive advantage, however, Unocal concealed from all outside parties its proprietary interests in its RFG technology and Unocal's intention to seek licensing and royalty fees.

V. UNOCAL MET WITH CARB TO INFLUENCE THE CARB REGULATIONS

With its interim RFG project "on the shelf," Unocal's 5/14 Project had no business value, except for potential license fees and from the pending patent. (CCPF 795, 797-99). But Unocal knew that the potential value of pending patent depended critically on how CARB's regulations developed. (*See, e.g.*, CX 3005 at 002-003). In May and June of 1991, Unocal saw its opportunity. And it struck.

A. The Time was Ripe for Unocal to Influence the Regulations

In early May 1991, Unocal began preparations to influence CARB with the results of the 5/14 research. Unocal's Mr. Beach assigned Mr. Lamb as the lead person to meet with CARB. (Beach, Tr. 1659). Mr. Beach provided direction for the presentation to CARB and authorized Mr. Lamb to provide CARB with the necessary information to fulfill Unocal's purposes for the meeting. (Beach, Tr. 1659). Mr. Lamb coordinated the effort, with participation by Dr. Miller, Mr. Kulakowski, and Unocal's researchers Drs. Jessup and Croudace. (Miller, Tr. 1400; Kulakowski, Tr. 4411-4412). Shortly thereafter, Mr. Lamb informed Dr. Miller, Mr. Beach and other Unocal managers that he had contacted Mr. Venturini at CARB to schedule a "private consultation" for a "514 presentation." (CX 240 at 001).

Based on a June 11, 1991 CARB workshop, Unocal knew that its time had come. By this

time, Unocal understood that the Phase 2 regulations would regulate specific gasoline compositions. (Miller, Tr. 1405; Lamb, Tr. 2112; CX 188 at 001). The regulations under consideration, however, did not include T50 as a parameter. (CCPF 1069-76; CX 492 at 004). But the June 11 workshop provided key information for Unocal's plan to influence the regulations. As Mr. Kulakowski's June 13, 1991 report to the Fuels Issues Team shows, Unocal now knew two critical facts. First, "CARB was interested in data to support T50." (CX 252 at 003; Kulakowski, Tr. 4421; Lamb, Tr. 1983). Second, CARB was open to the idea of using a predictive model in its regulations, but CARB was "uncomfortable with a model for enforcement reasons." (CX 252 at 001; CX 492 at 004).

CARB, however, "did not indicate much room for change" in its proposed specifications. (Kulakowski, Tr. 4419-4420; CX 252 at 001). The parameters under consideration were "not a trial-balloon proposal but rather it had substance to it and it reflected their best thinking at the time." (Kulakowski, Tr. 4420). Unocal therefore had to strike and strike hard.

B. Unocal's Two Related Purposes: Influence CARB to Adopt a Predictive Model and Convince CARB to Include T50 in its Regulations

To direct the preparation for the meeting with CARB, Denny Lamb set forth Unocal's goals in a May 11, 1990 memorandum to Dr. Miller, which was copied to Roger Beach (then-President of Unocal's Refining and Marketing Division), Neil Schmale (Unocal's then-CFO), and Dr. Kess Alley (then-Vice President of Unocal's Products and Process Research Division):

> The [first] purpose of the presentation should be to convince CARB staff that predictive equations . . . should not include unnecessary minimums or maximums on fuel parameters . . .

The second priority is to convince CARB of the importance of T50. (CX 240 at 001; CX 241 at 001). As Dr. Jessup admitted at trial, Denny Lamb's May 10, 1991 memorandum outlined what should go into the presentation to CARB. (Jessup, Tr. 1244-1245; CX 241).

Unocal's scientists, Drs. Jessup, Croudace, and Miller therefore created a presentation of the

5/14 Project results to achieve these two goals. (Jessup, Tr. 1246-1247). Dr. Jessup, for example, testified that he did his best to prepare a presentation for use with CARB in accordance with Mr. Lamb's instructions. (Jessup, Tr. 1247). Unocal knew that CARB needed sound data and technical justification for any parameters in its regulations. (CX 165 at 002). It was critical, therefore, that Unocal present a compelling justification to convince CARB. As Dr. Jessup admitted at trial, he made sure that the importance of T50 was clear in the presentation given to CARB. (Jessup, Tr. 1246).

Unocal's two goals were not independent. Unocal knew that any predictive model developed by CARB would necessarily be based on a set of fuel parameters, such as T50. (Lamb, Tr. 2388). Unocal therefore wanted to convince CARB to incorporate T50 as a parameter in the regulations, including in any predictive model. As Dr. Miller admitted at trial, the intent of Unocal's presentation was to have CARB include T50 as part of its regulations. (Miller, Tr. 1411-1412). Dr. Croudace similarly admitted that he and Dr. Jessup wanted CARB "to adopt a T50 and T50 alone" as a specification in the CARB RFG regulations. (Croudace, Tr. 489-491). Even Mr. Beach was forced to admit that he was involved in a discussion of the importance of getting CARB to adopt T50 as a parameter. (Beach, Tr. 1671-1673). As Mr. Kulakowski testified, the Unocal team preparing for the meeting with CARB, including specifically Denny Lamb, recognized that there was a very high likelihood that CARB would use the 5/14 Project research as a basis to regulate T50. (Kulakowski, Tr. 4422; Lamb, Tr. 1983).

C. The June 20, 1991 Meeting

On June 20, 1991, Unocal employees, including Mr. Lamb, Mr. Kulakowski, Dr. Jessup, and Dr. Croudace, met with members of CARB's Stationary Source Division, including Mr. Venturini, Mr. Fletcher, and Mr. Courtis. (Lamb, Tr. 2220; Jessup, Tr. 1244; Kulakowski, Tr. 4411; Venturini, Tr. 138; Courtis, Tr. 5923; Fletcher, Tr. 6465). Unocal presented slides to the CARB staff. Mr.

Lamb began the meeting by discussing the "Action Steps" related to "Federal VS Calif[ornia] Rules." (CX 24 at 001; Jessup, Tr. 1255). Then Dr. Jessup presented Unocal's 5/14 Project research, using a document titled, "Unocal Reformulated Fuels Technology - A Truly Innovative Approach." (Jessup, Tr. 1255-1256; CX 24 at 002; Fletcher, Tr. 6465). The meeting included a great deal of discussion about the information and data in the slides. (Jessup, Tr. 1291). Mr. Venturini recalls this meeting as a "technical discussion of the work that they had done and they were presenting the findings to us of their . . . technical work, their studies." (Venturini, Tr. 198; *see also* Fletcher, Tr. 6467-6468). The presentation included information that had never been shared outside of Unocal. (Miller, Tr. 1403).

At the end of the presentation, Unocal left printouts of the presentation slides with CARB. (Lamb, Tr. 1985; Fletcher, Tr. 6465; CX 24; Venturini, Tr. 211 (referring to CX 22, CX 23)). Unocal advised CARB staff at the time to keep the presentation confidential, and Mr. Fletcher wrote "confidential" on his copy of the handout. (Venturini, Tr. 141; Fletcher, Tr. 6472; CX 24 at 002).

At the meeting, Unocal offered to give to CARB the data and results from the 5/14 Project, with no usage limitations, if CARB would pursue a predictive model. (Kulakowski, Tr. 4423-24).

D. Unocal's June 1991 Presentation Provided CARB With All the Critical Aspects of Unocal's 5/14 Project Inventions

Unocal's presentation to CARB was a comprehensive discussion of the results of its 5/14 Project research. (Jessup, Tr. 1258). In this presentation, Unocal gave CARB the information it needed to choose regulatory specifications that would require refiners to make fuels falling within Unocal's pending-patent coverage. (CCPF 1129-1220). Unocal's presentation to CARB paralleled the written description of its invention in Unocal's patent application. (CX 24 at 003-009, 013-015, 035, 039; CX 1788 at 013-073; Jessup, Tr. 1255-1258). It taught CARB all the critical aspects of Unocal's 5/14 Project inventions, including (1) the relationships between gasoline properties and

emissions; (2) the fact that equations expressing those relationships can be used to predict emissions; and (3) the practical applications of these inventions to make low emissions gasoline compositions. (CX 24; Jessup, Tr. 1255-1286, 1291-1292). As Unocal stated in the conclusions of its presentation to CARB, it showed that it "can make real world low emissions gasoline using our predictive models." (CX 24 at 039).

1. Unocal Showed CARB Its 5/14 Project Test Design and Experiments

To show the scientific reliability of its study, Unocal explained to CARB the test design its 5/14 Project experiments. (CX 24 at 004-009). Unocal's presentation showed CARB the ten gasoline properties and components that it studied, and explained that its research was unique because it examined the ten variables independently. (CX 24 at 004, 005). The presentation then discussed the details of the one-car test study and the confirmatory ten-car tests. (CX 24 at 003-009). For example, Unocal explained to CARB that its tests used 15 test fuels with a wide range of property variables. (CX 24 at 006-009, 015). Unocal showed that it ran its one-car test in a 1988 Oldsmobile Regency, with a "check" fuel as a control (CX 24 at 007; 009), and that it ran its ten-car experiments at the SwRI center in essentially the same way, but in six recent-model cars, and four post-1980 / pre-1990 cars. (CX 24 at 015). As Unocal explained, the ten-car test confirmed the single car results in a large fleet. (CX 24 at 035).[29]

These are the same experiments discussed in the Examples section of Unocal's pending patent application and in Unocal's later-issued patents. (CX 24 at 003-009; CX 1788 at 027-039; CX 617 at 016, col. 7, l. 59 - 019, col. 13, l.15; Wirzbicki, Tr. 913-914).

2. Unocal Showed CARB the Relationships it Discovered Between Properties and Emissions

[29] Unocal also mentioned the 13-car commercial validation study conducted after its patent application had been filed. (CX 24 at 036).

Unocal's presentation then identified for CARB the specific relationships it discovered between properties of gasoline and emissions. (Jessup, Tr. 1291; CX 24 at 013-014, 022, 035, 039). The presentations included charts (CX 24 at 023-034), forms of equations (CX 24 at 022), and written conclusions (CX 24 at 013-014, 035, 038), all demonstrating the effects of individual gasoline properties on the three major categories of emissions: hydrocarbons (HC), carbon monoxide (CO) and nitrogen oxide (NOx).

Unocal explained to CARB (just as it explained in its patent application) that T50 is the gasoline property that most affects both HC and CO emissions. (CX 24 at 013, 014, 026, 028, 035, 039; Jessup, Tr. 1262, 1281; CX 1788 at 016; CX 617 at 015, col. 5, l. 31 - col. 6, l. 50). Indeed, in the presentation's conclusions, Unocal placed T50 at the top of the list of "important gasoline properties to reduce to lower emissions." (Jessup, Tr. 1281-1282; CX 24 at 039).

Unocal's presentation also showed CARB the remainder of the relationships it discovered, including which properties affected each category of emissions, how to adjust the properties to reduce emissions, and the general magnitude of the effect of a given property on a given category of emissions. (CX 24 at 013, 022). For example, Unocal's presentation slides showed CARB that T50 and olefin content have the greatest effect on hydrocarbon emissions, followed to a lesser extent by RON, (CX 24 at 013), and that to reduce hydrocarbon emissions, one should decrease olefins, and increase RON -- with greater increases or decreases having greater effects. (CX 24 at 022; 024-026). These are the same relationships disclosed in the specification of its pending patent application and the patents it eventually obtained. (CX 1788 at 035; CX 617 at 015, col. 6, ll. 12-28, 46-50).[30]

[30] Similarly, as described in its patent specification, Unocal showed CARB that decreasing T50 and increasing paraffin content are most effective for reducing CO emissions, and decreasing T90 has a lesser impact on reducing those emissions. (CX 24 at 013, 022, 027-029, 035; *see also* CX 617 at 015, col. 6, ll. 12-28). For reducing NOx emissions, Unocal showed CARB that decreasing RVP, olefin content and T10

3. Unocal Showed CARB that Mathematical Equations Express The Relationships Between Properties and Emissions

Unocal's presentation also gave CARB the mathematical equations that Drs. Jessup and Croudace derived from the 5/14 Project's raw data, which demonstrate the relationships between fuel properties and emissions. (CX 24 at 022, 039). These equations were set forth in Unocal's pending patent application as Equations 1-3 (as they are in Unocal's issued patents). (CX 24 at 022; CX 1788 at 023; CX 617 at 015, col. 5, ll. 35-67).[31] At this initial presentation to CARB, Unocal did not give CARB the numeric coefficients for the equations because, as Dr. Jessup admitted, at that time Unocal considered them to be "proprietary." (Jessup, Tr. 1267-1269).

Even without numeric coefficients, as Dr. Jessup testified and Unocal stated in its patent application and patents, the equations still show the directional relationships between gasoline properties and emissions. (Jessup, Tr. 1267; CX 1788 at 023 at ll. 5-33; CX 617 at 015, col. 5., ll. 31-50). Drs. Jessup and Croudace explained to CARB that to minimize a given type of emissions, one should minimize fuel variables with positive coefficients, and maximize fuel variables with negative coefficients. (CCPF 1173). Although the numerical coefficients show the magnitude of the impact of the property on emissions, Unocal had already explained those magnitudes to CARB in its other presentation slides. (CX 24 at 013; *see also* graphs at CX 24 at 023-034; Jessup, Tr. 1270-1272).

4. Unocal's Presentation Taught CARB How to Identify Gasoline Compositions with Reduced Emissions (Many of Which Were Covered By Unocal's Pending Patent Claims), and How to Predict Emissions

---

are effective, and increasing paraffin content also reduces NOx emissions to a lesser extent. (CX 24 at 013-014, 022, 030-035; CX 617 at 015, col. 6, ll. at ll. 28-31).

[31] The only difference between the equations in the CARB presentation and the equations in Unocal's patent application is that in the CARB presentation, Unocal added one equation showing that an additional property, aromatics, had a small effect on HC emissions. (CX24 at 022; CX 1788 at 023).

Finally, Unocal's presentation taught CARB how to identify gasoline fuel compositions that reduce emissions, and how to predict emissions using equations. Indeed, the conclusions in Unocal's presentation explicitly explained to CARB that "very simple linear equations can be used to predict emissions reductions," and that "we can make *real world low emission gasoline* using our predictive models." (CX 24 at 039; Jessup, Tr. 1282) (emphasis added). Dr. Jessup admitted that these sentences refer to the use of mathematical equations such as those that they provided to CARB in the presentation. (Jessup, Tr. 1282-1283).

These statements in Unocal's presentation to CARB were consistent with Drs. Jessup and Croudace's representations in their patents and invention disclosure on the 5/14 Project research. (CCPF 511-62, 684-700, 869-912). As Drs. Jessup and Croudace explained in their June 1990 invention disclosure, their "*equation allows one to determine how to make low emission gasoline*." (CX 186 at 002- 003) (emphasis added). They stated that the uses for their equations included identifying gasoline blends where "all fuel would have low emissions," allowing a refinery to make "low emitting fuels," and predicting "the emission characteristics of any gasoline formulation." (CX 186 at 002-003). Similarly, Unocal's patents state, "from the data in" Unocal's ten-car study "it can be appreciated that the preferred fuels of the invention [in the patent] will be prepared (e.g., by appropriate blending in a refinery) so as to decrease each of [T50, olefins, RVP or T10] . . . ." (CX 617 at 019, col. 13, l. 62 - col. 14, l. 2). All the patent claims that Unocal eventually obtained on the 5/14 Project invention are simply combinations of these properties in gasoline, and these methods of making and using them. (CX 617 at 021-025; CX 618 at 027-028; CX 619 at 027-028; CX 620 at 027-029; CX 621 at 027-029).

The graphs, relationships and equations that Unocal provided to CARB teach anyone of ordinary skill in the art how identify, make and use reduced emissions gasolines. As Dr. Jessup admitted at trial, to get to "the new compositions of gasoline," one adjusts the properties "against

any starting point you want" – such as the then-average gasoline fuel (the "Auto/Oil average fuel") – in accordance with the directional relationships that Drs. Jessup and Croudace discovered . (Jessup, Tr. 1171-1172, 1164, 1166-1167; CX 171 at 050-056). Dr. Jessup concedes, "[T[hat's the forerunner to many of the [patent] claims." (Jessup, Tr. 1171-1172, 1164, 1166-1167; CX 171 at 050-056).

Using Unocal's teachings, CARB could and did make adjustments to gasoline properties to reach new fuel compositions that Unocal knew at the time were covered by its pending patent application. For example, Unocal understood that CARB would likely seek to reduce emissions below those of the average fuel at the time, and thus would likely use the property values of that fuel as a starting point. (CX 492 at 003). The graphs that Unocal provided to CARB showing the relationships between emissions and gasoline properties provided the range of values (within normal testing sensitivities) of the Auto/Oil average fuel for each property. (CX 24 at 023-034; *see*, *e.g.*, Jessup, Tr. at 1271-1272).[32]

To achieve a 10% reduction in hydrocarbon emissions, the graph showed that one would reduce the T50 to about 210º F. (CX 24 at 026). To achieve a 5% reduction in hydrocarbon emissions, the graph showed that one would reduce the T50 to about 215º F. (CX 24 at 026). Not surprisingly, Unocal's pending patent application had claims to gasolines with T50s of less than or equal to 215º F and less than or equal to 210º F. (CPFF 1210; CX 1788 at 051, 191).

Another of Unocal's graphs showed that a 10% reduction of NOx emissions could be

[32] For instance, in Unocal's graph showing the relationship between T50 and hydrocarbon emissions, the percent change in hydrocarbon emissions from the Auto/Oil average fuel is plotted against the temperature change in T50. (CX 24 at 026; Jessup, Tr. 1271-1272). The x-axis of the graph is a black line indicating the range of normal T50s for the Auto/Oil average fuel. (CX 24 at 026). It intersects at its mean with a T50 of about 218º F – the T50 of the Auto/Oil average fuel at that time. (CX 24 at 026; CX 617 at 016, Table 2). To reduce hydrocarbon emissions below that average, one would want to decrease T50 below the then-current average gasoline T50 of about 218º F.

obtained by reducing RVP to about 7 psi, and a 5% reduction of NOx emissions could be obtained by reducing RVP to about 8 psi. (CX 24 at 034).[33] Again, not surprisingly, Unocal's pending patent application had claims to RVPs of no greater than 8 psi and no greater than 7.5 psi. (CPFF 1210; CX 1788 at 051, 191). The same types of information were shown in the charts Unocal provided to CARB for the remainder of the gasoline property / emissions relationships. (CX 24 at 023-034).

E. Unocal's Presentation Was Effective: CARB Was "Stunned"

Unocal knew that it had made an effective presentation to CARB. (Jessup, Tr. 1292-1293). Dr. Jessup perceived that CARB staff was "stunned" by Unocal's information. (Jessup, Tr. 1292-1293; *see also*, Lamb, Tr. 1984).[34] CARB staff, too, recalls the importance and usefulness of Unocal's June 1991 presentation. (Venturini, Tr. 228; Fletcher, Tr. 6467). They considered Unocal's research "well-designed," which contributed to its utility to CARB staff. (Fletcher, Tr. 6449-6450, 6467; Venturini, Tr. 228). CARB was particularly interested in Unocal's analysis indicating that "changing T50 could result in significant hydrocarbon benefits." (Fletcher, Tr. 6468). As discussed below, CARB used the information from Unocal's presentation in developing the Phase 2 regulations.

F. At the June 1991 Meeting, Unocal Concealed the Fact That it Had a Pending Patent Application and Planned to Charge Royalties

Unocal concealed from CARB at the June 1991 meeting that it had a pending patent application on the technology it presented at that meeting. Indeed, Mr. Lamb, Unocal's point person to CARB, admitted at trial that Unocal gave everything to CARB in the June 1991 meeting:

---

[33] The Auto/Oil Average RVP was about 8.7 psi. (CX 24 at 034; CX 617 at 016, Table 2).

[34] At the meeting, Unocal offered to give to CARB the data and results of the 5/14 Project. (Kulakowski, Tr. 4423). Unocal told CARB "[t]hat we would help them in any way we could . . . if they were willing to propose a predictive model." (Lamb, Tr. 2223). In Unocal's offer, there was no limitation placed on CARB's use of the data and results from the 5/14 Project. (Kulakowski, Tr. 4423-4424).

Q: And in June of 1991, at that presentation, you don't know of anything that you kept from CARB relating to the 514 Project apart from the fact that there was a pending patent application, correct?

A: That's correct.

(Lamb, Tr. 1944-1955). Similarly, Unocal concealed from CARB its intent to obtain royalties for its 5/14 Project inventions. (CCPF 608-33, 1083-1107). This omission was intentional. The Unocal employees involved in making the presentation to CARB of the 5/14 Project research results knew that Unocal had applied for a patent on this same research. Indeed, just one month earlier, Drs. Jessup and Croudace had signed an affidavit filed with Unocal's amendment to its patent application indicating that they knew of the pending claims. (CX 1788 at 203; Wirzbicki, Tr. 936-937).

VI. UNOCAL LIED TO CARB

Unocal had baited its trap. Now, Unocal needed only to wait to see whether CARB would bite. CARB did. Unocal reeled CARB in through deceit. The evidence shows that, through a series of interactions and communications, Unocal deceived CARB into believing that it could freely use what Unocal had presented to CARB – the results of the 5/14 Project and the technology embedded in those results, along with related, more detailed information and materials Unocal later provided – because Unocal specifically designated all of those things "non-proprietary" and available for public use.

A. CARB Sought Permission to Use the Technology Presented to it by Unocal

Through a series of requests and correspondence, CARB sought permission to use for developing its regulations everything that Unocal had presented at the June 20, 1991 meeting as well as Unocal's full predictive equations with numeric coefficients and the underlying data.

1. At CARB's Request, Unocal Provided the Full Equations With Coefficients, But On a Confidential Basis Stating That They Represent a "Competitive Advantage"

CARB later requested that Unocal provide to it the numeric coefficients for the predictive equations that Unocal had held back in its June 20, 1991 presentation. (Lamb, Tr. 2224; CX 24 at 022). These are the coefficients that Unocal did not give to CARB because Unocal viewed them as "proprietary." (Jessup, Tr. 1269). In July 1991, Unocal provided the full equations with numeric coefficients to CARB, but it did so at first in a manner that protected Unocal's proprietary position.

Unocal responded to CARB's request in a July 1, 1991 letter to Peter Venturini, providing to CARB the Unocal predictive equations including the numeric coefficients from the ten-car study. (CCPF 1245-52; CX 25 at 001-002; Lamb, Tr. 2365-2366). As Unocal represented in its patents, these equations with numeric coefficients from the ten-car study validate the general equations with letter variables that Unocal previously provided to CARB. (CX 617 at 018-019, col. 12, 1.65-col. 13, 1.6). That July 1, 1991 letter was drafted by Mr. Kulakowski pursuant to Mr. Lamb's direction. (CCPF 1246-48). The letter required CARB to maintain the equations as confidential because Unocal viewed them as presenting "a competitive advantage":

> The attached page shows the equations developed in Unocal's research program that we presented to you and your staff on June 20, 1991 . . .
>
> As we discussed in the meeting, Unocal requests that CARB hold these equations confidential, as we feel that they may represent a competitive advantage in the production of reformulated gasoline.

(CX 25 at 001). Unocal then reiterated its offer to make its research publicly available if CARB would seriously consider adopting a predictive model:

> If CARB pursues a meaningful dialogue on a predictive model approach to Phase 2 gasoline, Unocal will consider making the equations and underlying data public as required to assist in the development of a predictive model.

(CX 25 at 001).

2. CARB Requested that Unocal Provide to CARB its Research Results on a Disk

After receiving Unocal's predictive equations with numeric coefficients, CARB's staff

requested that Unocal provide to CARB the underlying Unocal research data to allow CARB "to evaluate that data" and check the equations against the background data. (Courtis, Tr. 5743-5746; Lamb, Tr. 2224). Around the end of July 1991, Dr. Jessup provided to CARB the underlying raw data from Unocal's 5/14 Project on a computer disk. (Jessup, Tr. 1331-1332; CX 1247 at 001). In addition to the raw data, the disk contained an explanation of data files, identified the fuel properties used for the "linear screening design," and stated that any "regression analysis should be based on linear equations." (CX 1247 at 004-005). There was no transmittal letter with this disk. The disk does not bear any confidentiality designation. (CX 1247 at 002).

3. Unocal Knew That CARB Could Not Use Unocal's Research to Develop the Regulations Unless the Research Results Were Made Freely Available to the Public

Although CARB was now in receipt of the Unocal raw data, equations, and presentation, pursuant to the statutory requirement that CARB's regulations be supported by substantial evidence in the public record, CARB staff could not yet use any of the Unocal research to support the Phase 2 regulations. (CCPF 1278; Venturini, Tr. 142, 183, 233). As CARB's Robert Fletcher testified, "if it had not been available to the public, then I would not have been able to approve its use in the staff report and technical support document." (Fletcher, Tr. 6468-6469). "[P]ublicly available" meant that CARB could "provide any of the information associated with the research to the public, that there are no restrictions on its use, there are not caveats associated with what you can or cannot release to the public." (Fletcher, Tr. 6480).

Unocal knew that CARB could not use any of Unocal's research as support for the Phase 2 regulations unless the research was made publicly available. (CCPF 1279). Prior to the June 20, 1991 meeting, the Unocal employees preparing the presentation discussed how to ensure that CARB not make publicly available the presented results. (Miller, Tr. 1404). In addition, Mr. Kulakowski

drew on his knowledge of the California Public Records Act when drafting the July 1, 1991 letter to ensure that he used the key words necessary to ensure that CARB could not use Unocal's equations without Unocal's permission.

4. CARB Requested That Unocal Release Any Proprietary Claim to All of the Research That Unocal Had Provided

After receiving both the full equations and the underlying data from Unocal, CARB requested permission from Unocal to freely use all of the research that Unocal had supplied to CARB. (CCPF 1242-80). Specifically, John Courtis called Denny Lamb and requested that Unocal release any proprietary claims with respect to that information. (CCPF 1280-82). Mr. Courtis "called Unocal and I have asked them to release this information to us so we'd be able to use that information for the development of the regulation." (Courtis, Tr. 5743). Mr. Courtis told Mr. Lamb that CARB "planned indeed to finalize the regulations and the standards that we were ready to propose and that we were aware that the information was confidential and proprietary to Unocal and we asked them to allow us to go ahead and use it, to release the proprietariness and confidentiality of the data." (Courtis, Tr. 5743-5744). In that conversation, Mr. Courtis and Mr. Lamb discussed the release of any proprietary claim to "[t]he whole thing, the regression equations, the presentation information that was provided to us, the details, some of the background, detailed data, the whole thing." (Courtis, Tr. 5745).

That CARB's request to Unocal encompassed more than simply a public release of the underlying database on the disk provided to CARB is corroborated by the testimony of Unocal witnesses. Mike Kulakowski, who was working side-by-side with Mr. Lamb at this time, testified that after the August 1, 1991 letter transmitting Unocal's equations to CARB, CARB did in fact request permission from Unocal to use the equations (not just the database on the disk) in CARB's Technical Support Document. (Kulakowski, Tr. 4430). As Mr. Kulakowski testified, "I do recall

a request from CARB to put the equations in the technical support document." (Kulakowski, Tr. 4430). Similarly, Denny Lamb admitted on cross examination that CARB requested that Unocal provide CARB with Unocal's "research results" (Lamb, Tr. 1984), *i.e.*, the same "results" that he testified Unocal showed to CARB at the June 20, 1991 presentation. (Lamb, Tr. 1989). Unocal did not show to CARB a "database" at the June 20, 1991 presentation; Unocal's presentation was set forth in the slides it showed and gave to CARB. (CX 24).

That CARB requested that Unocal make the 5/14 Project results presented to CARB *non-proprietary* is corroborated by Denny Lamb's testimony. Although Mr. Lamb claimed at trial that he could not remember the words CARB staff used, in sworn testimony in 1996, Mr. Lamb admitted that CARB had informed him that CARB could not use Unocal's data if it were confidential and proprietary to Unocal: "QUESTION: Did CARB indicate or inform you that they could only use the data if it was not confidential and proprietary to Unocal? ANSWER: Yes." (Lamb, Tr. 2020).

B. Unocal Represented That Everything it Presented to CARB Was "Non-Proprietary" and Available to the Public to Induce CARB to Adopt Regulations Incorporating Key Features of Unocal's Pending Patent Rights

CARB had taken the bait. Unocal now knew that CARB was very much interested in using Unocal's 5/14 Project results in the development of the Phase 2 regulations. CARB's proposed regulations prior to its meeting with Unocal did not include a separate T50 parameter. (CCPF 1072-75). At an August 14, 1991 workshop, however, CARB introduced T50 as a proposed parameter for discussion purposes. (CCPF 1283). In addition, CARB indicated that it was interested in conducting a predictive model workshop. (CX 266 at 004). Unocal's plan was working.

1. Unocal Knew That CARB's Use of its 5/14 Results Would Lead to Regulations That Intersected Unocal's Pending Patent Rights

At the time, Unocal knew that it had a pending patent application with a specification containing very broad disclosure of the 5/14 Project research results. (CPFF 1206-1220; CX 1788

at 014-050). Unocal knew that this disclosure would support any number of specific patent claims to gasoline fuel compositions, methods of making those gasoline fuels, and methods of using such fuels. (CPFF 1211; CX 1788 at 014-050).

Unocal also knew that *at the time* it had patent claims pending in its application that would cover almost any fuel compositions that CARB would choose to regulate. (CCPF 1210). For example, claim 1 pending in Unocal's application from May 22, 1991 through February 1992 covered any standard unleaded gasoline fuel with a T50 no greater than 215º , and an a Reid Vapor Pressure no greater than 8.0 psi, and claim 90 covered any such gasoline with a T50 no greater than 210º , and an a Reid Vapor Pressure no greater than 7.5 psi. (CX 1788 at 051, 191 ('393 patent file history). Moreover, Unocal knew that, based on the broad disclosure of the specification of its patent application, it could amend its application to include claims with any additional sub-combinations of the properties and methods, as long as they were supported by the disclosure in the specifications and not present in or obvious in light of the prior art. (CCPF 1211).

2. Unocal Nonetheless Represented to CARB That Unocal's Research was "Non-Proprietary" and Available to the Public

In response to John Courtis's request, on August 27, 1991, Unocal's Dennis Lamb wrote to James Boyd, CARB's executive officer, stating:

> On June 20, 1991, certain Unocal representatives met with Peter Venturini and other members of his staff. During that meeting, we presented the results of three phases in Unocal's Vehicle/Fuels testing program. We subsequently made the data base available to the staff and agreed to make the data public if necessary in the development of a predictive model for use in the certification of reformulated gasoline.
>
> The staff has now proposed to develop such a predictive model and requested that we make the data public.
>
> Please be advised that Unocal now considers this data to be *non-proprietary and available to CARB, environmental interest groups, other members of the petroleum industry, and the general public upon request*.

(CX 29) (emphasis added).

As detailed below, given the context of this letter (including CARB's requests and Unocal's previous communications), CARB staff uniformly understood this letter to be a representation that CARB could freely use, *i.e.*, without charge, all of the information and materials that Unocal had provided to CARB. (CCPF 4174-87, 4195-215). An objective assessment of the evidence demonstrates that this is the only reasonable interpretation.

Unocal, however, has contended that everything has been a big misunderstanding. According to Unocal, the release in this letter applied only to the "data base" that Unocal had given to CARB on a disk, and the release meant only that Unocal was lifting the "confidentiality" of the "data base." Unocal's spin, however, is obliterated by the evidence.

3. Unocal Understood That Its Release Applied to All of the Materials and Information Given to CARB

The overwhelming evidence shows that Unocal intended its release of information to CARB to include everything Unocal had shown to and provided to CARB. Unocal never intended that its release be limited solely to the "data base" that Peter Jessup gave to CARB on a computer disk. To the contrary, the evidence shows that Unocal well understood that the "data" referenced in Denny Lamb's August 27, 1991 letter (CX 29) encompassed everything Unocal had presented to CARB. This conclusion is supported by multiple lines of evidence.

a. Peter Jessup testified that before Denny Lamb's letter went to CARB, Unocal's management had decided to disclose to the public the slides, equations, and the raw data from the 5/14 Project

The evidence shows that prior to the August 27, 1991 letter to CARB, Unocal's management decided to disclose to the public the slides, equations, and the raw data from the 5/14 Project. (CCPF 4228-29). In an August 26, 1991 memorandum, Dr. Jessup sought sign-off to present the very slides presented to CARB to the American Institute of Chemical Engineers, stating, "Our

corporate sponsors have decided it is time to publicize our data. This presentation is essentially the same as that given to the CARB on June 20 1991." (CX 262 at 001 (attaching slides at pages 003-040); Jessup, Tr. 1314-1316). As Dr. Jessup admitted at trial, as of August 26, 1991, his corporate sponsors had told him that he could make public the 5/14 Project presentation slides, equations (with coefficients), and the underlying data. (Jessup, Tr. 1543-1544). Dr. Jessup's "corporate sponsor," was of course the Refining and Marketing Division headed by Mr. Beach. (Jessup, Tr. 1543).

b. Peter Jessup testified that "data" was a "loose way" of referring to Unocal's raw data and the results from that data

What is more, Dr. Jessup equated the term "data" with the results of that data as presented in the slides given to CARB. (CCPF 4230). In his August 26, 1991 request, Dr. Jessup wrote that his corporate sponsors had decided to disclose the 5/14 Project "data" and requested permission to present the attached "slides" that were "essentially the same as that given to the CARB on June 20 1991." (CX 262 at 001). When confronted at trial with this language, Dr. Jessup conceded that the term "data" is "a loose way of saying the results from that data." (Jessup, Tr. 1317).

c. Mike Kulakowski testified that Unocal granted to CARB permission to use Unocal's predictive equations in the CARB technical support document

Former Unocal regulatory employee Mike Kulakowski – who attended the June 20, 1991 meeting with CARB and who authored the July 1, 1991 letter that purported to preserve Unocal's competitive advantage – pointedly testified that Unocal granted permission to CARB to use Unocal's predictive equations in the CARB technical support document:

> "QUESTION: Mr. Kulakowski, do you know whether or not sometime later Unocal actually granted permission to CARB to put those equations in their technical support document?"
>
> THE WITNESS: Unocal did grant permission for those equations to be in the technical support document.

(Kulakowski, Tr. 4432).

d. Wayne Miller testified that Unocal decided to release both the slides and the data to CARB at an August 22, 1991 Fuel Issues Team meeting

Former Unocal employee, now academic researcher, Dr. Wayne Miller testified that Unocal's decision to release both the slides presented to CARB at the June 1991 meeting and the underlying data is plainly reflected in the minutes of an August 22, 1991 Fuels Issues Team meeting. The minutes of that meeting state that "Unocal will send CARB a waiver to release the 514 Project emissions data." (CX 266 at 004). Dr. Miller explained at trial that these minutes reflect Unocal's decision to release both the presentation slides and the underlying data on disk to CARB. (Miller, Tr. 1419-1420).

e. Roger Beach testified that he instructed Denny Lamb to give to CARB Unocal's predictive equations

That Denny Lamb's August 27, 1991 letter intended to give to CARB permission to use Unocal's predictive equations is fully supported by Mr. Lamb's directive from Roger Beach, then-President of Unocal's Refining and Marketing Division and the "top person" in charge of Unocal's efforts to influence CARB. (CCPF 84). Mr. Beach testified that he wanted Mr. Lamb to give to CARB whatever it took to influence them:

> Q. And in fact, in your words, sir, you were, quote, hellbent to do whatever you had to do to move CARB toward the predictive model; correct, sir?
>
> A. That's correct.
>
> Q. And you wanted Mr. Lamb, Mr. Dennis Lamb, also referred to as Denny Lamb, to tell CARB that if CARB adopted a predictive model, Unocal would provide CARB with both the data and the equations from Unocal; correct, sir?
>
> A. That's correct.

(Beach, Tr. 1659). Further, Mr. Beach testified that he *instructed* Mr. Lamb that Unocal would offer

to CARB the Unocal equations and data if CARB pursued a predictive model. (Beach, Tr. 1678).

f. Denny Lamb's contemporaneous memorandum shows that he believed that "data" included Unocal's equations

The evidence also shows that Denny Lamb – the author of the August 27, 1991 letter – understood at the time that the term "data" included more than just the "data base" given to CARB on disk. A contemporaneous document that he authored clearly shows he understood that the "data" Unocal released to CARB included Unocal's predictive equations. In October 1991, Denny Lamb was asked by Gina Nelhams of WSPA to review the accuracy of Appendices 10-13 of CARB's technical support document. (CX 302 at 002-003; Lamb, Tr. 1928-1929). Appendix 11 of the technical support document sets forth the Unocal predictive equations that Unocal had given to CARB. (CCPF 1312; CX 5 at 299-300; CX 25). After his review, Mr. Lamb reported back that "Appendix 11 and 12 are correct versions of data provided to CARB from Unocal and Auto/Oil." (CX 285 at 003; Lamb, Tr. 1930-1933). In other words, Mr. Lamb reported that the Unocal predictive equations set forth in Appendix 11 were "correct versions of *data* provided to CARB from Unocal." (CX 285 at 003 (emphasis added)).

g. Denny Lamb admitted on cross-examination that his August 27, 1991 letter referred to the data in the presentation to CARB at the June 1991 meeting

What is more, Denny Lamb admitted that the term "data" in his letter referred not just to the "data base" on the disk given to CARB but to the "data" presented to CARB at the June 1991 meeting:

> "QUESTION: Could you read the last paragraph of this letter into the record.
>
> "ANSWER: 'Please be advised that Unocal now considers this data to be nonproprietary and available to CARB, environmental interest groups, other members of the petroleum industry, and the general public upon request.'
>
> "QUESTION: Now, is that referring to the data in the presentation of June 20, 1991 that was presented to CARB?

"ANSWER: I believe so."

(Lamb, Tr. 2022). The "data in the presentation" was, of course, the slides shown to CARB, not raw data on a disk.

h. Unocal represented in the '393 litigation that the term "data" in the letter also applied to the equations

In its Memorandum of Contentions of Fact and Law filed in June 1997 in the '393 patent litigation, Unocal stated that the term "data" in the letter applies to the equations as well: *the "August 1991 letter making the* ***data*** *publicly available meant that the* ***data and the equations****, previously marked as confidential, were no longer marked that way.*" (CX 1323 at 048) (emphasis added).

i. Unocal's patent application and patents use the term "data" to include analysis and charts

Unocal's own patent application and patents for the 5/14 Project research results repeatedly use the term "data" to include analysis and charts. To illustrate the directional relationships that Drs. Jessup and Croudace discovered, Unocal's patent application included a drawing section with graphs and tables describing those relationships. (CX 1788 at 019-020, 065-073). The patent application explains, "The invention can be best understood with reference to the drawing, the figures of which provide graphical or tabular *data*" derived from the one-car and ten-car experiments that Dr. Jessup and Dr. Croudace performed. (CX 1788 at 019, ll. 29-32; Wirzbicki, Tr. 912-913) (emphasis added)..

For example, the application contains Figures 7 to 9, which are tables showing the specific fuel properties Drs. Jessup and Croudace discovered affecting the three types of emissions, and the degree of magnitude of those effects. (CX 1788 at 010-012). The patent application explains that "from the *data* in Figures 7 to 9, it can be seen that for automobiles in general that decreasing any

of the variables 1 to 4 above [T50, olefins, RVP or T10] will have a positive effect, especially for any large population of automobiles." (CX 1788 at 040, ll.29-32 (emphasis added)). Tables 7 to 9 do not present raw "data points" but a graphical depiction of property relationships. (CX 1788 at 010-012; *see also* CX 1788 at 040 (stating that the "*data* of Examples 2 and 3 are analyzed as shown in Figures 7 to 9") (emphasis added). As Unocal's Chief Patent Counsel, Mr. Wirzbicki, testified, the patent application includes other graphs and charts, including figure 1, which is "graphical data from emissions test data regarding CO," from Unocal's ten-car study. (Wirzbicki, Tr. 909-910, 912; CX 1788 at 056).

j. Unocal's reaction when it saw CARB using the 5/14 Project materials shows that Unocal intended the release to cover everything given to CARB

The most telling evidence that Unocal intended its release to include everything that Unocal had given to CARB is Unocal's reaction when it saw that CARB had done so. In CARB's October 1991 technical support document, CARB clearly used the 5/14 Project research, the slides that Unocal had given to CARB, and Unocal's predictive equations. (CX 5 at 028, 031, 032, 298). Unocal staff, including Denny Lamb, knew that the technical support document included these materials, but no one at Unocal showed any concern that CARB had used these materials without Unocal's permission. (Kulakowski, Tr. 4433-4440, 4465-4466). Nor was there any direction from Unocal management to deal with this supposed mistake. (Kulakowski, Tr. 4466).

To the contrary, Unocal's only reaction was dismay that CARB had not used *more* of Unocal's research. For instance, in an October 25, 1991 memorandum addressed to Mr. Lamb (and copied to Drs. Alley, Miller, and Jessup as well as to Mr. Kulakowski), Dr. Croudace wrote, "*We find no qualms with a T50 specification based on the Unocal vehicle testing*." (CX 1558 at 001) (emphasis added). But he went on to say that, "if CARB is going to use the Unocal test work to justify this specification, *we would expect CARB to use all of the Unocal's results*." (CX 1558 at

001 (emphasis added); Kulakowski, Tr. 4443).

In keeping with this disappointment, Denny Lamb instructed Mr. Kulakowski to contact CARB "and ask why they hadn't used other Unocal test work or made more use of the Unocal equations." (Kulakowski, Tr. 4443). At the time, Mr. Lamb made no mention of any supposed breach by CARB of Unocal's confidentiality restrictions or any agreement with Unocal. (Kulakowski, Tr. 4443, 4446). Following Mr. Lamb's directions, Mr. Kulakowski contacted Mr. Fletcher at CARB and commented that CARB had not used Unocal test work that conflicted with other parts of the technical support document and asked why CARB did not make more use of Unocal's equations. (Kulakowski, Tr. 4443-4444).

This voluminous evidence clearly shows that Unocal intended to grant to CARB permission to use everything Unocal had provided to CARB.

4. CARB Reasonably Understood Unocal's Representation to Apply to All of the Materials and Research Unocal Had Given to CARB

CARB reasonably understood that Unocal was granting permission for CARB to use all of the materials Unocal had provided, not just the raw data on the disk. Unocal's August 27, 1991 letter does not stand alone. Indeed, the letter itself refers to the events that led to its creation. (CX 29). The letter itself refers to discussions at the June 20, 1991 meeting, Unocal's offer to make information publicly available under certain conditions, and CARB's request to Unocal. (CX 29).

a. Unocal's July 1, 1991 letter offered to make publicly available Unocal's equations and data

Unocal's July 1, 1991 letter shows that Unocal's release could not have applied only to the "data base." Denny Lamb's August 27, 1991 letter refers to the fact that, after the June 20, 1991 meeting with CARB, Unocal "agreed to make the data public if necessary." (CX 29). That can only be a reference to Unocal's July 1, 1991 letter, where Unocal made it clear that "[i]f CARB pursues a meaningful dialogue on a predictive model approach to Phase 2 gasoline, Unocal will consider

making the *equations and underlying data* public as required to assist in the development of a predictive model. (CX 25 at 001 (emphasis added)).

b. CARB specifically requested that Unocal give permission to CARB to use everything Unocal had given to CARB

Unocal's August 27, 1991 letter also refers to CARB staff's request to Unocal. As discussed above, that request from John Courtis sought permission for CARB to use "[t]he whole thing, the regression equations, the presentation information that was provided to us, the details, some of the background, detailed data, the whole thing." (Courtis, Tr. 5745). This testimony is corroborated by that of Mike Kulakowski, who testified that he recalled "a request from CARB to put the *equations* in the technical support document." (Kulakowski, Tr. 4430 (emphasis added)). It is also corroborated by Denny Lamb's admission on cross-examination that CARB requested Unocal's "research results" (Lamb, Tr. 1984), *i.e.*, the same "results" that Unocal showed to CARB at the June 20, 1991 presentation. (Lamb, Tr. 1989; CX 24).

c. The equations, results, charts, and graphs that Unocal presented to CARB were developed from the "data"

Unocal's August 27, 1991 letter also refers to the June 20, 1991 presentation, at which Unocal offered to give to CARB the data and results of the 5/14 Project. (Kulakowski, Tr. 4423; CX 29). In Unocal's offer, there was no limitation placed on CARB's use of the data and results from the 5/14 Project. (Kulakowski, Tr. 4423-4424).

Denny Lamb's attempt to restrict the August 27, 1991 letter to raw data therefore makes no sense because the uncontroverted evidence shows that Unocal's results can be derived from the data base. For instance, Jack Segal of ARCO testified that there was enough information on Unocal's data disk to replicate Unocal's tests. (Segal, Tr. 5617). ARCO ran regressions on Unocal's data and came to the same conclusion that Unocal did: "a decrease in T50 would cause a proportional decrease in carbon monoxide." (Segal, Tr. 5617-5620; CX 1592; CX 1593). Indeed, the evidence

shows that the Unocal predictive equations presented to CARB were derived from the underlying raw data. (Croudace, Tr. 491; Kulakowski, Tr. 4604). Furthermore, the Unocal slide presentation at the June 20, 1991 meeting also was derived from the underlying data. (Venturini, Tr. 841; *see also* Venturini, Tr. 695 ("all those slides, the information, the factual information that was presented to us at the meeting in July. Now, that information, the figures in there, the information in there, was derived from the test data, . . . because the slides and that presentation was based on the test data, then by inference that information is part of the record because we put the slides and everything in it")).

The only reasonable interpretation, therefore, was that Unocal's release applied to all of the 5/14 Project information and results since all of the information could be derived from the database on the disk.

d. The slides Unocal presented to CARB presented "data"

This conclusion is further bolstered by the fact that the very slides that Unocal presented to CARB at the June 20, 1991 meeting stated that they contained "data." For instance, a number of the slides stated that they were presenting "inhouse data" from Unocal's experiments. (CX 24 at 010-012). Similarly, other slides state that they contain data from the Southwest Research Institute ("SwRI"). (CX 24 at 016-021). Other slides presented "fuels data." (CX 24 at 040-041).

Consistent with these statements in the slides, CARB staff who were present for the presentation testified that they understood the slides were presentations of data. CARB staff viewed as "data" the 12 charts in Unocal's June 20, 1991 slide presentation that showed in graphic form how changing various gasoline properties would affect hydrocarbon, carbon monoxide, and nitrogen oxides emissions. (Venturini, Tr. 224-225, 227-228). Moreover, Peter Venturini specifically viewed as "data" Unocal's two charts in its June 20, 1991 slide presentation that showed in graphic form trend lines on how reducing T50 would reduce hydrocarbon and CO tailpipe emissions.

(Venturini, Tr. 224-225, 227-228). And he understood Unocal's predictive equations in the July 1, 1991 letter to be additional "data." (Venturini, Tr. 234-235).

e. CARB witnesses consistently testified that they understood that all of Unocal's analysis, conclusions, materials, and research were included in Unocal's release

Given these circumstances, the only reasonable interpretation of Unocal's August 27, 1991 letter is that it applied to all of the information and materials that Unocal provided to CARB. This is in fact how CARB interpreted the exchange with Unocal. (CCPF 4216-25). Explaining his understanding of Unocal's August 27, 1991 letter, John Courtis, who had made the request to Unocal for the release, testified that the term "data" in the letter referred to everything Unocal had given to CARB:

> Q. Would you explain what you understood at the time that "data" to mean.
>
> A. "Data" means the whole package of information we had. We had – they had provided to us the regression equations. We have asked to give us the detailed data behind the regression equations so we'd be able to evaluate that data. And they had also some presentation material, so we have asked them for the whole information.

(Courtis, Tr. 5745-5746). Along these lines, Peter Venturini testified that he understood that Unocal's charts and predictive equations were included in Unocal's August 27, 1991 release letter. (Venturini, Tr. 256-257).

5. Unocal Understood That "Non-Proprietary" Meant Free of Property Rights

Unocal contends that the phrase "non-proprietary" in the August 27, 1991 letter does not mean what it says. At trial, Unocal's counsel elicited testimony from Denny Lamb – **{**

} (CCPF 92-99; Lamb, Tr. 1849-1850, *in camera*) – that by using the term "non-proprietary" in his August 27, 1991 letter, he only meant "[t]hat we were lifting the confidentiality."

(Lamb, Tr. 2238). In other words, "non-proprietary" meant only "non-confidential." This testimony is flatly contradicted by a wall of evidence that Unocal, including Denny Lamb himself, consistently associated the term "proprietary" with property rights.[35] (CCPF 1315-49). Unocal therefore knew that its August 27, 1991 letter would lead CARB to believe that the materials and teachings Unocal had presented and given to CARB were free of any property rights.

a. Unocal's own internal policies used the term "proprietary" to mean subject to intellectual property rights

Unocal's own internal intellectual property policies equate "proprietary" with property rights. Unocal's October 1, 1989 Policies and Procedures Relative to Intellectual Property states:

> The Internal Revenue Code contains numerous provisions dealing with the transfer of "property" from a U.S. corporation to a related foreign corporation. The term "property" is defined broadly and includes such items as intangible assets. The term "intangibles" is also broadly defined to include patents, trademarks, copyrights and various types of *proprietary* information.

(CX 460 at 009 (emphasis added)). Similarly, Unocal's Intellectual Property Policy – which went out under the signature of Roger Beach as Chairman of the Board and Chief Executive Officer – states that intellectual property "is *proprietary* business or technical information of value protected by patent, trademark, copyright, or trade secret laws." (CX 714 at 001 (emphasis added); Beach, Tr. 1656-1657).

b. Unocal used the term "proprietary" in both internal and external documents to refer to patent-pending technologies

What is more, Unocal has specifically used the term "proprietary" to refer to patent-pending technology. For instance, in the January 1989 time frame, Unocal sent a sample of a combination of additives created by Unocal for testing by The Lubrizol Corporation. (CX 108 at 001). In its

[35] Mr. Lamb's testimony also makes no sense whatsoever in light of the definition of "proprietary." For instance, Webster's Dictionary (2d College ed. 1980) defines "proprietary" as "held under patent, trademark or copyright by a private person or company [a proprietary medicine]." Similarly, Black's Law Dictionary (7th ed. 1999) defines "proprietary" to mean "[o]f, relating to, or holding as property."

cover letter, Unocal referred to the additives as a "proprietary" gasoline detergent and insisted that the parties enter into a secrecy and non-analysis agreement. (CX 108 at 001; Miller, Tr. 1396-1397; *see also* CX 109 (another letter to The Lubrizol Corporation referring to Unocal's "proprietary" gasoline detergent); Croudace, Tr. 570). As Dr. Miller explained, the reason for the secrecy and non-analysis agreement was that Unocal had "a patent pending on a combination of additives that were specifically effective for port fuel injectors." (Miller, Tr. 1397). Similarly, an October 3, 1989, internal Unocal memorandum written by Dr. Croudace refers to a particular technology as "proprietary to Unocal." (CX 136 at 001; Croudace, Tr. 571). As Dr. Croudace admitted, at the time of the memorandum, that technology had a patent pending on the Unoclean technology. (Croudace, Tr. 571-572).

c. Unocal's CEO used "proprietary" to refer to patent rights

Even Unocal's own CEO admitted that "proprietary" refers to patent rights. Richard Stegemeier, Unocal's Chairman of the Board and CEO during the CARB Phase 2 rulemaking, testified that "by definition proprietary means patent or trademark or copyright or something like that." (CX 7065 (Stegemeier, Dep. at 13) (emphasis added)). He went on to explain that "by definition proprietary means holding a patent." (CX 7065 (Stegemeier, Dep. at 13)). For instance, according to Mr. Stegemeier, Unocal considered its patented hydrocracking technology to be "proprietary" technology. (CX 7065 (Stegemeier, Dep. at 12-13)). He also conceded that the words "proprietary" and "secret" are not synonymous. (CX 7065 (Stegemeier, Dep. at 143)).

d. Unocal viewed the 5/14 Project as proprietary because of its property rights in the Project

Unocal also referred to its property interest in the 5/14 Project as a "proprietary" interest. Former Unocal scientist, Dr. Wayne Miller, testified that in the 1990 to 1991 time frame, people within Unocal referred to the 5/14 Project as "proprietary." (Miller, Tr. 1370). In this context, the

term "proprietary" was used to convey the fact of an ownership interest. (Miller, Tr. 1370). Similarly, Denny Lamb admitted that he understood that Unocal's patent application represented a "proprietary opportunity." (Lamb, Tr. 1825-1826).

e. Denny Lamb repeatedly used the term "proprietary" to refer to property rights

Denny Lamb himself admitted that he understood and used the term "proprietary" to denote property rights. For instance, he admitted that he understood that Unocal's "proprietary pipelines" were pipelines owned by Unocal, and that proprietary terminals were terminals owned by Unocal. (Lamb, Tr. 1798-1799). Moreover, in the April 7, 1994 Unocal comments to CARB, Mr. Lamb stated that Unocal was "concerned that CARB does not allow test reproducibility for proprietary terminals because this decision effectively requires us to impose additional product safety margins at the refinery." (CX 393 at 008). At trial, Mr. Lamb admitted that this reference to "proprietary terminals" referred to terminals owned by oil companies. (Lamb, Tr. 2029; CX 393 at 008). The pipelines and terminals were proprietary, not secret or confidential.

f. Unocal entered into and considered several agreements equating "proprietary rights" with "patent applications"

Several agreements entered into or considered by Unocal also demonstrate that Unocal understood "proprietary" to refer to property rights. For instance, the Auto/Oil agreement, signed on behalf of Unocal by Roger Beach in 1989, equated proprietary rights and patent applications. (CX4001 at 007, 026; Beach, Tr. 1694). The stated purpose of the agreement was to conduct research, the results of which "will be disclosed to government agencies, the Congress and the public, and otherwise placed in the public domain." (CX 4001 at 007). To ensure that this result was effected, the agreement states, "No proprietary rights will be sought nor patent applications prosecuted on the basis of the work of the Program unless required for the purpose of ensuring that the results of the research by the Program will be freely available, without royalty, in the public

domain." (CX 4001 at 007 (¶ E)).

On May 1, 1991 – just a few months prior to its letter to CARB – Unocal entered into the GM/WPSA/ARB agreement that equated "proprietary" with property rights. (CX 1711 at 003-004; Lamb, Tr. 2040). This agreement (which Mr. Lamb reviewed before Unocal signed off on it), used language similar to the Auto/Oil agreement, stating, "No proprietary rights shall be sought nor patent applications prosecuted on the basis of the work of the Program unless required for the purpose of ensuring that the results of the research by the Program shall be freely available, without royalty, in the public domain." (CX 1711 at 003-004; Lamb, Tr. 2040-2041; *see also* CX 1537 at 004; Lamb, Tr. 1876-1880 (draft Unocal/Ford research agreement defining the term "proprietary" to mean the property of one of the parties)).

6. CARB Reasonably Understood "Non-Proprietary" to Mean Free of Patent Claims and Could Be Freely Used Without Charge or Limitations

In light of all of the circumstances and Unocal's explicit statement that its research results and material were "non-proprietary" and available to the general public, CARB reasonably understood that what Unocal had given to CARB could be used without charge or limitations. This is what "non-proprietary" means. In ordinary usage, "proprietary," according to the American Heritage Dictionary (2d College ed. 1976), means "[e]xclusively owned" and "[o]wned by a private individual or corporation under a trademark or patent." Likewise, according to Webster's Dictionary (2d College ed. 1980), "proprietary" is defined as "held under patent, trademark or copyright by a private person or company [a proprietary medicine]." Similarly, Black's Law Dictionary (7th ed. 1999) defines "proprietary" to mean "[o]f, relating to, or holding as property." "Non-proprietary" thus means free of property rights and the associated ability to charge for use.

a. CARB witnesses uniformly testified that they understood Unocal had released any proprietary claims and that Unocal's research and materials were available to the public with "no strings attached"

CARB witnesses who interacted with Unocal on these issues uniformly testified that they believed Unocal's representation meant that Unocal had no proprietary claims that would impede the free use of the research results and materials that Unocal provided to CARB. (CCPF 4204-15). To put it another way, they took Unocal at its word. Peter Venturini, for instance, testified that he understood the word "proprietary" to mean an ownership right: "The word 'proprietary' to me means someone is maintaining an ownership right to it." (Venturini, Tr. 143). He understood "non-proprietary" to mean free of property rights: "Q: And conversely, did you know at the time what 'nonproprietary' meant? A: Yes. That you're giving up your rights to something, in my simple language, that there are no strings attached to it." (Venturini, Tr. 143). When he received Unocal's August 27, 1991 letter, Mr. Venturini understood that Unocal was representing to CARB that everything Unocal had given to CARB could be used with "no strings attached":

> What this letter indicated to me is that they were releasing the information, the factual information that they had provided us, and they were telling us that it was nonproprietary and that we could make it available, that it was available to us, the environmental community, the members of the petroleum industry and the general public, basically that we were free to do as we wished with this data and there in essence were no strings attached to it.

(Venturini, Tr. 241-242).

Mr. Venturini's understanding was confirmed by the context in which he received the August 27, 1991 letter. As stated in Unocal's July 1, 1991 letter, Unocal was willing to give up a competitive advantage if CARB pursued a predictive model. (Venturini, Tr. 233-234, 237-238; CX 25 at 001). Reading the August 27, 1991 letter in context therefore confirmed Mr. Venturini's understanding that Unocal was representing that it had no proprietary rights associated with the results given to CARB: "If you take the two letters together, it's basically saying they're removing their claim of competitive advantage." (Venturini, Tr. 243).

John Courtis, the one who requested that Unocal grant a release to CARB, also understood

the August 27, 1991 letter to mean that anyone could use Unocal's results and materials free of charge. As he explained at trial, "My understanding from this letter was that the whole information was proprietary -- nonproprietary and nonconfidential and it was available to us to use it." (Courtis, Tr. 5746). Mr. Courtis understood that by using the word "non-proprietary," Unocal was representing that everything Unocal had provided to CARB could be freely used: "Q. Now, sir, at the time what was your understanding of the word 'nonproprietary'? A. The word 'nonproprietary' means not owned by Unocal, available to the public." (Courtis, Tr. 5746).

Along these lines, James Boyd, CARB's then-executive officer, also understood "proprietary" to refer to property rights. (Boyd, Tr. 6721-6722 ("To me, 'proprietary' meant something that was the property of the person or company in question, be it some component of a physical plant, be it some process or some approach to making a product that was perhaps unique to that company and thus proprietary to them, their property, and oftentimes something they wanted to protect for competitive reasons")). At the time of Unocal's August 27, 1991 letter, Mr. Boyd was keenly aware of the issues:

> Well, my understanding for some period of time was that Unocal held that information and deemed it confidential and chose not to want to offer it to the study group. However, I was aware the staff was continuing to work with Unocal on that subject and one -- eventually I was informed that Unocal intended to make that data available, that a letter and the data were coming to the agency. And ultimately I was informed that the letter had arrived.

(Boyd, Tr. 6710-6712). Mr. Boyd also learned, in his words, that "there were no strings attached" to the use of Unocal's research. (Boyd, Tr. 6714, 6821).

Chairwoman Sharpless also understood that CARB could use Unocal's research because it was "non-proprietary." Although she did not see Unocal's August 27, 1991 letter, CARB staff had discussed the letter with Chairwoman Sharpless and told her that Unocal had sent a letter characterizing the research with the term "non-proprietary." (CX 7063 (Sharpless, Dep. at 25-26)

("Q: Did anybody discuss with you the words used by Unocal in this letter prior to the adoption of the regulations? A: The words used in the letter were 'non-proprietary.' That – that was discussed.")). Because CARB needed Unocal's research to support the inclusion of a T50 specification in the Phase 2 regulations, she and CARB staff specifically discussed the "non-proprietary" nature of that T50 research. (CX 7063 (Sharpless, Dep. at 27-28)). Chairwoman Sharpless's "impression . . . from Unocal's statements when they talked about non-proprietary information was that they were putting the information that they had from their research projects into the public domain." (CX 7063 (Sharpless, Dep. at 168)).

b. Other industry members understood "proprietary" to mean subject to property rights

CARB's understanding was not based on some unique definition. The evidence shows that not only did Unocal and CARB understand the term "proprietary" to refer to property rights, but that this was the common understanding in the industry.

- Ronald Banducci of Shell testified that, during his 31 years at Shell, he understood the term "proprietary" to mean that "whatever was proprietary involved property rights that were solely the province of the owner of those property rights." (Banducci, Tr. 3424).

- Robert Millar of Texaco testified that a "proprietary" formulation meant that another company cannot use the formulation without permission. (CX 7058 (Millar, Dep. at 68-69)).

- Douglas Youngblood of Texaco testified that "[p]roprietary means patented." (CX 7076 (Youngblood, Dep. at 60)). He explained that "confidential" referred mainly to trade secret issues, and "proprietary" referred to patent issues. (CX 7076 (Youngblood, Dep. at 75)).

- Charles Lieder of Shell testified, "Proprietary information is information that one is going to seek economic benefit from." (Lieder, Tr. 4720).

- Thomas Eizember of Exxon testified that "proprietary" was used to designate "information that had business value." (Eizember, Tr. 3315).

CARB's understanding of Unocal's representation was therefore consistent with the common, everyday use of the language in that letter.

c. Unocal had entered into a contemporaneous agreement with CARB

that equated "proprietary rights" with "patent applications"

CARB's understanding was also consistent with the manner in which the term "proprietary" was used in an agreement entered into by both CARB and Unocal on May 1, 1991, just months before Mr. Lamb's letter. Through that agreement the parties agreed to work together to develop a study of certain fuel issues. (Lieder, Tr. 4683). The agreement states: "The results of research and testing of the Program shall be disclosed to the Members, and otherwise placed in the public domain." (CX 1711 at 003; Lamb, Tr. 2040). The agreement further provides that "[n]o proprietary rights shall be sought nor patent applications prosecuted on the basis of the work of the Program unless required for the purpose of ensuring that the results of the research by the Program shall be freely available, without royalty, in the public domain." (CX 1711 at 003-004; Lamb, Tr. 2040-2041). In other words, the agreement between CARB and Unocal equated "proprietary rights" and "patent applications" and stated that such rights would not be pursued unless necessary to ensure that the work of the program remained "freely available, without royalty, in the public domain." (CX 1711 at 003-004).

d. Other companies were providing research to CARB without any strings attached

Moreover, as evidenced by the GM/WSPA/ARB agreement, it was not unusual for companies to release proprietary claims to research so that CARB could use the research to develop its regulations. (CCPF 4209-15). As Robert Fletcher told the CARB Board in November 1991, CARB staff had been given $30 million worth of testing for free by the industry. (CX 773 at 014-015; CX 388 at 024) (accompanying slide listing the Auto/Oil AQIRP, GM/WSPA/CARB Volatility Study, ARCO Clean Fuels Program, GM/CARB EC-X Test Program, Unocal Fuels Study, Chevron Fuels Study, and API RVP/Oxygenate Study)). Mr. Fletcher, of course, was unaware of Unocal's intent to charge for the use of its research.

In short, CARB's reading of the language in Unocal's August 27, 1991 letter was the only plausible reading.

7. Unocal's Management Made a Conscious, Strategic Decision Not to Inform CARB That Unocal Had a Patent Pending on the Inventions from the 5/14 Project and That It Intended to Charge Royalties

It was no accident that Unocal failed to tell CARB about the pending patent or Unocal's intent to charge royalties for the use of the technology Unocal had presented to CARB. The evidence shows that this was a calculated decision.

a. Unocal had disclosed to CARB the existence of another patent application in a previous CARB proceeding

Nothing prevented Unocal from informing CARB that it had a pending patent on the results from the 5/14 Project. Unocal had in place procedures whereby Unocal's management could decide to make such a disclosure. (CCPF 1109-20). Indeed, Unocal had considered marketing an interim RFG product based on the 5/14 Project results as a "patent pending" formulation. (CCPF 1121-22). The procedure for such a disclosure was the same as that for disclosing technical information such as Unocal's publication of its 5/14 Project results in industry publications. (CCPF 1111-1119).

In fact, Unocal had, on a prior occasion, disclosed to CARB the existence of a pending patent on a different technology it was presenting to CARB. (CCPF 1128). Unocal had previously presented to CARB a detergent additive technology and informed CARB that it had an associated pending patent. (Croudace, Tr. 544-545; CX 131 at 012). The slides that Unocal used to inform CARB of this "Unique Unocal Patent Pending Development" were reviewed by Unocal managers prior to the CARB presentation. (CX 1215 at 001, 029; Miller, Tr. 1393-1394). Unocal told CARB of this "Unique Unocal Patent Pending Development" because Unocal was trying to convey "that the information that we had was of value." (Croudace, Tr. 653-654). Unocal viewed this disclosure as a way to get "a bit of credibility." (Croudace, Tr. 653-654).

b. Unocal management, including Roger Beach, decided not to disclose to CARB the fact that Unocal had a pending patent on the results of the 5/14 Project

Here, however, the evidence shows that Unocal discussed whether to disclose to CARB the fact that it had a pending patent and decided not to do so. As Roger Beach – the President of Unocal's Refining and Marketing Division in 1991 – admitted during cross-examination, he personally participated in discussions of whether to disclose this information to CARB. (Beach, Tr. 1661-1662 ("Do you recall any discussions during the pendency of the patent application whether the fact that Unocal had a patent application should be disclosed to CARB or other government bodies? . . .'Yes.'")).[36]

Unocal made an affirmative decision not to disclose to CARB. As Michael Croudace, a co-inventor on the patents who attended the June 20, 1991 presentation to CARB, admitted, Unocal affirmatively decided not to disclose this information to CARB. (Croudace, Tr. 470-471 ("I do recall us talking about not talking to them [CARB] about the patent.")).

Further, the evidence shows that Unocal's management made this decision, and that it made the decision prior to the June 20, 1991 meeting with CARB. In connection with the '393 patent litigation, the defendant refiners included the following in a statement of uncontroverted facts in relation to the refiners' claims of implied license, equitable estoppel, and unclean hands: "Prior to the presentation to CARB, Unocal management decided not to disclose Unocal's pending '393 patent application to CARB staff." (CX 1822 at 007). In response, Unocal admitted that these facts were undisputed. (CX 1308 at 054).

---

[36] At the time, Roger Beach was the "top person" in charge of deciding Unocal's position at CARB, and he was aware of Unocal's intent to seek royalties for the 5/14 Project results. (CCPF 84). A month prior to the June 20, 1991 meeting with CARB, Mr. Beach was informed that Unocal's 5/14 Project could be used to "influence CARB" and that it presented a "[h]uge licencing [sic] income potential." (Beach, Tr. 1695; CX 239 at 008).

Unocal followed its management's decision. Unocal never did inform CARB of the fact that Unocal had a patent pending on the results presented to CARB or that Unocal intended to charge royalties.

8. Unocal's Representations Were Deliberately False

To state the obvious, Unocal's representations were false. Unocal knew it. And Unocal intended to mislead CARB.

a. Unocal intended its deliberate false representations to influence CARB

Unocal had a motive to lie. It had the opportunity to lie. And it did so, deliberately.

Unocal was in poor financial condition. (Beach, Tr. 1652-1653 (explaining company losses and cutbacks due to hostile takeover attempt). People's jobs were in jeopardy. (CX7062 (Schmale, Dep. at 29-30) (financial condition impacted research division); Croudace, Tr. 588 (admitting concern about job cuts); Croudace, Tr. 461-462 (admitting that research division needed to make money for the company)). But there was hope.

The developing CARB regulations presented "opportunities" for Unocal, including obtaining a patent to cover gasoline mandated by CARB regulations. (Beach, Tr. 1677-1678). The patent application from the 5/14 Project was therefore a "proprietary opportunity." (Lamb, Tr. 1825). The potential licensing revenue was the "pot of gold" at the end of the rainbow. (CX 2).

To reach that "pot of gold," Unocal recognized that it had to "influence regulators." (CX 210 at 003). This would allow Unocal to tap the "competitive advantage" and "licensing" potential of Unocal's "patent for low emissions fuels, based on the 5/14 project." (CX 210 at 003). In May 1991, Unocal management discussed how the 5/14 Project could be used to "influence regulations" and the opportunity to "license [the] technology," *i.e.*, the technology in Unocal's pending patent. (CX 238 at 18; Jessup, Tr. 1221-1223; Beach, Tr. 1696-1697 (admitting that in May 1991 he knew

that the 5/14 Project had a "huge licen[s]ing opportunity")). Unocal determined that "[n]ow is the time to publish and to influence CARB." (CX 238 at 020; Jessup, Tr. 1225-1226). Then Unocal took action.

T50 was the key. The impact of T50 was one of the "main discoveries" Unocal was seeking to patent. (*See, e.g.*, Beach, Tr. 1675 (admitting that he knew T50 was key in application); Miller, Tr. 1415-1416 (same); CX 617 at 016 (col. 7, l. 49-55) (T50 "most important variable" for HC and CO emissions)). Unocal's pending claims covered gasolines with T50 of less than or equal to 215º F and less than or equal to 210º F. (CX 1788 at 051, 191).

Unocal therefore urged CARB to adopt T50 in its regulations. That is, Unocal would seek to "convince CARB of the importance of T50." (CX 240 at 001, 002; *see also* Beach, Tr. 1671-1673 (admitting to discussion about getting CARB to adopt T50); Lamb, Tr. 1966 (admitting this was a priority); Miller, Tr. 1411-1412 (admitting that Unocal wanted T50 in the regulations); Jessup, Tr. 1246 (admitting that presentation was designed to highlight T50)). Unocal wanted CARB "to adopt a T50." (Croudace, Tr. 489-491). And it knew there was "very high" likelihood that CARB would use the 5/4 Project results to regulate T50. (Kulakowski, Tr. 4422). Unocal's presentation therefore showed CARB the import of T50, that the regulations should push T50 down, and that CARB should employ the directional relationships Unocal discovered for the other gasoline properties. (CX 24 at 026). Unocal knew this would lead refiners into Unocal's pending claims.

But Unocal management made the strategic decision not to tell CARB about the patent application. (Beach, Tr. 1661-62 (admitting to discussions of whether to disclose patent application to CARB); Croudace, Tr. 470-471 ("I do recall us talking about not talking to them [CARB] about the patent"); CX 1822 at 007; CX 1308 at 054 (admitting that Unocal management decided not to disclose to CARB)). Unocal knew that the existence of the patent application and the associated royalty costs would be important to CARB. In fact, the one employee that Unocal kept in the dark

about the patent application admitted that had he known of the application and the potential costs, he would have sought permission to disclose those facts to CARB. (Kulakowski, Tr. 4506)

Instead, Unocal told CARB that the 5/14 Project research was "non-proprietary." Unocal knew from CARB staff that CARB could not use Unocal's 5/14 Project research if it was "proprietary." (Lamb, Tr. 2020). But, ensuring that CARB would use the 5/14 Project results, Unocal's letter stated that the research was "non-proprietary" and available to the general public. (CX29).

As a former Unocal employee who worked with Denny Lamb for about ten years (including four years at Unocal), testified, Mr. Lamb (the author of the letter) "could be sneaky if he wanted to be." (Kulakowski, Tr. 4474, 4558, 4563-64). Indeed, Unocal was just that: "Marked by treachery or deceit."[37]

b. Denny Lamb admitted to John Courtis that Unocal made a "business management" decision to deceive CARB

Unocal's plan and intent to deceive CARB is confirmed by Denny Lamb's out of court admission. Some time after his 1996 deposition, John Courtis confronted Mr. Lamb, telling him that Mr. Courtis felt deceived by Unocal's conduct. (Courtis, Tr. 5771-5772). Out from under the watchful eye of respondent's counsel, Mr. Lamb did not protest that the phrase "non-proprietary" in his August 27, 1991 letter meant only "non-confidential." In contrast to his trial testimony, Mr. Lamb did not claim that the term "data" in the letter only applied the "data base" provided to CARB on a disk. Nor did Mr. Lamb protest in any way that CARB had misunderstood Unocal's representations and conduct. In fact, Mr. Lamb made no effort to deny that Unocal had intentionally

[37] Roget's II, *The New Thesaurus* 925 (3d ed. 1995) (defining "sneaky" to mean: "Marked by treachery or deceit: devious, disingenuous, duplicitous, guileful, indirect, lubricious, shifty, underhand, underhanded.").

deceived CARB. To the contrary, in a matter-of-fact manner, Mr. Lamb admitted that Unocal's conduct was a "business management decision." (Courtis, Tr. 5771-5772).

VII. UNOCAL'S LIES WERE SUCCESSFUL: CARB BASED ITS REGULATION OF T50 ON UNOCAL'S RESEARCH

A. CARB Justified Its Regulation of T50 With Unocal's Research Results

The evidence, including CARB's contemporaneous Phase 2 RFG rulemaking documents and the uncontroverted testimony of current and former CARB officials, compels the conclusion that the incorporation of a T50 specification in the Phase 2 RFG regulations resulted from Unocal's presentation and submission of Unocal's 5/14 Project data. Your Honor need look no further than CARB's October 1992 Final Statement of Reasons for the Phase 2 RFG Regulations on this point. CARB stated unequivocally in this rulemaking document that "***Unocal has evaluated the effects of T50, and it is the results from this study that form the basis for the T50 specification.***" (CX 10 at 075) (emphasis added). At trial in this matter, Peter Venturini, the Chief of CARB's Stationary Source Division, testified that he approved this statement as accurate. (Venturini, Tr. 294-295). As such, Unocal's argument that CARB did not base the T50 specification on the 5/14 Project data – a position diametrically opposed to that Unocal previously adopted before a federal district court in the private patent litigation – lacks any support.

1. CARB Did Not Have an Independent T50 Parameter in Any Proposal Before CARB's Meeting With Unocal

Prior to Unocal's presentation of the data relating to the 5/14 Project on June 20, 1991, CARB had not proposed an independent T50 specification – even for discussion purposes. As Unocal itself had recognized a year earlier, CARB adhered to a practice of refraining from proposing regulation of particular gasoline properties until CARB had compelling data to support any such proposal. (CX 165 at 004 ("The CARB admitted they do not have sufficient technical data to support

a cap on aromatics or olefins at this time . . . The CARB will hold off on this issue pending new compelling data.")). According to Peter Venturini, in early 1991 CARB had not seen information supporting a T50 specification that CARB viewed as sufficient to satisfy the substantial evidence requirement. (Venturini, Tr. 206, 173 ("Q: And sir, was there ever a point in time when you didn't yet have all the test results for Phase 2 in 1991, or did you already have them at the beginning of 1991? A: No. In early of '91 we were still waiting for test results to come in. Q: Were the test results important to the regulation, sir? A: Yes. They would have formed the foundation for the regulation, the technical foundation."); CX 785 at 005).

By May 23, 1991, CARB had received enough information to propose specifications on certain gasoline properties, but not on T50. (CX 492 at 004). But in the May 23, 1991 CARB public notice of the upcoming June 11 workshop for Phase 2, T50 was not on CARB's list of distillation properties that were "under consideration." (Venturini, Tr. 206-208; CX 492 at 004 (listing T90 and driveability index as being under consideration, but not T50)). As of the spring and early summer of 1991, CARB had not proposed any regulation of T50.

2. CARB Did Not Have a Sufficient Basis for a T50 Specification Without Unocal's Research

Shortly before the June 20, 1991 Unocal presentation, CARB held a public workshop session on June 11, 1991. As reflected in the May 23, 1991 workshop notice, the proposed Phase 2 specifications put forward by CARB for discussion purposes at this workshop did not include T50. While there was some discussion of T50 at the June 11, 1991 workshop, CARB staff at this time did not recommend a T50 specification. (Venturini, Tr. 208-209; CX 1047 at 014). CARB staff did not possess information sufficient to constitute substantial evidence for a T50 specification. (Venturini, Tr. 208-209; CX 1047 at 140).

Unocal's submission of all of its 5/14 Project data to CARB on June 20, 1991 and thereafter

– including the presentation slides, equations and underlying database – provided CARB the basis for proposing a T50 specification. At the time, Peter Venturini agreed with Unocal's assertion in its June 20, 1991 presentation that Unocal's 5/14 Project research was "unique" in that it examined ten variables, including T50, independently. (Venturini, Tr. 224-225; 230-231). According to Mr. Venturini, CARB staff wanted to use the research Unocal presented at the June 20, 1991 meeting "because it was basically the first time that such a comprehensive assessment had been done on that one specification [T50]." (Venturini, Tr. 142).

The uncontroverted trial testimony of CARB officials establishes two critical facts: First, Peter Venturini and his staff relied on the factual information that Unocal provided in the June 20, 1991, meeting to set the T50 specification in the Phase 2 regulation. (Venturini, Tr. 141, 148, 249). Second, without the ability to use Unocal's research, CARB did not have sufficient information in 1991 to propose a T50 specification in the Phase 2 regulations. (Fletcher, Tr. 6486).

3. Unocal's Research Provided The Basis for CARB's T50 Specification

Review of the rulemaking documents for CARB's Phase 2 RFG regulations confirms the conclusion that Unocal's 5/14 Project data provided the basis for CARB's regulation of T50.

As a preliminary matter, CARB incorporated Unocal's 5/14 Project research in the formal rulemaking record. CARB staff gathered, made copies, and made available to the public as part of the rulemaking record each document relied on during the rulemaking that CARB staff referenced in either the staff report or technical support document, including the slides from Unocal's June 21, 1991 presentation. (Fletcher, Tr. 6466).

CARB's Technical Support Document (CX 5) contains numerous references to Unocal's data and CARB's use of these data. (*See* CX 5 at 031, 032, 033, 298; Courtis, Tr. 5740). This document highlights CARB's reliance on Unocal's emissions research results in the development of the Phase 2 RFG regulations. (CX 5 at 028, 031-033). In fact, CARB copied charts from Unocal's June 20,

1991 slide presentation (CX 24) and placed them in the Technical Support Document as Figures 11 and 12. These charts represent graphical data that depict the relationship between controlling T50 and resulting hydrocarbon and carbon monoxide emissions. (CX 5 at 031-032).

Moreover, CARB used the directional relationships disclosed by Unocal, and set forth in the regression equations derived from the 5/14 Project, in determining how stringently to regulate the T50 specification in its Phase 2 Regulations. Specifically, CARB set forth a table in the Technical Support Document depicting the results of the analysis that used Unocal's regression equation. This table appeared on internal page 28 of the Technical Support Document and is labeled "Table II-11 Sensitivity Analysis of T50 Changes on Exhaust Emissions Using Unocal Regression." (CX 5 at 033). CARB used Unocal's regression equations "[i]n order to evaluate the sensitivity of emissions to T50 changes." (CX 5 at 028). Consequently, CARB set a specific T50 limit of 210 degrees Fahrenheit based on "[t]he results of the analysis shown in Table II-11" of the Technical Support Document – *i.e.*, the regression analysis using Unocal's equation. (CX 5 at 033; *see also* Courtis, Tr. 5738 ("Unocal regression" referred to the information provided to CARB by Unocal); Courtis, Tr. 5740 (Courtis personally used Unocal's information in preparing the Technical Support Document)).

Not only did CARB reference its use of Unocal's regression equations in the Technical Support Document, CARB published and set forth the actual equations at Appendix 11 of this rulemaking document. (CX 5 at 297-298).

Mr. Courtis personally used the Unocal raw data in connection with his work to prepare the October 1991 CARB staff proposal. (Courtis, Tr. 5777-5779; CX 1810 at 005).

In October 1992, CARB published the Final Statement of Reasons for the Phase 2 RFG Regulations. (CX 10). Like the Technical Support Document, the Final Statement of Reasons contains numerous references to CARB's use of, and reliance on, Unocal's 5/14 Project research

data. As set forth above, this document contains the explicit statement that: "In fact, Unocal has evaluated the effects of T50, and it is the results from this study that form the basis for the T50 specification." (CX 10 at 075). In addition, CARB explains in the Final Statement of Reasons that CARB relied on Unocal's 5/14 Project work in large part because it was the only study independently to analyze the effects of T50. Specifically, the Final Statement of Reasons contains the following statements on this point:

- "The limit on T50 was necessarily based on other work (Unocal) because the Auto/Oil work did not examine T50 as discussed in Comment 61." (CX 10 at 048).

- "The Unocal study was used in the discussion of the effect of T50 on emissions because it is the only study that evaluated T50 and provided a statistical analysis." (CX 10 at 075).

- "Unocal tested an extensive fuel matrix which included T50 as one design variable. . . . The Auto/Oil study did not include T50 as a variable. It was designed to discern the effects of aromatics, MTBE, olefins and T90. Any attempt to discern an effect of T50 in the Auto/Oil data will be confounded by the effects of these four actual variables. Therefore, the Unocal work should provide a superior estimate of the effect of T50 on emissions." (CX 10 at 047).

In his role as Chief of the Stationary Source Division, Peter Venturini approved the accuracy of the statements in the Final Statement of Reasons differentiating the Unocal's work on T50 from the Auto/Oil work. (Venturini, Tr. 294-295). More generally, Peter Venturini approved the October 1992 Final Statement of Reasons for the Phase 2 mandatory specifications and believed the contents of this rulemaking document to be accurate. (Venturini, Tr. 294-295).

4. Unocal Itself Has Asserted That The CARB Regulations Were the Result of Using the Unocal Research

a. Unocal's Chief Patent Counsel believed that the CARB regulations "validated" Unocal's invention and relied on them to help obtain Unocal's patents

Unocal itself understood that CARB's Phase 2 regulations were the result of Unocal's research. Shortly after the regulations issued, Unocal's Chief Patent Counsel, Mr. Wirzbicki, relied

on those regulations to help show that the claims of its '393 patent were patentable. Mr. Wirzbicki in March 1992 provided the patent examiner with an article describing the CARB Phase 2 regulations. (CX 1788 at 327-332; Wirzbicki, Tr. 958-960, 972-973). He specifically asked the patent examiner to "review the specifications set forth . . . [in the article] for gasolines to be sold in the future in California" and to "compare[] [them] to the claimed invention, in particular, the requirements for T50, T90, RVP, and olefin content." (CX 1788 at 327). By comparing the specifications in the article with the claimed invention, one could see that a number of the claims in the patent application covered gasoline that would be made under the CARB Phase 2 regulations. (*compare* CX 1788 at 331 (CARB specifications) *with* CX 1788 at 253, 260-261, 255, claims 56, 90, 125, 127, 128).

As Unocal's Chief Patent Counsel admitted at trial, he provided the patent examiner with the CARB regulations because he believed that they "validated the fact that properties of gasoline could affect emissions" in "more or less the same way" that his "inventors had found." (Wirzbicki, Tr. 975, 972-973, 959-960, 976-977; CX 1788 at 326-332). Not only did Mr. Wirzbicki believe in 1992 that the CARB specifications "validated the invention," but he continues to do so today, and he understood that such validation could help show that the patent claims were patentable. (Wirzbicki, Tr. 976; *see also* Wirzbicki, Tr. 975, 972-973, 959-960; CX 1788 at 326-332). After Mr. Wirzbicki's March 1992 filings, the PTO issued a notice allowing many of Unocal's patent claims. (CX 1788 at 355-357).

Unocal later continued to cite the CARB regulations to the PTO in an effort to gain additional patents on methods of making CARB gasoline. For example, Mr. Wirzbicki argued in a February 5, 1995 amendment to one of Unocal's patent applications that the patent examiner should consider "the importance of the invention to the public" – on the basis that "the regulations of the California Air Resources Board will soon (in 1996) come into effect mandating gasolines of

reduced RVP, T50, etc. (which, for the most part, if not exclusively, fall within the scope of the compositions required in one or more of the method claims herein)." (CX 1791 at 509-510; Wirzbicki, Tr. 1001-1002).

b. Unocal represented to a district court and jury that the CARB regulations were based on Unocal's work

Unocal in the '393 patent litigation took full credit for inducing CARB to regulate T50. In that litigation, Unocal's lead trial counsel, Michael Ciresi of Robins, Kaplan, Miller & Ciresi argued in closing arguments to the jury that CARB had relied on Unocal to support the T50 specification. Mr. Ciresi stated the following on behalf of Unocal:

> " ***And we showed that in June CARB had no regulations with regard to T50 or T90, none, zero. When you look at them, it's there. Then they met with UNOCAL and UNOCAL gave them information.*** In fact, Dr. Croudace was sort of mad that they weren't going to take all the information. If we are going to use the invention, why don't you use all of it and they gave him that information in June. ***Then in August they came out with regulations, proposed regulations regarding T50 after they met with UNOCAL and got the information from UNOCAL***, and Mr. Venturini's testimony is clear on that. I asked him to look at it. 'As of June 11 can you tell me where there is any reference to T50? There is no specific reference. None at all. None at all.' ***Then they came back and in August they came out with the new proposed regulations because they had met with UNOCAL and got the information from them. And UNOCAL gave them that information.***"

(CX 1765 at 023-024) (emphasis added).

In fact, Unocal made additional representations to the court in the private patent litigation concerning the significant role played by Unocal's 5/14 Project data in the development of CARB's Phase 2 regulations. In one pleading filed with the United States District Court for the Central District of California, Unocal argued the following: "[I]n Unocal's view, the commercial success of the '393 Patent is self-evident. The invention was such an extraordinary advancement of science that it became the framework for the CARB regulations." (CX 1580 at 003). Unocal's Chief Patent Counsel also admits that he understood that the CARB regulation "showed the commercial success of the invention." (Wirzbicki, Tr. 976, 978-79).

B. CARB Would Not Have Adopted the Phase 2 Regulations in the Same Form Had CARB Known of Unocal's Patent Application and Intent to Charge Royalties

The uncontroverted trial testimony of current and former CARB officials involved in the development and implementation of the CARB Phase 2 RFG regulations is strikingly consistent. All of these witnesses testified that CARB would not have adopted the regulations as adopted in November 1991 had CARB known the truth about Unocal's pending patent rights and its intention to enforce these proprietary interests. Instead, CARB would have turned to one of several options.

1. CARB Witnesses Uniformly Testified That They Would Not Have Granted the Necessary Approval for the Phase 2 Regulations Had They Known of Unocal's Patents

a. Peter Venturini would not have approved forwarding the Phase 2 regulations to the CARB Board

Peter Venturini, the lead CARB manager responsible for overseeing the development of the Phase 2 RFG regulations, testified at trial that he would not have approved forwarding the staff's proposed Phase 2 regulations to the CARB Board in November 1991 had he known of Unocal's plan to charge substantial royalties for its RFG technology.[38] (Venturini, Tr. 243-244).

As head of the Stationary Source Division, Mr. Venturini acted as a "gatekeeper," and he decided what information and proposals would be presented by CARB staff to the CARB Board. Mr. Venturini also approved presentations that staff made to the Board. (Venturini, Tr. 103, 108).

[38] Not only is Mr. Venturini's testimony uncontroverted, this testimony reflects Mr. Venturini's extensive experience with the agency. At the time of the Phase 2 RFG proceedings, Mr. Venturini served as Chief of CARB's Stationary Source Division, and he had worked for CARB for over three decades with almost every CARB Board since the creation of agency. (Venturini, Tr. 99). Not surprisingly then, during the Phase 2 proceedings, CARB's executive officer deferred substantially to Mr. Venturini, in particular given his position as one of the principal division chiefs in CARB and his proven track record of success. (Boyd, Tr. 6692). The CARB Board and executive officer depended very heavily on Mr. Venturini's technical staff due to their deep expertise and reputation for technical excellence. (Boyd, Tr. 6691, Venturini, Tr. 103, 112-113 (stating that the Board members' staff did not generate their own technical work or, in Phase 2, direct the inclusion or deletion of any specific rule provisions)).

In this role, Venturini had the duty to assess the "substantial evidence" supporting Phase 2 and to decide whether the proposed rule should go to the CARB Board. Mr. Venturini testified at trial that he had submitted over one hundred regulations to the CARB Board in his 30-year career; but that he never submitted regulations without first having the belief substantial evidence existed to support the regulations. (Venturini, Tr. 107-108, 122).

In the case of the Phase 2 regulations, Mr. Venturini testified that he would have viewed the fact that Unocal had a plan to charge money for making CARB-compliant gasoline as extremely important. Unocal's plans to enforce its proprietary interests would have significantly impacted the "cost of the regulation, the cost to the consumer," and would have conferred a monopoly power to one entity. (Venturini, Tr. 151). Further, Venturini testified at trial that he would not have forwarded to the CARB Board the proposed Phase 2 regulations had there been a potential and uncertain additional cost of even 1.5 cents per gallon associated with a particular component of the regulation. (Venturini, Tr. 152).

Had he known of Unocal's plans, he would not have approved the regulations as written. (Venturini, Tr. 243-249).

b. CARB general counsel Michael Kenny would not have approved forwarding the Phase 2 regulations to the Board

As CARB's general counsel, Judge Kenny also testified that he would have intervened. (Kenny, Tr. 6544). During the Phase 2 proceeding one of Judge Kenny's obligations was to ensure that the rulemaking record met the requirements of the California Administrative Procedures Act. He had to "sign off" on the proposed Phase 2 regulations prior to the submission of the regulations to the CARB Board in November 1991. (Kenny, Tr. 6525-6527).

In particular, Judge Kenny had the authority to withhold necessary approval for the Phase 2 regulations, if the proposal lacked "substantial evidence" with respect to the statutory criteria of

the effect on the economy of the state. (Kenny, Tr. 6526-6527). Based on this, Judge Kenny testified that he "would not have signed off" on the Phase 2 regulations in 1991 had he known about Unocal's plan to charge money for its intellectual property rights related to RFG. (Kenny, Tr. 6544).

c. CARB executive officer James Boyd would not have forwarded Phase 2 to the Board in November 1991

Similarly, James Boyd, CARB's executive officer at the time of the Phase 2 RFG rulemaking, testified at trial that – had he known the truth about Unocal's pending patent rights and intention to charge for Unocal's RFG technology – he would not have allowed the Phase 2 regulations to go forward given the potentially "extreme negative consequences." (*See* Boyd, Tr. 6728 (testifying that he "would not have approved the regulation" had he known of the patent); Boyd, Tr. 6734 ("And believe me, in those days, a nickel increase in the cost of a gallon of gasoline in California would have extreme negative consequences."); Boyd, Tr. 6706-6707 (CARB was vitally interested in information that bore upon the ultimate cost to the consumer of Phase 2); Boyd, Tr. 6733-6734 ("Well, if indeed Unocal intended to charge in various forms for and to license or to charge royalties, this would have an impact to the cost of the product to refiners which would be passed on to the California consumer, which would then have an impact on the state of California's economy."); Boyd, Tr. 6907 ("With regard to the fact that it [Unocal's intention to enforce any issued patent] would bring a cost element into the equation, it becomes very relevant to whether or not the regulation could be passed in the form that is was")).

During the Phase 2 rulemaking Mr. Boyd served, in effect, as the "CEO" of CARB. (Boyd, Tr. 6687-6688). As executive officer, Mr. Boyd had oversight authority for all staff proposed rules, including the Phase 2 RFG regulations. (Boyd, Tr. 6687-6688). Had he known of Unocal's plans, Mr. Boyd would not have stopped the regulations before they went to the Board. (Boyd, Tr. 6706-

07, 6728, 6733-34, 6907).

d. CARB Chairwoman Jananne Sharpless and the CARB Board would not have approved the Phase 2 proposal presented to them in November 1991

The testimony of the Chairwoman of the CARB Board, Jananne Sharpless, is consistent with the testimony of Messrs. Venturini, Kenny, and Boyd. Jananne Sharpless served as CARB Chairwoman from 1985 through November of 1993 as the only full-time member of the CARB Board during that period. (CX 7063 (Sharpless, Dep. at 37)). Chairwoman Sharpless testified that CARB would not have gone forward and approved the Phase 2 regulations, in the manner and form actually adopted in November 1991, had CARB been informed that Unocal had a pending patent and intended to enforce its pending patent claims. (CX 7063 (Sharpless, Dep. at 198)).

Notably, CARB Chairwoman Sharpless had been briefed by staff about Unocal's offer of research and understood that Unocal had told staff it would not assert any property rights in its research. (CX 7063 (Sharpless, Dep. at 229-230)). She testified that:

> "[T]here was an assumption that when you put information in, label it as non-proprietary, that it is in the public and that you're not going to be pursuing patents. That was – that was the assumption that I had . . . I assumed that when you put your information – when it's non-proprietary and you put it in the public, I did not assume that somebody would go and take a regulation and – and start patenting all parts of that regulation to their economic benefit."

(CX 7063 (Sharpless, Dep. 229-230).

CARB Chairwoman Sharpless testified that, had the CARB Board learned of the Unocal pending patent during its consideration of the proposed Phase 2 regulations, the Board would have viewed the pending patent as a "major concern" and a "red flag," and that Board members would have been concerned about one company having control over the marketplace. (CX 7063 (Sharpless, Dep. at 226-227)). As such, Sharpless testified that "if something came up that said wait a minute, red flag, there's a problem here, would we march off the cliff? No. Wouldn't be responsible." (CX 7063 (Sharpless, Dep. at 198-199)).

2. CARB Had Options That Would Have Avoided Unocal's Patent Trap

The evidence shows that CARB had available options that would have avoided Unocal's patents. (CCPF Section XXVII.F.3.). For instance, an early internal CARB workplan laid out the multiple options if the technologies under consideration were not available, including: (1) simply conducting more tests; (2) going "to the Board with only a benzene specification"; or (3) proposing "an approach similar to the one in the federal Clean Air Act." (CX 785 at 007-008). Thus, as John Courtis explained, before CARB staff sent its proposal to the Board in November 1991, "a number of options would have been technically available." (Courtis, Tr. 5764-5765, 5766). These included "possibly go[ing] with the federal standards, to their approach" or specifying "a different composition of fuels and different levels of properties." (Courtis, Tr. 5766). Indeed, CARB could have simply defaulted to the federal EPA regulations that were to go into effect in 1995. (Venturini, Tr. 181, 313; *see also* Venturini, Tr. 789 ("there were options available")).

None of the statutory requirements directing CARB's efforts required CARB to adopt the specific Phase 2 regulations actually adopted. (Venturini, Tr. 312-313; Kenny, Tr. 6547-6548). And even if they did, CARB could have gone to the legislature. As Chairwoman Sharpless explained, "I did have an option, and that would be that I would go back to the legislature – and I would have done that – to say that the deadlines are not achievable, and recommend that there be some relief given." (CX 7063 (Sharpless, Dep. at 152)).

In fact, Unocal knew that CARB had options. (Lamb, Tr. 2380). Unocal itself sought changes to the proposed regulations. ((Lamb, Tr. 2285) ("[W]e wanted to find areas where we could come to agreement on and perhaps get some more flexibility or whatever changes we might inspire"). For instance, Unocal submitted comments seeking modifications to a range of provisions in the regulations, including: specific levels for individual parameters, the effective date of the regulations; and various compliance provisions. (CX 33; CX 44). Unocal also pointed out options

such as including enhanced inspection and maintenance of in-use vehicles and a vehicle buy-back program. (CX 33 at 019-020; Lamb, Tr. 2379-2380). Unocal even went so far as to comment that the Phase 2 regulations were "not necessary." (Lamb, Tr. 2274, 2309).

Clearly, CARB had options to avoid Unocal's patents.

VIII. UNOCAL DID NOTHING TO REMEDY CARB'S OBVIOUS BELIEF THAT UNOCAL'S INFORMATION AND MATERIALS WERE NON-PROPRIETARY AND AVAILABLE FOR USE WITHOUT LIMITATIONS

Having misled CARB into believing that the 5/14 Project research and results were "non-proprietary," Unocal watched as events unfolded according to its plan. Unocal was not ignorant of the effects of its misrepresentation. Unocal knew that CARB was basing key parameters of the Phase 2 regulations on the 5/14 Project research and results. But it did nothing to warn CARB of the imminent intersection of the Phase 2 regulations and Unocal's patent rights. Instead, Unocal continued to submit cost-based comments on the developing regulations, creating the impression that Unocal had been, and was continuing to be, forthcoming.

A. By October 1991, Unocal Knew CARB Was Using the 5/14 Project Information and Materials to Support the Phase 2 Regulations

Unocal was well aware that its efforts were bearing fruit. When CARB published its technical support document in October 1991, Unocal knew that CARB was using the 5/14 Project research and results to support a T50 specification. (CCPF 2052-53, 2057-66, 2078-86). In fact, Unocal scientists reviewed the document and told Unocal management and regulatory staff, "We find no qualms with the T50 specification based on the Unocal vehicle testing." (CX 1558 at 001). Unocal's only concern was that CARB had not used the 5/14 Project results and research more extensively. (CX 1558 at 001; Kulakowski, Tr. 4443).

B. Unocal Took No Steps to Remedy CARB's Misconception

Unocal did nothing to warn CARB that its regulations were falling into the heart of Unocal's patent rights. To the contrary, at Denny Lamb's instruction, Unocal contacted CARB staff to inquire why CARB had not made *more extensive* use of the 5/14 Project research. (Kulakowski, Tr. 4443-4444). Unocal then met with CARB staff on a number of occasions, never once mentioning Unocal's pending patent or its intent to charge royalties.

Nor did Unocal discourage CARB from including T50 as a parameter in the Phase 2 regulations. For instance, Unocal met with CARB staff in October 1991 to discuss CARB's proposed specifications. (Venturini, Tr. 275-276; CX32 at 001). At that meeting, Unocal made no mention of its patent intentions, nor did it object to the inclusion of the T50 parameter in CARB's regulations. (Venturini, Tr. 275-276). Unocal only suggested that CARB require an average T50 of 205 degrees F, well within the range set forth in its pending patent. (Venturini, Tr. 275-277; CX 32; CCPF 1210-19). Unocal never recommended to CARB staff at any time before the Board meeting on November 21, 1991, that staff delete the T50 specification from its October 4, 1991 proposed rule. (Venturini, Tr. 279-281; Kulakowski, Tr. 4520; Lamb, Tr. 2070). Even after Unocal management was informed that the patent office allowed numerous claims of its patent that were broad enough to cover Phase 2 gasolines, Unocal kept silent. (CCPF 2220-37).

Despite this notice from the patent office, no one from Unocal informed CARB of this information. (Beach, Tr. 1716). CARB only became aware of Unocal's patent and intent to seek royalties in 1995, long after the regulations were in place. (CCPF Section XIX.F.).

C. Despite Giving Detailed Comments to CARB Regarding the Costs of the Phase 2 Specifications, Unocal Concealed the Costs It Knew Its Patent Would Impose

While concealing its patent application and intent to charge royalties, Unocal clothed itself as a champion of even-handed and less costly regulations. (CCPF 2143-52). For instance, Roger Beach's November 21, 1991 letter to CARB Chairwoman Sharpless made a number of specific recommendations regarding the costs of the regulations. (*See, e.g.,* CX 33 at 011 (recommending approach for oxygen specification to "provide flexibility for gasoline producers to develop more cost effective ways to reduce distillation temperatures"); CX 33 at 012 ("We are concerned that greater reductions will require very costly reductions in aromatics and T90.")). In that submission, Unocal also raised technical and scientific objections to all of CARB's proposed specifications except for

T50. (CX 33 at 012 (objections to the proposed specifications for aromatics); CX 33 at 010 (objections to oxygen specification); CX 33 at 007 (objections to RVP limits); CX 33 at 009 (objections to T90 limits); CX 33 at 009 (objections to sulfur specifications); CX 33 at 011 (objections to olefin limits); CX 33 at 014 (objections to benzene limits)).

Similarly, Denny Lamb represented to the CARB Board that Unocal supported "more cost effective levels of control for each fuel parameter" that had been identified by others. (CX 34 at 004). As he admitted, Mr. Lamb and Unocal tried to convey the opinion that costs were a major issue to be considered in the development of the Phase 2 regulations. (Lamb, Tr. 2076). He went on to insist that the CARB regulations should incorporate the "basic issue of fairness and scientific integrity and technical equity." (Lamb, Tr. 2084-85; CX 34 at 007).

Not only did Unocal create the impression that it championed even-handed, less costly regulations, it went so far as to tell the CARB Board that the Phase 2 regulations should not create any "windfall" for particular refiners. (Lamb, Tr. 1959; CX 774 at 042; Venturini, Tr. 285-286, 289 ("Q: And sir, when Mr. Lamb on page 42 testified at the hearing that he cannot identify any windfall for us, did you understand at the time that 'for us' meant Unocal? A: Yes.")). Unocal knew at the time, of course, that its pending patent would allow Unocal to garner its own "windfall": substantial royalties from refiners of Phase 2 gasoline. (CCPF 2168-2208).

IX. UNOCAL LIED TO OTHER INDUSTRY MEMBERS

Unocal's strategy to gain a competitive advantage through patent licensing was two-fold. First, Unocal sought to use the 5/14 Project to influence CARB's regulations to ensure that the regulations intersected with Unocal's patent interests. Second, Unocal sought to ensure that, within those regulations, the industry used Unocal's patented technology as much as possible. As Drs. Jessup and Croudace explained,

"Once the patent is issued then Unocal can seek licensing agreements with our

> competitors. *These agreements are only possible if the other companies know about our low emission gasoline products. We must publish to influence regulators and advertise the Unocal advantage.* These licensing agreements could be worth 10's of millions of dollars every year, far more than any other competitive advantage could yield."

(CX 3005 at 003) (emphasis added). Unocal implemented the second half of its strategy at Auto/Oil and WSPA.

A. Unocal Presented to Auto/Oil and Told The Members That the Unocal Information Was "In the Public Domain"

Auto/Oil presented a strategic target for Unocal. First, the members of Auto/Oil included eleven other refiners. (CCPF 1444). Second, Unocal realized that Auto/Oil carried substantial weight with CARB. (CCPF 1499-1505). In seeking management's approval to present the 5/14 Project to Auto/Oil, Drs. Jessup and Croudace told Unocal management, "If we intend to influence the regulators we could do it through Auto/Oil . . . . If the A/O committee endorse our findings and presents our analysis to the EPA [and CARB] there is a far better likelihood that regulations will be more palatable to us. If we have to fight the battle without the weight of the A/O group it will be a long up hill struggle which may ultimately be unwinable." (CX 3005 at 002) (emphasis added). Drs. Jessup and Croudace then explained to management the need to "advertise" the 5/14 Project technology to other refiners. (CX 3005 at 003). Initially, Auto/Oil therefore presented to Unocal a two-for-one opportunity; by deceiving Auto/Oil members, Unocal could both influence the regulations and "advertise" its technology to refiners so that they would be induced to use it.

In September 1991, just a few weeks after Unocal had advised CARB that its research information was "non-proprietary" and publicly available, Unocal management, including Roger Beach, authorized Dr. Jessup and Mr. Mallett to present the same emissions research provided to CARB at the next Auto/Oil meeting. (CX 7041 (Alley, Dep. at 53); CX 29; Jessup, Tr. 1313, 1544-1545). On September 26, 1991 Dr. Jessup gave a slide presentation to the Auto/Oil Research

Program Committee that included test results, equations and corresponding directional relationships between changes in fuel properties and emissions derived from the 5/14 Project. (CX 4027 at 10; CX 4028; Segal, Tr. 5622; CX 292 at 002). Unocal accomplished its mission by misrepresenting to Auto/Oil members that the research Unocal presented to them was "in the public domain" and could be freely used.

1. Unocal's Presentation to Auto/Oil Was Essentially the Same as the Presentation Unocal Gave to CARB, but with the Full Predictive Equations

Unocal's presentation to Auto/Oil was essentially the same as it had given to CARB at the June 20, 1991 meeting. (*compare* CX 4028 *with* CX 24). As he did to CARB, Dr. Jessup showed Auto/Oil the importance of T50. (Jessup, Tr. 1313). But Unocal went further than the June 20, 1991 presentation to CARB; it immediately shared with Auto/Oil the full ten-car equations with coefficients. (Jessup, Tr. 1313, 1545; CX 248 at 032).

2. Unocal Led the Auto/Oil Members to Believe That the 5/14 Information and Materials Could Be Used Without Cost

Multiple lines of evidence show that Unocal misled Auto/Oil members into believing that the research and information that Unocal presented could be freely used without any associated costs or violation of proprietary rights. Unocal, of course, concealed the fact that it had a pending patent on the 5/14 Project results and intended to charge royalties for their use. (CCPF 1515-89). But more importantly, through both its words and actions, Unocal affirmatively stated that its research was free of any proprietary rights and could be used without charge.

a. Dr. Jessup represented to the members of Auto/Oil that all the presented information was "in the public domain"

Dr. Jessup led Auto/Oil members to believe that the 5/14 Project research and information he was presenting was "in the public domain." (CCPF Section XI). Testimony from Auto/Oil

members, the minutes of the meeting, and Dr. Jessup's own statements all make clear that Dr. Jessup expressly stated to the Auto/Oil members that the research he was presenting had "been provided to CARB and is in the public domain":

- Unocal scientists told Auto/Oil that they had obtained management's consent to make the presentation and place the data in the "public domain." (CX 4173 at 003; Ingham, Tr. 2603; Jessup, Tr. 1313, 1544-1545);

- Dr. Jessup later admitted to Unocal's chief patent counsel that he in fact told Auto/Oil that the data was "not proprietary." (Wirzbicki, Tr. 981);

- The contemporaneous ***minutes*** of the meeting state that "Mr. Jessup explained that the data from Unocal's research has been provided to CARB and is ***in the public domain***." (CX 4027 at 010) (emphasis added). The minutes were sent to Unocal and Unocal never changed or corrected them. (Klein, Tr. 2510-2512);

- Auto/Oil members Mr. Klein and Mr. Hochhauser testified that they remember Dr. Jessup stating "that the information he was about to present was – had been given to CARB and was in the public domain." (Klein, Tr. 2502; CX 7049 (Hochhauser, Dep. at 65-66));

- Auto/Oil members understood from Dr. Jessup's statements that the information contained on Unocal's data disk, which contained all the data that was generated in Unocal's studies, and the information and conclusions in the slide presentation, were all in the public domain. (Klein, Tr. 2509; Ingham, Tr. 2607; Segal, Tr. 5631 (confirming that "everything, both the presentation as well as the data disk and what was on it" was in the public domain));

- At the September 1991 Auto/Oil dinner, Unocal reiterated that it had given the same presentation to CARB. (Pahl, Tr. 2769-2770). Based on Unocal's presentations to CARB and Auto/Oil, Mr. Pahl concluded that "Unocal's research material" was "public domain information, it wasn't proprietary or confidential, and so we were free to use it in any way we thought was appropriate." (Pahl, Tr. 2772);

- Unocal never retracted its statements that the research material was in the public domain or otherwise suggested to Auto/Oil that the research material was not in the public domain. (CX 4027 at 010; CX 4014; Jessup, Tr. 1313-1314, 1547).

After making its slide presentation, Unocal gave the Auto/Oil members copies of the 58 slides and made the underlying data disk available to them. (CCPF 1515-42). Dr. Mallett of Unocal noted that he "offered our data to Auto/Oil and to all members. Peter will send data disk to

those who gave him business cards." (CX 293 at 001). Numerous Auto/Oil members requested copies of Unocal's data disk, understanding from Dr. Jessup's statements that the information contained on Unocal's data disk, which contained all the data that was generated in Unocal's studies, and the information and conclusions in the slide presentation, were all in the public domain. (Klein, Tr. 2509; Ingham, Tr. 2607; Segal, Tr. 5631 (confirming that "[e]verything, both the presentation as well as the data disk and what was on it," was in the public domain.)).

b. "In the public domain" means free of intellectual property rights

Unocal's representation that the presented materials were "in the public domain" meant that they were free of intellectual property rights. (CCPF Section XI.B.). This is the plain meaning of the term, and the evidence also shows that the parties involved understood the term to have this meaning.

The authorities all agree – "in the public domain" means free of patent rights. According to Black's Law Dictionary, "public domain" means the "realm of publications, inventions, and processes that are not protected by copyright or patent. Things in the public domain can be appropriated by anyone without liability for infringement." (Black's Law Dictionary (7th ed. 1999)). Similarly, Webster's Third New International Dictionary defines "public domain" to mean "the realm embracing property rights belonging to the community at large, subject to appropriation by anyone; *specif.*: status unprotected by copyright or patent." (Webster's Unabridged Third New Int'l Dictionary 1836 (1971)). Even Unocal's own economic expert, Dr. Teece (whom Unocal offered for his "experience as a scholar in the field of innovation" (Teece, Tr. 7531)), defined technology in the "public domain" as "non-patented, nonproprietary information or technology." (Teece, Tr. 7628).

The Auto/Oil members and Unocal itself shared this understanding. Unocal's senior representative to Auto/Oil (and the manager of Unocal emissions research scientists and inventors

Drs. Jessup, Croudace and Mallett), defined "public domain" to mean that information is "freely available," *i.e.*, "anybody can use it, run with it, do whatever they want to with it"; and "free of charge." (CX 7041 (Alley, Dep. at 38)). Jack Segal, an Auto/Oil member from BP, defined "public domain" as meaning "non proprietary, you're not going to own it anymore, it was being freely given to the public." (Segal, Tr. 5631). Similarly, Mike Ingham, an Auto/Oil member from Chevron, defined "public domain" as meaning, "is available to any and all to utilize in whatever way they see fit without strings attached." (Ingham, Tr. 2604).

c. Unocal understood that presenting the research results meant that they could be freely used, yet placed no caveats on its presentation

The evidence also shows that Auto/Oil members understood that, given the purpose of Auto/Oil, the established course of dealing, and the contract governing Auto/Oil's operation, the mere fact of Dr. Jessup's presentation amounted to a donation of the research to Auto/Oil:

- Ron Kiskis, co-chair of the RPC, testified that "we were advised, the whole [RPC] committee in the presence, by the attorney [from Covington & Burling] *that any information that was brought into the program and shared with the participants would become part of the program itself* and becoming part of the program, based on the way Auto/Oil was set up, *would become part of the public domain*, contributed to the public domain and free for anyone to use." (Kiskis, Tr. 3836) (emphasis added). It was "repeated at every [RPC] meeting." (Kiskis, Tr. 3836-3837);

- Auto/Oil member Harvey Klein testified that his understanding was that "any materials that were presented will become part of the program and be in the public domain." (Klein, Tr. 2490);

- Jack Wise, the co-chair of the Auto/Oil Research Planning Task Force, testified that "it was the operating assumption that any data presented to the committee was a donation to the program." (CX 7073 (Wise, Dep. at 18, 42-43, 49-50, 52);

- Mr. Wise further testified that the Auto/Oil members obtained a royalty-free license to anything that resulted from Unocal's underlying research on reformulated gasoline and emissions. (CX 7073 (Wise, Dep. at 19));

- Auto/Oil member Ron Pahl testified that "we believed that since it was already presented to CARB in an open forum, public forum, and was presented to the RPC in a public forum that it was public information." (Pahl, Tr. 2772).

The evidence shows that Unocal understood that any information it presented to Auto/Oil became the "work of the Program" and part of the public domain. (CCPF 1575-1690). Unocal's representatives attended all of the meetings of Auto/Oil's Research Program Committee (RPC), and they were therefore present to hear the constant reminders that any materials presented to Auto/Oil became part of the program and became part of the public domain. (Klein, Tr. 2491-2492); *see also* (CX 4027 at 001; CX 4014 at 001; CX 4023 at 001). Dr. Kess Alley, Unocal's senior representative to Auto/Oil, admitted that research presented to Auto/Oil is properly considered the "work of the Program," and therefore, freely available to all members. (CX 7041 (Alley, Dep. at 40)).[39] Further, an internal memorandum by Bill Mallett states that Auto/Oil members "had a whole lot of discussion by David Meyer on 'rules of conduct' for the Workshop (see attached)." (CX 232 at 003). The "rules of conduct" state: "This is an open meeting designed to help advance basic research on the relationship of reformulated gasolines to emissions. Materials you present here will be in the public domain." (CX 233).

Even more to the point, Unocal itself used information presented to Auto/Oil by other companies, with the understanding that there were no attached costs. (CCPF 1617-26). For example, in November of 1990, ARCO presented information about their EC-Premium (EC-P) reformulated gasoline at an Auto/Oil RPC meeting. (Segal, Tr. 5598). ARCO subsequently presented their EC-X reformulated gasoline research to Auto/Oil. (Segal, Tr. 5599-5600; CX 4011 at 008-009). As internal Unocal documents show, Unocal understood that it could freely use this information in its own research: "ARCO presented some information about their EC-Premium (EC-P) at the recent Auto/Oil meeting. . . . We need to follow ARCO's trend of lowering sulfur levels.

[39] After a break in the deposition, Dr. Alley changed his answer. When asked if his answer was discussed with his attorney during the break, Dr. Alley was instructed not to answer the question and chose to follow his counsel's advice. (CX 7041 (Alley, Dep. at 54-56)).

. . ." (CX 709 at 001; CX 571 at 001). Unocal even contacted scientists at ARCO to discuss ARCO's EC fuels. (CX 571 at 001). Clearly, Unocal knew by presenting research at Auto/Oil, it would be leading members to believe the research was free of proprietary rights.

d. The Auto/Oil Agreement embodies the underlying purpose of Auto/Oil: Information presented to the organization became part of the public domain

The Auto/Oil agreement also shows that by presenting its research, Unocal represented to the Auto/Oil members that there were no proprietary rights associated with that research. The Auto/Oil agreement provided that members could engage in "the collection, *exchange*, or analysis of research information" in order to provide "data that allows for a comprehensive, reasonable, fair, and accurate comparison of the benefits and costs of the various alternatives to improving air quality," including RFG. (CX 4001 at 001-002, 006-007, 026; Beach, Tr. 1694). The agreement states in several places that the members intended to collaborate and make all of the Auto/Oil information public, and therefore no proprietary rights would be sought on research presented to or conducted by the Program. Specifically, the agreement stated:

- it is the "objective of this Program that the principles of full disclosure to government agencies, the Congress and the public will apply as to the research and testing" (CX 4001 at 007 (¶ 2 E), 26);
- the research would be donated without any charge to CARB or the public: "results of research and testing of the Program will be disclosed to government agencies, the Congress and the public, and otherwise placed in the public domain." (CX 4001 at 007 (¶ 2 E); Kiskis, Tr. 3831; Derr, Tr. 5126; CX 7076 (Youngblood, Dep. at 10-11));
- "It is contemplated that all of the research and testing to be carried out in the Phase I Program will be disclosed in the final report in regard to such research and otherwise dedicated to the public domain. The same principles of full disclosure and dedication to the public domain shall apply in regard to Phase II research." (CX 4001 at 014 (¶ 6A));
- "to the extent that proprietary technology and/or other proprietary information is reasonably required to conduct such research and testing, certain limitations on disclosure may be required to ensure compliance with applicable law and to protect

individually owned proprietary information supplied to the Program by companies whether or not Members of this Program." (CX 4001 at 014 (¶ 6 A));

- "No proprietary rights will be sought *nor patent applications prosecuted on the basis of the work of the Program* unless required for the purpose of ensuring that the results of the research by the Program will be freely available, without royalty, in the public domain." (CX 4001 at 007 (¶ 2 E)) (emphasis added)).

As one would expect given this language, Auto/Oil members uniformly testified that they understood, in accordance with the agreement, that once a company presented information to Auto/Oil, it became part of the Program and in the public domain. (CX 7073 (Wise, Dep. at 18); Kiskis, Tr. at 3836; Burns, Tr. at 2417; Klein, Tr. at 2490). Mr. Wise, the co-chair of Auto/Oil's Research Planning Task Force (RPTF), testified that "[i]t's my belief that the information presented by Unocal to Auto/Oil under the terms of the agreement became in effect a donation to the program." (CX 7073 (Wise, Dep. at 18)).

e. Auto/Oil had means to preserve proprietary rights, which Unocal did not use

Finally, the evidence shows that the Auto/Oil group had a well-known procedure to deal with proprietary information, but Unocal chose not to follow it. (Klein, Tr. 2522; *see also* CCPF 1627-64). On several occasions, Auto/Oil members followed the procedure to ensure that member companies did not waive their proprietary interests. (CX 4027; CX 4023; Doherty, Tr. 2795; Klein, Tr. 2522-2523 (Members had discussions with the Auto/Oil counsel regarding the procedure to protect proprietary information). In fact, at the September 1991 meeting, the very same meeting that Unocal made its presentation, the automobile members of Auto/Oil stated that they were willing to share research results regarding future vehicle technologies, but they needed to protect their individual proprietary interests in their respective technologies. (Burns, Tr. at 2418-2419, 2421-2423, 2433; CX 4027 at 008).

Because Unocal did not take any action whatsoever to protect its information, Auto/Oil

members had no reason to believe that Unocal's information was proprietary. (CCPF 1665-90). Unocal never told the Auto/Oil members that its information was proprietary. Unocal never told the Auto/Oil counsel that its information was proprietary and it wanted to protect that information. Unocal never requested advice from Auto/Oil's counsel on whether or not it should present its information. (CCPF Section XI.B).

f. Auto/Oil members in fact used Unocal's research under the false impression that there were no associated proprietary interests

In sum, Unocal's actions and words at Auto/Oil misled members into believing that they could freely use Unocal's research with no financial strings attached. Numerous Auto/Oil members requested copies of Unocal's data disk, which contained all the data that was generated in Unocal's studies, and the information and conclusions in the slide presentation. (Klein, Tr. 2509; Ingham, Tr. 2607; Segal, Tr. 5631 (confirming belief that "[e]verything, both the presentation as well as the data disk and what was on it" was in the public domain.)). Moreover, the Auto/Oil members used the information Unocal presented and the data disks – which allowed members to replicate Unocal's results and conclusion that "a decrease in T50 would cause a proportional decrease in carbon monoxide" (Segal, Tr. 5617-5620; CX 1592; CX 1593) – with no expectation of having to pay for the right to use any process or technology developed therefrom. (Klein, Tr. 2508-2509; Ingham, Tr. 2604-2605; CX 7049 (Hochhauser, Dep. at 66, 69-70, 74)).

Furthermore, Auto/Oil itself used Unocal's research in its studies. Unocal's research helped Auto/Oil determine "the width of the T50 variable, the T90 variable in the T50/T90 study," and was specifically used in the Auto/Oil T50/T90 study. (Pahl, Tr. 2772; CX 748 at 037-038). Furthermore, Unocal's research "helped guide the deliberations of the research program committee in deciding which parameters of the gasoline that we would study in the future from that point on." (Pahl, Tr. 2775).

Unocal had accomplished an important part of its mission.

B. Unocal Led WSPA Members To Believe That They Could Use Unocal's Information Free of Charge and Worked Through WSPA to Influence the CARB Regulations

WSPA presented another target of opportunity for Unocal. Like Auto/Oil, WSPA had two key characteristics: it was composed of refiners that were about to modify their refineries, and it was influential with CARB. (CCPF 1749-54). Unocal could therefore use WSPA as a forum both to "advertise" its technology – inducing refiners to adopt it (CX 3005 at 003) – and to influence CARB. As a 1989 internal Unocal memorandum shows, Unocal knew early on that WSPA was a key linchpin in Unocal's effort to influence the regulations. (CX 137 at 001-002). Moreover, as Unocal's patent application was being prepared, an internal Unocal memorandum recognized that a WSPA study could limit Unocal's competitive advantage from the 5/14 Project. (CX 207 at 001). Recognizing this opportunity and the challenge, Unocal moved into action.

1. Unocal Presented Its 5/14 Project To WSPA Leading WSPA Members To Believe That the Information Could Be Used Free of Charge

Unocal began its plan by presenting the 5/14 Project research to WSPA in September 1991. (Segal, Tr. 5608-5609; CX 272; CX 456; CX 271; Lieder, Tr. 4688). Unocal's slide presentation was an abbreviated version of the presentation Unocal made to CARB and Auto/Oil. (CCPF 1768-89). At the WSPA meeting, Dr. Jessup gave copies of the slide presentation and copies of the data disk "with all the program information on it" to anyone that wanted it. (Segal, Tr. 5616-5617; Jessup, Tr. 1307; Lieder, Tr. 4683; CX 456). The Unocal data disk contained information regarding "the fuels that were used in the program, the vehicles that were tested, the results of the testing, and also some instructions on how to run regression analysis on the data." (Segal, Tr. 5617). Unocal informed WSPA members that "[t]he Unocal data has been presented to CARB and is one of the data sets being used in separate emission modeling efforts being conducted by WSPA." (CX 1693

at 001). As always, Unocal concealed the fact that it had a pending patent application on the results of the 5/14 Project and intended to charge royalties for their use. (CCPF 1789-1848).

But Unocal's actions were more than simply a nondisclosure. The unrebutted evidence shows that WSPA's common understanding and course of dealing was that research presented at WSPA could be freely used by its members and was in the public domain. (CX 7049 (Hochhauser, Dep. at 58-59); CX 7042 (Bea, Dep. at 43, 46); CX 7064 (Sinclair, Dep. at 60-61)). Ms. Sinclair, a WSPA member from Valero, testified that when information "goes to WSPA, then it is the public domain." (CX 7064 (Sinclair, Dep. at 60-61). Similarly, Mr. Lieder, the chair of the predictive model technical group at WSPA, testified to the common understanding "that proprietary information would not be shared at WSPA meetings." (Lieder, Tr. 4716). Mr. Lieder further testified that WSPA members understood "that the technical information presented to the group was free" for the group to use. (Lieder, Tr. 4722-4723).

This testimony is corroborated by evidence that WSPA members in fact used Unocal's information, which would have violated their own company policies if they believed that the information was proprietary. (CCPF 1813-32). Dr. Jessup himself testified that he "wouldn't be surprised if they [WSPA members] took my data and did their own analysis." (Jessup, Tr. 1311). ARCO, for example, requested and received a copy of Unocal's data disk. (CX 1625; CX 1681; Clossey, Tr. 5381, 5383, 5442-5443). Tim Clossey of ARCO determined that his company could use Unocal's research because he had informed Unocal that he wanted the information "so that we can look at it, analyze it, provide a peer-reviewed, scientific, technical analysis and so that we can quickly get it rolled into . . . the broader database, make the database as robust as possible so that we get the best answer possible, CARB could get the best possible [answer] when they went to set regulations." (Clossey, Tr. 5385). As anticipated, Mr. Clossey did not expect that there would be any costs associated with using the Unocal research, and subsequent discussion with Unocal about

the research did not change his expectation. (Clossey, Tr. 5385-5386).

In short, Unocal led WSPA members to believe that the information, results, and analysis from the 5/14 Project could be freely used without charge. (CCPF Section XII.A - XII.B).

2. Unocal Knew That Technology Licensing Fees Were Included in WSPA Studies Given to CARB, But Unocal Never Revealed its Intent to Charge Royalties

The evidence shows that Unocal was aware that patent license fees were an important part of WSPA cost studies that were provided to CARB. Unocal, however, never revealed to WSPA its intent to charge royalties for the use of the 5/14 Project technology.

To respond to cost concerns, CARB asked WSPA to conduct cost studies on behalf of CARB. (CCPF Section XII.D). For this task, WSPA selected the consulting firm of Turner Mason to create a model to determine the likely compliance costs for potential CARB Phase 2 RFG regulations.[40] (CX 1150; Cunningham, Tr. 4154-4155; 4148-4150). During the CARB Phase 2 rulemaking process in the fall of 1991, Unocal participated in the WSPA economic working group, which set premises for the Turner Mason study, directed the actions of Turner Mason in conducting the study, and reviewed the results of the study. (Kulakowski, Tr. 4497-4498; CX 271 at 002). Unocal, of course, knew that the Turner Mason report was intended for submission to CARB and that it was in fact submitted to CARB. (Kulakowski, Tr. 4500, 4506).

Unocal knew that the Turner Mason study was an effort to quantify all potential costs that would be incurred to comply with the CARB Phase 2 regulations. (Kulakowski, Tr. 4499). Turner Mason's Bob Cunningham discussed the information needed from each company representative for the cost study in order to give CARB a complete picture of the costs. (Cunningham, Tr. 4195-4200).

[40] The Turner Mason cost study was also incorporated into two other studies commissioned by WSPA and provided to CARB: the Sierra Research cost-effectiveness study and the DRI McGraw-Hill economic impact study. (CCPF 1395, 2014-23).

Mr. Cunningham asked and received from refiners a validation of all costs presented for a previous study concerning reformulated gasoline that Turner Mason also conducted, plus any costs unique to California. (Cunningham, Tr. 4195-4200). WSPA therefore developed the Turner Mason study under the understanding that each of the companies involved in the project would submit all of the appropriate data and that it would be accurate. (CX 7070 (Wang, Dep. at 56)).

Unocal also knew that the Turner Mason study considered the cost of license fees related to patents that would be used to comply with the Phase 2 regulations. (Kulakowski, Tr. 4498). The study included royalty costs related to all intellectual property for both present and future technology. (Cunningham, Tr. 4206; 4215-4216; 4245-4251). As part of the study, Mr. Cunningham asked Unocal for an update of Unocal's technology licensing fees, including any costs unique to California.[41] (Kulakowski, Tr. 4500; Cunningham, Tr. 4200- 4201). Though Unocal validated costs that it previously gave to Turner Mason, it did not provide any updated costs. (Cunningham, Tr. 4200- 4201). No one from Unocal informed Mr. Cunningham that it had a patent pending related to RFG. (Cunningham, Tr. 4252-4257). Unocal personnel aware of Unocal's intentions to charge royalties – including Denny Lamb, Mike Croudace, and Peter Jessup – later attended WSPA meetings at which the Turner Mason report was discussed. (CX 271 at 002).

Unocal personnel, including Peter Jessup (who was aware of Unocal's intent to charge royalties), attended the presentations of the Turner Mason report to CARB. (CCPF 1934-41, 1974, 2003-04). In the third such meeting, Mr. Cunningham presented to CARB a completed a table of processes that depicted the Paid-Up Royalties ("PDR") included in the study. (CX 1106 at 099). Mr. Cunningham discussed and showed to CARB pages and points of the study that amounted to

[41] Mr. Cunningham's request was directed to Mr. Kulakowski, who was unaware of Unocal's pending patent and intent to charge royalties at the time. (Kulakowski, Tr. 4446, 4500). Others within Unocal who were aware of those facts, however, also reviewed the Turner Mason report and attended presentations of that material. (CCPF 2002-04).

"major cost components of the total cost," including the items with associated running royalties. (CCPF 1975-1998).

Mr. Cunningham also presented the Turner Mason study to the CARB Board on November 21, 1991. (Cunningham, Tr. 4231). Unocal personnel who knew about Unocal's pending patent and intent to charge royalties were present at that meeting. (CCPF 1996-2004). At the hearing, Mr. Cunningham compared the costs of the staff proposal of October 4, 1991, and a revised staff proposal presented to the CARB Board on November 21, 1991. (Cunningham, Tr. 4224-4233; CX 1516; CX 1192; CX 1103; CX 773). The revised staff proposal reflected many of the recommendations made in the Turner Mason cost study by relaxing some specifications. (Cunningham, Tr. 4224-4230; CX 1516; CX 1192; CX 773, CX 1103).

At the hearing, Chairwoman Sharpless questioned Mr. Cunningham about whether the Board should refrain from regulating T50 or perhaps only set a cap on T50. (CCPF 1997). She asked Mr. Cunningham whether he had considered the Unocal data that suggested a correlation between T50 and emissions reductions. (CX 773, Cunningham, Tr. 4232-4236, CX 1103). Had Unocal informed Mr. Cunningham that it had a patent pending and intent to charge royalties, Mr. Cunningham could have indicated a cost range associated with the Unocal patent (as he did with Unocal's heavy gasoline hydrocracking technology). (Cunningham, Tr. 4254, 4255). Mr. Cunningham could also have footnoted an additional cost, combined the Unocal pending patent costs with other costs to establish a range, or noted that an additional undefined cost existed. (Cunningham, Tr. 4255). Because Mr. Cunningham had no information from Unocal about its pending patent, the total cost given in his study was incomplete. (Cunningham, Tr. 4257).

3. Unocal Countered Criticisms of the T50 Specification, Though Doing So Was Against The Interests of Its Refining Business

Unocal also worked to ensure that other refiners at WSPA did not cause CARB to avoid

adopting a T50 specification. In the 1991 to 1992 time frame, some WSPA members opposed including a T50 specification in the CARB regulations because T50 is a difficult parameter to control without the addition of oxygenates. (Kulakowski, Tr. 4518). Mr. Lamb – who was aware of Unocal's pending patent – instructed Mr. Kulakowski to respond to this opposition by saying, "Unocal appreciates the difficulty in controlling T50, but our emissions research demonstrates that it has a large emissions impact." (Kulakowski, Tr. 4519).

But for the pending patent, however, Mr. Lamb's instructions were against Unocal's interests. Unocal did not manufacture its own oxygenate, and it only had access to an intermittent supply. (Lamb, Tr. 2176). As Unocal stated in a submission to the CARB Board, however, for Unocal "the only workable option for reducing T50 is the addition of oxygenates." (CX 33 at 016). Mr. Kulaskowski, who started at Unocal as a process engineer and worked in Unocal's refining planning department (Kulakowski, Tr. 4391-4392), also testified that Unocal had no other means to control T50 at that time other than adding an oxygenate. (Kulakowski, Tr. 4519). Including a T50 specification in the regulations, therefore, was against the interests of Unocal as a refiner. But is was very much in Unocal's interest as a patent holder.

4. Unocal Used WSPA to Ensure That CARB's Predictive Model Included a T50 Parameter

Unocal also worked through WSPA to ensure that T50 was a parameter in CARB's predictive model. (CCPF Section XII.C). Unocal was instrumental in WSPA's predictive model efforts, and it guided those efforts toward the inclusion of a T50 paramenter.

In 1991, Unocal established WSPA's predictive model efforts. As Denny Lamb stated in an internal Unocal memorandum, Unocal **{**

} (CX 100 at 033, *in camera*; *see also* CX 266 at 004). WSPA

thereafter assisted CARB in its development of a predictive model. (RX 680 at 002; CX 7049 (Hochhauser, Dep. at 41)). WSPA formed two committees to work on a draft predictive model for the Phase 2 regulations. (Kulakowski, Tr. 4532). The first was the predictive model technical group, which focused on issues concerning data, the WSPA database, and statistical methods to produce a predictive model. (Kulakowski, Tr. 4533). The second was the predictive model policy group. (Kulakowski, Tr. 4532). Unocal was heavily involved in both groups. (Kulakowski, Tr. 4532-4533; Jessup, Tr. 1301, 1304). Mr. Kulakowski was in fact the chairman of the WSPA predictive model policy group. (CCPF 1860).

With Unocal's heavy involvement, WSPA members used Unocal's research to help develop a proposed predictive model. (CX 7049 (Hochhauser, Dep. at 76)). Dr. Jessup drafted preliminary predictive model information for WSPA. (CX 1669 at 001; Jessup, Tr. 1303-1304). In that effort, Dr. Jessup stated that "DI and distillation T50 are also highly correlated," and he recommended only using T50 instead of "DI" (which is a combination of distillation temperatures). (CX 1669 at 002). WSPA took Unocal's data sets and "start[ed] to review them with the purpose of combining them into the WSPA combined database" that would be shared with CARB. (Lieder, Tr. 4692). Unocal was assigned to "attempt to put that together as a combined data set" to be reviewed by the whole group at the next meeting. (Lieder, Tr. 4693-4694, 4702-4703; CX 296). As chair of the group, Charles Lieder assigned this task to Peter Jessup, who volunteered to take the information from Unocal that had been presented and combine it with information already collected by WSPA in the summer of 1991. (Lieder, Tr. 4693-4694). Mr. Lieder also recognized that Unocal had the most emissions data and the largest data set, so "they felt that the technically sound approach was for them to take the smaller data sets and combine them." (Lieder, Tr. 4694, 4696-4697).

On October 4, 1991, Dr. Jessup had the combined data set in an acceptable format to present to the WSPA predictive model group. (CX 1761; Lieder, Tr. 4706-4707; CX 1563 at 001). Dr.

Jessup's attempt at creating a predictive model from the combined data set identified T50 as a dominant variable. (CX 1669 at 003; Jessup, Tr. 1306-1307). WSPA used Dr. Jessup's combined data set to make a presentation to CARB regarding CARB's predictive model efforts. (CX 277 at 003; CX 1563 at 003). Seven people from WSPA attended this meeting, and three of those people were from Unocal. (CX 277 at 004).

On October 25, 1991, Dr. Jessup, on behalf of WSPA, gave CARB a disk containing the WSPA combined data set. (CX 1246). The results from Dr. Jessup's combined data set were "similar to those Unocal discovered." (CX 300 at 001). Because of this, Unocal knew that WSPA's predictive model efforts were headed directly into the same results that Unocal discovered (and was in the process of patenting) from its 5/14 Project. (CX 300 at 001). Unocal also knew that CARB believed all of the information presented to it by the industry was non-proprietary and in the public domain. CARB ultimately used the data sets regarding the predictive model that Dr. Jessup and WSPA provided. (Lieder, Tr. 4715-4716).

X. AFTER THE CARB BOARD ADOPTED THE PHASE 2 REGULATIONS, BUT BEFORE FINAL APPROVAL, UNOCAL CONTINUED TO BOLSTER ITS PATENT TRAP

In November 1991, the CARB Board held public hearings to consider the Phase 2 regulations. (CCPF Section XV). Unocal (as did WSPA and Auto/Oil members) attended those hearings and made presentations. (CCPF Section XV.A, XV.D). But Unocal did not tell anyone about its pending patent and intent to charge royalties. (CCPF Section XV.A, XV.D). After the hearings, the CARB Board adopted a modified version of the Phase 2 regulations. (CCPF Section XV). None of the modifications affected Unocal's patent plans.

A. Final Approval of the Phase 2 Regulations Awaited Confirmation That The Regulations Met the Statutory Requirements

The Board's approval of the Phase 2 regulations in November 1991 did not end the

rulemaking process. Rather, the Board delegated to CARB's executive officer, James Boyd, the authority to finally "adopt" the regulations. (CX 816; Boyd, Tr. 6724-6727, 6729; Kenny, Tr. 6535). CARB staff had to ensure that the regulations, as modified by the Board, still met the "substantial evidence" standard before the regulations were sent to the Office of Administrative Law. (Venturini, Tr. 136-137, 244; Kenny, Tr. 6526-6527). Given his expertise, this meant that Peter Venturini reviewed and had "veto" power over the regulations. (Kenny, Tr. 6526-6527). Moreover, CARB's general counsel, Judge Kenny had to ensure that the record contained "substantial evidence" and met other requirements were forwarded to the Office of Administrative Law in late 1992 (Kenny, Tr. 6525-6527).

Thus, final "adoption" of the Phase 2 regulations did not take place until September 1992, and the OAL review did not take place until November 1992. (CCPF 2247-50). During this time, Unocal was busy pushing its patent application through the PTO, while at the same time pretending to be forthcoming with CARB about costs and competition issues.

B. Though Unocal Knew That its Presentation Had Led CARB to Develop Regulations That Were Covered by its Pending Patent, Unocal Failed to Tell CARB of its Intent to Charge Royalties Even While Advocating Against Other Provisions That Raised Cost or Reduced Competition

1. When the Board Approved the CARB Regulations, Unocal Knew it Had Pending Claims that Would Cover Most Gasolines Compliant with the Regulations

Once the CARB Board voted out the Phase 2 regulations, Unocal knew that its pending patent claims would cover most gasolines made in compliance with the regulations. Unocal's Chief Patent Counsel, Mr. Wirzbicki, learned of the contents of the CARB Phase 2 regulations from Dr. Croudace shortly after they became public. (Wirzbicki, Tr. 956, 958-960, 972; CX 1788 at 327, 329-331). When he saw the regulations, Mr. Wirzbicki knew that a number of the CARB specifications "were pointing directionally, if not completely" towards fuels that Unocal was

claiming in its pending patent application. (Wirzbicki, Tr. 969-970). For this reason, the contents of the CARB Phase 2 regulations "increased the importance" of the pending patent application in Mr. Wirzbicki's mind. (Wirzbicki, Tr. 969-970; *see also* 967-968, 956-958).[42] Indeed, Mr. Wirzbicki testified that he believed that "litigation was a lot more likely over what became the '393 patent" when he became aware of the CARB specifications, because "at that point in time, it seemed likely that some refiners would make the kind of fuel that [he] knew [he] had claims that covered." (Wirzbicki, Tr. 970). Unocal thus understood that even though its pending patent claims had not yet been allowed, the chances were very good that it would obtain these claims and litigate them against refiners.

2. In March 1992, Unocal Amended its Pending Application to Ensure Extensive Coverage of Phase 2 Gasoline

To enhance its already broad patent coverage, in March 1992, Unocal filed an amendment to its patent application. The amendment served two main purposes: it resolved various issues the patent examiner had with the pending claims, and it added additional claims that "resembled" the CARB regulation. (CX 1788 at 245-283; 327-332; 339-353; Wirzbicki, Tr. 970-971; Jessup, Tr. 1298-1299). A number of the pending patent claims covered essentially all gasoline made in accordance with the CARB Phase 2 flat limits and standards for averaging, as well as a great deal of the gasoline made in accordance with the cap limits. (CX 1788 at 269 (table); CX 1788 at 253, 255, 261 (claims); CX 1788 at 331 (CARB specifications)). Indeed, Mr. Wirzbicki admitted that he considered it "in Unocal's interest to get claims that cover[ed] the CARB Phase 2 specifications." (Wirzbicki, Tr. 969).

Along with the amendment, on March 10, 1992, Mr. Wirzbicki provided the patent office

[42] For example Mr. Wirzbicki testified that claims 1 and 90 then-pending in the patent application "obviously" would cover the flat limits of the CARB Phase 2 regulations. (Wirzbicki, Tr. 968; *see also* Wirzbicki, Tr. 964-970).

with an article describing the CARB Phase 2 regulations, including the flat limits, averaging standards, and cap limits for the gasoline properties. (CX 1788 at 327-332; Wirzbicki, Tr. 958-960, 972). Mr. Wirzbicki specifically asked the patent examiner to "review the specifications set forth . . . [in the article] for gasolines to be sold in the future in California" and to "compare[] [them] to the claimed invention, in particular, the requirements for T50, T90, RVP, and olefin content." (CX 1788 at 327). Mr. Wirzbicki provided the patent examiner with the CARB Phase 2 specifications because he believed that the CARB regulations "validated the invention" and showed its "commercial success." (Wirzbicki, Tr. 975-976, 978-979, 972-973, 959-960; CX 1788 at 326-332). He understood that to the extent the CARB regulations validated what Unocal's inventors had achieved, it could help show that the patent claims were nonobvious and therefore, patentable. (Wirzbicki, Tr. 976-977).

3. In the Summer of 1992 Unocal's Senior Management Knew that the Patent Office Allowed Patent Claims "Broad Enough to Cover All Gasoline Fuels Sold in California"

Unocal's Chief Patent Counsel's filings worked: the PTO informed Mr. Wirzbicki on June 29, 1992 that "most of the claims of the '393 patent were going to be allowed." (Wirzbicki, Tr. 942; CX 1788 at 355-357, 363-364). The allowed claims included the broad claims covering the CARB regulatory limits. (CX 1788 at 355-357 (office action allowing claims); CX 1788 at 253, 255, 261 (claims); CX 1788 at 331 (CARB specifications); Wirzbicki, Tr. 983-984). As Mr. Wirzbicki testified, he knew that it would be "highly unlikely" for the examiner to withdraw the allowance, and believed he was "going to get claims issued and allowed in the '393 patent." (Wirzbicki, Tr. 983). The allowance of the patent claims was a material event within Unocal. In the summer of 1992, Mr. Wirzbicki informed Unocal management of the allowance of the claims, including Dr. Miller (the Science & Technology Division member of the Fuels Issues Team), Mr. Snyder

(Unocal's General Counsel), Mr. D'Zurilla (Unocal's Senior Vice President of Refining), and Mr. Lipman (the President of Unocal's Science and Technology Division). (Wirzbicki, Tr. 943-946; CX 591 at 001). On August 3, 1992, the President of the Science and Technology Division sent a monthly update report to Mr. Roger Beach, who was then Unocal's President and Chief Operating Officer, stating that:

> Unocal received an informal notice from the U.S. Patent & Trademark Office that it would allow claims to Unocal's reformulated gasoline. **These claims are broad enough to cover all gasoline fuels to be sold in California under current CARB regulations starting in March 1996.**

(CX 593 at 003) (emphasis added). By August of 1992, Unocal senior management therefore knew that patent claims were allowed that covered all gasoline fuels that could be sold under the CARB regulations going into effect in 1996. (CX 593 at 001, 003). Mr. Wirzbicki then personally met with Roger Beach, among other senior Unocal managers, in August or September 1992 about the allowance of the patent claims. (Wirzbicki, Tr. 945-946).

4. Unocal's CEO Personally Called Unocal's Chief Patent Counsel to Congratulate Him on the Patent Allowance

After Mr. Wirzbicki told Unocal management about the allowed claims in 1992, Mr. Richard Stegemeier, Unocal's then-Chief Executive Officer, personally called Mr. Wirzbicki to "congratulate" him for the allowance. (Wirzbicki, Tr. 946). As Mr. Wirzbicki testified at trial, he did not "get calls like that from the CEO all the time": "It's like getting a call from the Pope." (Wirzbicki, Tr. 946). Mr. Wirzbicki knew that Mr. Stegemeier was "as high up a guy in [his] organization as [he] knew." (Wirzbicki, Tr. 947).

5. In the Summer of 1992, Unocal Retained Outside Counsel to Prepare to Enforce its Patent Claims in Litigation

At about the time that Mr. Wirzbicki received notice in June 1992 that "most of the claims of the '393 application would be allowed," Unocal began to prepare to enforce what became the

’393 patent in litigation. (Wirzbicki, Tr. 947-949). In August 1992, Unocal engaged two outside counsel for what became the ’393 patent: Laurence Pretty of Pretty & Schroeder, and Alan Grimaldi of Howrey & Simon. (Wirzbicki, Tr. 949-950). Mr. Wirzbicki, Unocal’s Chief Patent Counsel, worked with these two outside counsel in “preparation for litigation” in anticipation of the issuance of the ’393 patent. (Wirzbicki, Tr. 949-950). Mr. Wirzbicki later even sent a copy of the CARB reformulated gasoline regulations to Mr. Pretty, one of the counsel Unocal retained to prepare for litigation. (CX 332; Wirzbicki, Tr. 947-951).

6. By the Fall of 1992, Unocal Considered Future Plans to Market its Gasoline as “Patented Reformulated Gasoline Formulas.”

While Unocal made efforts to prepare for litigation, there were also discussions concerning potential marketing claims for Unocal’s future RFG product. In an October 6, 1992 memorandum responding to a question raised by Don D’Zurilla – one of the senior Unocal managers that Mr. Wirzbicki had informed of the allowance of most of the pending patent claims – Dr. Croudace proposed a marketing claim of “***Patented*** Reformulated Gasoline Formulas.” (CX 1216 at 004 (emphasis added); Croudace, Tr. 553-554). Such a proposed marketing claim stood in stark contrast to the potential marketing claims proposed for interim RFG in the spring of 1991: “***patent pending***” formulations. (*See, e.g.*, CX 157 at 001; CX 228 ; CX 229 at 002; CX 582). Accordingly, knowledge of the allowance of Unocal’s pending patent claims had been disseminated within Unocal.[43]

7. Unocal Continued to Advocate for Changes to the Regulations to Reduce Costs and Ensure Competition, but it Withheld Information About its Pending Patent and Intent to Charge Royalties

With complete knowledge that CARB’s regulations would force refiners into the heart of

[43] Recipients of the October 6, 1992 memo included Don D’Zurilla, Denny Lamb, Peter Jessup, and other Unocal personnel. (CX 1216 at 001).

Unocal's patent coverage, Unocal continued to create the impression that it championed even-handed and less costly regulations – all the while concealing its patent plans. In fact, in February 1992, Unocal sent to CARB a paper published by Drs. Jessup and Croudace that detailed Unocal's inventions. (CX 1424 at 001; Kulakowski, Tr. 4446-4447). That paper contained almost all of the slides Unocal had presented to CARB, the full predictive equations, and is very similar to the specification in Unocal's patents. (CCPF 1193; CX 477; CX 24; CX 617). Unocal, of course, did not tell CARB of its patent plans.

Instead, Unocal pointed out other provisions in the regulations that would affect competition. For instance, on March 20, 1992 (just after Unocal filed its amendments to its patent application), Unocal submitted comments – approved by Denny Lamb – to CARB opposing certain waivers, argued that the waivers would create an "imbalance in the market place." (CX 38 at 003; Lamb, Tr. 2092). Unocal's argument was, essentially, that there should be a "playing field to be level among all competitors." (Kulakowski, Tr. 4542).

Unocal's posturing continued throughout 1992. On May 11, 1992, Unocal submitted another set of comments to CARB, this time arguing against an exemption for "independent" refiners. (CX 311). In this submission (sent by Denny Lamb), Unocal argued that the exemption would "cause market disruptions" because the exemption would impose costs on some refiners but not others. (CX 311; Kulakowski, Tr. 4491-4493). Similarly, in June 1992, Unocal submitted comments opposing provisions of the regulations that provided "differential treatment" for some refiners that would give those refiners "an economic windfall." (CX 39 at 001-002 (submission from Denny Lamb)). Unocal again insisted that CARB's regulations "ensure a 'level playing field'" for all refiners. (CX 39 at 002; Lamb, Tr. 1958).

Unocal's masquerade continued even after it received the notice of allowance from the PTO. On September 4, 1992, Richard Stegemeier, Unocal's then-CEO who congratulated Mr. Wirzbicki

for obtaining the patent allowance, sent another set of Unocal comments to CARB. (Wirzbicki, Tr. 946; CX 42 at 002). In that set of comments, which Denny Lamb helped to draft, Unocal strongly opposed "the concept of differential treatment for different segments of the refining industry." (CX 42 at 002; Lamb, Tr. 2094).

C. Had Unocal Informed CARB of Unocal's Intentions Before September 1992, CARB Could Have Prevented Unocal's Monopoly by Delaying or Amending the Phase 2 Regulations and Taking Steps to Guard Against Unocal's Royalty Demands

Had CARB known about Unocal's patent plans before September 1992, CARB would not have adopted the Phase 2 regulations as written. Before the regulations were finally adopted and sent to the Office of Administrative Law, the regulations needed the approval of three key persons: CARB's executive officer, James Boyd; CARB's resident technical expert, Peter Venturini; and CARB's general counsel, Judge Michael Kenny. (CCPF Section XXVII.F.2). Each testified that he would not have approved the regulations if he had known of Unocal's plans.

- James Boyd, who had the delegated authority to adopt the Phase 2 regulations after the Board action in November 1991 (CX 816; Boyd, Tr. 6724-27, 6729; Kenny, Tr. 6535), flatly testified that would not have approved the regulations. (Boyd, Tr. 6728).

- Peter Venturini testified that he would have "vetoed" the regulations in 1992. (Venturini, Tr. 244-245).

- Judge Kenny also testified that he would not have approved the regulations. (Kenny, Tr. 6544).

This testimony is unrebutted.

Simply put, had CARB known of Unocal's plans, it would not have adopted the Phase 2 regulations in 1992. Rather, CARB would have explored the numerous other options it had available during the regulations' development. (CCPF Section XXVII.F.3). It could have adopted specifications that would avoid the patents. (*Id.*). It could have defaulted to the EPA RFG rules. (*Id.*). None of these options, however, were available when CARB finally did find out about

Unocal's patent and intention to charge royalties. (CCPF Section XXVI.A- E).

D. After Choosing Not to Tell CARB About its Intentions, Unocal Filed For Additional, More Expansive Patents on CARB-Compliant Gasolines and Methods of Making and Using Them

By June 3, 1993, Unocal's Chief Patent Counsel had obtained additional claims in the application that lead to the '393 patent, and had completed the substantive patent examination process. (CCPF 2213-19). Not content with the patent coverage it had, on June 14, 1993, Unocal filed the second in what became a series of additional patent applications on the results of Drs. Jessup and Croudace's research. (CX 1790 at 001-006, 009-070; Wirzbicki, Tr. 992-993). This second application was a "divisional" patent application, (CX 1790 at 003; Wirzbicki, Tr. 992-993), and was based on the same invention upon which the '393 patent was based. (Wirzbicki, Tr. 994). This patent, together with a continuation of that application, ultimately resulted in the issuance of U.S. Patent No. 5,593,567 on January 14, 1997. (Wirzbicki, Tr. 992-994; CX 618 at 001).

In this divisional application, Unocal began the process of obtaining claims for methods of making and using CARB-compliant gasoline, claims that Unocal had taken out of its initial patent application. (2641). In its confidential filings with the PTO, Unocal was not shy about its goals. Unocal's Chief Patent Counsel repeatedly represented in this application that the claims Unocal was seeking were patentable because they covered methods of making and using CARB-compliant gasoline. (CCPF 2636-53).

- In April 1994, Mr. Wirzbicki told the Patent Office that he was seeking claims for methods of using gasoline compositions he termed the "inventive fuel," and that "the properties of the inventive fuel are *virtually identical* to some of the requirements specified for Phase 2 gasolines to be sold in California starting in March 1996." (CX 1790 at 124; 122-334; Wirzbicki, Tr. 992, 996-998) (emphasis added).

- Similarly, in an October 1994 amendment to his method claims, Mr. Wirzbicki stated that, "California, having been though a 'Phase 1' process, is soon to initiate a *Phase 2, in which gasolines of reduced RVP, T50, etc., (which, for the most part, if not exclusively, fall within the scope of the compositions required by the claims of the present invention)* will be mandated." (CX 1791 at 082, 055-131; Wirzbicki, Tr.

1001-1002) (emphasis added).

- In a February 5, 1995 amendment, Mr. Wirzbicki argued that the patent examiner should allow the claims in light of "the importance of the invention to the public." (CX1791 at 509; 487-527). He stated that "the regulations of the California Air Resources Board will soon (in 1996) come into effect mandating gasolines of reduces RVP, T50, etc. (which *for the most part, if not exclusively*, fall within the scope of the compositions required in one or more of the method claims herein)." (CX 1791 at 509-510; Wirzbicki, Tr. 1003-1005) (emphasis added).

- Mr. Wirzbicki continued in the February 5, 1995 filing that "*[o]il companies . . . are currently spending enormous sums* – in the billions, aggregate – to produce gasolines meeting these 1996 regulations." (CX 1791 at 510; Wirzbicki, Tr. 1003-1005) (emphasis added).

- Following the February 5, 1995 filing with the Patent Office, Mr. Wirzbicki abandoned the divisional application and filed a continuation with the same claims in order to give himself more time to prosecute the application. (Wirzbicki, Tr. 1006-1007; CX 1792 at 002-003). In an amendment Mr. Wirzbicki then filed on June 6, 1995, Wirzbicki referred to "reports that the oil industry is incurring costs in the *billions of dollars* to comply with California 1996 RFG . . . ." (CX1792 at 133, 118-122) (emphasis added).

Unocal's Chief Patent Counsel thus understood and represented to the PTO that even though the claims pending in the divisional patent application covered methods of using reformulated gasoline to reduce pollution (rather than covering just the gasoline itself), the claims still would cover almost all, if not all, of the gasoline that would comply with the CARB Phase 2 regulations. He also understood and represented to the PTO that refiners were spending billions to comply with the CARB Phase 2 regulations.

XI. CALIFORNIA REFINERS, MISLED INTO BELIEVING THAT UNOCAL'S RESEARCH WAS IN THE PUBLIC DOMAIN, SPENT BILLIONS TO COMPLY WITH CARB'S REGULATIONS

Unaware of Unocal's plans, California refiners were investing billions of dollars to modify their refineries to meet the Phase 2 regulations. That is, they spent billions of dollars not knowing that they were headed toward Unocal's patent trap.

To comply with the Phase 2 regulations, refiners had to substantially modify their refineries.

(CCPF Section XVIII). The CARB Phase 2 regulations went into effect in 1996. In 1995, a set of federal RFG regulations (EPA Phase 1), also required refiners to modify their refineries. (CCPF 2378). Because the CARB Phase 2 regulations were more strict than the EPA regulations, the Phase 2 regulations required refiners to make modifications that were over and above those required by the EPA regulations. (CCPF 2378). Overall, these modifications cost the industry billions of dollars. (*See, e.g.*, CX 385 at 027 (internal 1995 Unocal memorandum estimating industry compliance costs to be $5 billion); Jessup, Tr. 1326-1327; RX 1165A at 007 (estimating costs at about $4 billion)). The refiner investments to meet the EPA Phase 1 regulations were mostly necessary to meet the CARB regulations, but those modifications were not sufficient. (CCPF Section XVIII.D). The investments specific to the CARB Phase 2 regulations (those over and above the EPA Phase 1 investments) were over $1.5 billion. (*Id.*).

A. The Refiner Investment Decisions Were Carefully Calibrated Based on Expected Compliance Costs

The decisions to make these investments were not easy. In the 1991 to 1992 time frame, the refining industry was not particularly profitable. (CCPF Section XVIII.C). Faced with the prospect of spending hundreds of millions of dollars to comply with the CARB regulations, the management of all the major refiners was skeptical that the investments would yield sufficient returns. (*Id.*). Each refiner therefore considered multiple potential levels of investment. (*Id.*). The investment levels typically ranged from nothing (which would have resulted in substantially lower Phase 2 gasoline production) to hundreds of millions of dollars to maximize Phase 2 production. (*Id.*). The levels of investment were linked to the volume of CARB gasoline anticipated to be produced. (*Id.*). The less costly investment options were based on substantially limiting the supply of CARB-compliant gasoline that the refiners planned to produce. (*Id.*).

To evaluate these investment options, each refiner engaged in extensive cost studies. (*Id.*).

These cost studies sought to determine the costs to comply with the Phase 2 regulations down to the penny per gallon. (*Id.*). Based on the available information (which of course did not include Unocal's plans to charge royalties), each refiner determined the level of investment that was justified by the predicted return and the level of risk foreseen. (*Id.*).

B. By Late 1993, the Refiners Had Made Irreversible Investments to Produce Phase 2 Gasoline

Because the Phase 2 regulations were set to go into effect in 1996, refiners had to begin the arduous modification process in 1991 and 1992. (CCPF Section XVIII.A - XVIII.B). These processes had multiple steps, including planning, design engineering, obtaining permits, contracting, and construction. (*Id.*). To meet the 1996 deadline, therefore, ARCO began studying possible refinery configurations no later than January 1992. (CX 5079). Similarly, Chevron started work on its CARB Phase 2 project in the early part of 1992. (Gyorfi, Tr. 5238; RX 249 at 002; CX 5002 at 004). Exxon began to plan its modification project in the late 1990, early 1991 time frame. (Eizember, Tr. 3104, 3111). And Shell began planning for its refinery modifications as early as July 1991. (CX 5100 at 004 (requesting additional funding based on original AFE approved in July 1991); RX 1154A at 023).

Of especial importance in the process was permitting. To complete the necessary modifications, refiners had to obtain more than twenty different permits. (RX 1154A at 011). These permits, especially the environmental permits, were the critical path to meet the 1996 deadline. (Sarna, Tr. 6350; RX 1154A at 011). To complete the modification projects in time to meet the regulatory deadline, refiners had to receive the permits about two years before the start-up of the permitted unit was required. (Sarna, Tr. 6350). It took, on average, about a year to obtain approval of a permit application. (RX 1154A at 011). The refiners therefore generally completed their permit applications by late 1992 or 1993. (CX 355 at 006). The constraints of the permitting process meant

that planned refinery modifications were set in stone by that time. (RX 1165A at 006).

Other modification activities (engineering work, construction of long-delivery equipment, etc.) were done in parallel with the permitting process. (CCPF Section XVIII.A - XVIII.B, XVIII.D). By 1993, therefore, the refiners were irreversibly invested in modifications to meet the Phase 2 regulations. (*Id.*). For instance, by late 1993, ARCO had committed nearly $100 million to its Phase 2 modification project at one of its refineries. (CX 5052 at 021). As Unocal's Denny Lamb admitted at trial, by 1993, the refiners were "swimming down the hole." (Lamb, Tr. 1920).

C. Had the Refiners Known of Unocal's Patent Application and Intent to Charge Royalties, They Would Have Informed CARB, Considered Alternative Modifications, Sought to Negotiate Licenses From Unocal, or Modified Their Investment Plans

As discussed in more detail below (*see* Liability Section V.C), the evidence shows that had the refiners known of Unocal's patent application and plan to charge royalties, they would have taken action. Specifically, the evidence shows that had refiners had this knowledge, they would have (1) warned CARB, (2) considered alternative modifications to avoid Unocal's pending patent rights, (3) sought to negotiate with Unocal for a license, and, if all else failed, (4) modified their investment decisions to select lower investment options to produce substantially reduced volumes of CARB gasoline. (CCPF Section XXVII.G). Unocal's lies, however, prevented any of this from happening.

XII. AFTER ITS FIRST PATENT ISSUED, UNOCAL CONTINUED TO MAXIMIZE THE EFFECTIVENESS OF ITS INITIAL DECEPTION

A. Unocal's '393 Patent Issued, But Unocal Sought to Keep Its Licensing Plans Secret Because It Did Not Want To "Make a Press Release Too Far Ahead of the Implementation of CARB Phase 2 Gasoline"

Unocal's efforts to mislead continued even after its first patent became public. The PTO issued U.S. Patent No. 5,288,393 ("'393 patent") to Unocal on February 22, 1994. (CX 617 at 001; Wirzbicki, Tr. 984). The issued patent contained almost all of patent claims allowed in the summer

of 1992, along with additional claims allowed in 1993. (CX 1788 at 355-357, 370-385, 387, 418-419; CX 617 at 021-025). As its internal documents reflect, Unocal believed that the '393 patent "cover[ed] many of the possible fuel compositions that refiners would find practical to manufacture and still comply with the strict California Air Resources Board (CARB) Phase 2 requirements in 1996." (CX 599 at 002; *see also* CX 593 at 003).

The issuance of the '393 patent was a milestone at Unocal. Unocal's Chief Patent Counsel circulated the patent to members of Unocal's executive committee (including Mr. Beach) shortly after it issued, and then briefed them on his views of the patent. (CX 339; Wirzbicki, Tr. 984-987). This was the only patent circulated to Mr. Beach during all his years at Unocal. (Beach, Tr. 1717).

After the patent issued, Unocal focused on determining the exact royalty it could charge. At the time, Unocal's then-CEO, Roger Beach, believed a reasonable royalty rate for the patent would be between four and ten cents per gallon. (Beach, Tr. 1686-1688). Using the four cent per gallon rate, internal Unocal documents projected that 70% of the gasoline produced in California in 1996-1997 would infringe its patent. (CX 454 at 001). Even assuming a lower royalty rate, Unocal's projected pay-off was huge. Another internal Unocal document dated August 4, 1994 entitled, "Top Project Goals for 1994," lists the "Potential Impact" of Unocal's RFG patent as "$30MM to $135MM per year" based on a "estimate at 1¢/gallon." (CX 517; Jessup, Tr. 1328-1329).

Despite these activities, Unocal did not publicly disclose the issuance of the '393 patent or Unocal's intent to seek royalties for use of this technology until January 1995. (Wirzbicki, Tr. 984, 987). As Roger Beach admitted on cross-examination, Unocal delayed about a year between the issuance of its patent and issuance of its press release about the patent because Unocal did not want to "make a press release too far ahead of the implementation of CARB Phase 2 gasoline." (Beach, Tr. 1718). Unocal did not want to risk the potential that an early announcement of its royalty plans

would derail CARB or refiners from their progress in implementing plans for compliance with the Phase 2 regulations.

Unocal's silence about its patent and its licensing plans contrasts with its very public release of its own reformulated gasoline product. On December 5, 1994, Unocal issued a press release announcing the launch of its reformulated gasoline in Southern California and crediting the "significant role" of Unocal scientists "in the creation of the next generation of state and federal reformulated gasolines." (CX 358 at 001). Dr. Wayne Miller, the manager of fuels technology for Unocal and Drs. Jessup and Croudace's supervisor, was quoted extensively in the press release concerning state and federal reformulated gasolines. (CX 358 at 001-002). The press release, however, did not mention the issuance of the '393 patent. (CX 358 at 001-002).

B. Unocal Stonewalled the Few Refiners That Discovered the Patent and Asked Whether Unocal Would Seek to Enforce the Patent

When a few refiners discovered the existence of the '393 patent in 1994, Unocal stalled their attempts to find out whether or not Unocal intended to enforce the patent. For example, Texaco learned of the '393 patent in 1994 from its then-employee, Mr. Kulakowski, who had previously been employed by Unocal and who learned of the patent's issuance in a 1994 conversation with a Unocal employee. (Kulakowski, Tr. 4512-4514). Chevron then learned of the patent from Texaco. (Gyorfi, Tr. 5258).

Surprised by the fact that Unocal had obtained a patent on reformulated gasolines, these refiners contacted Unocal to determine whether Unocal intended to enforce the patent. For example, Chevron's general counsel contacted his counterpart at Unocal to find out whether Unocal intended to enforce the patent. (CX 369 at 001; Derr, Tr. 5097). Unocal's counsel, however, refused to discuss the matter. (CX 369 at 001; Derr, Tr. 5098). Following this refusal, Ken Derr, the Chairman of the Board of Chevron, on January 6, 1995, wrote to Unocal's then-CEO Roger Beach asking him

what Unocal's intentions were regarding the patent. (CX 369; Derr, Tr. 5098; Beach, Tr. 1688). In his letter, Mr. Derr reminded Mr. Beach that the refining companies had "worked openly and cooperatively with the California Air Resources Board to develop regulations that would serve the public interest." (CX 369 at 001). After noting that Unocal was well aware of the investments Chevron and the other refiners had made to be able to produce CARB RFG, Mr. Derr stated that he was "relying on Unocal's silence while the industry is moving forward as confirmation that Unocal will not use its patents to disadvantage the public or the industry." (CX 369 at 002).

Alfred DeCrane, Chairman and CEO of Texaco, wrote a similar letter to Unocal's CEO on January 9, 1995. (CX 370; Beach, Tr. 1688-1689). Mr. DeCrane notified Mr. Beach that it had come to his attention that Unocal had obtained the '393 patent "with claims covering reformulated gasolines meeting the phase 2 CARB standards which go into effect March 1, 1996." (CX 370). Mr. DeCrane explained to Mr. Beach the major financial investment that Texaco had undertaken and would continue to undertake in order to comply with CARB Phase 2 regulations, and reminded Mr. Beach of ARCO's dedication of its gasoline invention to the public. (CX 370). Mr. Beach did not respond to these inquiries until January 30, 1995, the day before Unocal issued a press release announcing Unocal's intent to seek royalties for its RFG patent. (CX 374 at 002; Beach, Tr. 1689).

C. After Being Forced to Publicly Acknowledge Its Patent, Unocal Sought To Assure Both CARB and the California Governor That Unocal Would Not Impact the Phase 2 Regulations

Only after insistent inquiries from the few refiners who discovered the '393 patent did Unocal announce the issuance of the '393 patent and its plans to license it. In a January 31, 1995 press release, Unocal told the public that it obtained a patent that "covers *many of the possible fuel compositions* that refiners would find practical to manufacture and still comply with the strict California Air Resources Board (CARB) Phase 2 requirements in 1996." (CX 599 at 002) (emphasis added). Unocal announced that it intended to license the patent, and that it expected to have its

licensing program complete by the end of April 1995. (CX 599 at 002).[44]

Unocal's 1995 announcement was a bombshell at CARB. The press release was the first time anyone at CARB learned of the '393 patent. (CX 47). The Phase 2 regulations had been in place for years. The CARB Board had approved the regulations in 1991. CARB officially adopted the Phase 2 regulations in 1992. CARB had, at the urging of others, adopted a predictive model in 1994. Now, in 1995, Unocal had informed CARB what Unocal had known since 1991 – Unocal's patent rights covered gasolines made in compliance with the regulations.

Upon receiving the press release, CARB staff members descended upon the office of their executive officer, James Boyd. (Boyd, Tr. 6729-6730). Peter Venturini was "shocked and surprised." (Venturini, Tr. 319). Not fully appreciating the implications because he lacked knowledge of patent law, Mr. Boyd, however, reacted with bemused disbelief. (Boyd, Tr. 6730). But as he began to understand the implications, his attitude became "one of extreme concern for the continued viability of the regulation and extreme – what can I say – I wasn't happy about what had transpired with Unocal." (Boyd, Tr. 6730-6731). This concern has been ongoing. (CX 7074 (Witherspoon, Dep. at 72-73) (CARB's current executive officer testified, "my colleagues in management positions at CARB were distressed by the discovery of the patent . . . I know that that . . . remained a concern from whatever time it was discovered to the time I returned to the Air Resources Board in 1999")). Unfortunately, as discussed in detail later, CARB could do nothing at that point. Though CARB had "extreme concern" about the viability of its regulation, by 1995

[44] By the time Unocal issued its January 1995 press release, Unocal had already on December 29, 1994 filed a disclaimer at the Patent Office eliminating a large number of its patent claims. (CX 1788 at 460-465; Wirzbicki, Tr. 987-988). Thus, even after filing the December 1994 disclaimer, Unocal believed and stated that "Unocal's patent covers many of the possible fuel compositions that refiners would find practical to manufacture and still comply with the strict California Air Resources Board (CARB) Phase 2 requirements in 1996." (CX 599 at 002; CX 1788 at 460-465; Wirzbicki, Tr. 987-988). Unocal later filed an additional, more-limited disclaimer on July 5, 1995, after litigation was already in progress concerning infringement of the '393 patent. (CX 1788 at 476-481; Wirzbicki, Tr. 988).

CARB's hands were tied. It could not change the regulations to avoid Unocal's patents. (*See* Liability Section V.B).

After Unocal issued its press release, James Boyd, CARB's executive officer, sought a meeting with Unocal's CEO to discuss the impact of the patent on the CARB regulations. (CX 47). In his letter, Mr. Boyd recognized that Unocal's patent "introduces a new and important element into the state's plans for RFG." (CX 47). To assess the situation, CARB needed to know more about "Unocal's plans concerning the marketing of [Unocal's] RFG patent" and "the extent of the patent's 155 claims." (CX 47).

Internally, Unocal dismissed CARB's request as "bureaucreatic gamesmanship." (CX 396). Unocal responded by sending its then-CEO Roger Beach to meet with CARB staff, including Mr. Venturini (whom Mr. Beach described at a "major player at CARB"). (Beach, Tr. 1726-1727). At the meeting, held on March 7, 1995, Mr. Beach conveyed the message that Unocal would not upset the rollout of the CARB Phase 2 regulation. (Beach, Tr. 1727).

At the meeting, however, Unocal did not inform CARB of the royalties it was considering for the Unocal RFG patent. (Beach, Tr. 1728-1729). Nor did Unocal inform CARB that the company was going to file for additional RFG patents. (Beach, Tr. 1729). No one at the meeting gave to CARB any information regarding the extent of the patent claims. (Beach, Tr. 1729). Nor did anyone at Unocal later inform CARB of the extent of the patent claims. (Beach, Tr. 1730).

Unocal itself recognized that any change to CARB's regulations in 1995 "could devalue $ tens of millions [of] refinery investment," which could lead to "supply and price repercussions." (CX 384 at 002). As a result, in February 1995, Unocal's Dennis Lamb and John Rafuse urged its CEO, Roger Beach, to "meet with Governor Wilson as soon as possible." (CX 384 at 001; Beach, Tr. 1719-1720). The message they wanted Mr. Beach to convey was that the Governor should "let the oil companies fight this out; don't try a political or regulatory 'fix.'" (CX 384 at 002; Beach,

Tr. 1721).

On the same day that Roger Beach met with CARB staff, he also met with California's then-Governor, Pete Wilson, to assure the Governor that Unocal would not interfere with the introduction of CARB Phase 2 RFG. (Beach, Tr. 1726-1727; CX 653 at 001). In fact, Unocal assured the Governor that it "would never undertake to damage the State's economy." (CX 653 at 001).

A key set of materials prepared for the meeting, including talking points for Mr. Beach, admit that Unocal "freely shared its research data with CARB, which used the data in formulating its regulations." (CX 401 at 001-002, 004). The talking points reiterate that Unocal "has a patent that covers most gasolines that meet CARB RFG 2 regs." (CX 401 at 004); *see also* CX 401 at 001, 013). Indeed, a Q&A document included in the materials for the meeting contains the following exchange:

> Q. Won't supply be disrupted if you control the only way of making CARB Phase 2 gasoline?
>
> A. Unocal's patent does not effect [sic] supply or compliance, for two reasons. First, *it's in our own best interest to make every effort to get other suppliers licensed* as soon as possible. Second, all refiners planning on selling Phase 2 gasoline *have been moving forward with the required capital projects*. They will have the equipment and the know-how to manufacture a complying fuel, which happens to *fall under our patent protection*.

(CX 401 at 002-005, 008) (emphasis added). At the same time that Unocal was assuring the Governor that Unocal would not interfere with the roll-out, Unocal thus knew that refiners were locked in to producing CARB Phase 2 gasoline that fell under Unocal's patent protection.

D. Despite CARB's and Industry's Concern about Unocal's First Patent, Unocal's Management Made a Conscious Decision Not to Tell CARB about its Other Patent Applications

Throughout the period after the announcement of its '393 patent, Unocal continued to seek additional patents that covered gasoline produced under the CARB Phase 2 regulations. (CCPF 2654-68). Even after meeting with CARB regarding its '393 patent, however, Unocal did not inform

CARB or the other refiners that it was doing so. Rather, Unocal made a specific decision to keep its other patent applications secret. (Beach, Tr. 1730). Unocal did, however, recognize "the potential dilemma we have with CARB by not informing them of future moves regarding the whole Patent issue." (CX 410 at 001). Internally, Unocal discussed the possibility of briefing CARB "in advance of any future developments in regard to our Patent situation so they are not blindsided." (CX 410 at 001). But Unocal decided not to brief CARB in advance of any future developments. (Beach, Tr. 1731-1732).

Shortly after Unocal's meeting with CARB and Governor Wilson, Unocal considered offering licenses to its patent at the rate of only ½ cent per gallon to "ensure that supply is not disrupted" and to avoid posing any barriers to the smooth implementation of CARB Phase 2 gasoline. (CX 2001 at 001; CX 681; Lamb, Tr. 1901-1904). Unocal, however, did not do so, and later offered license terms only at a higher rate. (CCPF 2722-23).

E. Unocal and the Law Firm Representing Unocal's RFG Patent Interests Participated in CARB's Phase 3 Proceedings to Oppose Any Relaxation of the T50 Specification

Even after Unocal had sold its refining assets, Unocal and its current litigation counsel – Robins, Kaplan, Miller & Ciresi – participated in CARB's Phase 3 RFG proceedings (which sought to modify the Phase 2 regulations in light of a ban on the use of a certain chemical) in order to protect Unocal's RFG patent interests. In March 1997, prior to the Phase 3 RFG proceedings, Unocal had sold its refining and marketing assets to Tosco. (Lamb, Tr. 1807; Unocal Answer, ¶ 13). By the time of the CARB Phase 3 RFG proceedings, Unocal no longer produced gasoline for sale in California and owned no refineries or retail service stations. (Lamb, Tr. 1808). Nonetheless, both Denny Lamb and David Beehler of Robins, Kaplan, Miller & Ciresi attended a workshop relating to the Phase 3 RFG regulations. (Lamb, Tr. 1810-1811; *see* CX 1741 (CARB sign in sheet)). Moreover, in stark contrast to the position he had taken on Unocal's behalf in the Phase 2 RFG

proceedings, Denny Lamb assumed the mantle of an environmentalist and argued against relaxation of the T50 specification limits at a public CARB hearing on December 9, 1999. (CX 1768 at 001, 302-303).

By the time that Denny Lamb spoke at this CARB public hearing, he had retired from Unocal and was under contract to Unocal's law firm, Robins, Kaplan, Miller & Ciresi. (Lamb, Tr. 1817; CX 1768 at 001, 302-303). At this hearing, Denny Lamb characterized CARB's proposed relaxation of the T50 limits as "an attack on T50," which he compared to the attack on Pearl Harbor. (Lamb, Tr. 1815-1816, 1818; CX 1768 at 303 ("This week . . . .it was the 48th anniversary of Pearl Harbor. But on December 7th I opened my email only to find that there had been an attack on T50.")). Denny Lamb told the CARB Board that he was an "independent consultant" but did not disclose that he was acting as a consultant to the law firm that represented Unocal's RFG patent interests. (Lamb, Tr. 1818; CX 1768 at 302-303).

Subsequently, Denny Lamb – while still under contract to Robins, Kaplan, Miller & Ciresi – helped draft comments submitted by George Walker of Unocal to CARB concerning the Phase 3 RFG regulations.[45] (Lamb, Tr. 1802-1803, 1812-1813, 2091; CX 732; CX 612 (April 24, 2000 Unocal comments by George Walker)). The April 24, 2000 comments that Unocal submitted to CARB concerning the Phase 3 RFG proceedings opposed CARB's proposal to relax the T50 limits. (CX 612 at 001; Lamb, Tr. 1803-1804, 2091-2092). Denny Lamb understood that T50 was a main variable in Unocal's 5/14 Project, and that T50 was also one of the key variables or limits in the Unocal patents. In 1995, following Unocal's press release announcing the issuance of the '393

[45] Denny Lamb served as a paid consultant directly for Robins, Kaplan, Miller and Ciresi from 1998 until October 2 or 3, 2004 – just prior to the trial of this matter. (Lamb, Tr. 1847, 2001-2002, *in camera*). Pursuant to the terms of his contract with the law firm – which was administered by Respondent's counsel, David Beehler – **{**

} (Lamb, Tr. 1851-1852, *in camera*). **{**

} (Lamb, Tr. 1849, *in camera*).

patent, Mr. Lamb participated in discussions and meetings with Greg Wirzbicki, Unocal's Chief Patent Counsel, and others (as part of the RFG patent team) concerning Unocal's patent and licensing strategy – including discussions of appropriate royalty rates. (Lamb, Tr. 1805, 1820-1822, 1884-1885; CX 1645). As such, Unocal's position in the Phase 3 proceedings was designed to protect Unocal's monopoly in the CARB RFG technology market.

Not surprisingly, during the Phase 3 proceedings, Denny Lamb did not discuss or disclose to CARB any of Unocal's additional pending patent applications. (Lamb, Tr. 1819).

F. Unocal Eventually Obtained Four Additional, More Expansive, Patents on its 5/14 Project Research Results

Unocal had reason to seek to protect the CARB T50 specifications. By February 2000, Unocal obtained the following four patents in addition to the '393 patent:

Patent number	Date filed	Date issued
5,593,567	June 14, 1993 (divisional) / March 22, 1996 (continuation)	Jan. 14, 1997
5,653,866	June 5, 1995	Aug. 5, 1997
5,837,126	Aug. 1, 1997	Nov. 17, 1998
6,030,521	Nov. 13, 1998	Feb. 29, 2000

(CCPF 2636, 2654, 2660, 2667, 2683-84). All of these patents are based on the same invention as the '393 patent. (CCPF 76-77). Drs. Jessup and Croudace are the named inventors on all four patents, and all four claim priority to Unocal's original patent application. (CX 618 at 001, CX 619 at 001, CX 620 at 001, CX 621 at 001).

Unocal's additional four patents cover many of the standard unleaded gasoline compositions that refiners can economically produce and still comply with the CARB Phase 2 (and Phase 3) regulations, as well as methods of making and using those gasolines. (CX 618 at 027-028, CX 619 at 027-028, CX 620 at 027-029, CX 621 at 027-029). These claims of Unocal's four additional patents can generally be summarized as follows:

‘567 patent: Methods of driving an automotive vehicle with a catalytic converter to reduce emissions – as compared to the emissions that would have been produced by the Auto/Oil average fuel – by using gasoline with various properties in the vehicle. (CX 618 at 027-028).

‘866 patent: (1) Methods of driving an automotive vehicle with a catalytic converter to reduce emissions – as compared to the emissions that would have been produced by the Auto/Oil average fuel – by using gasoline with various properties in the vehicle, (CX 619 at 027); and

(2) Methods of minimizing air pollution caused by automobile exhaust emissions in various geographical areas by delivering large volumes of reformulated gasoline to service stations in those areas. (CX 619 at 027-028).

’126 patent: (1) Standard unleaded gasoline with various properties (CX 620 at 027-028); and

(2) Methods of making gasoline – by blending at least two hydrocarbon-containing streams together to produce gasoline in batches of at least 50,000 gallons – and then beginning to deliver that gasoline to service stations. (CX 620 at 028-029).

’521 patent: Methods of blending reformulated gasoline by using blending processes controlled by at least one mathematical equation that predicts emissions for the blended gasoline. (CX 621 at 027-029).

(As Mr. Wirzbicki, Unocal’s Chief Patent Counsel, summarized, it “covers a method in which a *predictive model* is used and used only to obtain the gasoline that’s recited at the end.” (Wirzbicki, Tr. 1135)).

All of these claims, including the method claims, contain descriptions of the type of unleaded gasoline used in the methods. They do so by listing various combinations of the properties of that fuel, as the ’393 patent did. The property requirements are frequently referred to as the “numerical property limitations” or the “property limitations” of the claims.

XIII. UNOCAL’S PATENTS COVER VIRTUALLY ALL GASOLINE COMPLIANT WITH CARB’S PHASE 2 REGULATIONS

Unocal’s scheme succeeded. Its five patent portfolio covers virtually all gasoline compliant with CARB’s Phase 2 regulations, as well as the methods of blending and using that gasoline employed by virtually all refiners. (CCPF 2968-3173).

A. Over 92% of All Phase 2 Gasoline Falls under the Property Limits of the Patents

{

}

(Eskew, Tr. 2891; Eskew, Tr. 2965, *in camera*; Stellman, Tr. 8098-8099, *in camera*). **{**

} that represent more than 98% of California gasoline production. (Eskew, Tr. 2817, 2955, *in camera*, RX 1165 at 016, *in camera* (Stellman Report); CX 1720A at 027 (Shapiro Expert Report)). Moreover, as discussed in greater detail below, refiners cannot economically use alternative blending technologies and know-how to produce gasoline fuels that avoid the property limitations of Unocal's patented technology while at the same time comply with CARB summertime regulations. (CCPF 3174-3617).

B. Unocal's Own Expert Admitted That 50.4% of All Gasoline Produced in California Infringed Either the '393 Patent or the First 40 Claims of the '126 Patent

Unocal's own technical expert, Mr. Richard Stellman, testified that the major California refiners actually infringe the claims of the '393 patent and the first forty claims of the '126 patent at a rate of 50.4%. (RX 1165A at 017; *see also* Stellman, Tr. 8096, *in camera*). With respect to the remaining patents, the evidence shows that refiners routinely use the methods of making gasoline in these patent claims and induce or contribute to the use of the claimed methods of using gasoline in a car to reduce emissions. (CCPF 3129-73). Unocal's own expert, Dr. Griffin, proved through his LP Model that it would not be economically feasible for the refining industry to **{**

}, rather than to pay Unocal the demanded royalties. (CCPF 3944, *in*

camera). When this evidence is combined with the evidence that over 92% of CARB gasoline production meets the numerical limitations of Unocal's patent claims, it shows that there is a likelihood that approximately 92% of CARB summertime gasoline production infringes one or more of Unocal's patent claims. (CCPF 3024-44).

XIV. UNOCAL HAS SOUGHT TO COLLECT ROYALTIES FOR ITS PATENTS THROUGH LITIGATION AND LICENSING

A. The '393 Litigation

In 1995, Unocal began to seek royalties for its technology to produce CARB-compliant gasoline through litigation and licensing of its patents. After Unocal announced that it would finalize a license for its '393 patent by the end of April 1995, the major refiners of CARB reformulated gasoline – ARCO, Exxon, Mobil, Chevron, Texaco, and Shell – filed suit on April 13, 1995 a seeking a declaratory judgment that the '393 patent was invalid and unenforceable for inequitable conduct. *See Union Oil Co. of Cal. v. Atlantic Richfield Co.*, No. CV-95-2379-KMW, slip op. (C.D. Cal. Mar. 10, 1998) (the "'393 litigation"); Answer ¶ 68; (CX 599 at 002 (Unocal press release)). Unocal filed a counterclaim for wilful patent infringement. *Union Oil Co. of Cal. v. Atlantic Richfield Co*, 208 F.3d 989, 994 (Fed. Cir. 2000)).

Unocal prevailed, and success of its scheme was proven. The jury found that Unocal's '393 patent claims were valid and infringed, and found that the refiners must pay a royalty rate of 5.75 cents per gallon for the period from March through July 1996 for sales of infringing gasoline in California. *See* 208 F.3d at 991; Answer ¶ 68. The judge held that the patent was not unenforceable. 208 F.3d at 994. The Federal Circuit affirmed in 2000. *Id.* at 991 (affirming claim construction, validity and enforceability and noting that refiners did not appeal the wilful infringement determination). The Supreme Court denied the refiners' petition for writ of certiorari. *Union Oil*

Co. v. Atlantic Richfield Co., 531 U.S. 1183 (2001).[46]

The refiners in the '393 litigation have made payments totaling $91 million to Unocal for damages, costs, and attorneys' fees. (Strathman, Tr. 3658; Answer ¶ 69). An accounting action is ongoing to determine the amount of damages for infringement of the '393 patent by the refiners for the period from August 1, 1996, though December 31, 2000. Answer ¶ 70.[47] The trial judge ruled in August 2002 in the accounting action that the royalty rate applicable to gasoline produced and/or supplied in California during that period would remain 5.75 cents per gallon. *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, No. CV-95-2379-CAS, Order, slip op. at 4-5,13 (C.D. Cal. Aug. 28, 2002).

According to the testimony of Unocal's in-house counsel at trial in this matter, Unocal is seeking between $250 and $280 million in the accounting action for infringement damages between July 1996 and 2000. (Strathman, Tr. 3657-3659). **{**

} (CX 683, *in camera*).

B. The '393 Litigation: Issues Litigated in Other Tribunals

Your Honor has asked the parties to "provide a list of all disputed issues alleged in the Complaint that have been litigated in any other court or forum and the current status thereof." (Trial

---

[46] The refiners have also initiated a reexamination at the Patent Office of Unocal's '393 and '126 patents. (Strathman, Tr. 3661-3662). The patent examiner has issued a preliminary rejection of the '393 and '126 patent, and Unocal responded to that rejection. (Strathman, Tr. 3661-3664; Minute Order, *Union Oil Co. of Cal. v. Valero Energy Corp*., CX-02-00593, May 16, 2002). There are no statutory deadlines for the PTO to complete the reexamination. 35 U.S.C. §§ 305, 132, and 133. Unocal may appeal from a final rejection of any claim to the Board of Patent Appeals and Interferences. 35 U.S.C. § 134(b) (2003). Unocal may then appeal a decision by the Board of Patent Appeals and Interferences to the U.S. Court of Appeals for the Federal Circuit. 35 U.S.C. § 141 (2003). Unocal believes it will prevail in the reexamination in the patent office. (Strathman, Tr. 3671).

[47] The district court has declined to stay the accounting action, although it decided not to enter a final judgment in the action until the PTO reexamination proceedings for the '393 patent are finally decided. Minute Order of Court Ruling Defendants' Motion to Stay Proceedings Pending Reexamination, *Union Oil Co. of Cal. v,* No. CV-95-2379-CAS, slip op. at 6 (C.D. Cal. May 16, 2002).

Tr. 8579; Revised Scheduling Order (Sept. 9, 2004) at 2). As described above, Unocal litigated and won its infringement suit against the major California refiners. Nonetheless, Unocal continues to dispute a number of facts that Unocal itself advocated in the '393 litigation.[48]

First, the issue of whether refiners, if they could not blend around Unocal's patents, had alternatives to Unocal's patented technology was litigated. In the '393 litigation, Unocal contended that it was entitled to a royalty rate of 5-7 cents per gallon of CARB-compliant summertime gasoline produced by the refiners because there were no better alternatives for refiners. Unocal claimed that, because refiners "could not completely and consistently avoid producing infringing gasoline," the refiners' best option would be to take finished gasoline, re-blend it so that it no longer conforms to the CARB regulations, place it on a tanker, and ship it to the Gulf Coast. (CX 1323 at 054, 056). According to Unocal, the opportunity cost for this option is thus roughly 29 to 35 cents per gallon. (CX 1323 at 056; *see also* CX 1332 at 003-004). Unocal's expert in both this litigation and the '393 litigation, Dr. David Teece, also testified in the '393 litigation that the unique aspects of the California market – the application of CARB's regulations and the expense of transshipping – supported a high royalty rate, and the district court relied on this evidence in finding that the 5.75 cents per gallon royalty only applied in California. *See* Order Denying Defendants' Motion to Vacate Accounting Order and Open the Record for Additional Evidence, and Granting Defendants' Motion to Limit Accounting Order to California Gasolines, *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, No. CV-95-2379-CAS, slip op. at 15-17 (C.D. Cal. Aug. 27, 2002).

Second, the issue of whether Unocal could extract high royalties even if only a portion of

[48] The refiners' defense originally had included claims of equitable estoppel, implied license and unclean hands, based on allegations, *inter alia*, that Unocal had lulled CARB and the defendants into believing that Unocal did not intend to enforce its patent rights. Although the refiners represented that they would present evidence at trial regarding these defenses, they did not and the trial court went so far as to impose sanctions on the grounds that "at trial defendants did not even attempt to introduce such evidence." Order Re: Attorneys' Fees, *Union Oil Co. of Cal. v. Atlantic Richfield Co.*., No. CV-95-2379-CAS, slip op. at 2-3 (C.D. Cal. Sep. 11, 1998). Thus, no court has made any determinations of fact on the wrongfulness of Unocal's conduct.

refiners' production infringed was litigated. In the '393 litigation liability phase, the jury determined that refiners infringed Unocal's patent 29% of the time. In the damages phase, Unocal argued to the jury that the "only conclusion that can be drawn" from the 29% infringement rate is that the refiners "could not continuously blend around the '393 patent." (CX 1825 at 028-030; *see also*, 032-033; 059-065; *see also* CX 1346 at 024 ("so long as it does not reduce that rate to zero, the firm will still be infringing and will still have to deal with the problem of disposing of the infringing gas")). This fact is important because any rate of infringement is sufficient to support injunctive relief that could prevent refiners from using Unocal's technology for making, using and selling CARB-compliant gasoline.

Third, Unocal argued in the '393 litigation that "there is no evidence to suggest that any additional reconfiguration would aid any individual refiner in completely avoiding infringement of Unocal's patent," and that "[e]ven if such rebuilding were possible, it would likely be very expensive and would take time to implement." (CX 1323 at 056 (Defendants' Memorandum of Contentions of Fact and Law Pursuant to Local Rule 9.5)). Unocal supported this position through the testimony of Dr. Teece, who explained that he did not consider the option of building around the patents to be "a realistic one" because the build around option would require "a substantial investment" and because the option "cannot be exercised quickly." (CX 1346 at 022-023).

Fourth, the issue of whether CARB could have changed its regulations to allow refiners to avoid Unocal's patents was litigated. In the '393 litigation, Unocal argued that it would be very hard for CARB to change its regulations in order to allow refiners to avoid Unocal's patent. Unocal's expert, Dr. Teece, testified at trial that it was unlikely that refiners could convince CARB to change its regulations because "it would be very hard for CARB, given the public positions it's taken, to then say, well, but now we think we'll roll back this regulation a little bit to make it possible for the potential licensees here to avoid paying a patent to Unocal." (CX 1332 at 032).

Fifth, the issue of the amount of royalties that would be passed through to consumers was litigated. Unocal argued in the '393 litigation that both Unocal and the other refiners knew that 90% of the cost of the royalty for Unocal's patents would be passed through to consumers. Dr. Teece testified at trial that, in a hypothetical negotiation for a royalty, "I assumed that about 90 percent [of the royalty] would be passed on" to California motorists and admitted that "motorists ought to be happy to pay 4 to 5 cents of some of this royalty to Union Oil to help fund these payments." (CX 1332 at 037-038). The district court relied on this evidence in deciding not to enter a final judgment in the '393 accounting action until the PTO reexamination proceedings for the '393 patent are finally decided, because allowing the accounting action to go forward "could unduly prejudice defendants and, more significantly, the public, by forcing defendants to pay damages for infringing patents which are passed on to consumers." Minute Order of Court Ruling Defendants' Motion to Stay Proceedings Pending Reexamination, *Union Oil Co. of Cal. v. Atlantic Richfield Co.*, No. CV-95-2379-CAS, slip op. at 6 (C.D. Cal. May 16, 2002)).

Sixth, the issue of whether CARB was influenced by Unocal's presentations was litigated. In the '393 litigation, Unocal stated that "in Unocal's view, the commercial success of the '393 Patent is self-evident. The invention was such an extraordinary advancement of science *that it became the framework for the CARB regulations*." (CX 1580 at 003 (Unocal's Supplemental Memorandum In Opposition to Plaintiffs' Motion to Compel Discovery Responses at 3 (emphasis added)); *see also* CX 1765 at 023-024 (Unocal argued in closing that CARB "came out with the new proposed regulations because they had met with UNOCAL and got the information from them. And UNOCAL gave them that information")). Despite all this, Unocal still disputes these issues. *See, e.g.,* Answer ¶¶ 10, 43, 45, 92-94.

C. The '393 Litigation: Claim Construction and Infringement Issues

Many of the relevant portions of the Unocal patent claims also have been previously

litigated. In the '393 litigation, the district court construed the disputed limitations of the '393 patent claims. (CX 1796A at 008-019 (Order, *Union Oil Co. of California*, No. 95-CV-2379 (C.D. Cal. May 19, 1997); CX 1796A at 189, 224 (Court's Jury Instructions, *Union Oil Co. of California*, No. 95-CV-2379 (C.D. Cal. Sept. 24, 1997). The meaning of the other limitations of the '393 patent was undisputed, and the jury reached its infringement verdict without any additional claim construction. (*Id.*; CX 1796A at 276-282 (Special Verdict Form), RX 816 at 002 (Judgment)). The Federal Circuit explicitly approved the district court's claim construction. *Union Oil Co. of Cal.*, 208 F.3d at 991, 996 (affirming validity and related claim construction issues and noting that refiners did not appeal infringement).[49]

The claims of the '393 patent, as discussed above, cover standard unleaded automotive gasoline compositions that reduce automotive tailpipe emissions. *Union Oil Co. of Cal.*, 208 F.3d at 991. All forty-one undisclaimed claims in the '393 patent were at issue in the '393 litigation. *Id.* at 991. Each claim effectively begins either with the preface "an unleaded gasoline fuel suitable for combustion in an automotive engine," or "an unleaded gasoline fuel suitable for combustion in a *spark* ignition engine." *Id.* at 992 (emphasis added). The claims then include various requirements ("numerical property limitations") for the properties of the gasoline. *Id.*[50]

---

[49] The claims construction of the '393 patent (and of the corresponding limitations in the other Unocal RFG patents), as well as certain infringement issues outlined below should be undisputed based on the '393 litigation. At trial in this matter, Unocal appeared to argue that the '393 litigation did not resolve these issues. (*See, e.g.*, Trial, Tr. 3180). Unocal, however, made the opposite representations in pleadings in the '393 accounting action. (CX 1579). Unocal contended in the '393 accounting action that the district court decided such issues, and stated that arguments that the '393 litigation did not do so were incorrect and "disingenuous." (CX 1579 at 007-008).

[50] As an example, claim 117, dependent on claim 116, states:

> 117. [An unleaded gasoline fuel suitable for combustion in an automotive engine, said fuel having a Reid Vapor pressure no greater than 7.0 psi, and a 50% D-86 distillation point no greater than 200° F., and a 90% D-86 distillation point no greater than 300° F., and a paraffin content greater than 85 volume percent, and an olefin content less than 4 volume percent] wherein the maximum 10% distillation point is 158° F (70° C.)

The preface or "preamble" was the primary disputed claim term in the '393 litigation. The district court concluded that the preamble covered "fuels that will *regularly* be used in autos, not that conceivably could be." (CX 1796A at 014 (*Union Oil Co. of Cal.*, No. CV-95-2379-KMW, slip op. at 7)); *see also* 208 F.3d at 995. The district court thus construed the claims to cover only "standard automotive gasoline," as opposed to broader petroleum formulations such as "aviation fuels or racing fuels." 208 F.3d at 995; (CX 1796A at 015-016). The Federal Circuit affirmed on this basis. 208 F.3d at 995-96.

The district court also construed the language in the numerical property limitations in the claims concerning volume percentages of hydrocarbons (*e.g.*, the "volume percent" for olefins, paraffins and aromatics). (CX 1796A at 224; RX 1165A at 016 note 4 (Stellman Report)). The court construed these references to mean "the percentage that such hydrocarbons bear in relation to the total hydrocarbon content of the fuel – not based upon a percentage of the total fuel mixture – without adjustment for the presence of MTBE or oxygenates." (CX 1796A at 224). The refiners did not appeal this issue. 208 F.3d at 991.

In construing the patent claims, the district court found it appropriate to rely only on the "intrinsic evidence" of the patent record itself, without expert testimony or a hearing on the meaning of the claims. (CX 1796A at 009-010). Indeed, the district court held that the "patent is unambiguous." (CX 1796A at 015). It emphasized "that the intrinsic evidence regarding the '393 patent leaves no ambiguity as to the meaning of the patent," (CX 1796A at 018), and "the claims are unambiguous and can be construed by examining the intrinsic evidence . . . without need for further clarification." (CX 1796A at 010, n.1). According to the court, the "'393 patent specification describes with striking clarity the coverage of the claims." (CX 1796A at 011). The specification

---

*(*CX 617 at 024 ('393 patent, col. 24, ll. 24-27)).

of the ’393 patent, discussed above, is identical to the specifications of the remaining four Unocal patents. (JX 3A (Joint Stipulation of Law and Fact), ¶ 7 (filed Oct. 12, 2004)).

The ’393 litigation also decided two additional issues. First, as Unocal represented to the district court in the ’393 accounting action, the ’393 litigation resolved the question of what industry standard should be used to measure Reid Vapor Pressure (RVP) in the numerical property limitations of the claims for the purposes of an infringement analysis. (CX 1579 at 005-006; *see also* CX 1796A at 276-277 (Special Verdict Form)).

Both Unocal’s and Complaint Counsel’s experts in this case evaluated infringement and overlap of the claims of Unocal’s five patents using the same methodology regarding RVP that Unocal used to prove infringement in the ‘393 litigation. (RX 1165 at 014-016 (Stellman Report), *in camera*; Stellman, Tr. 7945-7946; CX 1798 at 003, *in camera*).

Second, as Unocal also represented to the district court in the ‘393 accounting action, the ’393 litigation decided the issue of whether motor gasoline made at a refinery to which ethanol is later added (such as through “splash blending”) is not “standard automotive gasoline” as required by the patent claims. (CX 1579 at 007-009). As Unocal explained, the suggestion that the blending of ethanol into motor gasoline is “a new, post-trial practice not considered by the jury [in the ‘393 litigation] is disingenuous.” (CX 1579 at 008).

Finally, the meaning of the remainder of the claim limitation in the ’393 patent was undisputed in the ’393 litigation. *See* (CX 1796A at 008-019 (Order); CX 1796A at 189, 224 (Court’s Jury Instructions)). The jury was able to reach a verdict that the refiners infringed the ’393 patent *without requiring any additional claim construction*. (CX 1796A at 276-282 (Special Verdict Form); CX 1796A at 224 (Jury Instruction on Claims Construction) ; *see also* 208 F.3d at 994, 996).

D. The Valero Litigation

Unocal’s efforts to obtain royalties for its technology to produce CARB reformulated

gasoline have extended beyond its '393 patent. On January 23, 2002, Unocal sued Valero Energy Company in the Central District of California for infringement of both the '393 and '126 patents. (CX 1337 (Unocal's Valero Complaint); Answer, ¶ 71). In its complaint, Unocal sought treble damages for past willful infringement. (CX 1337 at 011). Unocal further requested either an injunction barring future infringement of the '126 and '393 patents, or a mandated license to the patents at the rate of 5.75 cents per gallon for all infringing gasoline. (CX 1337 at 011).

The allegations in Unocal's complaint against Valero show that Unocal understands that its patent portfolio has a substantial impact in the marketplace. Unocal explicitly incorporated in its complaint one refiner's CEO's statement that "[n]obody can blend around all five [RFG patents]; it is just impossible." (CX 1337 at 006). Unocal further alleged in its complaint that Valero disclosed in SEC filings that it might be required to pay royalties for use of Unocal's RFG patents. (CX 1337 at 006).

E. Unocal's Licensing Efforts

Unocal has obtained royalties for all five of its reformulated gasoline patents through licensing. In March 2001, Unocal announced that it would offer uniform licensing terms to all non-litigating refiners, blenders and importers for the use of its patent portfolio. (Answer, ¶ 72). These standardized terms provide for a sliding scale of royalties for the patents ranging from 1.2 to 3.4 cents per gallon of infringing gallons of gasoline, with the royalty rate decreasing as the infringement rate increases. (Answer, ¶ 72).

{ } Unocal has entered into licensing agreements with eight companies for use of its RFG patent portfolio. (Answer, ¶ 72 (public); Strathman, Tr. 3701, *in camera*). **{**

}

(CCPF 2724-33). **{**

} (CCPF at 2734). **{**

} (Strathman, Tr. 3703, *in camera*).[51] **{** **}** (CCPF 2736).

{

} (CCPF 2737). **{**

} (Strathman, Tr. 3722, *in camera*). **{**

} (Dowling, Tr. 3779, *in camera*).

{

} (CCPF 3048-49). **{**

} (CCPF 3048-49). **{**

[51] **{** **}** (CX 2017 at 002, *in camera*; Strathman, Tr. 3703, 3754, *in camera*).

} (CCPF 3054-61). **{**

} (CX 2000 at 001, *in camera;* Strathman, Tr. 3717-3718, *in camera*).

Unocal stands to gain substantial revenues based on its licensing program. As of April 2003, Unocal projected license fee revenues for its patent portfolio of $75-$150 million per year. (Strathman, Tr. 3626). Charles Williamson, Unocal's then- and current chairman and CEO, openly discussed the $75-150 million revenue projection at Unocal's May 21, 2001 annual shareholders meeting. (CX 441 at 002-003; CX 7072 (Williamson, Dep. at 16-17)). Mr. Williamson went so far as to say (referring to the five Unocal patents collectively), "I think the patent is a piece of intellectual capital property that is turning into a new business for us." (CX 441 at 002; CX 7072 (Williamson, Dep. at 12-13)). Unocal admittedly continues to maintain a "strategic focus" in "pursuing and negotiating licensing agreements for reformulated gasoline patents with refiners, blenders and importers [as of 2003]." (CX 7072 (Williamson, Dep. at 28); CX 614 at 005).

LIABILITY

The evidence shows that Unocal lied. It lied to CARB. It lied to Auto/Oil. It lied to WSPA. Unocal watched as its lies took effect, and it did nothing to stop their impact. The evidence further shows that Unocal's lies were exclusionary, that they are not protected by *Noerr*, and that they led to Unocal's acquisition of monopoly power (or to a dangerous probability that Unocal would acquire market power). Unocal's conduct therefore violated Section 5 of the FTC Act. .

I. THE BURDEN OF PROOF

The preponderance-of-evidence standard applies in this matter. That standard applies in administrative actions brought under Section 5 of the FTC Act involving alleged antitrust violations. *See, e.g., In re Adventist Health System/West*, 117 F.T.C. 224; 1997 FTC Lexis 54, at *27 (1994) ("Each element of the case must be established by a preponderance of the evidence"); *In re Ind. Fed'n of Dentists*, 101 F.T.C. 57, 1983 FTC Lexis 112, *210 (1983) (holding that preponderance of evidence supported finding of antitrust conspiracy), *vacated*, 745 F.2d 1124 (1984), *reinstated*, 476 U.S. 447 (1986). This is also true for Section 5 cases involving alleged misrepresentations. *See, e.g., In re Novartis Corp.*, 1999 FTC Lexis 63, *49 (1999) (applying preponderance of the evidence in Section 5 case alleging misrepresentations); *In re Amrep Corp.*, 102 F.T.C. 1362, 1983 FTC Lexis 17, *491 (1983) ("The preponderance of the evidence shows that respondent, in several ways, misrepresented the likely effect of future growth and development on the prices and market value of Rio Rancho land"). This matter is no different.

A. The Preponderance-of-Evidence Standard Applies to Section 5 Cases Challenging Exclusionary Deceit

Your Honor has asked us to address "the proper standard of proof to apply in a case where fraud is alleged." (Revised Scheduling Order (Sept. 9, 2004) at 1; Trial Tr. 8579). To be clear: the Commission's Complaint does not allege common-law fraud. The Complaint alleges an antitrust

violation, and the elements to be proved are those of an antitrust case. While the alleged violations of Section 5 of the FTC Act are premised on anticompetitive conduct that consists of "materially false and misleading statements" (Complaint at ¶¶ 2, 77, 80) and "knowing and willful misrepresentations and other bad faith, deceptive conduct" without implying all the elements of common-law fraud (Complaint at ¶ 3; *see also id.* ¶¶ 77, 84), which might be characterized as "fraud" or "fraudulent conduct" (Complaint ¶¶ 5, 76), this in no way changes the fact that the Complaint alleges an antitrust violation, not common-law fraud.

In any event, regardless of whether the Complaint in this matter were deemed to allege fraud, Complaint Counsel must prove its case by a preponderance of the evidence. This standard is dictated by the Administrative Procedure Act (the "APA"). 5 U.S.C. §§ 551, *et seq.* The APA, of course, applies to FTC administrative actions such as this one. *See FTC v. Standard Oil Co. of Cal.*, 449 U.S. 232, 238 (1980) (applying APA to FTC action); 5 U.S.C. § 551 (defining "agency" for purposes of the APA in a manner that includes the FTC). Section 556(d) of the APA provides that agency orders must be "supported by and in accordance with the reliable, probative, and substantial evidence." 5 U.S.C. § 556(d). As the Supreme Court held in *Steadman v. SEC*, 450 U.S. 91 (1981), this Section establishes that actions under the APA are governed by the preponderance-of-evidence standard. *Id.* at 101-02.

This standard applies equally in cases involving allegations that the administrative offense consisted in part of misrepresentations or fraudulent conduct. *Steadman* itself involved alleged violations of the antifraud provisions of the federal securities laws. *Id.* at 94-95. The petitioner in that case argued that the clear-and-convincing standard should apply "because of the potentially severe sanctions that the [Securitities and Exhange] Commission was empowered to impose and because of the circumstantial and inferential nature of the evidence that might be used to prove intent to defraud." *Id.* at 95. The Supreme Court, however, expressly rejected this argument,

holding instead that Section 556(d) establishes a preponderance-of-evidence standard for actions governed by the APA. *Id.* at 96. As the Court explained, this holding was inevitable given the confluence of the statutory language, the legislative history of the statute, and the SEC's "longstanding practice of imposing sanctions according to the preponderance of the evidence." *Id.* at 97-103.

The Court's holding in *Steadman* is consistent with the standard of proof applied for violations of other federal laws prohibiting fraudulent conduct. In *Grogan v. Garner*, 498 U.S. 279 (1991), the Supreme Court surveyed a panoply of federal causes of action based on misrepresentations and found that they consistently applied a preponderance-of-evidence standard. In light of this, the Court held that the preponderance-of-evidence standard applies to an action in a bankruptcy alleging that the debtor obtained monies by "false pretenses, a false representation, or actual fraud," *id.* at 280-81 & n.1, even though both the statutory language and the legislative history were silent on this issue, *id.* at 286. The lower court had reasoned that the higher burden of proof was appropriate, in part, because the common-law fraud required clear-and-convincing evidence. *Id.* at 282-83. The Court, however, specifically rejected this argument, noting that Congress has consistently legislated that the preponderance-of-evidence standard applies in cases involving misrepresentations or fraud:

> Unlike a large number, and perhaps the majority, of the States, Congress has chosen the preponderance standard when it has created substantive causes of action for fraud. *See, e.g.*, 31 U.S.C. § 3731(c) (False Claims Act); 12 U.S.C.A. § 1833a(e) (civil penalties for fraud involving financial institutions); 42 CFR § 1003.114(a) (1989) (Medicare and Medicaid fraud under 42 U.S.C. § 1320a-7a); *Herman & MacLean v. Huddleston*, 459 U.S., at 388-390, 103 S.Ct., at 690-692 (civil enforcement of the antifraud provisions of the securities laws); *Steadman v. SEC*, 450 U.S. 91, 96, 101 S.Ct. 999, 1005, 67 L.Ed.2d 69 (1981) (administrative proceedings concerning violation of antifraud provisions of the securities laws); *SEC v. C.M. Joiner Leasing Corp.*, 320 U.S. 344, 355, 64 S.Ct. 120, 125, 88 L.Ed. 88 (1943) (§ 17(a) of the Securities Act of 1933); *First Nat'l Monetary Corp. v. Weinberger*, 819 F.2d 1334, 1341-1342 (6th Cir. 1987) (civil fraud provisions of the Commodity Exchange Act). *Cf. Sedima, S.P.R.L. v. Imrex Co.*, 473 U.S. 479, 491,

105 S.Ct. 3275, 3282, 87 L.Ed.2d 346 (1985) (suggesting that the preponderance standard applies to civil actions under the Racketeer Influenced and Corrupt Organizations Act).

Id. at 288.[52] While *Steadman* requires the application of the preponderance-of-evidence standard because this case is governed by the APA, *Grogan* further teaches that the preponderance of evidence is appropriate because this action is brought under a federal statute – Section 5 of the FTC Act.

Under *Steadman* and *Grogan*, therefore, the preponderance-of-evidence standard applies in this case even though the underlying conduct involves misrepresentations. Further, this standard would apply even if this case required proof of all of the elements of common-law fraud, which it does not.

B. The Standard of Proof Is No Different Merely Because Patents Are Involved

Unocal's use of patents as part of its efforts to seize monopoly power does not alter the applicable standard of proof.[53] Unocal's enforcement of its patents is a part of an overall effort to monopolize, which started with Unocal's lies to CARB and the industry, and proof of this effort is judged by the preponderance-of-evidence standard.[54] *See United States v. U.S. Gypsum Co.*, 333

---

[52] Even if one were to look at the state law of fraud that would apply to Unocal's conduct (California law) for guidance, the preponderance-of-evidence standard would apply. *See Liodas v. Sahadi*, 19 Cal. 3d 278, 288-91 (1977) (holding that preponderance standard applies to fraud actions and rejecting arguments for higher standards of proof).

[53] As the Supreme Court made clear in *Herman & McLean v. Huddleson*, 459 U.S. 375 (1983), the preponderance-of-evidence standard applies in civil antitrust cases. *Id.* at 389-390 (stating that "[a]ny other standard expresses a preference for one side's interests" and reserving the clear-and-convincing standard for cases involving "particularly important individual interests or rights"). This standard specifically applies to monopolization claims such as those alleged in this case. *See, e.g., Deauville Corp. v. Federated Dep't Stores, Inc.*, 756 F.2d 1183, 1188 (5th Cir. 1985) ("To prevail on a monopolization claim, the plaintiff must prove by a preponderance of the evidence that the defendant has obtained 'monopoly power' in the relevant market, and that the defendant improperly acquired or maintained that power.").

[54] As Unocal's patent enforcement is part of an overall scheme to monopolize, the rationale for a higher burden of proof set forth in *Walker Process Equip. v. Food Mach. & Chem. Corp.*, 382 U.S. 172 (1965), and *Handgards, Inc. v. Ethicon, Inc.*, 601 F.2d 986 (9th Cir. 1979), does not apply. *See* 601 F.2d at 987, 994.

U.S. 364, 388 (1948) (finding "the preponderance of evidence at the conclusion of the government's case indicated a violation of the Sherman Act" through the use of industry-wide patent license agreements). In fact, the evidence shows that Unocal's patent position has had anticompetitive effects even *without* patent litigation. (*See, e.g.*, CX 1717 (due to the existence of Unocal's patents "importers will not dare to attempt to blend finished gasoline")). Thus, as with any other antitrust claim based on deceptive conduct, the preponderance standard applies. *See, e.g, United States v. Microsoft*, 84 F. Supp. 2d 9, 107 (D.D.C. 2000) (Findings of Fact - finding by preponderance of evidence that defendant engaged in deceptive conduct); *United States v. Microsoft*, 87 F. Supp. 2d 30, 43 (D.D.C. 2000) (Conclusions of Law - concluding that acts of deception were exclusionary), *aff'd in relevant part*, 253 F.3d 34, 76 (D.C. Cir. 2001).

That the remedy in this case would curtail the scope of potential enforcement of Unocal's patents does not change this conclusion. Indeed, the courts – including the Supreme Court – have curtailed patent rights where antitrust violations involving patents were shown by a preponderance of evidence.[55] In *United States v. National Lead Co.*, 332 U.S. 319 (1947), the Supreme Court affirmed an antitrust decree that limited the royalties defendants could obtain for their patents. *National Lead* involved patent pooling agreements that restrained competition. As the Supreme Court characterized the case, the "violation of the Sherman Act . . . consisted primarily of the misuse of patent rights." 332 U.S. at 348. The district court had found, under a preponderance-of-evidence standard, that the underlying conspiracy to misuse patent rights would persist if not remedied by the court. *United States v. National Lead Co.*, 63 F. Supp. 513, 526 (S.D.N.Y. 1945), *aff'd*, 332 U.S. 319 (1947). To remedy this violation, the district court decreed that the defendants "grant to any

[55] Patent law itself uses the preponderance-of-evidence standard in cases involving the equitable estoppel of patent enforcement efforts. *See, e.g., A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1045-46 (Fed. Cir. 1992) (en banc).

applicant . . . a non-exclusive license under any or all of the patents . . . at a uniform, reasonable royalty." *Id.* at 534. The Supreme Court affirmed this restriction of patent rights – expressly noting that "[s]uch royalties might be set at zero." 332 U.S. at 349.

Similarly, the court in *United States v. Gen. Elec. Co.*, 115 F. Supp. 835 (D.N.J. 1953), imposed a decree requiring compulsory licenses of patents found by the preponderance of the evidence to have been used in violation of Sections 1 and 2 of the Sherman Act. In the liability phase of the case, the evidence showed agreements between the defendant and its competitor that "were designed to effect an exchange of patents relating to machinery for the production of glass and glass as it pertained to the incandescent electric lamp so that the field was divided between" the parties. *United States v. Gen. Elec.*, 82 F. Supp. 753, 798 (D. N.J. 1949). The court found that "the preponderance of evidence" fully supported the contention that the defendant unlawfully restrained trade and monopolized the market. *Id.* at 904. Based on this finding, the court curtailed the defendants' patent rights. 115 F. Supp. at 843-44; *see also*, *In re The Roberts Co.*, 56 F.T.C. 1569, 1606 (1960) (finding proof of conspiracy through, inter alia, threatening patent infringement suits "sustained by reliable probative evidence").

Perhaps more importantly, Congress has already decided the issue of what standard of proof to apply. As the Supreme Court explained in *Herman & MacLean*, "[w]here Congress has not prescribed the appropriate standard of proof and the Constitution does not dictate a particular standard, we [the Court] must prescribe one." 459 U.S. 375, 389 (1983). Such is the case with Section 2 of the Sherman Act. Congress did not establish a standard of proof, and in certain circumstances involving "particularly important individual interests or rights," 459 U.S. at 389, the courts have stepped in and prescribed the clear-and-convincing standard of proof. This is not so in the case of Section 5.

With respect to the FTC Act (in contrast to the Sherman Act), Congress has already set the

standard of proof. The APA governs administrative Section 5 cases. *See FTC v. Std. Oil Co.*, 449 U.S. 232, 238 (1980). In the words of the Supreme Court, "Congress *has spoken*, and has said that the preponderance-of-the-evidence standard should be applied." *Steadman*, 450 U.S. at 96 (emphasis added). Accordingly, whatever policy reasons might be argued for the imposition of a clear-and-convincing standard in this case, absent "countervailing constitutional constraints," Congress's "'traditional powers… to prescribe rules of evidence and standards of proof'" must prevail. *Id.* at 95 (quoting *Vance v. Tarrazas*, 444 U.S. 252, 265 (1980)). The Supreme Court has already held that there is no countervailing constitutional restraint requiring a higher burden of proof in cases alleging misrepresentations or fraud. *See Grogan*, 498 U.S. at 288. Neither the Commission nor the courts, therefore, are free to impose a higher burden of proof in cases brought under Section 5 of the FTC Act. Nor are there any "countervailing constitutional restraints" that require a heightened standard in this case.

C. The Preponderance-of-Evidence Standard Applies to the Misrepresentation Exception to *Noerr*

Unocal's conduct does not implicate the *Noerr* doctrine. Its misrepresentations to CARB do not implicate *Noerr* for a number of reasons. (*See* Liability Section III). Unocal's misrepresentations to the industry, which had "substantial marketplace effects independent of CARB's actions," *Unocal Noerr Opinion*, 2004 FTC Lexis 115 at *113, also do not implicate *Noerr*. Unocal's conduct must therefore be evaluated under the same standard that applies in any other Section 5 case: the preponderance-of-evidence standard.

Even if *Noerr* is implicated, however, the preponderance-of-evidence standard applies. If Your Honor holds that Unocal's misrepresentations constitute petitioning activity that implicates *Noerr*, Complaint Counsel must show that Unocal's petitioning was a misrepresentation that was "deliberate, factually verifiable, and central to the outcome of the proceeding." *See Unocal Noerr*

Opinion, 2004 FTC Lexis 115 at *115-16 (setting forth circumstances in which false petitioning loses *Noerr* protection). For several reasons, the preponderance-of-evidence standard applies to this inquiry.

First, the Commission has already held that the preponderance-of-evidence standard applies under Section 5 in a closely related circumstance. As several courts have observed, the misrepresentation exception finds its roots in *Walker Process*.[56] In *In the Matter of Am. Cyanamid Co.*, 72 FTC 623, 1967 FTC Lexis 43 (1967), *aff'd sub. nom, Charles Pfizer & Co., Inc. v. FTC*, 401 F.2d 574 (6th Cir. 1968), the Commission held that the preponderance-of-evidence standard applies to misrepresentations other than outright fraud on the Patent Office. The complaint in that case alleged that the respondents "made false, misleading, and incorrect statements to, and withheld material information from, the United States Patent Office" in order to obtain a patent. 1967 FTC Lexis 43 at *3-*4. The Commission found that the evidence at trial "at the very least, amounted to 'unclean hands,' 'inequitableness,' and 'bad faith,'" *id.* at *138, (which it had previously distinguished from fraud on the Patent Office). *See In the Matter of Am. Cyanamid Co.*, 63 FTC 1747, 1963 FTC Lexis 77 at *224-25 (1963), *vacated sub. nom on other grounds, American Cyanamid Co. v. FTC*, 363 F.2d 757 (6th Cir. 1966). The Commission's findings of "unclean hands" and "inequitableness" in front of the Patent Office "together with the subsequent exploitation of the… patent constituted a violation of Section 5."[57] 1967 FTC Lexis 43 at *138. The

[56] *See, e.g., Whelan v. Abell*, 48 F.3d 1247, 1254 (D.C. Cir. 1995) (relying on *Walker Process* and holding that *Noerr* does not immunize the filing of "deliberately false complaints" before an administrative agency or court); *Clipper Exxpress v. Rocky Mountain Motor Tariff Bureau, Inc.*, 690 F.2d 1240, 1260 (9th Cir. 1982) ("*Walker Process* doctrine . . . provides antitrust liability for the commission of fraud on administrative agencies, for predatory ends."); *Israel v. Baxter Lab.*, 466 F.2d 272, 278 (D.C. Cir. 1972) (drawing analogy between FDA drug approval process and PTO process in *Walker Process*; holding that "[n]o actions which impair the fair and impartial functioning of an administrative agency should be able to hide behind the cloak of an antitrust exemption").

[57] In affirming the Commission's decision, the Sixth Circuit stated, "Pfizer contends that substantial evidence is not the correct yardstick required to sustain the order of the Commission but that the proper

Commission reached these findings on the basis of substantial, reliable evidence (as opposed to the clear-and-convincing standard of evidence for proof of fraud on the Patent Office).[58] Only as an alternative ground did the Commission find "that the evidence is clear and convincing that [the respondent] committed fraud upon the Patent Office," which supported a violation of Section 2 under *Walker Process*, "and hence of Section 5." 1967 FTC Lexis 43 at *138. *American Cyanamid* therefore counsels the application of the preponderance of evidence standard for the analogous misrepresentation exception.

Second, the substantive requirements of the misrepresentation exception eliminate any potential constitutional concerns.[59] False statements "are not immunized by the First Amendment." *BE&K Constr. Co. v. NLRB*, 536 U.S. 516, 530-31 (2002). The misrepresentation exception avoids constitutional issues by requiring that the misrepresentation must be "deliberate, factually verifiable, and central to the outcome of the proceeding." 2004 FTC Lexis 115 at *115.

As the Ninth Circuit held in *Clipper Exxpress v. Rocky Mountain Motor Tariff Bureau, Inc.*, 690 F.2d 1240, 1262 (9th Cir. 1982), the elements of the misrepresentation exception sufficiently protect any potential First Amendment rights without the imposition of a higher standard of proof. Specifically, the court stated:

---

standard of proof to support a finding of misrepresentation is 'clear, unequivocal and convincing' evidence as in cases of fraud. In our former opinion, however, this Court held that substantial evidence was the correct standard to be applied in reviewing this order of the Commission. We adhere to that view." *Charles Pfizer & Co., Inc. v. FTC*, 401 F.2d 574, 585 (6th Cir. 1968).

[58] The Commission had previously found that, although Complaint Counsel had not met the burden of proving a *conspiracy* between respondents to withhold information from the Patent Office by "substantial, reliable and probative evidence," 1963 FTC Lexis 77 at *121, the evidence did support finding that one of the respondents engaged in "unclean hands" before the Patent Office, *id.* at *225.

[59] Even if First Amendment issues were involved, this would not require the application of the clear-and-convincing standard. *See, e.g., Ellis v. Bhd. of Ry. Employees*, 466 U.S. 435, 457 n.15 (1984) ("The fact that petitioners invoke the First Amendment is insufficient reason to impose the heightened standard on their opponents, and we perceive no need to abandon the preponderance standard normally applicable in civil suits for damages.").

> *Clipper claims defendants knew the falsity of their statements, and made those statements in a deliberate attempt to mislead a regulatory body. We can conceive of no stricter standard than that satisfied by the facts alleged by Clipper.* We see no reason to extend first amendment protection here.

Id.[60] (emphasis added). Thus, a higher burden of proof is not constitutionally mandated, and under *Steadman*, the preponderance-of-evidence standard set forth by Congress must apply. 450 U.S. at 95.

Third, outside the antitrust laws, there is ample precedent for the use of the preponderance-of-evidence standard in civil actions challenging efforts to induce government action through misrepresentations. For instance, civil actions under the False Claims Act are decided on the preponderance of the evidence. *See* 31 U.S.C. § 3731(c) (2004); *United States ex rel. Riley v. St. Luke's Episcopal Hosp.*, 355 F.3d 370, 377 (5th Cir. 2004) (holding that allegation that a "known and intended result of Defendants' conspiracy was to induce the Government to pay . . . for fraudulent hospital services and medical care" was sufficient to state claim under Act); *U.S. v. Rivera*, 55 F.3d 703, 707 n.3 (1st Cir. 1995) ("defendants' fraudulent statements induced the government to assume more insurance obligations than it otherwise would have"). Similarly, presenting false information to procure government benefits is subject to civil penalties if shown by a preponderance of evidence. *See Grogan*, 498 U.S. at 288.

In sum, the preponderance-of-evidence standard applies to all aspects of this matter. But

---

[60] *Clipper Exxpress* dealt directly with the misrepresentation exception. The majority of circuit courts apply the preponderance-of-evidence standard for the separate and distinct "sham" exception to *Noerr*. *Compare Litton Sys., Inc. v. American Tel. & Tel. Co.*, 700 F.2d 785, 813-14 (2d Cir. 1983) (holding that preponderance standard applied in case involving bad faith opposition to tariffs considered by the Federal Communications Commission); *Assoc. Radio Serv. Co. v. Page Airways Inc.*, 624 F.2d 1342, 1358 & n.27 (5th Cir. 1980) (affirming finding of antitrust liability where preponderance of evidence showed petitioning was a sham; affirmed jury charge was, "If you find from a preponderance of the evidence that this interpleader action was instituted not for the legitimate purposes of an interpleader suit . . . but for the purpose of economically coercing the plaintiffs then you may consider the filing of this interpleader action as evidence in support of plaintiffs' antitrust claims; *with MCI Communications Corp. v. American Tel. & Tel. Co.*, 708 F.2d 1081, 1155 (7th Cir. 1982) (affirming jury instruction for sham petitioning that applied clear and convincing standard).

even if the clear-and-convincing standard were applied, the record evidence is sufficient to meet this heightened standard.

II. UNOCAL'S CONDUCT WAS EXCLUSIONARY

A. Exclusionary Conduct Is Behavior That Attempts to Exclude Rivals on Some Basis Other Than Efficiency

As the Supreme Court explained in *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985), "If a firm has been 'attempting to exclude rivals on some basis other than efficiency,' it is fair to characterize its behavior as predatory." *Id.* at 605 (quoting R. Bork, *The Antitrust Paradox* 138 (1978)). "'Thus, "exclusionary" comprehends at the most behavior that not only (1) tends to impair the opportunities of rivals, but also (2) either does not further competition on the merits or does so in an unnecessarily restrictive way.'" *Id.* at 605 n.32 (quoting 3 P. Areeda & D. Turner, *Antitrust Law* 78 (1978)). Or, to put it in slightly different words, exclusionary conduct "'is conduct, other than competition on the merits or restraints reasonably "necessary" to competition on the merits, that reasonably appear capable of making a significant contribution to creating or maintaining monopoly power.'"[61] *Barry Wright Corp. v. ITT Grinnell Corp.*, 724 F.2d 227, 230 (1st Cir. 1983) (Breyer, J.) (quoting 3 P. Areeda and D. Turner, *Antitrust Law* ¶ 626 at 83 (1978)); *Town of Concord v. Boston Edison*, 915 F.2d 17, 21 (1st Cir. 1990) (same); *Stearns Airport Equip. v. FMC Corp*., 170 F.3d 518, 522, 525 (5th Cir. 1999) (referring to "the inquiry demanded by *Aspen* – whether competition is or is not on the merits").

Courts have distinguished conduct related to the goals of competition, including lower prices, increased output, enhanced quality and improved efficiency, from conduct that does not further those goals. In *Town of Concord*, for example, the court examined whether the challenged conduct was

[61] Unocal concedes that this is the proper definition of exclusionary conduct. *See* Respondent's Trial Brief at 50-51 (Oct. 6, 2004).

consistent with "competition's basic goals – lower prices, better products, and more efficient production methods." 915 F.2d at 22. Similarly, in *Stearns Airport Equip.*, the court distinguished competition through "trying to sell [one's] product" through promotion of non-price considerations such as "reliability, maintenance support, and general quality" from conduct such as bribery, threats, and manipulation that violates the "integrity of the decisional process." 170 F.3d at 524-26.

B. Deceptive Conduct, Such As Lying, With the Purpose and Intent To Hinder Rivals May be Exclusionary Conduct

Deceptive conduct is the antithesis of competition on the merits. *See United States v. Microsoft Corp*., 253 F.3d 34, 77 (D.C. Cir. 2001). It does not serve any of the purposes of competition: to reduce prices, increase output, enhance quality or improve efficiency. Rather, deceptive conduct distorts information in the marketplace – the foundation upon which competition is based. It can therefore violate the "integrity of the decisional process," *Stearns Airport Equip*., 170 F.3d at 526, and can corrupt the efficient working of competitive markets. *See, e.g., SEC v. Dresser Indus.*, 628 F.2d 1368, 1377 (D.C. Cir. 1980) ("Dissemination of false or misleading information . . . may distort the efficient workings of the securities markets . . . .").

Economic learning comes to the same conclusion. As Dr. Shapiro explained, "I consider it rather obvious that lying disrupts and undermines the competitive process itself." (CX 1799A at 018). In economic terms, deceptive conduct can be a form of "opportunism," *i.e.*, "self-seeking behavior coupled with guile."[62] (Teece, Tr. 7667; *see also* Shapiro, Tr. 7044-7045). Opportunism "refers to the incomplete or distorted disclosure of information, especially to calculated efforts to

[62] In his academic writings, Dr. Teece defines opportunism as "the fact that people will generally act in their own self-interest, and have an incentive to do so in ways which may involve 'guile.'" Edward F. Sherry & David J. Teece, *Some Economic Aspects of Intellectual Property Damages*, 573 PLI/Pat 399, 406 (1999) (hereinafter "Teece, *Economic Aspects*").

mislead, distort, disguise, obfuscate, or otherwise confuse."[63] Opportunism is inefficient. (CX 1720A at 013). It only serves to transfer wealth[64] and has no efficiency rationale.[65] Attempting to exclude rivals through deception is therefore exclusionary.

Exclusionary deception comes in many forms. The case law makes it abundantly clear that affirmative false statements may be exclusionary. In *Conwood Company v. U.S. Tobacco Co.*, 290 F.3d 768 (6th Cir. 2002), for example, the defendant had "deliberately provided false information to stores to exclude competitors from the market." *Id*. at 776. In holding that the conduct was exclusionary, the Sixth Circuit stated that "the misrepresentations to retailers to obtain exclusive vending, was not competitive conduct spurred by efficiency" and affirmed a $1.05 billion damages award. *Id*. at 787. Similarly, in *Caribbean Broad. Sys., Ltd. v. Cable & Wireless PLC*, 148 F.3d 1080 (D.C. Cir. 1998), the court held that evidence that defendant had misrepresented to advertisers that it could broadcast over the entire Caribbean, and advertisers therefore need not advertise with plaintiff, was "well within" the concept of anticompetitive practices. *Id*. at 1082, 1087. [66]

Omissions, which "can be just as reprehensible" and effective as affirmative false statements,

---

[63] Oliver E. Williamson, *The Economic Institutions of Capitalism: Firms, Markets, and Relational Contracting* 47 (1985).

[64] *See, e.g.*, Timothy Muris, *Opportunistic Behavior and the Law of Contracts*, 65 U. Minn. L. Rev. 521, 521(1981) (explaining in the context of contracts that opportunism can occur "when a performing party behaves contrary to the other party's understanding of their contract, but not necessarily contrary to the agreement's explicit terms, leading to a transfer of wealth from the other party to the performer"); *see also* Benjamin Klein, Robert Crawford & Armen Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & Econ. 297 (1978); Oliver Williamson, *Transaction Cost Economics: The Governance of Contractual Relations*, 22 J.L. & Econ. 233 (1979).

[65] *See, e.g., Market Street Assoc. Ltd. v. Frey*, 941 F.2d 588, 594 (7th Cir. 1991) ("taking advantage [of a contracting partner's oversight] is not the exploitation of superior knowledge or the avoidance of unbargained-for expense; it is sharp dealing. Like theft, it has no social product . . .") (*citation omitted*).

[66] *See also American Prof'l Testing Serv., Inc. v. Harcourt Brace Jovanovich Legal and Prof'l. Publications., Inc.*, 108 F.3d 1147, 1152 (9th Cir. 1997) (false statements in advertising may be exclusionary conduct); *Int'l Travel Arrangers, Inc. v. Western Airlines, Inc.*, 623 F.2d 1255, 1270 (8th Cir. 1980) (false, misleading and deceptive advertising used to prevent competitive threat was willful maintenance of monopoly power).

can also be exclusionary. *See, e.g., Nobelpharma AB v. Implant Innovations, Inc.*, 141 F.3d 1059, 1070 (Fed. Cir. 1998) (holding that an omission to the patent office may be exclusionary because "a fraudulent omission can be just as reprehensible as a fraudulent misrepresentation").

Exclusionary deception also includes making statements or taking actions while withholding information the nondisclosure of which creates a misleading impression. In *United States v. Microsoft Corp.*, 253 F.3d 34, 76 (D.C. Cir. 2001), for instance, the court held that Microsoft, having created a misleading impression, engaged in exclusionary conduct by failing to warn those who were misled.

More specifically, the court in *Microsoft* held that it was exclusionary for Microsoft to protect its monopoly position by creating the impression that its middleware product would be compatible with non-Microsoft operating systems while failing to warn software developers that certain features added by Microsoft "polluted" the product and reduced cross-platform compatibility. *Id.* at 76. In that case, Sun developed a middleware product ("Java"), which was intended "to allow developers to write applications that would run on multiple operating systems." *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 105 (D.D.C. 1999), *aff'd in part, rev'd in part, vacated in part,* 253 F.3d 34 (D.C. Cir. 2001). By allowing cross-platform compatibility, Java posed a potential threat to Microsoft's operating system monopoly. 253 F.3d at 74. To counter this threat, Microsoft entered into a distribution agreement with Sun, 84 F. Supp. 2d at 105, which gave software developers the impression that Microsoft-distributed Java would be cross-platform compatible. *See* 253 F.3d at 76 (affirming finding that software developers relied on "Microsoft's 'public commitment to cooperate with Sun'"). Microsoft then secretly developed its own version of Java, for which Microsoft created programming tools that contained "'certain "keywords" and "compiler directives" [(i.e., "extensions")] that could only be executed properly'" in the Microsoft operating system environment. 253 F.3d at 74, 76 (quoting district court findings).

The court held that Microsoft engaged in exclusionary deception by creating the impression that its product would be compatible with other platforms, encouraging "developers to use these extensions . . . and by *failing to warn* developers that their use would result in applications that might not run properly" on non-Microsoft platforms. 84 F. Supp. 2d at 106-107 (Findings of Fact ¶ 394) (emphasis added); *see* 253 F.3d at 76 (stating "Microsoft intended to deceive Java developers" and citing Findings of Fact ¶ 394). Thus, "developers who relied upon Microsoft's public commitment to cooperate with Sun and who used Microsoft's tools to develop what Microsoft led them to believe were cross-platform applications ended up producing applications that would run only on the Windows operating system." 253 F.3d at 76. Microsoft's failure to warn therefore "served to protect its monopoly of the operating system in a manner not attributable either to the superiority of the operating system or to the acumen of its makers, and therefore was anticompetitive." 253 F.3d at 77.

The *Microsoft* holding is neither surprising nor unique. Acts or statements that create a misleading impression when material information is withheld are equivalent to deliberate affirmative misstatements.[67] As Unocal conceded in its pretrial brief, deliberate misrepresentations include situations in which "the defendant makes representations but does not disclose facts which materially qualify the facts disclosed, or which render his disclosure likely to mislead." Respondent's Trial Brief at 84-85 (quoting *Warner Constr. Corp. v. City of Los Angeles*, 466 P.2d 996, 1001 (Cal. 1970)).[68] Or, as Unocal put it, "A party who voluntarily makes disclosures (in the

[67] Your Honor has asked the parties to provide legal authority on the issue of "whether an omission constitutes a misrepresentation or a deliberate misrepresentation." (Trial, Tr. 8580-8581; Revised Scheduling Order (Sept. 9, 2004) at 1).

[68] Unocal has argued that this principle only applies where "a relationship between the parties that justifies a duty to disclose exists." Unocal's Trial Brief at 85. The law, however, is not so crabbed. *See, e.g., Union Pacific Res. Group v. Rhone-Poulenc, Inc.*, 247 F.3d 574, 586 (5th Cir. 2001) (a defendant "assume[s] the affirmative duty to make full disclosure when it volunteered some (but not all) material information about the transaction. It thereby obligated itself to speak the whole truth; it could not remain silent after merely

absence of a duty to do so) must speak truthfully. That is, a party may not engage in 'half-truths'; if it speaks, its statements must be true without qualification." Respondent's Trial Brief at 85. This is because "[a] statement containing a half-truth may be as misleading as a statement wholly false." *Restatement (Second) Torts* § 529 cmt. a.

Thus, even a statement that by itself is "true" may be a misrepresentation when there is a failure to warn of material, qualifying facts. As the Restatement explains, "[a] representation stating the truth so far as it goes but which the maker knows or believes to be materially misleading because of his failure to state additional or qualifying matter is a fraudulent misrepresentation."[69] Similarly, it is a deliberate misrepresentation to make an ambiguous statement – one the speaker knows is capable of two interpretations (one true and one false) – if the statement "is made: (a) with the intention that it be understood in the sense in which it is false, or (b) without any belief or expectation as to how it will be understood, or (c) with reckless indifference as to how it will be understood." *Restatement (Second) Torts* § 527 (emphasis added).

These principles have been recognized throughout the law. Securities and Exchange Commission Rules make it unlawful "to make any untrue statement of fact or to omit to state a material fact necessary to make the statements made, in light of all the circumstances in which they were made, not misleading."[70] In consumer protection cases under Section 5 of the FTC Act, it "can

---

making partial disclosures that conveyed a false impression."); *Baskin v. Hawley* 807 F.2d 1120, 1132 (2d Cir. 1986) ("[T]he union's duty to disclose here did not depend on the assumed special relationship [between a retiree and a union], . . . it is nonetheless fundamental that a person who speaks has a duty to disclose enough to prevent his words from being misleading. A statement disclosing favorable information but omitting all reference to material unfavorable facts breaches that duty.").

[69] *Restatement (Second) of Torts* § 529; *see also Bank of Montreal v. Signet Bank*, 193 F.3d 818, 829 (4th Cir. 1999) (a duty to disclose may arise "(1) if the fact is material and the one concealing has superior knowledge and knows the other is acting upon the assumption that the fact does not exist; or (2) if one party takes actions which divert the other party from making prudent investigations (e.g., by making a partial disclosure)").

[70] *See In re Apple Computer Sec. Litig.*, 886 F.2d 1109, 1113 (9th Cir. 1989).

be deceptive to tell only half the truth, and to omit the rest . . . This may occur where a seller fails to disclose qualifying information necessary to prevent one of his affirmative statements from creating a misleading impression."[71] In like manner, state laws (including those in California where Unocal's conduct took place) commonly define "fraudulent" or "willful" deceit to include "[t]he suppression of a fact, by one who is bound to disclose it, or who gives information of other facts which are likely to mislead for want of communication of that fact."[72]

Cases involving patents are no different. For instance, as one of the leading patent law treatises explains, a patentee cannot encourage someone to produce infringing products while concealing the existence of the patent:

> If the owner of a patent right were to explain the patented invention to a person ignorant of the patent and then were to advise him to make, to use, or to sell a specimen of that invention, with intent to induce him to infringe the patent unknowingly, and if that person were thereby induced to incur expense in infringing or in preparing to infringe the that patent, an implied license would result by estoppel, to the person thus misled.

6 Ernest B. Lipscomb III, *Walker on Patents*, 20:16 at 39 (3d. ed. 1985).[73] Patent law does not sanction

---

[71] *In re Int'l Harvester Co.*, 104 F.T.C. 949, 1057 (1984); *see also In re Simeon Mgmt. Corp.*, 87 F.T.C. 1184, 1218 (1976) ("The failure to disclose material facts which if known to prospective purchasers would influence their decision as to whether to purchase, is an unfair trade practice in violation of Section 5.").

[72] Cal. Civ. Code § 1709, 1710 (2005); *see also* Ala. Code 1975 § 6-5-104(b)(3) (2004); Mont. Code Ann. § 27-1-712(2)(c) (2004); N.D. Cent. Code § 9-10-02(A)(3) (2003); 76 Okl. St. Ann. tit. 76, § 3(A)(3); S.D. Codified Laws § 20-10-2 (2005). These laws require no special relationship between the parties for liability. *See, e.g., Randi W. v. Muroc Joint Unified School District*, 14 Cal. 4th 1066, 1082 (1997) (holding that individuals providing references for abusive vice-principal, "having undertaken to provide some information regarding [vice-principal's] teaching credentials and character, [defendants] were obliged to disclose all other facts which 'materially qualify' the limited facts disclosed."); *Lacher v. Superior Court*, 230 Cal. App. 3d 1038, 1046-1047 (1991) ("[T]he rule has long been settled in this state that although one may be under no duty to speak as to a matter, 'if he undertakes to do so, either voluntarily or in response to inquiries, he is bound not only to state truly what he tells but also not to suppress or conceal any facts within his knowledge which materially qualify those stated. If he speaks at all he must make a full and fair disclosure.").

[73] Patent law also holds that deception includes conduct that is less than active encouragement coupled with a failure to warn. *See, e.g., Stambler v. Diebold, Inc.*, 1988 WL 95479, 11 U.S.P.Q.2d 1709 (E.D.N.Y. 1988), *aff'd* 878 F.2d 1445 (Fed. Cir. 1989) (holding that a patentee's "intentionally misleading

the conduct at issue here.

C. Unocal's Lies Were Exclusionary Conduct

Unocal's conduct was exclusionary because it was deceptive and impaired the opportunities of rivals – in both the Technology Market and the CARB Gasoline Market.

1. Unocal's conduct was deceptive

Unocal's representations to both CARB and the industry groups were false and misleading no matter how they are characterized.

First, Unocal's affirmative statements that the 5/14 Project research and results were "non-proprietary" and "in the public domain" were simply not true. As the evidence shows, at the time it made those statements, Unocal was prosecuting a patent that would cover the 5/14 Project results.

Second, Unocal's statements were false because, as the ancient proverb states, "a half truth is a whole lie." Even if one were to credit the tortured testimony of Unocal's witnesses that the representations only pertained to the "data" Unocal provided on diskettes, the evidence shows that these data would lead one to the same results Unocal patented. (*See* Statement of the Case Section III.E, V.E). The disks contained "fuels that were used in the program, the vehicles that were tested, the results of the testing, and also some instructions on how to run regression analysis on the data." (Segal, Tr. 5617). Other industry members used the "data" on Unocal's disks and came to the same identified the same results that Unocal was secretly patenting. (CCPF 1694-735, 1813-32). Unocal's representation is therefore misleading because Unocal left out an important qualification: even if the "data" on the disk were "non-proprietary," use of that data would lead to the results that fall under Unocal's patent rights. *Cf. Restatement (Second) Torts* § 529.

---

silence" was sufficient to estop patent enforcement); *Stryker Corp. v. Zimmer, Inc.*, 741 F. Supp. 509, 514 (D.N.J. 1990) (finding intentionally misleading silence based on conduct including the patentee's failing to mention when discussing the infringing device "that the patent he had pending would be infringed by the . . . device").

Third, Unocal's statements were deliberate misrepresentations even if "non-proprietary" and "data" were somehow ambiguous. The evidence shows that Unocal itself used the term "proprietary" to mean subject to property rights. (CCPF Section IX.G.2). The evidence also shows that Unocal used the term "data" to refer to the teachings of the invention as presented to CARB, including the predictive equations and the other research results. (CCPF Section IX.G.1). At the very least, therefore, Unocal knew that its statements were subject to two interpretations, and it acted, at minimum, "with reckless indifference as to how [those statements would] be understood." *Restatement (Second) Torts* § 527; *see also Gen. Motors Acceptance Corp. v. Cent. Nat'l Bank of Mattoon*, 773 F.2d 771, 776 n.2, 778 (7th Cir. 1985) (affirming finding that ambiguous statement, given circumstances, was *knowingly false*); *Tenneco Oil Co. v. Joiner*, 696 F.2d 768, 773 (10th Cir. 1982) (defining *intentional* deceit to include, "A representation that the maker knows to be capable of two interpretations, one of which he knows to be false and the other true is fraudulent if it is made: (a) with the intention that it be understood in the sense in which it is false, or (b) without any belief or expectation as to how it will be understood, or (c) with reckless indifference as to how it will be understood."); *cf. Garrison v. Louisiana*, 379 U.S. 64, 75 (1964) (false statements, made with reckless disregard of the truth, "do not enjoy constitutional protection"); *McDonald v. Smith*, 472 U.S. 479, 484 (1985) (same conclusion for claim based on right to petition).

Fourth, by explaining to CARB and industry members the 5/14 Project research and results then encouraging them to use that research because it would be "cost-effective" (CX 24 at 002) without telling them of the associated pending patent, Unocal engaged in misleading conduct. That is precisely the type of conduct that patent law itself condemns. *See Walker on Patents* § 20:16 at 39. And it is an intentional misrepresentation because it is a "half truth." *Cf. Restatement (Second) Torts* § 529.

Finally, Unocal knew that CARB had been misled to believe that the 5/14 Project research

results were "non-proprietary," and Unocal deliberately *failed to warn* CARB of the consequences. (*See* Statement of the Case Section VII). Instead, Unocal urged CARB to ensure that the Phase 2 regulations embodied "fairness," created a "level playing field," caused no "differential treatment" among refiners, did not impose different costs on refiners, and created no "windfall" for anyone. (*Id.*). As the *Microsoft* case teaches, Unocal's failure to warn is deceptive conduct. *See Microsoft*, 253 F.3d at 76. It is just another form of a "half truth" and therefore a deliberate misrepresentation. *Cf. Restatement (Second) Torts* § 527

Unocal's conduct – no matter how characterized – therefore constituted deliberate misrepresentations.

2. Unocal's Deception Tended To Impair the Opportunities of Rivals

a. Unocal's lies to CARB were aimed at influencing the regulation to exclude competing technologies

Unocal witnesses readily admit that Unocal used the 5/14 Project research results to influence CARB's regulations. (CCPF Section IX). The evidence also shows that Unocal did so because it wanted to convince CARB not to use other technologies. (CCPF Section VI). This is precisely what Drs. Jessup and Croudace wrote in one of their memoranda urging Unocal to use the 5/14 Project results to influence the regulations: "It would be in the best interest of Unocal to input into and help shape regulations made by the EPA and the CARB by December 17, 1990, or we will be stuck with a costly and unnecessary T90 specification for our gasolines." (CX 3005 at 001). A May 1991 presentation given to Mr. Beach also confirms that Unocal believed that the "514 Project Equations are valid and proven" and that the time was ripe to "to influence CARB," which would lead to a "[h]uge licencing [sic] income potential." (CX 238 at 020; Jessup, Tr. 1225-1226) Along these lines, the evidence shows that Unocal wanted to "convince CARB of the importance of T50" to preclude CARB from using alternative technologies. (CX 241 at 001; Jessup, Tr. 1246; Miller,

Tr. 1411-1412).

The evidence also shows that cost considerations were vital to CARB in setting the regulations and that Unocal was aware of this fact. (CCPF Section XXVII.A). Unocal itself advocated changes to specific portions of the CARB regulations to reduce costs. (Section XXVII.A.1.e). By misleading CARB and industry members to believe that CARB could use Unocal's 5/14 Project research results with "no strings attached," Unocal's deception therefore impaired the opportunities of alternative technologies to be incorporated into the Phase 2 regulations because the deception prevented CARB from evaluating the alternative technologies with relevant cost information.

b. Unocal's lies to other refiners prevented them from taking actions to avoid Unocal's patents or otherwise reduce its monopoly power

Unocal's lies also impaired the ability of Unocal's competitors – the other refiners – to take actions to avoid Unocal's patents. The evidence clearly shows that refiners would have wanted to know about, and would have been influenced by, the potential for additional costs associated with Unocal's pending patent. (CCPF Section XXVII.C - XXVII.D). Without knowledge of Unocal's patents, refiners made modifications to their refineries designed to provide comfortable margins of error within the CARB specifications that had the effect of driving the refiners' Phase 2 gasoline production into the Unocal patents. (RX 1154A at 010). Had refiners known of the patents, the evidence shows that they would have: (1) alerted CARB (CCPF Section XXVII.G.1); (2) sought to negotiate with Unocal with the potential to modifying their refineries to reduce infringement (CCPF Section XXVII.G.2); and (3) changed their investment decisions (CCPF Section XXVII.G.3). Unocal's lies, however, precluded all of these actions.

3. Unocal's Deception Did Not Further Competition on the Merits

By impairing CARB's ability to evaluate alternative technologies and preventing refiners

from taking actions to avoid the patents, Unocal's lies did not further competition on the merits. To the contrary, Unocal's lies distorted competition and served only to enhance Unocal's market power "in a manner not attributable either to the superiority of [its technology] or to the acumen of its [inventors], and therefore was anticompetitive." *Microsoft*, 253 F.3d at 77.

4. There is No Efficiency Justification for Unocal's Lies

Nor is there any possible efficiency justification for Unocal's conduct. Unocal has made much of the general principle that companies keep pending patent applications confidential. *See, e.g.,* Respondent's Trial Brief at 179-80. But this is simply irrelevant.

Unocal did not simply keep its pending patent application confidential. It lied. Unocal engaged in affirmative conduct that misled both CARB and other industry members to believe that Unocal did not have proprietary rights in the 5/14 Project results and that Unocal did not intend to charge royalties for the use of those results. Even Unocal's own experts recognize that lying to a regulatory body about pending patents is not justified. (Linck, Tr. 7875 (admitting that she would never mislead a regulatory body about the existence of a pending patent); *see also* Teece, Tr. 7672 (recognizing that lying and deliberate opportunism in the standard-setting context should not be allowed)). Indeed, as the D.C. Circuit has recognized, "there appears to be no purpose at all for the practice [of deception] that would not itself be anticompetitive." *Mass. v. Microsoft,* 373 F.3d 1199, 1213 (D.C. Cir. 2004).

5. Unocal's Deception Was "Willful" and Unocal had the Specific Intent to Monopolize

Monopolization requires only evidence that exclusionary conduct was "willful." That is, done with "an intent to bring about the forbidden act." *United States v. Aluminum Co. of America,* 148 F.2d 416, 432 (2d Cir. 1945); *see also Times-Picayune Publ'g Co. v. United States*, 345 U.S. 594, 626 (1953) ("the completed offense of monopolization under § 2 demands only a general intent

to do the act, for no monopolist monopolizes unconscious of what he is doing").[74]

Attempted monopolization requires evidence of specific intent, *i.e.*,"a 'specific intent' to accomplish the forbidden objectives." *Aspen Skiing*, 472 U.S. at 602. Such an intent may be proven by direct evidence or "inferred from the defendant's anticompetitive practices." *M&M Med. Supplies & Serv., Inc. v. Pleasant Valley Hosp., Inc.*, 981 F.2d 160, 166 (4th Cir.) (*en banc*); *H.J., Inc. v. Intern. Tel. & Tel. Corp.*, 867 F.2d 1531, 1542 (8th Cir. 1989) (finding that evidence of defendant's anticompetitive conduct supported the jury's inferential conclusion that the defendant consciously intended to monopolize the relevant market).

Here, the evidence easily satisfies the general intent element of monopolization as well as the more stringent specific intent element of attempted monopolization. Unocal deliberately lied to gain monopoly power. It saw that influencing the CARB regulations would lead to substantial licensing opportunities, a "pot of gold." (CX 210 at 003; CX 2). Unocal also knew that to gain these opportunities it had to "advertise" its research to other refiners so that they would see the "advantage." (CX 3005 at 002-003). Knowing that both CARB and the industry would be concerned about the added costs and competition issues related to Unocal's pending patent, Unocal told CARB and the industry that the 5/14 Project research was "non-proprietary" and "in the public domain." These statements were deliberate lies. Unocal intended to "bring about the forbidden act." It also specifically intended to "accomplish the forbidden objectives."

III. UNOCAL'S EXCLUSIONARY CONDUCT IS NOT SHIELDED FROM ANTITRUST LIABILITY

A. Unocal's Conduct is Not Protected By the First Amendment

[74] Evidence of intent in monopolization cases serves primarily to confirm that the conduct is exclusionary rather than competition on the merits. *See Aspen Skiing*, 472 U.S. at 602 ("[e]vidence of intent is merely relevant to the question whether the challenged conduct is fairly characterized as 'exclusionary' or 'anticompetitive'"); *see also Microsoft Corp.*, 253 F.3d at 59 ("our focus is upon the effect of that conduct, not upon the intent behind it."); *Ball Mem'l Hosp. v. Mutual Hosp. Ins.*, 784 F.2d 1325, 1339 (7th Cir. 1986) ("[t]he focus must be on the objective basis, not the mental state").

Your Honor asked the parties to address "whether an administrative agency acting in an adjudicative capacity may create an exception to or otherwise limit the United States Supreme Court's First Amendment-based *Noerr-Pennington* doctrine beyond the boundaries established by the judiciary branch of our government." (Trial Tr. 8580). The answer to that question is "no." But that is not what the Commission has done in this case. Rather, the Commission has rendered a carefully-considered analysis of the antitrust exemption for petitioning conduct that is consistent with both the Supreme Court's First Amendment and *Noerr-Pennington* jurisprudence.

Furthermore, Unocal has never argued that its false statements to either CARB or the refiners were constitutionally protected, nor could it. As the *Noerr* Court itself explained, the *Noerr-Pennington* doctrine derives in part from First Amendment considerations. 365 U.S. at 137-138. *See also FTC v. Superior Court Trial Lawyers Ass'n*, 493 U.S. 411, 424 (1990) (the *Noerr* doctrine "[i]ntrepret[s] the Sherman Act in the light of the First Amendment's Petition Clause."). However, as the Commission observed in its opinion, the Supreme Court has also made it clear that the First Amendment does not shelter knowing misrepresentations. *Unocal Noerr Opinion* at 2004 FTC LEXIS 115 at *41. The Court has stated unambiguously that "the use of the known lie as a tool is at once at odds with the premises of democratic government and with the orderly manner in which economic, social, or political change is to be effected." *Garrison v. State of Louisiana*, 379 U.S. 64, 75 (1964). Thus, while the Court has acknowledged that First Amendment protection must be extended to some statements that are false by reason of error, *see New York Times Co. v. Sullivan*, 376 U.S. 254, 271-272 (1964) (stating that "erroneous statement . . . must be protected if the freedoms of expression are to have the breathing space that they need . . . to survive") (internal quotations omitted), it has declined to extend such protection to *intentional* falsehoods. *Unocal Noerr Opinion* at 2004 FTC LEXIS 115 at *41-42.

The fact that the particular First Amendment right at issue is the right to petition does not

alter this analysis. As the Supreme Court has explained, "[t]he Petition Clause . . . was inspired by the same ideals of liberty and democracy that gave us the freedoms to speak, publish, and assemble," and, therefore, "there is no sound basis for granting greater constitutional protection to statements made in a petition . . . than other First Amendment expressions." *McDonald v. Smith*, 472 U.S. 479, 485 (1985). Other courts have stated even more clearly that "[h]owever broad the First Amendment right to petition may be, it cannot be stretched to cover petitions based on known falsehoods." *Whelan v. Abell*, 48 F.3d 1247, 1255 (D.C. Cir. 1995). *See also Clipper Exxpress v. Rocky Mountain Motor Tariff Bureau, Inc.*, 690 F.2d 1240, 1261 (9th Cir. 1982) ("The first amendment has not been interpreted to preclude liability for false statements" before administrative or adjudicatory bodies.). As the Commission explained, drawing the limit of constitutional protection at the point of *intentionally* false communications to administrative agencies gives appropriate weight to the countervailing competition policy concerns that motivate antitrust enforcement, while still providing adequate "breathing space" for legitimate petitioners. *Unocal Noerr Opinion* at 2004 FTC LEXIS 115 at *45.

B. The Purposes of the *Noerr* Doctrine

The purpose of the *Noerr* doctrine is not to protect *any* communication with government, but rather to protect a specific kind of communication with government – what might be called "*Noerr* petitioning" – by creating protection of limited scope from antitrust enforcement. Legitimate petitioning activity is by its very nature "directed toward *obtaining governmental action*." *Eastern R. Presidents Conference v. Noerr Motor Freight, Inc.*, 365 U.S. 127 at 140 (1961)(emphasis added).[75] Thus, *Noerr* protection extends only to certain efforts – that is, to "petitions" before the

[75] *See also* Raymond Ku, *Antitrust Immunity, the First Amendment and Settlements: Defining the Boundaries of the Right to Petition*, 33 IND. L. REV. 385, 404 (2000) ("Valid petitioning is defined as a formal or informal attempt to persuade an independent governmental decision maker consistent with the rules of the political forum in question." Consequently, if no such good faith attempt is made, the *Noerr* exemption does not apply, regardless of whether the criteria for "sham" are met).

government. The petitioner must then await the government's independent decision, or other action, on that request.

The nature of protectible *Noerr* petitioning is illustrated even more clearly by an examination of the relationship between the *Noerr* doctrine and the state action doctrine. As the Commission explained in its opinion, *Noerr* and state action are corollaries. *Unocal Noerr Opinion* at 2004 FTC LEXIS 115 at *46. *Noerr* protects, within limits, a private firm's request for a restraint of trade, while the state action doctrine protects, within limits, state government's enactment of a restraint of trade. *Noerr*, 365 U.S. at 135-37.[76] Where the government does not intend to exercise its authority to displace competition in favor of regulation, the state action doctrine will not shield individuals from liability under the antitrust laws. *See, e.g., Hardy v. City Optical, Inc.*, 39 F.3d 765, 768-70 (7th Cir. 1994). Where the government does not intend to exercise its authority to enact a restraint of trade, the *Noerr* doctrine does not shield individuals from liability for having induced this result. That is, where the government did not intend to restrain trade, but did so, it could not have been acting in response to a firm's genuine urging, requesting, or petitioning for the displacement of competition. Consequently, a firm's action in influencing enactment of a restraint of trade in this scenario can be characterized in a number of different ways – for example, as "steering," "manipulating," or "gaming" – but it cannot accurately be characterized as "petitioning" within the meaning of *Noerr*.

Three specific concerns motivated the *Noerr* Court to create an antitrust exemption to shield petitioning conduct, none of which is implicated here. First, the *Noerr* Court sought to prevent overbroad enforcement of the Sherman Act from impairing the exercise of First Amendment rights.

[76] Indeed, as the Supreme Court noted in *Omni*, it would be "peculiar" and "perhaps in derogation of . . . constitutional right . . . to establish a category of lawful state action that citizens are not permitted to urge." 499 U.S. at 379-80.

Among other rights, the First Amendment protects the right "to petition the Government for a redress of grievances." U.S. Const., amend. I. It is clear, however, that the right to petition does not encompass efforts to trick or deceive a government decision-maker. *See, e.g., McDonald*, 472 U.S. at 483-84. As noted previously, the Supreme Court has repeatedly held that intentional falsehoods enjoy no special protection under the First Amendment. *See supra* Liability Section II.A. In addition to this general background rule, the courts have specifically held that First Amendment protection does not extend to intentional falsehoods directed toward securing a state-conferred monopoly. *See Clipper Exxpress*, 690 F.2d at 1261 ("There is no first amendment protection for furnishing with predatory intent false information to an administrative or adjudicatory body."); s*ee also Walker Process*, 382 U.S. at 174 ("[T]he enforcement of a patent procured by fraud on the Patent Office may be violative of § 2 of the Sherman Act"). This point applies with even greater force where the government had no purpose to enact a restraint of trade. Finally, Unocal's communication to CARB that it would enforce no proprietary rights is a virtual textbook example of commercial speech. The Sherman Act is a content neutral statute that furthers compelling governmental interests, so no constitutional conflict arises.

Second, the *Noerr* Court sought to interpret the Sherman Act in light of the Court's perception that Congress, in enacting the antitrust laws, meant to regulate "business activity" and not "political activity." Unocal's lies were not uttered in the rough and tumble of open political debate but solely in the furtherance of its business interests and to undermine the marketplace of gasoline distribution in California.

Third, the *Noerr* Court sought to prevent potentially burdensome and disruptive "second guessing" of the reasoning underlying government decision-making and to protect state action displacing competition from federal antitrust oversight. Subsequent courts that have conferred *Noerr* protection have also expressed reluctance to "look behind" or overturn a government decision

to restrain trade. *See City of Columbia v. Omni Outdoor Adver., Inc.*, 499 U.S. 365, 377-379 (1991). A key rationale in these decisions is that in some situations, even where communications with government consist of intentional falsehoods that do not amount to petitioning, there may be no remedy (such as repealing the resulting governmental decision or dismantling the resulting governmental program) that would not create an unacceptable level of judicial interference with the other branches, and would not raise substantial federalism concerns. In addition, it would simply be too difficult to determine whether the intentional falsehood in question was the proximate cause of the resulting governmental action, such that invalidating the action in its entirety would be too draconian a response.

However, these concerns are not present when the exclusionary, non-petitioning conduct can be fully remedied without disrupting or burdening any government program or any communication to or from the government. In *Walker Process*, for example, the Court authorized an antitrust action against a private firm that obtained a patent through fraud on the PTO. At least part of the reason that *Noerr* did not present an obstacle to this claim was that the PTO was not required to take any remedial action. Rather than asking the PTO to render the patent unenforceable, the Court specifically approved the use of private remedies, such as treble damages arising from the defendant's enforcement of the fraudulently procured patent. 382 U.S. at 176-77. Equally importantly, this approach did not require the Court to deconstruct or "second guess" the PTO's decision-making process.

C. Given the Purposes of the *Noerr* Doctrine, Unocal's Conduct Does Not Fall Within the Zone of Behavior Governed by *Noerr*

Although Unocal's conduct clearly involved communications with government, it did not constitute the *kind* of communication with government that is protected by *Noerr*. It simply did not constitute "petitioning" within the meaning of *Noerr*. Consequently, protecting Unocal's conduct

would not advance any of the underlying objectives of the *Noerr* doctrine.

1. CARB Did Not Intend to Supplant Competition; Indeed, CARB's Stated Purpose Was to Preserve Competition in the Market

Protecting Unocal's conduct would not advance a firm's First Amendment right to petition for a restraint of trade, and government's authority to enact such a restraint, because it was clear to all participants that enactment of a restraint of trade was *not* the stated objective of the CARB proceeding. (CCPF 421-32). No evidence exists in the CARB rulemaking record or in this trial record that CARB knowingly chose to impose an anticompetitive restraint with respect to the distribution of CARB-compliant gasoline, or had any purpose to do so. Rather, both records reflect just the opposite – that CARB wanted to alleviate any anticompetitive effects of its decision to specify summertime RFG by providing for a competitive refiner market to supply that gasoline. (*See* CX 10 at 187 (CARB Final Statement of Reasons, at 181 (reflecting CARB's desire *not* to "reduce competition in the gasoline market and [cause] an ultimate increase in gasoline prices")); CX 10 at 015-016 (CARB Final Statement of Reasons (evincing concern for impact of regulations on small refiners because "small refiners contribute to competition in the petroleum industry")). CARB certainly did not act with any intention of granting Unocal a monopoly.

No case extends *Noerr* immunity to communications to a government agency where that agency had no purpose to restrain trade. Respondents have never cited such a case because there is none.

2. Unocal's Exclusionary Conduct Can Be Remedied Without Disrupting or Burdening Any Government Program or Any Communication to or from the Government

Second, remedying Unocal's conduct would not involve any undue judicial interference in the operations of the other branches of government, as the proposed remedy – an order barring enforcement of Unocal's patent in conjunction with the CARB standard – would not require repeal

or amendment of the standard, or any other remedial action by CARB. (*See* Proposed Order; CCPF 4763-80).

Rather, the Complaint contemplates a narrowly tailored cease-and-desist order barring Unocal from enforcing its patents to collect monopoly rents from those harmed by its exclusionary, monopolistic conduct. *See* Proposed Order. Although Unocal's lies to CARB are a basis for finding an illegal monopoly, the remedy does not burden in any way Unocal's ability to communicate truthfully with CARB. The remedy has no impact or effect, either direct or indirect, on any governmental program or any other party's communications with a governmental body, other than a ban on seeking judicial process to enforce an illegal monopoly. No case extends *Noerr* immunity to challenged conduct where anticompetitive effects can be proved and remedied without disrupting or burdening any government program.

D. Even if Unocal's Conduct Fell Within the Zone of Behavior Protected by *Noerr* in the Sherman Act Context, That Conduct Does Not Fall Within the Narrower Zone of Protected Behavior in the FTC Act Context

Even if Unocal's conduct constituted "petitioning," it still would not be protected by *Noerr* in this case, as the complaint alleges violations of the FTC Act, rather than the Sherman Act. The *Noerr* doctrine has it origins in two sources: (1) the First Amendment right to petition, and (2) a statutory interpretation of the Sherman Act. *See, e.g.*, *Noerr*, 381 U.S. at 660-61; *California Motor Transp. v. Trucking Unlimited*, 404 U.S. 508 at 513-14 (1972); *Prof'l Real Estate Investors v. Columbia Pictures Indus.*, 508 U.S. 49 at 52 (1993). Thus, while the *Noerr* case and its progeny define the scope of the antitrust exemption for petitioning conduct in the Sherman Act context, they provide little or no guidance on the scope of the exemption in the context of other statutes, such as the FTC Act. Given the significant differences between the Sherman Act and the FTC Act, and the absence of contrary case law, the weight of current authority suggests that *Noerr* applies to Section 5 actions only to the extent constitutionally required by the First Amendment. Because the First

Amendment alone does not immunize intentional falsehoods, in the realm of commercial speech, from remedy under a content neutral federal statute,[77] *see* Liability Section III.A, III.B, this analysis too suggests that Unocal's conduct should be subject to antitrust enforcement.

The Supreme Court affirmed this statute-specific in approach *BE&K Constr. Co. v. NLRB*, 536 U.S. 516 (2002) – the case in which it was most recently called upon to analyze the interaction between the First Amendment's Petition Clause and a non-Sherman Act federal statute. In *BE&K*, the Court provided an analysis specific to the National Labor Relations Act (NLRA). After providing a summary of the origins of the *Noerr* doctrine, as well as a synopsis of recent *Noerr* case law, the Court explained that "[t]his case raises the same underlying issue of when litigation may be found to violate federal law, but this time with respect to the NLRA, rather than the Sherman Act." *Id.* at 526. It then rendered its decision, in large part, on its earlier statute-specific analysis of the interaction between the NLRA and the First Amendment in *Bill Johnson's Restaurants, Inc. v. NLRB*, 461 U.S. 731 (1983). Consistent with this approach, the scope of the antitrust exemption for petitioning conduct in the FTC Act context should be based on a statute-specific analysis of the interaction between the FTC Act and the First Amendment Petition Clause, rather than a rote application of the Sherman Act-specific *Noerr* standard.

The substantial differences between the FTC Act and the Sherman Act further support such an approach. For example, the remedies available to the Commission are much more limited than those available under the Sherman Act, and consequently present a much less significant threat of

[77] In *Central Hudson Gas v. Public Serv. Comm'n*, 447 U.S. 557 (1980), the Court stated, "For commercial speech to come within [the First Amendment], it at least must concern lawful activity and not be misleading." 447 U.S. at 566. The Court further held that even if the commercial speech is truthful, regulation of that speech is permissible where the asserted governmental interest is substantial, the regulation directly advances the governmental interest asserted, and the regulation is not more extensive than is necessary to serve that interest. *Id.* at 566-67.

"chilling" legitimate First Amendment conduct. In contrast to the relief available under the Sherman Act, which includes a number of retrospective and punitive remedies – such as treble damages, criminal fines, and other penalties – the relief available to the Commission is exclusively civil and non-punitive in nature. Section 5(b) of the FTC Act, 15 U.S.C. § 45(b), for example, merely authorizes the Commission to issue an order requiring the defendant "to cease and desist" from engaging in an offending act or practice. As the Supreme Court noted in *FTC v. Cement Institute*, "the effect of [a] Commission[] order is not to punish or to fasten liability on respondents for past conduct but to ban specific practices for the future." *FTC v. Cement Inst.*, 333 U.S. 683, 706 (1948).

The unitary nature of the FTC Act also supports this approach. The substantive provisions and legislative history of the FTC Act make it clear that the concepts of "unfair or deceptive acts or practices" added by the Wheeler-Lea Amendments of 1938 are closely connected.[78] It would therefore be anomalous to interpret this language to mean that the Commission should prevent unfair or deceptive acts or practices to the full extent constitutionally permitted by the First Amendment, but should prevent unfair methods of competition only to the extent permitted by a statutory construction of a different statute.

E. Even if Unocal's Conduct Fell Within the Zone of Behavior Protected by *Noerr*, and the Scope of Protected Conduct Was Identical in Both Sherman Act and FTC Act Cases, That Conduct Is Still Not Protected by *Noerr* Because of the Misrepresentation Exception

1. The Misrepresentation Exception

The Supreme Court has not yet had occasion to decide clearly whether or to what extent "*Noerr* permits the imposition of antitrust liability for a litigant's fraud or other misrepresentations."

---

[78] *See, e.g.*, Timothy J. Muris & J. Howard Beales, III, *The Limits of Unfairness under the Federal Trade Commission Act*, Report Commissioned by the Association of National Advertisers (1991); Neil W. Averitt, *The Meaning of 'Unfair Acts or Practices" in Section 5 of the Federal Trade Commission Act*, 70 Geo. L.J. 225 (1981).

PREI, 508 U.S. at 61 n.6. Both before and after *PREI*, however, the majority of lower courts to address the issue have answered this question in the affirmative.[79] In light of this history, the Commission held that "deliberate misrepresentations that substantially affect the outcome of a proceeding or so infect its core to deprive the proceeding of legitimacy may not, in appropriate circumstances, qualify for *Noerr-Pennington* protection." *Unocal Noerr Opinion* at 2004 FTC LEXIS 115 at *70. To hold otherwise, the Commission reasoned, "would protect petitioning leading to governmental action so distorted by misinformation that the result is contrary to the government's intention." *Id.* at *68. The Commission also noted that requiring that the misrepresentation "infect the core" of a proceeding would ensure the exception is only invoked where the governmental process has truly been abused. *Id.* at *70.

a. The misrepresentation exception is available where the context of the proceeding is non-political

Your Honor also asked the parties to address "[w]hether any court has found that misrepresentations in a legislative or political proceeding fall under the sham exception or otherwise vitiate the *Noerr-Pennington* doctrine." (Trial, Tr. 8580). The answer to this question is also "no." But, once again, this is not what the Commission has done in this case. Rather, the Commission held, in conformity with Supreme Court precedent and current *Noerr* case law, that the misrepresentation exception to *Noerr* may be applied to communications in non-political settings.

The availability of the misrepresentation exception to *Noerr* is not determined by the application of rigid labels such as "quasi-legislative" or "quasi-adjudicatory," labels often devised

[79] *See, e.g.*, *Rodime PLC v. Seagate Tech., Inc.*, 174 F.3d 1294 (Fed. Cir. 1999); *Porous Media Corp. v. Pall Corp.*, 186 F.3d 1077 (8th Cir. 1999); *Kottle v. Northwest Kidney Centers*, 146 F.3d 1056 (9th Cir. 1998); *Whelan v. Abell*, 48 F.3d 1247 (D.C. Cir. 1995); *Juster Assoc. v. City of Rutland, Vt.*, 901 F.2d 266 (2d Cir. 1990); *Potters Med. Center v. City Hosp. Ass'n*, 800 F.2d 568 (6th Cir. 1986); *Metro. Cable Co. v. CATV of Rockford, Inc.*, 516 F.2d 220 (7th Cir. 1975); *Woods Exploration & Producing Co. v. Aluminum Co. of Am.*, 438 F.2d 1286 (5th Cir. 1971).

for purposes other than antitrust, but rather by a more nuanced fact-based inquiry into whether the context of the proceeding is political or non-political as required by the purposes of *Noerr*. *Id.* at *73-75. As the Commission's opinion notes, this approach is consistent with the leading cases on the issue. *Id.* at *72-73. In *California Motor Transport*, for example, the Supreme Court contrasted the "political arena," where misrepresentations are tolerated, with "adjudication," as an example of one place where they are not. 404 U.S. at 513. The Court took a similar approach in *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, in which it contrasted a publicity campaign seeking legislative or executive action with "less political arenas." *Allied Tube & Conduit Corp. v. Indian Head*, 486 U.S. 492 at 499-500 (1988). More recently, in *Kottle*, the Ninth Circuit explained that it has generally based the availability of the misrepresentation exception on "our estimation of whether the executive entity in question more resembled a judicial body, or more resembled a political entity." 146 F.3d at 1061.

As the Commission further explained, the determination of whether the context of the proceeding is political or non-political depends on four key attributes: (1) the nature of government expectations, (2) the degree of governmental discretion, (3) the extent of necessary reliance on the petitioner's factual assertions, and (4) the ability to determine causation. *Unocal Noerr Opinion* 2004 at FTC LEXIS 115 at *76. A non-political context is characterized by expectations of truthful representations, whereas "[m]isrepresentations are a fact of life in politics." *Kottle*, 146 F.3d at 1061-62. Similarly, in a non-political context, the government's discretion is limited and subject to clear standards of review, whereas a political context is more free-wheeling. *See Metro Cable*, 516 F.2d at 228 (contrasting an adjudicatory setting, in which, as a prerequisite of taking action, the decision-maker must "compile an evidentiary record through formal proceedings," with a political setting, in which the decision-maker is free "to base its actions on information and arguments that

come to it from any source"). A non-political context is also characterized by greater reliance on the veracity of a petitioner's factual assertions, whereas a political context typically features multiple, competing voices, which can counteract any one party's efforts to mislead. *See Clipper Exxpress*, 690 F.2d at 1261 (contrasting the adjudicatory sphere, where "information supplied by the parties is relied on as accurate for decision making," with the political sphere, where "there is an emphasis on debate . . . which could accommodate false statements and reveal their falsity"). Finally, in a non-political context, it is generally possible to establish a causal link between specific petitioning conduct and a specific governmental action, whereas establishing such a link will be substantially more challenging, if not impossible, in the less formal, less cabined and less transparent political context. *Compare Kottle*, 146 F.3d at 1062-63 (noting that, in the adjudicatory context, the presence of public hearings and written findings facilitate an analysis of the impact of misrepresentations on a proceeding's legitimacy), *with Omni*, 499 U.S. at 383 (noting that, in the legislative context, it is difficult to identify which particular lobbying effort produced an objectionable agreement with public officials).

b. The misrepresentation exception is available where the nature of the relevant communications is deliberate, factually verifiable, and central to the proceeding's legitimacy

Your Honor asked the parties to address "[w]hether, in evaluating a defense raised under *Noerr-Pennington*, as opposed to a defense raised under the state action doctrine, any court has inquired into (1) the intentions of a state official, (2) the factors that caused the state official to act, or (3) whether a state action was a deliberate determination of governmental policy." (Trial, Tr. 8580). The answer to this question is "yes," as can be seen from an examination of the limitations that courts have placed on the types of communications that may be subject to the misrepresentation exception to *Noerr*. In particular, the courts that have addressed the issue have reached a consensus

that, among other factors, the misrepresentation exception applies to communications that are central to the proceeding's legitimacy.[80] Logically, in order to assess the impact a misrepresentation has had on a proceeding's legitimacy, one must first inquire into the nature of the "legitimate" intentions (*i.e.*, uninfluenced by misrepresentation) the governmental decision-maker sought to further by convening the proceeding in the first place.

Similarly, the Commission's opinion held that the misrepresentation exception applies to communications that are: (1) deliberate, (2) factually verifiable, and (3) central to the proceeding's legitimacy. *Unocal Noerr Opinion*, 2004 FTC LEXIS 115 at *85. The third element requires not only an examination of the petitioner's intentions, but of the government decision-maker's intentions as well. Only in situations where objective evidence of both is available will courts be able to make a reliable comparison, and determine whether the government decision-maker's intentions have been supplanted by the petitioner's intentions through the strategic use of misrepresentations.

2. Unocal's Lies to CARB Fall Within the Misrepresentation Exception to *Noerr* Protection

a. The CARB proceeding was non-political

(1) CARB expected truthful representations

CARB had neither the expertise nor resources, acting alone, to develop a technically feasible or cost-effective fuel standard. (CCPF 962-79 ; *see* Statement of the Facts Section I.B.3). Therefore, CARB was dependent on truthful representations from outside parties to carry out its

[80] Although the courts have used a variety of verbal formulations, they have sought to ensure that the communications in question be central to the proceedings' legitimacy. While some have spoken of misrepresentation "depriv[ing] the litigation of its legitimacy," *Kottle*, 146 F.3d at 1060, others have spoken of it "infect[ing] the core" of the proceeding, *Cheminor Drugs, Ltd. v. Ethyl Corp.*, 168 F.3d 119 at 123 (3rd Cir. 1999), and still others have spoken, in more traditional terms, of misrepresentation being the "but for" cause of the governmental action, *Noblepharma*, 141 F.3d at 1071, all of these courts have made clear that the materiality of the misrepresentation is key. This determination requires an evaluation of the intentions of the governmental decision-maker, as the petitioner's impact on those intentions can only be assessed in reference to a baseline understanding of what those intentions were when the proceeding commenced.

work. The record is replete with evidence that overwhelmingly demonstrates this to be the case. For example:

- The technical complexity of the Phase 2 regulations required CARB staff to depend on information provided by industry members that CARB staff had gathered in 85 different meetings with industry representatives. (CX 773 at 007; Venturini, Tr. 126-127 (Phase 2 was a technical "tour de force" and CARB needed information); Boyd, Tr. 6705 (Phase 2 regulations were in an "incredibly scientifically and technically complex arena" so CARB needed truthful and accurate information from industry)).

- CARB's rulemaking record shows that CARB relied on numerous scientific studies provided by industry members as "substantial evidence." (CX 785 at 003-005 (citing studies by Auto/Oil, WSPA, API, and ARCO)). The Phase 2 technical support document alone cited over 80 different studies (Venturini, Tr. 124-125 (stating that CARB used outside studies to establish regulations)) or articles from industry members and outside parties. (CX 5 at 168-173).

- The need for industry members to provide to CARB truthful and accurate information was recognized in the industry. (CCPF 1017-18, 3992-93). For instance, both Auto/Oil and WSPA sought to provide CARB with technically sound information for the regulations. (CCPF 1015-19, 1020-29).

CARB's need for truthful and accurate information was especially acute in the area of costs. (CCPF 962-79). CARB staff were not "experts in the refining industry." (CX 7040 (Aguila, Dep. at 87-88)). CARB therefore sought to find "out as much about refinery operations and the impact of changes in fuels specifications on those refinery operations" as possible. (Fletcher, Tr. 6447). Truthful and accurate information from industry members about cost issues was therefore critical. (Venturni, Tr. 163 (truthful information needed to set regulations); Venturini, Tr. 273 (CARB regulations "are only as effective as the input and the information" received from industry members)).

The Phase 2 rulemaking record shows that the regulations were based substantially on the cost information CARB received from the industry. Industry members understood CARB's need and provided extensive cost information. (CX 10 at 082-083 (cost information from refiners); CX 52 at 065-066 (same); CX 5 at 129, 130, 137 (same)); CX 1517 (Turner Mason cost study submitted

by WSPA); RX 273 (Sierra Research study regarding cost-effectiveness); CX 801 (DRI-McGraw Hill study estimating economic impact)). The October 1991 CARB Staff Report states that CARB staff "generally relied on information presented to us by the refiners." (CX 52 at 070). Similarly, the CARB October 1991 technical support document states that CARB staff "utilized data submitted from refiners, in addition to other sources of data, to estimate the fiscal impact on the refining industry." (CX 5 at 151; *see also* CX 10 at 034 (discussing industry cost information); CX 10 at 038-039 (same)).

In short, without truthful information from industry members, CARB's rulemaking process "just wouldn't work." (Venturini, Tr. 863; *see also* Kenny, Tr. 6521 (practice and history of the Board was "one in which the parties dealt with one another in good faith in an honest and reliable manner")).

CARB's dependence on truthful representations is also confirmed by the decision-making framework imposed by the California Administrative Procedures Act. Pursuant to its rulemaking process, CARB was required to submit the Phase 2 regulations for substantive and procedural review by the Office of Administrative Law ("OAL"). (CX 7029 at 072 (Gov't Code § 11349))). The OAL was authorized to block the issuance of the Phase 2 regulations if the rulemaking record lacked "substantial evidence," *i.e.*, if it was not adequately supported by "facts, studies, and expert opinion." (CX 7029 at 072-073 (Gov't Code §§ 11349(a), 11349.1(a)(1))). In addition to review by the OAL, private parties could also seek to invalidate the Phase 2 regulations by filing an action in Superior Court alleging that the "agency's determination that the regulation is reasonably necessary to effectuate the purpose of the statute… is not supported by substantial evidence." (CX 7029 at 084 (Gov't Code § 11350 (a))). In light of this potential for multiple levels of administrative and judicial review, CARB staff viewed itself as being responsible for assembling the "substantial

evidence" which necessarily included information from industry members that was to be made part of the official record for all CARB decisions. (Venturini, Tr. 90).

(2) CARB had limited discretion because central policy determinations were made elsewhere

First, CARB's discretion was limited by enforceable statutory standards. Those standards, enacted by the California legislature, embodied the true "political" choices underlying the CARB proceeding, as a reading of the statute plainly reveals. Under California law, a state agency is prohibited from adopting any regulation unless it is within the "scope of [statutory] authority conferred and in accordance with standards prescribed by other provisions of law." (CX 7029 at 018 (Gov't Code § 11342.1))). CARB's legislative mandate, as set forth in the 1988 Clean Air Act and California Health and Safety Code Section 43018, was extremely specific, and required the agency, among other responsibilities, to take "necessary, cost-effective, and technologically feasible" action: (1) to achieve "a reduction in the actual emissions of reactive organic gases of at least 55 percent"; (2) to achieve "a reduction in emissions of oxides of nitrogen of at least 15 percent"; (3) to achieve "the maximum feasible reductions in particulates, carbon monoxide, and toxic air contaminants from vehicular sources"; and (4) to adopt standards and regulations that would result "in the most cost-effective combination of control measures on all classes of motor vehicles and motor vehicle fuel," including "specification of vehicular fuel composition." (CX 1665 at 153-154 (Health & Safety Code § 43018); CX 52 at 008-009). Thus, the fundamental policy decisions had already been made in the political arena of the state legislature.

Even within the scope of these specific statutory directives, CARB operated under a series of specific and detailed limitations. For example, CARB was prohibited from singling out, or ignoring, certain classes of vehicles or certain categories of fuel. (CX 1665 at 153-154 (Health & Safety Code § 43018(c))). CARB also was prohibited from focusing solely on certain aspects of

mobile source emissions that were better understood or less costly to regulate, and instead was required to consider a number of specific measures from an enumerated list. *(Id.)* In addition, while carrying out each of these responsibilities, CARB operated under an over-arching mandate to consider not only the pollution reducing benefits of the Phase 2 regulations, but their effect on the economy of the state. (CX 1665 at 153, 154 (Health & Safety Code §§ 43013(f), 43018(e))). Although the agency was granted discretion to determine the gasoline properties to be regulated and the limits to be set for these properties – as well as such related matters as alternative methods of compliance, effective dates, and enforcement procedures – these were purely technical decisions circumscribed by the statutory mandate. (CX 1665 at 153, 154 (Health & Safety Code § 43018); CX 52 at 008-009; CX 10 at 196).

Second, CARB's discretion was limited by required reliance on an evidentiary record. Under the rules of the Phase 2 proceeding, CARB was required to provide a notice of proposed action, develop an evidentiary basis for any regulations, solicit written comments from the public, conduct a hearing, and, if requested, publish written findings. (CX 1665 at 011 (Health & Safety Code § 39601); CX 7029 at 041-069 (Gov't Code §§ 11346-11347.3)). Furthermore, under the California Administrative Procedure Act ("APA"), the agency was required to establish an extensive written record, including "[a]ll data and other factual information, any studies or reports, and written comments submitted to the agency in connection with the adoption [or] amendment . . . of the regulation." (CX 7029 at 068-069 (Gov't Code § 11347.3)). The APA also required the agency to publish, at the time of issuance of its proposed rule, an Initial Statement of Reasons as well as, upon issuance of its final rule, a Final Statement of Reasons. Both statements were required to be accompanied by a comprehensive disclosure of all facts and information relied upon as well as, in the case of the Final Statement, a summary of each objection or recommendation received. (CX

7029 at 046, 059-061 (Gov't Code §§ 11346.14(b), 11346.7(a)); CX 52 (Oct. 1991 Initial Statement of Reasons); CX 5 (Oct. 1991 Technical Support Document); CX 53 (April 1994 Initial Statement of Reasons on Predictive Model); CX 10 (Oct. 1992 Final Statement of Reasons); CX 54 (April 1995 Final Statement of Reasons on Predictive Model)).

Third, CARB's discretion was limited by the presence of administrative and judicial review. As described previously, *see* Section II.D.2.a.(1), CARB was required to submit the Phase 2 rule for substantive and procedural review by the Office of Administrative Law ("OAL"). (CX 7029 at 072-083 (Gov't Code § 11349))). Private parties were also authorized to seek judicial review of the agency's actions. (CX 7029 at 084-085 (Gov't Code § 11350(b)(1))). In either case, any CARB rule would potentially be subject to invalidation if it was not supported by "substantial evidence."

(3) CARB necessarily and reasonably relied on Unocal's factual assertions

Unocal lied to CARB by representing that Unocal's 5/14 Project research was "non-proprietary" and available to the general public. (*See* Statement of the Case Section VI.B.). CARB, in turn, relied on that representation in promulgating its Phase 2 regulations. (*See* Statement of the Case Section VII.A.).

The existence of Unocal's patent application was known only by Unocal. Under the rules of the patent system then in force, the Patent Office maintained patent applications under terms of strict confidentiality. *See* 35 U.S.C. § 122 (1995); (Wirzbicki Tr. 1060). Likewise, Unocal kept its plans to enforce its patents to obtain royalties strictly secret. (CCPF 1094, 1107, 2630-35). Consequently, CARB had no way of knowing, other than from Unocal, that Unocal was continuing to prosecute patent applications covering the discoveries it had presented to CARB, let alone that

Unocal intended to use these patents to collect royalties from refiners implementing CARB's future regulations. (CX 48; CX 905). Likewise, the participants in both the Auto/Oil and WSPA groups, having no greater access than CARB to Unocal's patent information or enforcement plans, were unable to bring the information to the agency's attention or to take it into account in their own decision making. (RX 1154A at 012-022). Furthermore, even following the adoption but before final approval of the CARB Phase 2 RFG requirements, Unocal amended its pending claims to add more claims that resembled the regulations. Unocal later filed additional, related patent applications with priority dating from the original 1990 applications. (CCPF 2636-39, 2654, 2660, 2667-2668, 2683-2684). All of this information was known only to Unocal at the time of the CARB rulemaking.

CARB's reliance on Unocal's representations resulted from the absence of any opportunity for error correction in the CARB proceedings. Prior to the adoption of the Phase 2 regulations, the relevant patent information was solely under Unocal's control. This information did not become public until the '393 patent was issued to Unocal on February 22, 1994, and did not come to CARB's attention until January 31, 1995, when Unocal issued a press release asserting, for the first time, that the patent "cover[ed] many of the possible fuel compositions that refiners would find practical to manufacture and still comply with the strict California Air Resources Board (CARB) Phase 2 requirements." (CX 375). In a memorandum written less than two months later, however, CARB's general counsel indicated that, because the affected producers had already made substantial investments to modify their refineries, rescission of the Phase 2 regulation was "not a viable option." (CX 900; Kenny, Tr. 6541; *see* Liability Section VI.B.2). Not only that, but CARB was locked in to the Phase 2 regulations because the regulations were not an integral part of a State Implementation Plan ("SIP") that was under review by the federal government. (*See* Liability Section VI.B.1; Kenny, Tr. 6539-6541). As Judge Kenny recognized in his memorandum,

modifying the regulations at that point could not be done because "the emission reductions needed for SIP compliance." (CX 900).

(4) Unocal's misrepresentations clearly affected CARB's decisions

Finally, CARB's non-political nature is demonstrated by objective evidence showing a causal link between Unocal's deceit and CARB's use of the 5/14 Project research to include parameters in the Phase 2 regulation. The evidence demonstrates two things: (1) CARB used Unocal's 5/14 Project research in developing the Phase 2 regulation and (2) CARB would not have done so but for Unocal's misrepresentations. (*See* Statement of the Case Sections VII.A., VII.B.).

The evidence leaves no doubt that CARB used Unocal's 5/14 research to specifically incorporate into the Phase 2 regulations parameters that would (unbeknownst to CARB) overlap with Unocal's patent rights. This use is demonstrated by the rulemaking record. (*See* Statement of the Case Section VII.A.; *see, e.g.,* CX 10 at 075 ("Unocal has evaluated the effects of T50, and it is the results from this study that form the basis for the T50 specification"); CX 5 at 031, 032, 033, 298 (setting forth Unocal research as support for T50 specification)). It is confirmed by the testimony of CARB staff. (*See* Statement of the Case Section VII.A; Venturini, Tr. 141, 148, 249 (CARB staff relied on Unocal's research); Fletcher, Tr. 6486 (without Unocal's research, CARB did not have a sufficient basis for a T50 specification); Courtis, Tr. 5777-5779 (personally used Unocal's data)). And it is confirmed by Unocal's own statements. (*See* Statement of the Case Section VII.A.4; Wirzbicki, Tr. 975, 972-973, 959-960, 976-977 (Unocal patent counsel represented to Patent Office that CARB regulations "validated" Unocal's invention); CX 1765 at 023-024 (Trial Transcript 5223-5224) (Unocal counsel representing to court that CARB regulations were based on Unocal research)).

Given CARB's statutory obligation to consider the costs of the Phase 2 regulations, the

agency simply would not have relied on Unocal's research absent Unocal's representation that the research was "non-proprietary." First, without a release from Unocal, CARB *could not* use the research. (CCPF 1243, 1279, 1281-82). Second, absent Unocal's misrepresentation that the research was "non-proprietary," CARB *would not* have used the research. (*See* Statement of the Case Section VII.B.). The uniform testimony of CARB's key staff – its lead technical manager, its executive officer, and its general counsel – is that each would have stopped the regulations if he had known about Unocal's plans before final adoption of the regulation in September 1992. (CCPF 4343-86; Boyd, Tr. 6706-6707, 6728, 6733-6734, 6907; Kenny Tr. 6544; Venturini Tr. 151-152). Likewise, CARB's Chairwoman testified that, if the Board had been aware of the overlap with the Unocal patent during its review of the proposed regulation in November 1991, it would not have "march[ed] off the cliff" and would not have approved the proposed regulation at that time. (CX 7063 (Sharpless, Dep. at 198)).

b. Unocal's misrepresentations were deliberate, verifiable, and central to the CARB proceeding's legitimacy

(1) <u>They were deliberate</u>

Unocal's misrepresentations to CARB were not mere careless errors of phraseology, but rather constituted intentional falsehoods. (*See* Statement of the Case Section VI.A.8; Liability Section II.C.). Prior to and after filing the original patent application on December 13, 1990, Unocal employees and management discussed and considered the potential competitive advantage and corporate profit that could be obtained by creating an overlap between the CARB regulations and Unocal's patent claims. (CCPF 608-43). Even after Unocal began participating in the CARB proceeding, specific discussions continued to take place within the company in 1991 concerning how to influence the regulators to use the research supplied by Unocal to generate potential licensing income from its pending patent claims. (CCPF 644-63). In spite of this history, prior to the

company's June 20, 1991, meeting with CARB to present the results of its 5/14 Project, Unocal management decided not to disclose the pending patent application or Unocal's plans to seek royalties to CARB staff. (CCPF 1095-1108). Furthermore, in a pair of key letters to CARB, dated July 1, 1991 and August 27, 1991, Unocal indicated its intention to make the research disclosed to CARB publicly available on a non-proprietary basis. (CX 25 at 001; CX 29 at 001). Even after August 27, 1991, company representatives continued to submit comments to CARB regarding the cost of the Phase 2 regulations, and the impact of those regulations. (CCPF 1412-17).

Unocal's pattern of intentional misrepresentations continued after the November 1991 adoption of the CARB Phase 2 REG specifications as well. In March 1992, the company amended its pending patent claims to more fully cover the CARB regulations. (CCPF 2183-2209). In the summer of 1992, Unocal knew that its patent would be allowed and would cover CARB-compliant gasoline. (CCPF 2211-37). In June 1993, Unocal also filed a divisional application of its original application that allowed it to pursue additional patents based on the discoveries of the 5/14 Project. (CCPF 2636-39). None of these activities were disclosed to CARB or the other participants in the CARB proceeding. Instead, Unocal continued to make comments to CARB about the costs and competitive impact of other provisions of the regulations. (*See* Statement of the Case Section X.B.7). Although the PTO issued the '393 patent to Unocal on February 22, 1994, the company did not publicly disclose its belief that the patent covered the CARB Phase 2 regulation or its plan to obtain royalties until it issued a January 31, 1995, press release almost a year later. (CX 375, CX 754, CX 2004).

(2) <u>They were factually verifiable</u>

Beginning in 1995, Unocal sought royalties for its now patented technology that it had previously represented was "non-proprietary" and freely available for use by the general public.

This discrepancy is clear, apparent, and factually verifiable. As detailed above (*see* Statement of the Case Section V.), at the time it was advocating that CARB rely on Unocal's discoveries, Unocal: (1) failed to disclose the existence of a patent application based on, and including, those very same discoveries (CX 1788 at 013-084; CX 24); (2) informed CARB that it would consider making its information "public as required to assist in the development of a predictive model," (CX 25 at 001); (3) reiterated that "Unocal now considers this data to be non-proprietary and available to CARB, environmental interest groups, other members of the petroleum industry, and the general public upon request," (CX 29 at 001); and (4) urged CARB to rely on the Turner Mason cost estimates, despite its knowledge that those estimates omitted any consideration of Unocal's pending patents and plan to charge royalties. (CX 33 at 016; CX 293).

All of this was in stark contrast to Unocal's plans to patent and charge royalties for its technology at the time, and its vigorous campaign to enforce its patent rights after adoption of the Phase 2 regulation and industry-wide lock-in. In response to a declaratory judgment action by ARCO, Exxon Mobil, Chevron, Texaco, and Shell, for example, Unocal filed a counterclaim alleging infringement of its '393 patent. *See Union Oil Co. of Cal.*, 208 F.3d at 994 (Fed. Cir. 2000); (Answer ¶ 68). The refiners in that litigation have now made payments to Unocal totaling $91 million for damages, costs, and attorneys' fees. (Answer ¶ 69). Unocal subsequently filed patent claims against Valero Energy Company, seeking damages at a rate of 5.75 cents a gallon and treble damages for willful infringement. (CX 1337 at 011; Answer ¶ 71). In addition to its litigation efforts, Unocal has entered into patent licensing arrangements with eight other companies. (Answer ¶ 72). These combined litigation and licensing efforts now encompass refiners that control in excess of 95 percent of the capacity to manufacture and sell CARB-compliant gasoline in California. (CX 1720A at 027). Unocal has also publicly announced that it expects to continue to obtain revenues

from licensing of its reformulated gasoline patents. (CX 614 at 026; Answer ¶¶ 14-15).

(3) They were central to the outcome of CARB's rulemaking

The objective of the CARB proceeding was not to adopt any effective pollution-reducing regulations, but to adopt pollution-reducing regulations that were justified in light of the cost of the regulations. As a result, Unocal's communications regarding its patent rights, which had a direct and substantial bearing on the cost of the CARB regulations, were central to the proceeding. (CCPF 963, 987-1014). Compliance costs were not peripheral to CARB's mandated concerns. Under California law, CARB was required not only to consider the potential pollution-control benefits of its regulations, but also to consider their "cost effectiveness" and "effect . . . on the economy of the state." (CX 1665 at 152-154 (Health & Safety Code §§ 43013(a) and (e); 43018(b), (c), and (e))).

Consequently, at the time of the Phase 2 proceeding, it was also CARB's policy to avoid conferring monopolies through its regulations. (Kenny, Tr. 6511-6512). Indeed, CARB management believed that, given the agency's obligations under the Health & Safety Code, it did not have the discretion to knowingly grant Unocal, or any other party to the Phase 2 proceeding, a monopoly. (CCPF 421-32; Kenny, Tr. 6511-6512; Venturini, Tr. 151).

F. Unocal's Lies to Auto/Oil and WSPA are Not *Noerr* Protected

1. Unocal's Lies to Auto/Oil and WSPA Were Distinct Exclusionary Acts That, Independent of any Lies to CARB, Contributed Materially to Unocal's Monopoly Power and Entailed No Communication to Government

In addition to inducing CARB to grant the company a monopoly through misrepresentations, Unocal gained market power by making an independent series of misrepresentations to two private industry groups: Auto/Oil and WSPA. This conduct is in important respects separate and distinct from Unocal's communications with CARB, and therefore is not subject to any plausible claim of *Noerr* protection.

But for these misrepresentations, Auto/Oil, WSPA, and their members would have incorporated knowledge of Unocal's patent rights into their capital investment and refinery reconfiguration decisions to avoid, or minimize, potential infringement. Alternatively, the refiners might have insisted on pre-regulation bargaining over royalty rates, thus preventing Unocal's post-regulation acquisition of market power. (CCPF 4698-701).

a. The refiners made investment decisions to maximize volume production of CARB Phase 2 gasoline based on Unocal's misrepresentations

Unocal's lies caused the refiners to make substantial investments to produce gasoline that would comply with the Phase 2 regulations ignorant of the fact that CARB's use of the Unocal research results would lead to additional compliance costs. (CCPF 2375-78; *see also* Statement of the Case Section XI.). The refiners obviously knew that CARB had based its T50 specification on Unocal's research – this fact is publicly displayed in CARB's technical documents. (CX 5 at 033; CX 10 at 075). But Unocal's lies caused CARB to believe that Unocal's research results were "in the public domain" and could be used free of charge. (CCPF 1515-690, 1813-32). The refiners therefore made investment decisions based on the understanding that Unocal's research results did not add any costs to the CARB regulations. (CCPF Section XXVII.D, G).

Moreover, in the 1991-92 timeframe, Unocal's technical expert, Mr. Stellman advised refiners that reducing their investments in refinery modifications would be cost-effective and would increase their rates of return. (CCPF 4575-78). Senior refinery managers testified that, had they have known the truth about Unocal's plans, they would have done just that. (CCPF 4580). CARB was monitoring the projected supply of CARB Phase 2 gasoline and would have discovered this supply restriction as a matter of course. (CCPF 4581, 4591). CARB had concerns about a supply shortfall and thus wanted to ensure that every major refiner was "on board." (Venturini, Tr. 263).

Unocal's own economic expert admitted that such a supply disruption would prompt CARB's intervention. (CCPF 4604). These undisputed facts have nothing to do with petitioning or with *Noerr*.

b. The refiners were precluded from bargaining ex ante for a license

Unocal's lies prevented these inquiries and precluded the refiners from negotiating for a license at a time when Unocal's bargaining power was far less. (CCPF 4698-701; CX 1720A at 010-013, 017; Teece, Tr. 7647-7648 (admitting that value of unpatented invention is less than after patent issues). The evidence is unrebutted that, had the refiners known of the Unocal pending patent in 1991 or 1992, each would have sought to know what fee Unocal intended to charge for the technology. (*See, e.g.*, Gyorfi, Tr. 5227 (Chevron); CX 7048 (Hancock, Dep. at 261-262) (Texaco); Banducci, Tr. 3487-3488 (Shell); Eizember, Tr. 3208 (Exxon)). But, given Unocal's representations, the refiners had no reason to do so. As Jack Wise of Exxon testified, Unocal's representation to Auto/Oil led him to believe that Unocal had granted a "royalty-free license to anything that resulted from Unocal's underlying research." (CX 7073 (Wise, Dep. at 19)).

c. The refiners were precluded from considering alternative technologies to reduce overlap

Unocal's lies to Auto/Oil and to WSPA prevented refiners from considering alternative technologies that would have reduced their exposure to Unocal's patents. (CCPF 4606-97). Before the refiners spent billions of dollars and years of work modifying their refineries in ways that (unknown to them at the time) pushed the refineries into the heart of Unocal's patents (CCPF 2478-95), **{** **}**. (Sarna, Tr. 6318, *in camera*; RX 1165 at 039, *in camera*). The options for each refinery are detailed in the record. (CCPF 4606-4697; RX 1154A at 012-023; Hoffman, Tr. 4905-12; Eizember, Tr. 3174-79). But the refiners had no chance to consider these options because Unocal misled them to believe that

Unocal's technology was "in the public domain."

2. To the Extent that Unocal's Communications with Auto/Oil and WSPA Were Intended to Influence CARB, They Are Still Not Protected by *Noerr*

Even if Unocal's misrepresentations to Auto/Oil and WSPA were deemed to be directed at CARB, they nevertheless would not be protected by the *Noerr* doctrine for all of the reasons that Unocal's misrepresentations to CARB are outside the scope of *Noerr*. Unocal's misrepresentations to Auto/Oil and ESPA are not protected by *Noerr* because: (1) Unocal's misrepresentations did not constitute *Noerr*-protected petitioning, as CARB did not intend to supplant competition; (2) Unocal's exclusionary conduct can be remedied without disrupting any government program on communication; (3) Unocal's misrepresentations do not fall within the zone of protected conduct in the context of the FTC Act; and (4) Unocal's conduct falls within the misrepresentation exception to *Noerr*.

a. Even if Unocal's lies to Auto/Oil and WSPA were intended to influence CARB, they are not the type of communications ordinarily protectible by Noerr

Unocal had another purpose in lying to the refineries. Unocal also wanted to prevent the industry groups from working with CARB to develop a Phase 2 regulation that did fall within Unocal's pending patents. The company intentionally informed both groups that its 5/14 Project research results were in the "public domain" and thus "freely available without charge." To the extent that, in part, Unocal's activities before Auto/Oil and WSPA could be construed as "indirect" petitioning of CARB, the arguments raised above apply with equal force.

Thus, for the reasons stated in Liability Sections III.C.1. and 2., the communications at issue here – whether made by Unocal to CARB directly, or indirectly through Auto/Oil and WSPA – would still not constitute "petitioning," as protecting them would not advance either of the

underlying objectives of *Noerr*. CARB still did not intend to supplant competition, and the competitive harm resulting from enforcement of Unocal's patent still can be remedied without burdening any governmental program.

Likewise, for the reasons stated in Liability Section III.D., the scope of the antitrust exemption for petitioning conduct, if applicable at all in this case, should be narrower than the exemption created in *Noerr*, as this action is still being prosecuted under the FTC Act, rather than the Sherman Act.

b. Even if Unocal's lies to Auto/Oil and WSPA were the type of communications ordinarily protected by Noerr, they are not protected in this case due to application of the misrepresentation exception

Even if Unocal's indirect communications with CARB via Auto/Oil and WSPA did constitute "petitioning," and even if the scope of the antitrust exemption for petitioning conduct were identical in FTC Act and Sherman Act cases, Unocal's *Noerr* defense would still fail due to application of the misrepresentation exception. For the reasons stated in Liability Sections III.E.2.a.(1)-(4), the CARB proceeding still constitutes the type of non-political context in which the misrepresentation exception is available. In addition, Unocal's specific misrepresentations to Auto/Oil and WSPA were: (1) deliberate, (2) factually verifiable, and (3) central to the outcome of the CARB proceeding.

Like its direct misrepresentations to CARB, Unocal's misrepresentations to Auto/Oil and WSPA were not mere errors, but rather were intentional falsehoods. As noted previously, Unocal filed the original application that resulted in issuance of its '393 patent on December 13, 1990 and had plans to seek royalties for its 5/14 Project technology. Nevertheless, at the September 10, 1991, presentation to WSPA, Unocal made no mention of its pending patent or its plans to seek royalties. Instead, a Unocal representative offered copies of his slide presentation and the related data disk to

any of the attendees who were interested. (Jessup, Tr. 1307; Segal, Tr. 5616-5617; Lieder, Tr. 4683; CX 456). The course of dealing at WSPA was that once a member presented its research to the group, that research was free to use and in the public domain. (*See* Statement of the Case Section IX.B; Lieder, Tr. 4722-4723; CX 7049 (Hochhauser, Dep. at 58-59); CX 7042 (Bea, Dep. at 43, 46); CX 7064 (Sinclair, Dep. at 60-61)).

Slightly more than two weeks later, on September 26, 1991, when Unocal made a presentation to Auto/Oil that was nearly identical to that made to CARB, the company again made no mention of its pending patent claims or its plans to seek royalties. Instead, a Unocal representative expressly told those in attendance that "data from Unocal's research has been provided to CARB and is in the public domain." (CX 4027 at 010). The evidence demonstrating that Unocal in fact made this representation and understood what it meant is overwhelming. (*See* Statement of the Case Section IX.A). Even without Unocal's express statement, however, the members of Auto/Oil had an understanding, as set forth in the Auto/Oil Agreement, that research presented to the group would become public and that no proprietary rights would be sought. (*See* Statement of the Case Section IX.A.2.c ; CX 4001 at 007). In spite of these representations, Unocal continued to fortify its plans to seek royalties by pursuing patent rights on technology necessary to make, use, and sell CARB-compliant gasoline. (*See* Statement of the Case Section X.B). These steps included adding additional claims that resembled the regulations and filing a divisional application to obtain additional patents. (CCPF 2183-209, 2636-39).

Unocal's misrepresentations to Auto/Oil and WSPA were factually verifiable. The evidence of the course of dealings that research presented to WSPA is considered to be in the public domain is clear and unrebutted. (CCPF 1790-812). The fact that Unocal presented the 5/14 Project research to WSPA and provided to WSPA members the presentation slides and a data disk containing the

research results that it subsequently claimed in its '393 patent is also readily verifiable. (Jessup, Tr. 1307; Segal, Tr. 5616-5617; Lieder, Tr. 4683; CX 456)).

The evidence of Unocal's misrepresentations to Auto/Oil is equally clear cut. The overwhelming evidence shows that Unocal made an affirmative, unequivocal statement that the research it was presenting to Auto/Oil was in the public domain. (CCPF 1436, 1515-59). Moreover, the Auto/Oil Agreement confirms the understanding of all parties that, once information was disclosed to the group, it became non-proprietary. (CX 4001 at 007; CCPF 1660-1676). Unocal's disclosure to the group the research that it was in the process of obtain patents over is confirmed by the contemporaneous notes from the September 26, 1991 meeting as well as evidence that other companies actually used that information. (CX 4027 at 010).

Finally, Unocal's misrepresentations to Auto/Oil and WSPA were central to the outcome of the CARB proceeding. As noted previously, CARB was required by law to consider not only the pollution-control benefits of its regulations, but also their "cost-effectiveness" and "effect . . . on the economy of the state." (CX 1665 at 152-154 (Health & Safety Code §§ 43013 (a) and (e); 43018(b), (c), and (e))). WSPA and Auto/Oil – whose members would bear compliance costs – shared this objective as well. WSPA, for example, commissioned several cost studies that it provided to CARB. These included a compliance cost study conducted by Turner Mason, a cost-effectiveness study conducted by Sierra Research, and an economic impact study conducted by DRI McGraw-Hill. (CCPF 1395, 2014-23). WSPA was extremely sensitive to the potential costs imposed by intellectual property, as demonstrated by the fact that the Turner Mason study included royalty costs related to *all* intellectual property, not just patents, and sought cost estimates for both present and future technology. (Cunningham, Tr. 4206; 4215-4216; 4245-4251). For its part, Auto/Oil sought to carry out the cost mandate by developing recommendations based upon publicly

available data and technologies, so that there was not need to use expensive, patented processes. (Kiskis, Tr. 3833-3834; CX 7076 (Youngblood, Dep. at 10-11, 80)). This was also the motivation for the provisions of the Auto/Oil Agreement requiring that all research conducted by the group, or donated to the group through presentation, would be considered within the public domain and free for anyone to use. (CX 4001 at 007).

Unocal's misrepresentations regarding its patent rights, its plans to seek royalties, and its subsequent patent enforcement efforts, were thus directly contrary not only to one of the central objectives of the CARB proceeding, but to the objectives of WSPA and Auto/Oil to the extent that they shared CARB's cost concerns.

IV. UNOCAL HAS GAINED, OR IS DANGEROUSLY CLOSE TO OBTAINING, MONOPOLY POWER

The offenses of monopolization, attempted monopolization, and unfair competition are concerned not just with anticompetitive conduct, but with the acquisition of market power or economic harm. As detailed below, the evidence shows that Unocal has acquired, or at least is dangerously close to acquiring, monopoly power in two distinct markets.

Monopoly power is the ability to exclude competition or raise price persistently and significantly above the competitive level without losing so many sales that the price increase becomes unprofitable. *See Eastman Kodak Co. v. Image Technical Serv., Inc.*, 504 U.S. 451, 481 (1992). Monopoly power can be demonstrated through either direct evidence or indirect evidence.[81] Evidence that a firm has actually excluded competitors or charged supracompetitive prices is direct

[81] Evidence of the exercise of monopoly power is not necessary. The offense of monopolization is complete with the acquisition or maintenance of monopoly power; that power does not have to be exercised. *See American Tobacco Co. v. United States*, 328 U.S. 781, 811 (1946) (holding "that the material consideration in determining whether a monopoly exists is not that prices are raised and that competition actually is excluded but that power exists to raise prices or to exclude competition when it is desired to do so"); *Berkey Photo v. Eastman Kodak Co.*, 603 F.2d 263, 275 (2d Cir. 1979) ("Unlawfully acquired power remains anathema even when kept dormant.")

proof of monopoly power. *See, e.g., Re/Max Intern., Inc. v. Realty One, Inc.*, 173 F.3d 995, 1016 (6th Cir. 1999); *Forsyth v. Humana, Inc.*, 114 F.3d 1467, 1475 (9th Cir. 1997), *aff'd*, 525 U.S. 299 (1999)); *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1434 (9th Cir. 1995).

Indirect evidence of market power typically – but not always – consists of evidence that a firm possesses "a dominant share of a relevant market that is protected by entry barriers."[82] *Microsoft*, 253 F.3d at 51; *see also Re/Max Int'l, Inc. v. Realty One, Inc.*, 173 F.3d 995, 1016 (6th Cir.1999); *Tops Mkts., Inc. v. Quality Mkts., Inc.*, 142 F.3d 90, 98 (2d Cir. 1998) (stating that monopoly power "may be inferred from one firm's large percentage share of the relevant market"). High market share combined with entry barriers is often indicative of monopoly power because it tends to show that there are not sufficient actual or potential substitute suppliers to allow for significant consumer switching in the event of supracompetitive pricing:

> Measurement of market share is necessary to determine whether the defendant possesses sufficient leverage to influence marketwide output. With a dominant share of the market's productive assets, a firm may have the market power to restrict marketwide output and, hence, increase prices, as its rivals may not have the capacity to increase their sales quickly to make up for the reduction by the dominant firm.

Rebel Oil, 51 F.3d at 1437.

The relevant question, however, is not simply market share, but whether actual or potential substitutes are likely to constrain a firm's ability to profitably raise prices above the competitive level. *See Microsoft*, 253 F.3d at 57 (explaining that "[s]tructural market power analyses are meant to determine whether potential substitutes constrain a firm's ability to raise prices above the competitive level"). High market share, therefore, is not always necessary for indirect evidence of monopoly power. *See* IIA Areeda & Hovenkamp, *Antitrust Law* ¶532c (2d ed. 2002) (giving examples in which a firm with low market share may nonetheless possess market power); Thomas

[82] "'Entry barriers' are factors (such as certain regulatory requirements) that prevent new rivals from timely responding to an increase in price above the competitive level." 253 F.3d at 51.

G. Krattenmaker, Robert H. Lande & Steven C. Salop, *Monopoly Power and Market Power in Antitrust Law*, 76 Geo. L.J. 241, 260 (1987) (stating that market share cannot be the sole focus of a market power inquiry in exclusion cases: "The inquiry should instead focus directly on the ability of the firm to raise its price by raising its rivals' costs. Market share . . . . should be one factor to consider, not the focus of the analysis."). So long as the evidence shows that buyers are unable to switch to substitutes in a manner significant enough to defeat supracompetitive pricing, the evidence demonstrates monopoly power.

Here, the evidence shows that Unocal's deceptive conduct affected CARB's regulations, allowing Unocal to opportunistically exploit the refiners' investments made to produce CARB Phase 2 summertime gasoline. Unocal is therefore in a position to demand supracompetitive royalties for its patent. This conclusion is verified by both direct and indirect evidence of Unocal's monopoly power.

A. Opportunistic, Self-Seeking Behavior Through Lying (or "Guile") Can Lead to Monopoly Power, Especially When the Conduct Affects Regulations

Economic theory shows that deceptive conduct aimed at influencing regulations can easily confer monopoly power. As Unocal's own expert explained, "The principal antitrust concern with regulatory standards is that interested parties may be able to coopt the regulatory process to protect their market position against potential competitors." (Teece, Tr. 7713). Regulations, such as the Phase 2 regulations, set standards akin to those set by private standard setting organizations. Thus, regulations, like privately set product standards, can confer monopoly power. *See*, *e.g.*, ABA Section of Antitrust Law, *Handbook on the Antitrust Aspects of Standards Setting* 1-12 (2004). This is especially true in cases where a patented technology is incorporated into a regulation or standard; as economists recognize, "While ownership of a patent does not automatically confer market power, a patent nearly always does confer market power when it protects the right to a technology that is

selected as the standard technology . . ." Lauren Johnston Stiroh & Richard T. Rapp, *Market Power in Technology Markets*, SD72 ALI-ABA 61, 80 (1999). Because compliance with regulations is mandatory (RX 1162A at 037; Teece, Tr. 7712), manipulation of regulations can be even more pernicious than that of private standards.

Regulations that require substantial specific investments open the door to opportunistic exploitation. As Dr. Shapiro explained at trial, the economic theory of opportunism demonstrates how deception may allow the exploitation of specific investments and, thus, lead to the acquisition of monopoly power. (CCPF Section XXV.A). Simply put, where a party is deceived into making specific investments that (unbeknownst to the party) use a patented technology, the patent holder is then in a position to demand far higher royalties than it could have demanded before the investments were made. (CX 1720A at 013 (Shapiro Expert Report)). The deceiver is now in a much stronger bargaining position because the deceived party would have to abandon the specific investments to switch to some other technology. (CX 1799A at 003 (Shapiro Expert Rebuttal Report); RX 1162A at 028-029 (Teece Expert Report); RX 1164A at 186-188 (Griffin Expert Report)). The deceiver's monopoly power is directly related to the sunk costs (specific investments) plus whatever costs must be incurred to switch that would not have been incurred before the investments were made. (CX 1720A at 013 (Shapiro Expert Report); Shapiro, Tr. 7062). This phenomenon is called "*ex post* lock-in." (CX 1720A at 013 (Shapiro Expert Report)).

The change in bargaining position reflects monopoly power gained through the deception, not from the inherent worth of the patented technology. (CX 1720A at 014 (Shapiro Expert Report)). Because regulations are mandatory, opportunistic deception aimed at influencing regulations or those who must comply with the regulations can lead to especially strong monopoly power. (CX 1720A at 013-014 (Shapiro Expert Report)).

B. The Relevant Markets

Indirect evidence of whether Unocal possesses or was likely to obtain monopoly power must be assessed in light of a properly defined relevant market. *See, e.g.*, *Grinnell*, 384 U.S. at 570-72; *PepsiCo, Inc. v. Coca-Cola Co.*, 315 F.3d 101, 107 (2d Cir. 2002) (recognizing that market definition is not necessary where monopoly power is shown by direct evidence). A relevant market has two dimensions: product and geographic. *See Aluminum Co. of America*, 377 U.S. at 276. The relevant product market "is composed of products that have reasonable interchangeability for the purposes for which they are produced." *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 404 (1956). "Reasonable interchangeability" is most often determined by considering whether enough purchasers would substitute away from the product or group of products to render unprofitable a small but significant, nontransitory price increase. *See E.I. du Pont*, 351 U.S. at 394-95; *Rothery Storage & Van Co. v. Atlas Van Lines Inc.*, 792 F.2d 210, 218 (D.C. Cir. 1986). Phrased differently, the test is whether products are close enough substitutes that a sufficient number of purchasers would react to a price increase by switching to other products so that the price increase would be unprofitable.[83] If consumers would not switch, that group of products constitutes a properly defined antitrust market.

Intellectual property, such as patents, like any other property, may be a "product" for purposes of market definition. A "technology market" "consist[s] of the intellectual property that is licensed . . . and its close substitutes – that is, the technologies or goods that are close enough substitutes significantly to constrain the exercise of market power with respect to the intellectual

[83] Evidence of reasonable interchangeability includes "(1) evidence that buyers have shifted or have considered shifting purchases between products in response to relative changes in price or other competitive variables; (2) evidence that sellers base business decisions on the prospect of buyer substitution between products in response to relative changes in price or other competitive variables; (3) the influence of downstream competition faced by buyers in their output markets; and (4) the timing and costs of switching products." *Horizontal Merger Guidelines* at § 1.11.

property that is licensed." U.S. Dept. of Justice & Federal Trade Commission, *Antitrust Guidelines for the Licensing of Intellectual Property* ("*IP Guidelines*") § 3.2.2 (1995). The Commission relies on technology markets to analyze the competitive effects of a licensing arrangement "[w]hen rights to intellectual property are marketed separately from the products in which they are used." *Id.*

The same test for "reasonable interchangeability" used for product markets applies in markets involving patented technology. *Id.* As applied to the technology market at issue in this case, that test is whether other technologies are close enough substitutes to Unocal's patented technology to make, use and sell CARB-compliant gasoline that a sufficient number of refiner-purchasers would react to a price increase[84] in Unocal's technology by switching to other technologies so that the price increase would be unprofitable.[85] *Id.*

A geographic market is an area to which purchasers of a product can reasonably turn for a source of supply. *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 327 (1961); *Standard Oil Co. v. United States*, 337 U.S. 293, 299 n.5 (1949). To determine the relevant geographic market, courts have examined whether firms outside of the geographic region would begin selling into the area in response to a small but significant, nontransitory price increase and thereby render that increase unprofitable. *See*, e.g., *Rothery*, 792 F.2d at 219. If so, the relevant geographic market must include the locations of those firms. *Id.*

---

[84] Where a technology is licensed in ways that are not readily quantifiable in monetary terms, the Commission will "delineate the relevant market by identifying other technologies and goods which buyers would substitute at a cost comparable to that of using the licensed technology." *Id.*

[85] Defining the relevant technology market in this case therefore does not require the resolution of any substantial questions of patent law. Indeed, the Federal Circuit has held that market definition in an antitrust case alleging a technology market covered by a patent is an "antitrust issue[] that do[es] not implicate patent law." *Unitherm Food Sys. v. Swift-Eckrich, Inc.*, 375 F.3d 1341, 1365, n.7 (Fed. Cir. 2004) (holding in an attempted monopolization case that even the definition of a market alleged to be coterminous with a patented process did not implicate patent law), cert. granted on other grounds, 2005 WL 443 881 (U.S. Feb. 28, 2005); s*ee also, Unocal Noerr Opinion* at 2004 FTC Lexis *127 at n.101 ("The question of which alternatives compete with Unocal's technologies is a familiar question in antitrust law, not a substantial question of patent law").

1. The Technology Market

In this case, the evidence shows that there are two relevant antitrust markets. The first is a technology market – the market for technology that will enable refiners to produce and supply CARB-compliant summertime gasoline (the "Technology Market"). (CCPF 2819-39; CX 1720A at 021-022). A hypothetical monopolist controlling all technology required for the production and supply of CARB-compliant summer-time gasoline could raise and profitably sustain price significantly above competitive levels. (CX 1720A at 021). This is because, given CARB's Phase 2 regulations, refiners who wish to sell gasoline in California during the summertime must employ a technology that enables them to make CARB-compliant gasoline. (CX 1720A at 022).

This market consists of the technology patented and licensed by Unocal and any other technologies that are sufficiently close substitutes for producing CARB-compliant gasoline that they would constrain Unocal's ability to raise the price of its patented technology above the competitive level. (CX 1720A at 021). The geographic scope of this market is the world; there are no barriers preventing a seller or licensor located anywhere in the world from supplying this type of technology. (CCPF 2829). Unocal's expert conceded that this market definition is reasonable. (CCPF 2826).

2. The CARB Gasoline Market

The second relevant market consists of gasoline that is compliant with the CARB summertime regulations made available for sale in California (the "CARB Gasoline Market"). (CCPF 2840-49; CX 1720A at 23). Consumers cannot turn to substitutes because, by law, all summertime gasoline sold to consumers in California must comply with CARB's regulations. (CX 1720A at 23). The evidence shows that the demand for gasoline in California is highly inelastic, which means that a hypothetical monopolist of CARB-compliant gasoline could profitably raise and sustain price significantly above competitive levels during the summertime months. (CX 1720A at

23). The geographic scope of this market is no larger than California because suppliers outside California cannot effectively discipline price increases by refiners inside California given the cost of transporting gasoline over long distances. (CX 1720A at 23; Beach, Tr. 1686 (describing the California gasoline market as an "island" due to CARB regulations and transportation costs)).

C. Unocal Has Gained or Is Dangerously Close To Gaining The Ability to Control Prices in the Technology Market

Unocal's five patents cover technology for the production and use of low emissions gasoline. The CARB regulations set forth specifications for the production and use of low emissions gasoline. The Unocal patents and CARB's regulations intersect. Four lines of evidence in the record demonstrate that this intersection has resulted in Unocal gaining or being dangerously close to gaining monopoly power in the Technology Market.[86]

First, the evidence shows that, given Unocal's lies prior to announcement of the Phase 2 regulations, the economic conditions exist for Unocal now to opportunistically exploit industry-wide specific investments. Unocal's *ex post* bargaining power has therefore increased vis-a-vis its potential licensees. Economic theory therefore suggests that Unocal gained monopoly power (*i.e.*, the ability profitably to price above competitive levels).

Second, there is direct evidence that Unocal has priced its patented technology above the competitive level. The best evidence of the competitive price for a technology is the price that was actually paid in the marketplace at the relevant time. Here, the actual marketplace evidence demonstrates that the competitive price for Unocal's technology was zero. By misrepresenting to CARB and other industry members that the technology imbedded in its presentations was "non-proprietary," "in the public domain," and could be freely used without charge, CARB and industry members evaluated and based their market transactions (*viz.*, CARB's adoption of the technology in its regulations and the refiners' investment decisions) on the representation that the royalty for Unocal's technology was zero. Now, however, Unocal has been able to and is seeking to impose positive royalties. As the Commission stated, "[m]arket power and competitive harm might be

[86] The same type of evidence (but a lesser quantum) proves the necessary market power for an attempted monopolization claim or an unfair competition claim under Section 5. *See* Section II.

established through the course of dealing among Unocal and third parties, as reflected by Unocal's licensing activities and the responses of third parties to Unocal's threats and suits." *Unocal Noerr Opinion* 2004 FTC LEXIS 115 at *127. Unocal's licensing and litigation activities are therefore direct evidence of monopoly power.[87]

Third, a structural analysis shows that there do not exist potential substitutes that prevent supracompetitive pricing.[88] The evidence shows that 92% of all Phase 2 gasoline overlaps with Unocal's patents, and it shows that the "overlap rate" – the percentage of production that falls within the numerical limitations of Unocal's patents – is the economic equivalent of an infringement rate. Moreover, if evidence showing infringement in the patent-law sense is needed, the record shows that, as Unocal's own expert admitted, at least 50.4% of all Phase 2 gasoline infringes two Unocal patents and that the infringement rate for all five patents is likely much higher. This, combined with the overwhelming evidence from both the fact and expert witnesses is that there are no economic substitute technologies to which refiners could switch to avoid Unocal's patents, demonstrates that Unocal has monopoly power.

Fourth, the evidence shows that there are not sufficient economic substitutes to defeat supracompetive pricing even if the overlap or infringement rate were relatively low (which it is not).

---

[87] As the Commission has held, this type of evidence does not require resolution of substantial issues of patent law, because it concerns the economic value, rather than the legal status, of Unocal's technology. *Id.*

[88] The same principles that apply to the use of indirect evidence of monopoly power in goods markets also apply in technology markets. In assessing the competitive significance of a patented technology, the focus is on which substitute technologies constrain the price of the patented technology. U.S. Dept. of Justice & Federal Trade Commission, *Antitrust Guidelines for the Licensing of Intellectual Property* ("*IP Guidelines*") § 3.2.2 (1995). This assessment may take into account market share data, where available. *Id.* It may also take into account "buyers' and market participants' assessments of the competitive significance" of the technologies in the market. *Id.* If the monetary cost of the technology is not readily quantifiable, it also takes into account which technologies buyers would substitute at a cost comparable to that of using the licensed technology. *Id.*

This is because of unique aspects of refining technology. In short, as Unocal's own expert admits, because of the variability of refining processes, refiners are unable to avoid Unocal's patents on every batch of Phase 2 gasoline produced. In other words, there are no economic substitutes that would allow refiners both to produce Phase 2 gasoline and to completely avoid using Unocal's technology. Since patent law would allow Unocal to enjoin refiners from producing infringing gasoline, Unocal thereby has the ability to enjoin the production of *all* Phase 2 gasoline. Unocal can therefore charge supracompetitive prices because refiners face the threat of either paying the royalty or being unable to produce any Phase 2 gasoline. Moreover, even if Unocal did not exercise this power, refiners must dispose of infringing gasoline, and the evidence demonstrates that this "substitute" is very costly (on the order of 30-35 cents per gallon). Unocal can therefore charge supracompetitive prices because there are no close economic substitutes to its technology, even if the overlap rate is low.

1. The Refiners Have Made Specific Investments to Produce Phase 2 Gasoline, Which Unocal May Now Exploit

The economics of opportunism establishes that Unocal has monopoly power because the evidence shows that refiners made specific investments that Unocal may now exploit. The evidence is very clear on this point. Specifically, the evidence shows that refiners made enormous investments to produce Phase 2 gasoline, investments which were not required to meet federal EPA Phase 1 regulations (which went into effect in 1995) and which the refiners would not have made had CARB defaulted to the EPA regulations as Mr. Venturini testified CARB would have done. According to Unocal's expert, these specific investments totaled over $2.7 billion. (CX 1346 at 61 (calculating total capital expenditures allocated for compliance with CARB regulations)). Complaint Counsel's experts calculated these specific investments to be over $1.5 billion (CX 1720A at 039). Whatever the exact number, the evidence shows that it is substantial. (CCPF

Section XVIII). As the evidence discussed below shows, it is not possible to produce Phase 2 summertime gasoline without using Unocal's patented technology (for at least the majority of the time). Unocal's patent ambush therefore enabled Unocal to capture the value of the refiners' specific investments. The investments (coupled with any unanticipated operating cost savings) therefore form the *lower bound* of Unocal's monopoly power. (CX 1720A at 030).

The testimony and opinions of Unocal's own economic expert confirm this conclusion. In the '393 litigation, Dr. Teece testified that the refiner sunk costs impacted the royalty Unocal could command for its patent. According to Dr. Teece, "the economic cost of abandoning the California market and California investments means that . . . Unocal has greater 'bargaining power' relative to other oil companies." (CX 1346 at 011). Further, Dr. Teece opined that the value of the Unocal patents "is amplified if you are in an industry circumstance where there's a lot of fixed investment." (CX 1332 at 017). He then testified that Unocal could take advantage of the refiner investments to produce Phase 2 gasoline: "QUESTION: But here in this case, by [1995], the defendants have spent all this sunk money, the billions of dollars. They have made the very choice they already said. We'll invest the money so we can control T50 and T90, and it's all in there. It's all in place, and we've spent the money. ANSWER: You're absolutely right, because [the refiners] have made billions of dollars of upgrades, but they haven't taken into account the fact that [Unocal's] patent is out there. So they are stuck, and they're going to have to take the license [from Unocal]. Precisely my point . . ." (CX 1332 at 051; Teece, Tr. 7706-7707).

Unocal's ability to exploit these specific investments is confirmed both by direct and indirect evidence of monopoly power.

2. Unocal Has Obtained and is Seeking Royalties Above the Competitive Level

The record is replete with direct evidence of Unocal's monopoly power in the Technology

Market – evidence that Unocal has in fact priced its technology above the competitive level. *See, e.g., Re/Max Intern.*, 173 F.3d at 1016. As Complaint Counsel's economic expert, Carl Shapiro, has demonstrated, the competitive price level for Unocal's technology was zero. (CX 1720A at 015 (Shapiro Report)). But Unocal is now, and has been, able to price substantially above that level.

The parties' economic experts agree that the best evidence of the competitive price for a technology or product is actual market transactions. (CX 1720A at 15; Teece, Tr. 7540-7541). The selection of technologies for inclusion in a regulation or for use to comply with a regulation is a technology market in operation. (CX 1720A at 015). The representations made by the participants, and specifically by those possessing intellectual property rights, constitute competitive offers. (CX 1720A at 015).

Unocal's misrepresentation that it did not possess or would not enforce intellectual property rights related to the 5/14 Project "from an economic point of view" is "equivalent to Unocal representing that they will not be charging for that technology or that it will be available on a royalty free basis. So that- those terms that were represented are the competitive price." (Shapiro, Tr. 7072-7073). Therefore, direct observation of the technology market in operation demonstrates that Unocal's competitive offer for its RFG technology was a royalty of zero. (CX 1720A at 015; Shapiro, Tr. 7072-7073 (from the point of view of an economist, Unocal's statement is "really a direct observation of a competitive price, the price that was represented when the market was more competitive – and that is a – zero royalties")).

After the adoption and implementation of CARB's regulations and the refiners' build-out, Unocal has been able to extract substantial positive royalties on its technology to make, use and sell CARB-compliant gasoline. It has succeeded in doing so through litigation and licensing activities, and threatens to do so for years to come. **{**

} (Shapiro, Tr. 7207, *in camera*; CX 1720 at 025, *in camera*).

As a result of its litigation efforts, Unocal has been awarded a judgment against the five large California refiners at 5.75 cents per gallon of CARB-compliant gasoline based on but one of its five patents, the '393 patent. *Union Oil Co. of Cal.*, 208 F.3d at 991; (Answer ¶ 68). That judgment amounted to $91 million – for only five months of infringement plus attorneys' fees and costs. (Strathman, Tr. 3658; Answer ¶ 69). Unocal has already collected that award, and is prosecuting an accounting action to obtain damages for the period from August 1, 1996 to December 31, 2000. (Answer ¶ 70.) At the established rate of 5.75 cents per gallon for supply and production of CARB gasoline, Unocal is seeking a total of between $250 and $280 million in damages for that period. (Strathman, Tr. 3657-3659); *Union Oil Co. of Cal*, No. CV-95-2379-CAS, Order, slip op. at 4-5,13 (C.D. Cal. Aug. 28, 2002). Unocal also is now attempting to enforce both its '393 and '126 patents through litigation against Valero – seeking, among other things, a mandated license to the patents at the rate of 5.75 cents per gallon for all infringing gallons. (CX 1337 at 011). These efforts constitute direct evidence of monopoly power. *See, e.g., Brunswick Corp. v. Riegel Textile Corp.*, 752 F.2d 261, 265 (7th Cir. 1984) (stating that in evaluating whether a patent confers market power, the fact that a patent-holder is "suing an infringer is some evidence that the patent has (or at least the patentee is seeking to clothe it with) some colorable validity that might deter competitors").

Unocal also obtained royalties through licensing its five-patent reformulated gasoline portfolio. **{**

} (CCPF 2722-35) . For

refiners who have litigated with Unocal, Unocal has indicated that the rate would be even higher. (Strathman, Tr. 3634, 3637-3639; CX 435 at 001). Unocal has publicly announced that it expects to reap up to $150 million in annual revenues from licensing of its RFG patents. (CCPF 2720). All of these rates are considerably above the zero royalty benchmark that Unocal set in its representations to CARB and Auto/Oil, and **{**

} (Shapiro, Tr. 7207, *in camera*; CX1720 at 025, *in camera*).

Other facets of Unocal's licensing arrangements confirm Unocal's market power.

} (CCPF 2737-38).

{

}

(Strathman, Tr. 3722, *in camera*; Dowling, Tr. 3779, *in camera*).

{

} (CX 436 at 002, *in camera*; Strathman, Tr. 3740, *in camera*). As Complaint Counsel's economic expert, Dr. Shapiro, testified, the funds Unocal collected in litigation and through licensing activities "exceed the amount Unocal would have earned in a competitive market and are monopoly overcharges." (CX 1720A at 026 (Shapiro Expert Report); *see also* Shapiro, Tr. 7205-7206, *in camera*).[89]

---

[89] Unocal's process of setting its license rates reflects that it obtained market power based on the overlap of its patents with the CARB regulations. **{**

} (Strathman, Tr. 3728, *in camera*).

{

3. There Are Not Sufficient Economic Substitutes For Unocal's Technology to Which Refiners May Turn to Restrain Supracompetitive Pricing

Indirect evidence also establishes that Unocal has or is dangerously close to obtaining monopoly power because its patented technology is the dominant, unavoidable technology in the Technology Market. The evidence presented at trial shows that both Unocal and refiners make real-world business decisions based on practical standards to determine whether technologies to produce gasoline are covered by Unocal's patents. (CCPF 3045-79, 3253-472). Based on those practical standards – *i.e.*, evaluating produced gasoline properties against the numerical property limitations in Unocal's patents – approximately 93% of refiners' CARB summertime gasoline production uses Unocal's patented technology. (CCPF 3024-44). The record shows that the only substitute to Unocal's technology, now that the regulations are in place, is unpatented blending "know-how" that allows refiners to attempt to "blend around" Unocal's patents. As refiner and expert testimony shows, this technology is not an effective substitute because refiners cannot economically avoid using Unocal's technology the vast majority of the time when producing CARB-compliant summertime gasoline. (CCPF 3174-3617).

As explained below, a finding of market power based on this evidence does not require a determination of the likelihood that alternative blending technologies infringe Unocal's patents as a matter of patent law. Nevertheless, even if the determination of market power did require a decision on the likelihood of infringement under the patent laws, the evidence of record shows that likelihood exists here. Unocal's own technical expert testified at trial that 50.4% of all gasoline produced in California infringed either Unocal's '393 patent or the first 40 claims of its '126 patent. (RX 1165A at 017; Stellman, Tr. 8096, *in camera*). The evidence further shows that refiners

---

} (Strathman, Tr. 3728, *in camera*).

routinely also use the methods and processes described in Unocal's remaining patent claims, which, together with the evidence that refiners meet the numerical limitations of those claims, raises the rate of infringement to close to 93%. (CCPF 3129-73). Both the Sixth Circuit and the Commission have held that the Commission has jurisdiction over substantial questions of patent law, and the Commission may therefore determine likely infringement in the patent-law sense.

a. Market power is an economic issue that may be resolved without resolving substantial issues of patent law

Indirect evidence of monopoly power demonstrates Unocal's power in the Technology Market without regard to the likelihood that refiners' alternative blending technologies and gasolines actually infringe Unocal's patents as a legal matter. The key inquiry in any monopolization case is an economic one: whether the accused monopolist has the ability to exclude competition or raise price for its technology persistently, profitably and significantly above the competitive levels. *See Eastman Kodak Co. v. Image Technical Serv., Inc.*, 504 U.S. 451, 481 (1992). For accused monopolists with patented technologies, the ability to exclude competition and raise price in the technology market is not necessarily co-extensive with legal infringement of a valid patent. *See, e.g., Brunswick Corp.*, 752 F.2d at 266 ("Until unmasked in an infringement or cancellation or other proceeding, a patent on an unpatentable invention may create a monopoly by discouraging (through litigation or other means) others from making the patented product . . . ."). Rather, that ability stems from the practical economic assessments of the market participants regarding the patents and technology at issue.

The law is well-established that, even in cases involving markets with patented technology, market power is not an issue of patent law. The Federal Circuit has specifically held in monopolization cases concerning markets to patented technology that the issue of "market power" is "not unique to patent law." *Nobelpharma AB v. Implant Innovations*, 141 F.3d 1059, 1068 (Fed.

Cir. 1998) (stating that the law of the regional circuit, rather than Federal Circuit law, applies to determine market power in an *Walker Process* case premised upon the assertion of a patent). As the Federal Circuit "has repeatedly said, the mere presence of a patent issue cannot of itself create a cause of action arising under the patent laws." *Consol. World Housewares, Inc. v. Finkle*, 831 F.2d 261, 265 (Fed. Cir. 1987). Accordingly, the Commission has already held in this case that proof that Unocal has market power or has a dangerous probability of achieving it does not require resolution of substantial questions of patent law. *Unocal Noerr Opinion* 2004 FTC LEXIS 115 at *127-128.

Instead, market power is an issue of fact to be determined based on evidence of economic substitutability. *See Thompson v. Metropolitan Multi-List, Inc*., 934 F.2d 1566, 1580 (11th Cir. 1991) (holding that "market power" is a factual question of whether the service at issue had "'sufficient economic importance that exclusion results'"); *Eastman Kodak*, 504 U.S. at 482-83 ("The proper market definition in this case [and thus the assessment of power within it] can be determined only after a factual inquiry into the 'commercial realities' faced by consumers."). As applied to markets involving patented technology, economic evidence is required to show that the patent has "enough value" to enable the patentee to increase price or exclude substitutes from the market, or to achieve a dangerous probability of doing so. *See, e.g.*, *Brunswick Corp.*, 752 F.2d at 265.

The most relevant indirect evidence in this case, therefore, is the evidence showing that, as a practical business matter, both Unocal and refiners conduct themselves as though alternative technologies and gasolines are not economically-effective substitutes for Unocal's patented technology. *See Unocal Noerr Opinion* 2004 FTC LEXIS 115 at *128. ("We may conclude that certain technologies are likely to infringe and therefore may not provide a significant competitive check on whatever market power Unocal may possess."). It is in this sense that the question of

whether alternative technologies and gasolines are "likely to infringe" matters: in an antitrust context, that phrase is synonymous with whether Unocal and the other refiners act in ways that show that refiners (i) have paid or are likely to pay Unocal for the use of alternative technologies, (ii) have incurred or are likely to incur additional costs to avoid Unocal's patents, or (iii) have been excluded or are likely to be excluded from using alternative technologies. The industry's assessment of whether technologies or goods are "likely to infringe," rather than a court's determination of the legal likelihood of infringement, is the relevant indicator of market power.

It is possible to determine whether alternatives to patented technologies are "likely to infringe" in this practical economic sense by examining the record evidence showing how Unocal and its competitors determine in the marketplace which blending technologies and gasolines are alternatives to Unocal's patented technology (*e.g.* which technologies do not fall under Unocal's patents), and whether these refiners have found any economically-feasible alternative blending technologies and gasolines to avoid this risk. This evidence, discussed in detail below, shows that, based on the very standards that Unocal and the refining industry use as a practical matter to evaluate whether alternative technologies and gasolines are likely to infringe Unocal's patents, Unocal has approximately a 93% market share in the market for technology to produce CARB-compliant summertime gasoline. It also shows that refiners and Unocal as a practical business matter use satisfaction of the property limitations of the five Unocal patents to make economic decisions concerning technologies to make, use, and sell CARB-compliant summertime gasoline, and that refiners have tried, but not succeeded, to find economically-effective alternative blending methods that would permit them consistently to avoid the property limitations of Unocal's patents.

Looking to evidence of firms' practical business decisions surrounding infringement does

not require making assumptions about infringement, but is rather consistent with the antitrust fundamentals that issues of market power and market determination are economic questions. *See, e.g., Eastman Kodak Co.*, 504 U.S. at 482; *Thompson*, 934 F.2d at 1580; *Unitherm*, 375 F.3d at 1364. It is also consistent with the antitrust principles applied to evaluating licensing of intellectual property, which states that relevant evidence of monopoly power in a technology market includes "market participants' assessments of the competitive significance of technology market participants." *IP Guidelines* § 3.2.2.

b. The evidence shows that matching rates demonstrate market power

(1) **{** **}**

The evidence at trial has shown that Unocal and market participants use only the numerical property limitations of the five Unocal patents, rather than all the claim limitations, to make key economic decisions concerning technologies to make, use and sell CARB-compliant summertime gasoline. **{**

}

{

} (CCPF at 3048-49).[90]

[90] **{**

} (CCPF at 3049) (emphasis added).

{

} (CCPF 3051).

{

} (CCPF 3054-60).

{

}

(CCPF 3054). **{**

} (CCPF 3058-61). **{**

} (CX 684 at 001, *in camera*; Jessup, Tr. 1338-1338, 1460-1461, *in camera*) (emphasis added).

{

} (CCPF 3129-73, 3067-69). **{**

} (CCPF 3063).

Unocal's documents reflect this understanding. **{**

} (CCPF 3051, 3065)**. {**

} (CX 2000 at 001, *in camera;* Strathman, Tr. 3717-3718, *in camera*).[91]

{

} (Hepper, Tr. 4089, *in camera*; *see also* Dowling, Tr. 3791-3792, *in camera;* { }, *in camera*).[92] **{**

}

---

[91] **{**

} (Strathman, Tr. 3717-3718, *in camera*). **{**

}

[92] **{**

} (Hepper, Tr. 4088, *in camera*). **{**

} (, *in camera*). **{**

} (Dowling, Tr. 3791-3792, *in camera*).

(2) Industry participants make business decisions based on matching rates

Outside the licensing context, the evidence also shows that industry participants make additional business decisions based on the numerical property limitations of Unocal's patent claims. When the major California refiners instruct their engineers to attempt to avoid the five Unocal patents, they do so by seeking to avoid the numerical properties of the patents' claims. (CCPF 3075). These refiners have conducted working groups, prepared studies, and implemented operational blending technology changes all to seek to avoid the numerical limitations of Unocal's patents. (CCPF at 3075, 3254-89).

Refiners and traders similarly use the numerical properties limitations of Unocal's patents to assess their business risks under the patents. (*See, e.g.*, Engibous, Tr. 3971-3976, *in camera*; Hepper, Tr. 4080-4081, *in camera*). **{**

} (CX 2010, *in camera*). **{**

} (Hepper, Tr. 3941-3942, 3944-3945, CX 2193, *in camera*, Hepper Tr. 4086-4087, *in camera*). Indeed, Unocal's own technical expert, Mr. Richard Stellman testified that "it makes good business sense to avoid the property claims," because "there is a risk of liability" if a company does not. (Stellman, Tr. 7947).

c. It is undisputed that over 92% percent of all CARB Phase 2 summertime gasoline meets the numerical limitations of the five Unocal patents

Evidence that refiners meet the numerical property limitations of Unocal's patents is significant in this case because it shows that Unocal possesses a dominant share of the market for the technology to make, use, and sell CARB-compliant gasoline. Both Unocal's and Complaint Counsel's experts agree that over 92% of CARB Phase 2 summertime gasoline produced by the

major California refiners meets the numerical property limitations of the five Unocal patents.[93] (Eskew, Tr. 2891, 2965; Stellman, Tr. 8098-8099). Either expert's analysis shows Unocal's substantial market share.

{

}

(Eskew, Tr. 2817, 2955, *in camera;* RX 1165 at 016, *in camera* (Stellman Report)). These twelve refineries represent more than 98% of California gasoline production. (CX 1720A at 027 (Shapiro Expert Report)). The twelve refineries are all of the refineries owned in California by ChevronTexaco, BP, ExxonMobil, Shell, Valero, ConocoPhillips, and Tesoro. (Eskew, Tr. 2891; CX 1709 at 021; RX 1165 at 016, *in camera*).

As Unocal's expert, Mr. Stellman, admitted, he performed his overlap analysis of the numerical property limitations of the Unocal patent claims in accordance with the claims construction and infringement decisions in the '393 patent litigation. (Stellman, Tr. 7945-7946; RX 1165A at 016). **{** **}** (Eskew, Tr. 3014-3018; CX 1709 at 20, *in camera*; CX 1798 at 003, *in camera*). **{**

} (CX 1798 at 003, *in camera*; CX 1709 at 021, *in camera*; Strathman, Tr. 3717-3721, *in camera*; CX 684 at 001, *in camera*, Jessup, Tr. 1338-1339, 1460-1461 *in camera*). **{**

} (Eskew, Tr. 2958, *in*

[93] Complaint Counsel's expert, Mr. Eskew, found a 93 percent coverage rate, while Unocal's expert, Mr. Stellman, determined the rate to be 92.7 percent. (Eskew, Tr. 2891, 2965; Stellman, Tr. 8098-8099).

camera, CX 1709 at 021, *in camera*). **{** **}** (Eskew, Tr. 2958-2959, *in camera*) (emphasis added).

d. Unocal's five patents cover most regulatory specifications for the production of CARB Phase 2 summertime gasoline

The extensive overlap between refiners' CARB summertime gasoline production and the numerical property limitations of Unocal's five patent claims is unsurprising given that Unocal purposely sought patent claims resembling many of the CARB regulatory requirements for CARB Phase 2 gasoline production. Essentially all of the CARB Phase 2 flat limits and averaging specifications for properties of summertime gasoline fall under one or more of the claims of Unocal's five patents, as do most of the CARB cap limits. Because the CARB regulations constrain the substitute technologies and gasolines available to refiners, the substantial overlap between the Unocal patents and the CARB regulations provides additional strong indirect evidence that Unocal controls a dominant share in the market for technology to produce CARB-compliant gasoline.

The following table indicates in bold the numerical property limits of some representative claims of the Unocal patents that substantially cover the limits required by the CARB Phase 2 summertime regulation: RVP, Aromatics, Olefins, T50 (ºF), and T90 (ºF). The plain text in the table indicates three other gasoline properties that CARB also regulated: benzene, oxygen, and sulfur. Since Unocal's patent claims do not set any specific limits for these gasoline properties, any gasoline that meets the other limits of the Unocal claims is covered by those claims. *See, e.g.*, *Northern Tel., Inc. v. Datapoint Corp*., 908 F.2d 931, 945 (Fed. Cir. 1990) ("The addition of features does not avoid infringement, if all the elements of the patent claims have been adopted . . . .").[94]

[94] There is an exception to this general rule that is inapplicable here. When a claim preamble ends with the words "consisting of" (rather than, for example, the more common open-ended "comprising,") the claim is understood to be limited *only* to the recited elements and no others. *AFG Indus., Inc. v. Cardinal IG Co., Inc*., 239 F.3d 1239, 1244 -1245 (Fed. Cir. 2001), *see also Vivid Techs., Inc. v. Am. Science & Eng'g, Inc.*, 200 F.3d 795, 811 (Fed. Cir. 1999). Unocal's patent claims all use open-ended transition phrases such

Parameter	**Representative Unocal Patent Claim Limitations** [95]						***CARB Phase 2 Limits***[96]		
	'126 Claim 49	'126 Claim 4	'126 Claim 1	'393 Claim 112	'866 Claim 1	'567 Claim 6	*Flat Limit*	*Avg. Std.*	*Cap Limit*
RVP	**<7.0**	**<7.5**	**<7.5**	**≤7.0**	**<7.5**	**<7.5**	***7.0***	***--***	***7.0***
Aromatics	**≥4.5**	**≥4.5**	**Any**	**Any**	**Any**	**≥4.5**	***25***	***22***	***30***
Olefins	**<8**	**<8**	**<15**	**<10**	**<10**	**<8**	***6.0***	***4.0***	***10.0***
T_{90} (ºF)	**Any**	**≤315**	**≤315**	**Any**	**Any**	**≤315**	***300***	***290***	***330***
T_{50} (ºF)	**≤215**	**≤215**	**≤215**	**≤210**	**≤210**	**<208**	***210***	***200***	***220***
Benzene	Any	Any	Any	Any	Any	Any	*1.00*	*0.80*	*1.20*
Oxygen	Any	Any	Any	Any	Any	Any	*1.8*	*--*	*2.7*
Sulfur	Any	Any	Any	Any	Any	Any	*40*	*30*	*80*

In addition to the gasoline properties values that CARB directly regulated, some of Unocal's patent claims also cover gasoline property values that (i) have long been covered by state law or national industry specifications, or (ii) CARB indirectly regulated (such as octane, paraffin levels, and T10). (CCPF 3008-15). This overlap helps to show that refiners cannot escape infringement by avoiding the remainder of Unocal's claim limitations. As Complaint Counsel's experts have testified (discussed in greater detail below), refiners have a very narrow "blend window" in which

---

as "comprising."

[95] (CX 617 at 024 ('393 patent claims); CX 618 at 027 ('567 patent); CX 619 at 027 ('866 patent); CX 620 at 027-29 ('126 patent); CX 621 at 027 ('126 patent); CX 1796A at 004 (undisclaimed '393 claims).

[96] (CX 866 at 006-013, 015-018 (CARB final Phase 2 regulation).

they can attempt to use unpatented know-how to blend gasoline that meets the CARB regulations but does not comply with the numerical limitations of Unocal's patent claims. (CCPF 3214-52).

For example, some of Unocal's claims cover octane and/or Research Octane Number (RON). (*See, e.g.* CX 620 at 028-029 ('126 patent); CX 621 at 027 ('126 patent)). The octane number of gasoline is an average of its RON and Motor Octane Number (MON). (CX 1709 at 012-013). California state law provides for a minimum octane level of 87 for regular unleaded gasoline, as do many of Unocal's patent claims. (Ingham, Tr. 2709-2710; s*ee also, e.g.* CX 620 at 028-029 ('126 patent); CX 621 at 027 ('126 patent)). Some of Unocal's claims also cover paraffin levels. (*See, e.g.*,CX 620 at 028-029 ('126 patent)). Although CARB did not directly regulate paraffin levels, it regulated aromatic and olefin levels. (CX 866 at 006-019 (CARB final regulation). Since, by scientific definition, paraffins plus olefins plus aromatics make up 100% of the hydrocarbons in gasoline, (Wirzbicki, Tr. 964), CARB indirectly regulated paraffin levels in gasoline. Finally, CARB did not directly regulate T10, but the industry standard specification for gasoline contains a maximum T10 limit of 158ºF. (CX 5 at 011-012). Of Unocal's patent claims that set a T10 limit, many set it at 158ºF. (*See, e.g.*, CX 617 at 016 ('393 patent specification re A/O Ave); CX 617 at 024 ('393 patent claims); CX 618 at 027 ('567 patent); CX 620 at 028-29 ('126 patent).

The following table sets forth these limitations in the same representative Unocal patent claims outlined in the table above:[97]

[97] (CX 617 at 016 ('393 patent specification re A/O Ave); CX 617 at 024 ('393 patent claims); CX 618 at 027 ('567 patent); CX 619 at 027 ('866 patent); CX 620 at 027-029 ('126 patent); CX 621 at 027 ('126 patent); CX 1796A at 004 (Unocal list of properties of undisclaimed '393 claims); CX 866 (CARB final regulation); Wirzbicki, Tr. 964; Ingham, Tr. 2709-2710; CX 5 at 011-012 .

Parameter	**Representative Unocal Patent Claim Limitations**						***CARB Phase 2 Limits***		
	'126 Claim 49	'126 Claim4	'126 Claim 1	'393 Claim 112	'866 Claim 1	'567 Claim 6	*Flat Limit*	*Avg. Std.*	*Cap Limit*
T_{10} (ºF)	≤158	≤158	≤158	Any	≤158	≤158	ASTM maximum = 158ºF		
Paraffins	>50	>75	>65	>75	Any	>72	No direct limit, but because paraffins + olefins + aromatics = 100%, practical limits: [≥69] [74] [≥60]		
Octane	≥87	≥87	≥87	Any	≥87	≥87	No CARB limit, but by law ≥87		
Research Octane #	Any	Any	>90	Any	Any	Any	No CARB limit, but state law limits octane, and A/O Ave RON = 92.2		

As indicated above, CARB's summertime regulatory requirements require refiners to produce gasoline that falls substantially under the compositional limits of Unocal's five patent claims. {

}. This confluence is strong evidence that Unocal has a dominant market share in the technology to make, use and sell CARB-compliant summertime gasoline.

e. Even if infringement or likely infringement is necessary to show market power, the record evidence easily supports such a finding

The preceding economic-based analysis that refiners are likely to infringe Unocal's patents is sufficient to provide the indirect evidence that Unocal has a dominant market share in the technology to make, use and sell CARB-compliant gasoline. If however, one were to find that antitrust law requires proof of the likelihood of infringement as a matter of patent law, that proof exists here as well.

(1) To the extent necessary, the Commission has jurisdiction to decide substantial issues of patent law

The Sixth Circuit and the Commission have both held that the Commission has jurisdiction over competition cases that involve substantial questions of patent law. *See American Cyanamid Co. v. FTC*, 363 F.2d 757, 771 (6th Cir. 1966); *Unocal Noerr Opinion* 2004 FTC LEXIS 115 at *118-120. If it were necessary to do so, the Commission would have jurisdiction in this case to decide questions such as a patent-law-based determination of the likelihood that refiners' technology and gasolines infringe Unocal's patents. In its opinion in the present case, the Commission also reaffirmed that it has "jurisdiction over allegations of unfair methods of competition . . . based on a substantial issue of patent law." *Unocal Noerr Opinion* 2004 FTC LEXIS 115 at *120; *see also American Cyanamid Co.*, 63 F.T.C. 1747, 1855-57 (1963), *aff'd in relevant part and vacated on other ground,); American Cyanamid Co. v. FTC*, 363 F.2d 757, 771 (6th Cir. 1966). It has held that this rule applies to provide jurisdiction in this case. *Unocal Noerr Opinion*, 2004 FTC LEXIS 115 at *120.

The presence of a substantial issue of patent law would not defeat jurisdiction in this case, as the Commission held, because there is nothing in the FTC Act or its legislative history that so limits the Commission's jurisdiction. *Unocal Noerr Opinion* at 2004 FTC LEXIS 115 at *118-120. The statute apportioning jurisdiction for civil actions arising under the patent laws between federal courts and state courts, 28 U.S.C. § 1338(a), does not apply to the Commission for three independent reasons: (1) the Commission's adjudicatory proceedings are not "civil actions," (2) the Commission is not a court of the states, and (3) this case does not "arise under" the patent laws. *Id.* at *121-122.

The presence of substantial issues of patent law in this case would not mean that the case "arises under" the patent laws. *Id.* at *125-127. The Supreme Court's test for "arising under" jurisdiction is whether "a *well-pleaded complaint* establishes either that federal patent law creates

the cause of action or that the plaintiff's right to relief necessarily depends on resolution of a substantial question of federal patent law, in that patent law is a *necessary* element of one of the well-pleaded claims." *Id.* at *125; *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800, 808-09 (1988) (emphasis added). The Commission has held that the elements of the antitrust claims pled in the complaint in this case *could* be met without inquiry into substantial questions of patent law. *Unocal Noerr Opinion* 2004 FTC LEXIS 115 at *127. Even if this case were ultimately decided under an alternative theory that includes a substantial question of patent law, the case still would not "arise under" the patent laws. *Id.*; *see also Christianson*, 486 U.S. at 811 ("The well pleaded complaint rule, however, focuses on claims, not theories . . . and just because an element that is essential to a particular theory might be governed by federal patent law does not mean that the entire monopolization claim "arises under" patent law.").

The Sixth Circuit has reached many of the same conclusions as the Commission. In *American Cyanamid*, the Sixth Circuit held that the Commission had jurisdiction over a case alleging that the enforcement of a patent obtained through inequitable conduct at the PTO was an unfair method of competition under Section 5 of the FTC Act. *See American Cyanamid*, 363 F.2d at 768, 771. Though the facts in *American Cyanamid* dealt with inequitable conduct, the Sixth's Circuit's holding applies to this action for two reasons. First, questions of inequitable conduct, like questions of infringement and validity, are substantial questions of patent law. *See Hunter Douglas, Inc. v. Harmonic Design, Inc.*, 153 F.3d 1318, 1330-31 (Fed. Cir. 1998) ("In keeping with our precedent, we treat validity and enforceability the same way as infringement. We see no reason why our jurisdictional jurisprudence should distinguish the first two from the latter."), *overruled in part on other grounds, Midwest Indus., Inc. v. Karavan Trailers, Inc.*, 175 F.3d 1356, 1358-59 (Fed. Cir. 1999). The Sixth Circuit's holding consequently extends beyond unfair competition cases solely premised on inequitable conduct. *See American Cyanamid Co.*, 363 F.2d at 771 ("The Federal

Trade Commission Act contains no statutory exemption of Patent Office proceedings, and we find nothing in the Act indicating any intention to set aside the Patent Office as a 'city of refuge' from the Commission's jurisdiction over unfair trade practices.").

Second, inequitable conduct determinations, such as the one at issue in *American Cyanamid*, generally require consideration of many of the same patent law issues as infringement and validity determinations – including the scope and meaning of patent claims. Inequitable conduct in the prosecution of a patent consists of "affirmative misrepresentations of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." *Purdue Pharma L.P. v. Boehringer Ingelheim GMBH*, 237 F.3d 1359, 1366 (Fed. Cir. 2001)). Information is "material" to patentability when among other things, "[i]t establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim." 37 C.F.R. § 1.56(b) (2004); *Bruno Indep. Living Aids, Inc. v. Acorn Mobility Servs., Ltd.*, 394 F.3d 1348, 1352-53 (Fed. Cir. 2005). A *prima facie* case of unpatentability is established "when the information compels a conclusion that a claim is unpatentable . . . *giving each term in the claim its broadest reasonable construction consistent with the specification*." 37 C.F.R. § 1.56(b) (2004) (emphasis added); *see also Bruno Independent Living Aids*, 394 F.3d at 1352-53.[98] Since inequitable conduct determinations generally include evaluation of issues such as patent claim scope and patentability, the jurisdictional holding in *American Cyanamid* applies to permit the Commission to assess the likelihood of patent infringement as a legal matter.

What is more, no definitive claim construction, infringement or validity determinations would be required to assess whether alternative technologies and gasolines are likely to infringe

[98] For applications pending before March 1992, the courts looked to the similar but slightly broader materiality test. *See Dayco Products, Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1363-64 (Fed. Cir. 2003).

Unocal's patent claims the patent-law sense. The analysis instead would be similar to the analysis of whether to grant a preliminary injunction to a patent-holder in a patent infringement case. A patent-holder seeking a preliminary injunction under the patent laws must show that it "will likely prove" infringement.[99] *Purdue Pharma*, 237 F.3d at 1363. It typically does so on an abbreviated record by offering argument on claims construction and evidence that the accused product or process meets the limitations of the claims. *See, e.g., Ill. Tool Works, Inc., v. Grip-Pak, Inc.*, 906 F.2d 679, 681 (Fed. Cir. 1990). The claim constructions and findings of the likelihood of infringement however, are "not binding" in a subsequent trial on these issues. *Id.* "The question . . . [is] not whether there [is] infringement, [but whether there is] . . . a reasonable likelihood of success on the infringement issue." *Roper Corp. v. Litton Sys., Inc.*, 757 F.2d 1266, 1270 -71 (Fed. Cir. 1985) ("Substantive issues, such as validity and infringement, are not raised for final resolution by such motions [for preliminary injunctions]").

(2) Unocal's own expert testified that 50.4% of all CARB Phase 2 gasoline infringes the composition claims of Unocal's first two patents

Infringement of the claims of the '393 patent and the first 40 claims of the '126 patent is undisputed in this case. Unocal's own expert concedes that 50.4 % of refiners' CARB Phase 2 summertime gasoline production in 2001-2002 infringes these patent claims. (RX 1165A at 014, 015-017; Stellman, Tr. 7915; *see also* Stellman, Tr. 8096, *in camera*). The courts have already construed any ambiguous limitations of the '393 patent, and have decided what evidence suffices to prove infringement of those claims. (CCPF). As Unocal has acknowledged, the limitations in

[99] In the preliminary injunction context, the plaintiff also must show that the patent "will likely" withstand the defendant's challenges to the validity and enforceability of the patents. *Purdue Pharma*, 237 F.3d at 1363. Here there is no need for such a showing because the parties have stipulated to the validity of Unocal's five patents, and Complaint Counsel have not asserted that Unocal's patents are unenforceable for inequitable conduct. (*See* JX 3A at 003 (Joint Stipulations of Law and Fact, ¶¶ 8-12); *see also* Answer at ¶¶ 61-64 (filed March 21, 2003)).

the first 40 claims in the '126 patent are the same as those already construed in the '393 patent (RX 1165A at 015), and Unocal's expert reached his 50.4% infringement rate for those claims using **{ }**which the court adopted and relied on for its judgment[100].

(3) The evidence shows that the additional limitations in Unocal's claims are met, which, combined with evidence of matching, shows likelihood of infringement

The remaining claims of the '126 patent and all the claims of the '567, '866, and '126 patents are directed to methods of making low-emissions gasoline (*e.g.*, blending hydrocarbon streams in 50,000 gallon batches) or using gasoline (*e.g.*, using gasoline in an automobile), which refiners induce or to which they contribute. (CX 618 at 027-028, CX 619 at 027-028; CX 620 at 027-029, CX 621 at 027-029). The evidence shows that refiners have a likelihood of infringing these claims at a rate of over 92%.

As discussed above, both Unocal's and Complaint Counsel's experts agree that over 92% of CARB Phase 2 gasoline produced in California meets the numerical property limitations of the five Unocal patents. (CCPF 3024-44). Unocal's expert, Mr. Stellman, admittedly performed his overlap analysis of the numerical property limitations of the Unocal patent claims in accordance with the claims construction and infringement decisions in the '393 patent litigation. (Stellman, Tr. 7945-7946; RX 1165A at 016). { } (Eskew, Tr. 3014-3018; CX 1709 at 20, *in camera*; CX 1798 at 003, *in camera*).

In addition, all of the batch data that Unocal and Complaint Counsel's experts reviewed for their five-patent "matching" analysis concerned gasoline that, by definition, meets the limitations

[100] (Stellman, Tr. 7944-7946; RX 1165 at 012-017, *in camera*; CX 1796A at 189, 224; *Union Oil Co. of California*, No. 95-CV-2379 (C.D. Cal. Sept. 24, 1997); CX 1796A at 276-282 (Special Verdict Form), RX 816 at 002 (Judgment); CX 1579 at 005-009).

present in the preamble of Unocal's '393 patent and in many of its other patent claims. The courts have already construed that language ("[a]n unleaded gasoline fuel suitable for combustion in an automotive engine" or "[a]n unleaded gasoline fuel suitable for combustion in a spark ignition automotive engine") as meaning unleaded "standard automotive gasoline," as opposed to "aviation fuels or racing fuels." *Union Oil Co. of Cal.*, 208 F.3d at 992, 995. As Complaint Counsel's expert Mr. Eskew testified, all of the refiners' batch data covered "common CARB gasoline that was certified under the CARB specifications for use in California." (Eskew, Tr. 3016). None of the batch data were for aviation, jet or racing fuels. (Eskew, Tr. 3016-3018). The CARB regulations are precisely intended to regulate gasoline used in ordinary vehicles in the state of California. (Eskew, Tr., 3016-3018, *in camera*). Any gasoline certified under CARB's Phase 2 regulations is by definition unleaded, since CARB's Phase 1 regulations had already eliminated the use of lead in gasolines. (CX 52 at 006). The gasoline certified for use under CARB's Phase 2 specifications is therefore "[a]n unleaded gasoline fuel suitable for combustion in an automotive engine" or "[a]n unleaded gasoline fuel suitable for combustion in a spark ignition automotive engine." *Union Oil Co. of Cal.*, 208 F.3d at 992, 995.

The only remaining issue is whether the refiners also routinely infringe (or induce or contribute to infringement of) the remaining method limitations of these claims. The plain language of the method limitations in the claims is clear and unambiguous (consistent with the disclosure in the patent specification the file histories), and describes (i) methods of blending gasoline that all refiners routinely use, and (ii) methods of using gasoline to reduce air pollution by using it to fuel cars for which all refiners contribute or induce infringement. (CCPF 3080-3173). The evidence shows that these method limitations are met. (CCPF 3134-73). Therefore, over 92 percent of CARB Phase 2 gasoline likely infringes one or more of the five Unocal patents.

f. Refiners cannot avoid Unocal's patents

Not only does the evidence show that Unocal's patents dominate the technology market, the evidence shows that the patents are inescapable. Refiners cannot avoid the Unocal patents.

(1) Refiners cannot blend around the patents

The evidence clearly shows that refiners cannot use alternative blending technologies to avoid the Unocal patents. (CCPF 3174-617). As both sides' economists recognize,

} (Shapiro, Tr. 7216-7217, *in camera*; CX 1346 at 024 (Unocal's expert Dr. Teece testifying in '393 litigation that the fact that the refiners are not blending around Unocal's patents "suggests that refineries believe it is difficult or non-economic to reduce their rates of infringement."); Teece, Tr. 7697 ("data showing high historical infringement rates indicates that it is not simple or cheap to avoid producing infringing gasoline")). Further,

{ }

(Shapiro, Tr. 7216-7217, *in camera*).

The evidence confirms this conclusion. Representatives of nine of the thirteen refineries in California testified in this case, and each demonstrated that refiners are not able to avoid the Unocal patents. (CCPF 3253-617; Section XXV.G.3). To cite but some of this extensive evidence:

- Although **{ }** (Hoffman, Tr. 5056, *in camera*), and **{**

  } (Hoffman, Tr. 5021, *in camera*), the engineers at BP/ARCO **{**

  } (Hoffman, Tr. 5009-5010, *in camera*).

- Despite a number of studies conducted relating to the Carson refinery's ability to avoid the numerical limitations of Unocal's patents (Hoffman, Tr. 4994-4995), **{**

  }

  (Hoffman, Tr. 5010-5012, *in camera*).

- Despite spending "a great deal of time" considering alternative technologies to permit blending around the Unocal patents, Shell engineers and scientists have not found any alternative "technology that permits blending around the . . . five Unocal patents . . . at comparable cost or at comparable production rates." (CX 7048 (Hancock, Dep. at 255-256)).

- Shell has concluded the Los Angeles Refinery "cannot produce gasoline that complies with CARB Phase 2 regulations and avoids matching the property ranges" of the '126, '567, '866, and '126 Unocal patents. (CX 7047 (Hancock, Dep. at 130-131)). Shell's engineers also concluded that "for the Bakersfield

  plant we couldn't find any way to blend around all five patents." (CX 7043 (Boone, Dep. at 65-66)).

- Valero determined that, **{**

  } (Simonson, Tr. 6040, 6046 *in camera*; *see also* CX 7050 (Ibergs, Dep. at 70)).

- Even just evaluating the '126 patent, **{**

  }

  (Simonson, Tr. 6031, *in camera*).

- ExxonMobil also **{**

  } (Eizember, Tr. 3363, *in camera*). **{**

  } (CCPF 3449-544; Section XXV.G.3.a.v).

The expert evidence also shows that refiners simply cannot avoid the Unocal patents. (CCPF 3184-252; Section XXV.G - XXV.H). Complaint Counsel's technical expert, Michael Sarna, conducted an extensive examination of California refiners and concluded that "California refiners as a whole are not able to blend around the numerical limitations of the Unocal patents to any significant extent," *i.e.*, they cannot avoid the limitations for even 20-30% of their production. (Sarna, Tr. 6134, 6138, 6435). This is because there is "a very narrow window in which a refiner can produce CARB Phase 2 summer gasoline and at the same time avoid the numerical limitations of the patents." (Sarna, Tr. 6132-6133). Refiners simply cannot consistently produce within this

narrow window: **{**

} (Sarna, Tr. 6257, *in camera*; RX 1154 at 040, *in camera*).

In fact, Unocal itself has recognized the impossibility of blending in the narrow window between the Unocal patents and the CARB regulations. In the '393 litigation, Unocal has described it rather imaginatively as a "Twister problem":

> You remember the old game Twister where you have sort of the map, and you have to try to put your hands and feet in different ways, and you get all twisted. And that's what they were talking about with regard to the refinery, that all of these requirements that they had to meet resulted in a Twister-like problem because it was so difficult to get the CARB gasoline that you were making within those requirements. . . . [The evidence shows] *the T50 variation all over the place, and they wanted to try to shoehorn it into 210 or 220. That's what they want you to believe they can do. They can't do that. . . . They have got 8 other properties that they have to regulate. They can't do it.*"

(CX 1825 at 058-059 (emphasis added)).

(2) Refiners cannot downgrade Phase 2 gasoline for export

The evidence also shows that refiners cannot downgrade Phase 2 gasoline to non-infringing, non-CARB-compliant gasoline in order to sell the gasoline outside of California. The parties' experts agree on this point. As Complaint Counsel's expert explained, **{**

} (Eskew, Tr. 2973-2974, *in camera*). Unocal's economist, Dr. Teece, agrees that refiners cannot avoid Unocal's patents by downgrading CARB Phase 2 gasoline and shipping it to nearby states because the price for gasoline in those markets would crater, reducing refinery profits by 58-61 cents per gallon. (Teece, Tr. 7650;

CX 1332 at 022; RX 1162A at 068-069; CX 1346 at 032). If they shipped to the Gulf Coast, the cost of avoiding the Unocal patents would be from 29 to 35 cents per gallon. (Teece, Tr. 7657; CX 1332 at 023-028). In fact, **{**

} (Lieder, Tr. 4801, *in camera*).

4. The Lack of Economic Substitutes Demonstrates That Unocal Has Gained or Is Dangerously Close to Gaining Monopoly Power, Even if Unocal's "Market Share" Were Low

All this evidence shows that there are not sufficient close economic substitutes to which refiners can switch to defeat supracompetitive pricing by Unocal. Unocal's share of the Technology Market is well above levels accepted by courts as showing monopoly power. *See Grinnell*, 384 U.S. at 571 ("The existence of [monopoly] power ordinarily may be inferred from the predominant share of the market."); *Am. Council of Certified Podiatric Physicians and Surgeons v. Am. Bd. of Podiatric Surgery, Inc.*, 185 F.3d 606, 623 (6th Cir. 1999) (holding that evidence of market shares between 55.1% and 76.7% were sufficient for inference of monopoly power); *Broadway Delivery Corp. v. United Parcel Serv. of Am., Inc.*, 651 F.2d 122, 129 (2d Cir. 1981) (firms with market share between 50% and 70% can sometimes have monopoly power, while a share above 70% is "strong evidence" of monopoly power). This market share evidence combined with the evidence showing that refiners cannot blend around or otherwise avoid Unocal's patents confirms what the direct evidence shows: Unocal has (or is dangerously close to obtaining) monopoly power in the Technology Market.

But the evidence also shows that – because of the unique characteristics of refining technology – even if Unocal's share of the Technology Market were relatively low, it would still be

able to charge supracompetitive prices.

a. To produce Phase 2 gasoline, refiners cannot avoid Unocal's patents

It is undisputed that no refiner can produce Phase 2 gasoline without, at the same time, producing some gasoline that falls under Unocal's patents. Both parties' technical experts agree that **{**

} (Stellman, Tr. 8104-8105, *in camera*; Sarna, Tr. 6258, *in camera* (**{**

})). Similarly, according to Unocal's economic expert, because of the inherent variability of gasoline refining, "[e]ven if refiners take steps to avoid the Unocal patents, it still can be the case that some batches will infringe." (RX 1162A at 051; Teece, Tr. 7711). Because of this, refiners would need to take a license under the Unocal patents to deal with the "prospect of having to use Unocal's patented technology on an infrequent or episodic basis." (RX 1162A at 051; Teece, Tr. 7711; *see also* CX 1336 at 012 (Unocal's economic expert, Dr. Teece, explained during the '393 trial, "[T]he problem is that the licensees, the potential licensees, know that they are going to be making some infringing gasoline. So they have either got to take a license or they have got to do something to stop the infringement.").

b. Unocal has monopoly power even if the overlap rate is relatively low

This unique aspect of gasoline production means that even a low market share leads to monopoly power. To reiterate, evidence of high market share is only relevant because it tends to show that there are not sufficient economic substitutes to defeat supracompetitive pricing. *See Rebel Oil*, 51 F.3d at 1437; *Microsoft*, 253 F.3d at 57 (relevant question is "whether potential substitutes constrain a firm's ability to raise prices above the competitive level"). Here, the evidence shows that

refiners *must use* Unocal's patented technology in order to produce Phase 2 summertime gasoline. The only question is *to what extent* must they use Unocal's technology.

The evidence shows that at even modest levels of overlap – e.g., 29% – refiners' only economic option is to license Unocal's technology. As Dr. Teece established in his '393 expert report and testimony, the least costly possible option for refiners is to downgrade CARB-compliant gasoline for export out of the state. (CX 1332 at 022-028). The cost of that alternative is prohibitive as it would cost from 29 to 35 cents per gallon. (Teece, Tr. 7657; CX 1332 at 023-028). As one refiner's contemporaneous analysis shows, this option does **{ }**[101] (Lieder, Tr. 4801, *in camera*).

Thus, even if Unocal's patents only covered a relatively small percentage of Phase 2 summertime gasoline production, Unocal would still have monopoly power because refiners must use Unocal's technology and there are not sufficient economic substitutes to defeat supracompetitive pricing.

c. Because refiners will at least produce covered gasoline episodically, Unocal has the power the enjoin all production

Unocal's monopoly power is even more pronounced because the unique characteristics of refining mean that even if Unocal's patents only cover a small portion of Phase 2 gasoline production, Unocal can enjoin any unlicensed refiner from producing *any* Phase 2 summertime gasoline. The patents allow Unocal to enjoin refiners from "making, using, offering for sale, or selling" gasolines produced with technology covered by the patents. 35 U.S.C. § 154 (2005). Thus, for instance, Unocal is seeking as an alternative remedy an injunction against Valero barring use of the technology in the '126 and '393 patents. (CX 1337 at 011). Since refiners cannot *make* any

[101] To employ this option, in any event, refiners still *use* Unocal's patented technology and, as described below, are therefore subject to injunction.

Phase 2 gasoline without also co-producing gasoline with Unocal's patented technology, Unocal has the power to enjoin *all* Phase 2 gasoline production.[102] In this sense, Unocal's effective market share in the Technology Market is 100%, another reason why Unocal has monopoly power.

D. Unocal Is Dangerously Close to Gaining the Ability to Control Prices in the Downstream CARB Gasoline Market

The evidence also shows that Unocal is dangerously close to obtaining the ability to control prices in the CARB Gasoline Market as well. Unocal effectively competes in that market through licensing; gasolines subject to the Unocal patents compete with other CARB-compliant gasolines. But consumers cannot sufficiently substitute away from gasolines subject to Unocal's patents to defeat a price increase. Because the economic evidence shows that Unocal's royalties directly effect higher gasoline prices, Unocal has the ability to affect prices in the CARB Gasoline Market, making Unocal (at a minimum) dangerously close to monopolizing that market.

That Unocal sold off its physical refining assets in 1997 is no bar to Unocal's ability to monopolize the market. It is a long-accepted principle that a patent holder can compete in a market either by producing products subject to the patent or by licensing.[103] The leading antitrust law treatise explains that "the holder of a market-dominating patent who chooses to reap his monopoly return via high royalty licenses" exercises monopoly power even without producing the product itself. IIA Areeda & Hovenkamp, *Antitrust Law* ¶ 532b. The economics of such a strategy are

---

[102] Importantly, even the option of downgrading CARB-compliant gasoline for export would not avoid this threat. Before the gasoline is downgraded, of course, the refiner has already "used" Unocal's technology.

[103] Moreover, the probability of success for attempted monopolization is measured at the time the acts occurred. *See U.S. v. American Airlines*, 743 F.2d 1114, 1118 (5th Cir. 1984) (Courts should "examine the probability of success at the time the acts occur"); *Multiflex, Inc. v. Samuel Moore & Co.*, 709 F.2d 980, 992 (5th Cir. 1983) ("The time to examine 'dangerous probability' is when the acts occur."). Unocal's deceptive conduct and its initial efforts to collect royalties occurred before Unocal sold its physical refining assets. Even today, Unocal is still seeking to collect royalties for infringement that occurred in 1996 and early 1997, prior to the sale of its refining assets. (CCPF Section XXII.A).

straightforward:

> Imagine, for example, that a patented product costs $1 to produce with a monopoly price of $2. The defendant can produce 100 percent of the output or it can license its patent to others for about $1 per unit. In either event, the defendant earns monopoly profits of $1 per unit purchased, and total output is determined by the $2 price. This defendant possesses substantial market power no matter how small its own output or market share.

Id.; *see also IP Guidelines*, at § 3.2 ("Licensing arrangements raise concerns under the antitrust laws if they are likely to affect adversely the prices, quantities, qualities, or varieties of goods and services either currently or potentially available").

That a patent holder can monopolize a product even though it does not physically produce products is well recognized by economists. As one well-known economist explained, a patent holder can achieve the same price-quantity outcome through licensing as it could if it competed through production using its patented invention:

> Normally, patent holders can choose between alternative methods of controlling utilization. They can reserve exploitation of the invention exclusively to themselves. . . . In this way, the profit-maximizing price can be set directly. Or they can license as few or as many firms as they please to exploit the invention, charging royalties for the privilege. Through astute determination of the royalty rate, the patentees can in theory achieve the same price-quantity outcome and profits as they could retaining exclusive exploitation, other things (such as the costs of internal versus licensed production) being equal.

F. M. Sherer, *Industrial Market Structure and Economic Performance* 442 (2d ed. 1980); *see also* Dennis W. Carlton & Jeffrey M. Perloff, *Modern Industrial Organization* 592-95 (2d ed. 1994). Thus, a patent holder can effectively monopolize a product market through licensing activity: "By choosing an appropriate royalty per unit of finished product, the patentee can determine the size of and price for the whole producing industry in a straight-forward way. . . . The industry is then effectively monopolized, even though the structure and earnings of the producing segment satisfy usual competitive criteria." John McGee, *Patent Exploitation: Some Economic and Legal Problems*,

9 J. of Law and Econ. 135, 139 (1966).

Here, the evidence shows that Unocal is able to reap monopoly returns from the CARB Gasoline Market by licensing just as if it had denied licenses to all and produced the gasoline itself. In both cases, Unocal would be exercising power in the CARB Gasoline Market.

First, Unocal can raise the price of Phase 2 summertime gasoline because its license fees directly affect consumer prices. (CCPF Section XXV). As both sides' economists have explained, because demand for gasoline in California is inelastic, between 80-90% of Unocal's license fees would be paid indirectly by California consumers. (CX 1720A at 033-034 (Shapiro Expert Report); CX1346 at 031 (Teece '393 Expert Report); Teece, Tr. 7522; *see also* CX 801 at 013-014 (DRI-McGraw Hill study showing that increased refining costs paid for by consumers)). In fact, Unocal's own expert opined at length in the '393 litigation that if California refiners paid royalties for Unocal's patents, the price of gasoline to consumers would increase considerably. (CX 1346 at 048-059).

Second, the evidence shows that consumers cannot avoid using gasolines subject to Unocal's patents. Due to CARB regulation, no substitutes for CARB-compliant gasoline may be sold in California. (CX 1720A at 023 (Shapiro Expert Report)). The evidence shows that over 92% of all CARB-compliant gasoline is subject to Unocal's patents. (CCPF Section XXV.C; RX 1165A at 017). Further, Unocal's own expert admitted that over 50% of CARB-compliant gasoline *infringes* two of Unocal's five patents. (RX 1165A at 017). These market share figures are sufficient to show a dangerous probability of success. *See McGahee*, 858 F.2d at 1505 (holding that dangerous probability of success element requires "proof of the same character, but not the same quantum" as monopoly power element); *M & M Med. Supplies & Serv., Inc. v. Pleasant Valley Hosp. Inc.*, 981 F.2d 160, 168 (4th Cir. 1992) ("claims involving greater than 50% share should be treated as attempts at monopolization when the other elements for attempted monopolization are also

satisfied").

Third, Unocal's patents give it the ability to reduce output in the CARB Gasoline Market. The patents give Unocal "the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States" 35 U.S.C.S. § 154 (2005). Refiners cannot produce CARB-compliant gasoline without also producing gasoline that is subject to Unocal's patents. Unocal therefore has the power to shut down the production of CARB-compliant gasoline, thereby restricting output and raising prices. *See Eastman Kodak Co.*, 504 U.S. at 464 (defining market power as "the ability of a single seller to raise price[s] and restrict output").

Unocal's power to enjoin and effect a restriction in output is not speculation. Unocal is in fact seeking as an alternative remedy an injunction against Valero. (CX 1337 at 011). As of September 1, 2003, Valero's Benecia refinery produced **{** **}** (Simonson, Tr.6071, *in camera*). Valero's Wilmington refinery produced **{** **}** (Simonson, Tr. 6017, *in camera*). If Unocal's alternative request were granted, that injunction would take off the market nearly **{** **}** barrels of Phase 2 gasoline per day. According to Unocal's own expert, a shortfall of even 80,000 barrels per day of Phase 2 gasoline would result in a wholesale price increase of 25.4%. (RX 1162A at 072). Unocal, however, has the power to seek injunctions against all of the refiners in California.

Fourth, the evidence shows that just the *threat* of infringement damages or an injunction has restricted supply. California state regulatory agencies tasked with studying supply issues have found that Unocal has succeeded through its patent enforcement strategy in restricting supply in the CARB Gasoline Market. The California Energy Commission ("CEC") is the state of California's primary energy planning and policy agency. (*See* http://www.energy.ca.gov/commission/ index.html). In

April 2003, on the basis of a detailed report, the CEC found that Unocal's gasoline patents reduce gasoline supply in the California market. (CX 1717 at 130; Boyd, Tr. 6744-6753, 6841-6844). According to the report to the CEC, Unocal's "licensing fees and punitive damages are such that incidental importers will not dare to attempt to blend finished gasolines, while refineries who blend outside the patent's envelope lose capacity." (CX 1717 at 130).

The testimony of various refiners and traders in this action supplements the CEC finding. For example, by the year 2000, Tesoro had acquired its Anacortes, Washington refinery, which has production capacity of approximately 25,000 barrels per day of "CARBBOB" ("CARB gasoline before oxygenate blending [which] basically was everything that would be in finished CARB gasoline before MTBE was blended into it . . . ."). (Dowling, Tr. 3675-3676). Tesoro chose not to regularly produce and sell CARBBOB in the 2000 time-frame primarily to avoid the risk of liability for willful infringement of the Unocal patents. (Dowling, Tr. 3677; *see also* CX 2013, *in camera* (Tesoro License Agreement)). As another example, Vitol, SA – an oil trading company that sells approximately 40 million barrels of gasoline per year in the United States alone – has decided not to import gasoline into the CARB summertime market in several instances because of the likelihood of having to pay royalties to Unocal for the reformulated gasoline patents. (Hepper, Tr. 3939-3942, 3944-3945).

Unocal's own public statements acknowledge that Unocal's patents have reduced supply of CARB gasoline and excluded competitors from using its technology. As Unocal's then-Chief Operating Officer Timothy Ling publicly stated in a 2001 press release, "I think there are companies last summer that missed out on significant margin opportunities for fear of producing under the [Unocal] patent." (CX 534 at 002; *see also* Strathman, Tr. 3617).

Unocal's patents therefore give it power over price in the CARB Gasoline Market.

V. UNOCAL'S DECEPTION, NOT ITS INNOVATION, CREATED ITS MARKET

POWER

The evidence clearly shows a direct causal link between Unocal's deception and its monopoly power. Simply put, Unocal lied to CARB. (CCPF Section IX.F - IX.G). Misled by Unocal's lies to believe that Unocal's research was "non-proprietary" and could be used with "no strings attached," CARB used Unocal's research to develop its regulations. (CCPF Section XIII). Unocal's patents now cover the vast majority of gasolines compliant with the regulations. (CCPF Section XXV.C). As Unocal's expert, Dr. Teece, admitted, the CARB regulations created the "demand" for Unocal's patents and the "confluence" of the CARB regulations and Unocal's patents creates their value. (Teece, Tr. 7700-7701; CX 1332 at 043).

In addition, Unocal lied to other industry members, leading them to believe that Unocal's research was "in the public domain" and could be freely used. (CCPF 4248-311; Section XI.C, XII.B). Those industry members made investment decisions based on Unocal's lies and were precluded from taking available actions to limit Unocal's power grab. (CCPF 4248-716). Now the industry members cannot produce CARB-compliant gasoline without infringing Unocal's patents. (CCPF 3803-945). Again, Unocal's lies led to its monopoly power.

Unocal, however, contends that this is not enough. According to Unocal, Complaint Counsel must carefully reconstruct a hypothetical "but for" world that demonstrates that CARB would have adopted some "competitively superior regulation but for" Unocal's deceit and that "refiners would have invested in refinery configurations that would have produced an outcome that is competitively superior to the current state of affairs." Respondent's Trial Brief at 165.

But Unocal misconstrues the law. To establish unlawful monopolization, the evidence need only show that Unocal's wrongful conduct "reasonably appear[ed] capable of making a significant contribution to . . . creating monopoly power." *Microsoft*, 253 F.3d at 79; *see also* 3 Areeda & Hovenkamp, *Antitrust Law* ¶ 651c (1996). Complaint Counsel need not put on detailed proof of the

world as it would have existed "but for" Unocal's deception. As the D.C. Circuit has explained, there are no cases "standing for the proposition that, as to § 2 liability in an equitable enforcement action, plaintiffs must present direct proof that a defendant's continued monopoly power is precisely attributable to its anticompetitive conduct." *Id.* at 79. Rather, the "reasonably appears" standard is appropriate because "[t]o require that § 2 *liability* turn on a plaintiff's ability or inability to reconstruct the hypothetical marketplace absent a defendant's anticompetitive conduct would only encourage monopolists to take more and earlier anticompetitive action." *Id.*

In the case of anticompetitive, deceptive conduct, the issue of causation turns on whether the misrepresentation was material.[104] In other words, it must "reasonably appear" that the misrepresentation is capable of influencing decisions that affect competition. If so, causation is established because the "competitive process" has been harmed. Microsoft, 253 F.3d at 58. No painstaking reconstruction of a hypothetical world is necessary.[105]

---

[104] A fact is material if "(a) a reasonable man would attach importance to its existence or nonexistence in determining his choice of action in the transaction in question; or (b) the maker of the representation knows or has reason to know that its recipient regards or is likely to regard the matter as important in determining his choice of action, although a reasonable man would not so regard it." *Restatement (Second) of Torts* § 538 (1977); *see also Kungys v. United States*, 485 U.S. 759, 786-787 (1988) (Stevens, J., concurring) (stating that "material" in federal statute means "statements that appear to be capable of influencing an outcome"); *TSC Indus., Inc. v. Northway, Inc.*, 426 U.S. 438, 449 (1976) (test for materiality in securities context: "there must be a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available").

[105] Analogous securities law cases recognize the injustice of requiring victims of deceptive conduct to prove not only the materiality of the misrepresentations, but also the hypothetical chain of events if the defendant had not lied to them. *See Affiliated Ute Citizens of Utah v. United States*, 406 U.S. 128, 153-54 (1972) ("All that is necessary is that the facts withheld be material in the sense that a reasonable investor might have considered them important in the making of this decision. *This obligation to disclose and this withholding of a material fact establish the requisite element of causation in fact*") (internal citations omitted) (emphasis added). The *non-disclosing party* must overcome this presumption by proving by a preponderance of the evidence that "even if the material facts had been disclosed, plaintiff's decision . . . would not have been different than it was." *Rochez Bros., Inc. v. Rhoades*, 491 F.2d 402, 410 (3d Cir. 1974); *see also, FTC v. International Diamond Corp.*, 1983 WL 1911 at *5-*6, 1983-2 Trade Cas. (CCH) ¶ 65,725 (N.D. Cal. 1983) (no need to show actual "but for" reliance where the defendant made material misrepresentations); *FTC v. World Travel Vacation Brokers, Inc.*, 861 F.2d 1020, 1029 (7th Cir. 1988) (FTC need only prove that the alleged fraudulent practices were the type of misrepresentation on which a reasonably prudent person would rely, that they were widely disseminated, and that the injured consumers

This is especially true in complex technical environments because "neither the plaintiffs nor the court can confidently reconstruct a product's [or a regulation's] hypothetical technological development in a world absent the defendant's exclusionary conduct." *Microsoft*, 253 F.3d at 76-79. Thus, "[t]o some degree, 'the defendant is made to suffer the uncertain consequences of its own undesirable conduct.'" *Id.* at 79 (quoting 3 Areeda & Hovenkamp, *Antitrust Law* ¶ 651c (1996)); *see also Bigelow v. RKO Radio Pictures, Inc.*, 327 U.S. 251, 265 (1946) ("The most elementary conceptions of justice and public policy require that the wrongdoer shall bear the risk of the uncertainty which his own wrong has created").

Unocal also misconstrues the facts. The evidence clearly shows that Unocal's misrepresentations were material – *i.e.*, that Unocal's lies involved information that was important to the decision-making of both CARB and the refiners. But even if this were not enough, the evidence further shows that both CARB and refiners would have taken actions to avoid Unocal's patent monopoly. In addition, as Dr. Shapiro explained, the economics of opportunism also demonstrates how Unocal's deceit led to its monopoly power. The only relevant "but for" questions is whether Unocal's market power would have been reduced or eliminated had Unocal not engaged in exclusionary conduct. There is no need to prove which of several alternatives would have been the means. The evidence is more than sufficient to show causation.

---

actually purchased the product). Courts have freely borrowed from *Affiliated Ute* in other contexts as well. *See In re Apte*, 96 F.3d 1319 (9th Cir. 1996) (fraud in bankruptcy); *Cullen v. Whitman Med. Corp.*, 188 F.R.D. 226 (E.D. Pa. 1999) (RICO counts involving a sham vocational school); *In re Great Southern Life Ins. Co. Sales Practices Litig.*, 192 F.R.D. 212, 219 (N.D. Tex. 2000) (breach of contract). *Morris v. International Yogurt Co.*, 729 P.2d 33, 40 (Wash. 1986) (en banc) (applying *Affiliated Ute* standard to franchise law case).

A. Unocal's Misrepresentations Were Material

1. The Evidence Shows That Knowledge of Unocal's Patent Application and Intent to Charge Royalties Would Have Affected CARB's Decisionmaking

Information regarding the existence of Unocal's pending patent and Unocal's intent to charge royalties would have been material to CARB because CARB was concerned both about the cost of the Phase 2 regulations and about preserving competition in the marketplace.

The overwhelming evidence shows that information about the cost of the Phase 2 regulations was critical to CARB's decisionmaking. As detailed above, the California legislature's mandate required that the Phase 2 regulations be "cost-effective" and that CARB consider the impact of the regulation on the "economy of the state." (CX 1665 at 154 (Health & Safety Code § 43018(c); CX 1665 at 153 (Health & Safety Code § 43018(b)) (regulations had to be "cost-effective"); CX 1665 at 154 (Health & Safety Code § 43018(e)) ("economy of the state" directive)). To fulfill these mandates, CARB carefully considered the cost to refiners to comply with the Phase 2 regulations as well as the cost of the regulations to consumers. (CCPF 3948-76; Boyd, Tr. 6706; Venturini, Tr. 109-110, 200-201; CX 52 at 006 (objective of regulations was to "provide the cleanest possible gasoline at the least cost to the consumer"); CX 817 at 003 (CARB Board resolution for Phase 2 reformulated gasoline regulations that "would define the 'cleanest' possible gasoline . . . at the lowest cost to the consumer.")).

The evidence also shows that CARB made numerous technology decisions based on cost information. (CCPF 4004-14). CARB repeatedly rejected technologies that would have resulted in greater emissions reductions because of the cost of those technologies. (*See, e.g.*, CX 10 at 034 (rejecting GM's lower-sulfur proposal because of costs); CX 10 at 038-039 (rejecting more stringent aromatics standards because of costs); CX 10 at 027 (rejecting proposal that would "achieve greater

emissions reductions" because of costs); CX 10 at 029 (rejecting Ford proposal because of costs). Ironically, based on Unocal's 5/14 Project research results, CARB rejected even lower T50 limits based on cost concerns. (CX 5 at 033). Information about the potential additional costs imposed by Unocal's patent rights was thus material.

CARB decision-making was also affected by information about potential restrictions on competition. (CCPF 421-32, 4032-35). The evidence shows that CARB specifically tailored its regulations to preserve competition in the manufacture and distribution of regulated gasoline. (CX 10 at 015 (justifying exception to prevent anticompetitive effects); CX 10 at 187 (regulation should not "reduce competition in the gasoline market")). The CARB Board expressed these concerns at the hearings on the Phase 2 regulations. (Kenny, Tr. 6512; CX 774 at 060-061; Kenny, Tr. 6513-6514). The evidence also shows that CARB had a policy of avoiding regulations that would confer a monopoly on an individual firm. (Kenny, Tr. 6511-6512; Venturini, Tr. 151). Information about Unocal's potential patent rights was therefore material to CARB.

2. The Evidence Shows That Knowledge of Unocal's Patent Application and Intent to Charge Royalties Would Have Affected Refiners' Investment Decisions

The evidence also shows that knowledge that Unocal possessed a patent application covering technology to make Phase 2 gasoline and that Unocal intended to charge royalties for the use of that technology would have been material to the refiners.

At the time of Unocal's deception, the refiners were in the midst of making substantial investment decisions regarding how to modify their refineries to meet the Phase 2 regulations. (CCPF 2326-74). Refinery managers uniformly testified that at that time – 1991 through early 1993 – profits in the refining business were low and corporate managers were reluctant to invest substantial monies in refinery modifications. (CCPF 2351-74; *see, e.g.*, Banducci, Tr. 3434-3435

(Shell); Gyorfi, Tr. 5212-5213 (Chevron); CX 7048 (Hancock, Dep. at 260-261) (Texaco)). Each refiner separately conducted extensive cost/benefit analyses to justify their investments and the type of modifications to employ. (*See, e.g.,* Banducci, Tr. 3442-3443 (Shell); Gyorfi, Tr. 5215-5217 (Chevron); Eizember, Tr. 3103-3111 (Exxon); Hoffman, Tr. 4901-4913 (ARCO)). As the evidence shows, costs – even costs on the order of a penny per gallon – as well as patent rights held by a competitor were critical in making these investment decisions. (CCPF 4248-63).

For example, Lance Gyorfi, a refinery manager, and later Vice-President of Refining, at Chevron, testified that "[h]alf a cent to a penny" in extra operating cost to produce Phase 2 gasoline "would have been very important" to Chevron's investment decisions. (Gyorfi, Tr. 5222). Moreover, Chevron specifically considered licensing costs in its modification analyses. (Gyorfi, Tr. 5220-5221). Knowledge that Unocal had the intention to charge money would have been important to Chevron because costs were a critical consideration for the refinery-modification investments Chevron was considering. (Gyorfi, Tr. 5226-5227). Had Chevron known what the charge would be, the company would have included that in the rate of return calculation to determine whether to proceed with the projects. (Gyorfi, Tr. 5227).

Thomas Eizember, the lead planner for the Exxon Benicia refinery modifications project, testified that Exxon planners were assessing every possible cost that might affect the options Exxon was considering at the time. (Eizember, Tr. 3164). Exxon planners included in their analyses the cost of any potential patent royalties. (Eizember, Tr. 3164-3165). Had Exxon known of the Unocal pending patent, Exxon would have tried to understand the potential cost implications and how those costs might affect Exxon's options. (Eizember, Tr. 3165-3166).

Michael Hoffman, Vice President of Global Refining at ARCO, testified that technology license fees were important for ARCO to consider because these were part of the cost of projects being considered to comply with the Phase 2 regulations. (Hoffman, Tr. 4900). Knowledge of the

potential license fees sought by Unocal in association with its patents would have affected the "economic evaluation of the [CARB Phase 2] project." (Hoffman, Tr. 4917-4918). In addition, because Unocal was a competitor of ARCO, the pending patent would have "threatened" ARCO's marketing strategy. (Hoffman, Tr. 4917-4918).

Ronald Banducci, the former manager of Shell's U.S. refining business, testified that an additional one cent per gallon operating cost would have significantly reduced the return on investment for the modification options Shell was considering for its California refinery. (Banducci, Tr. 3468). Shell consistently considered estimates of royalties associated with the licensing of patented technologies when it analyzed its options for its refineries. (Banducci, Tr. 3463-3464). Shell was concerned about patents held by competitors because of the potential implications for competition. (Banducci, Tr. 3480-3482). If Shell had known of the Unocal patent application in 1991, Shell executives "absolutely" would have taken it into consideration in deciding which CARB Phase 2 compliance option to choose for Shell's facilities. (Banducci, Tr. 3486).

Steven Hancock, a former refining manager at Texaco, testified that the initial estimates for CARB compliance developed by Texaco's Refining & Marketing Division were so high that "it sent a very bleak message to management that . . . the company could expose a great deal of company assets to extreme risk and not get anything back." (CX 7048 (Hancock, Dep. at 261)). Knowledge that Unocal would charge royalties for the production of Phase 2 gasoline of even "cents a gallon . . . would have shifted the economics of the proposed CARB investment programs from marginally acceptable to totally unacceptable from a business perspective." (CX 7048 (Hancock, Dep. at 262)).

B. CARB Witnesses Consistently Testified That CARB Would Not Have Knowingly Adopted Regulations That Gave Unocal Monopoly Power; CARB Had Other Options

Not only does the evidence show that information regarding Unocal's pending patent and intent to charge royalties *may* have effected CARB's decisionmaking – i.e., the information was material – the evidence also shows that this information *would have* affected that decisionmaking process. In short, the evidence shows that, absent Unocal's lies, CARB would not have adopted regulations that gave Unocal monopoly power. (CCPF 4343-404).

The evidence on this point is uniform and unrebuttable. The Phase 2 regulations had to go through multiple levels of approval. (CCPF 4343-387). The evidence shows that at each of these steps, CARB would not have gone forward with the Phase 2 regulations as proposed and adopted if CARB had been aware of Unocal's patent application or intent to charge royalties both because of the increased costs Unocal's plans would impose and because CARB wanted to avoid giving a monopoly to any firm. (CCPF 4343-87). Every CARB witness confirmed this to be the case.

Peter Venturini, lead CARB staff manager for the Phase 2 regulations, testified that he would not have approved forwarding the Phase 2 recommendation to the Board in the fall of 1991 if he knew of Unocal's plan to charge substantial royalties. (Venturini, Tr. 243-244). Mr. Venturini had to assess the "substantial evidence" supporting Phase 2 and to decide whether the proposed rule should go to the CARB Board. (Venturini, Tr. 113, 136-137; Kenny, Tr. 6526-6527). In addition, Mr. Venturini testified that he would not approve of regulations that created a monopoly. (Venturini, Tr. 151). Not surprisingly, Mr. Venturini would not have approved forwarding the Phase 2 recommendation to the Board had he known of Unocal's plans. (Venturini, Tr. 243-244).

James Boyd, CARB's then-executive officer, also testified that he would have stopped the Phase 2 regulations before they went to the CARB Board. As executive officer, Mr. Boyd had

oversight authority for all staff-proposed rules, including Phase 2. (Boyd, Tr. 6687-6688). Had he known of Unocal's plans, Mr. Boyd would not have approved forwarding to the Board the Phase 2 rule as written, given the potentially "extreme negative consequences." (Boyd, Tr. 6706-6707, 6728, 6733-6734, 6907).

Judge Michael Kenny, CARB's general counsel, also testified that he would not have approved of forwarding the regulations to the Board. (Kenny, Tr. 6544). As CARB's general counsel, Judge Kenny had to ensure that the rulemaking record contained "substantial evidence" and met other requirements of the California APA before the regulations were forwarded to Board. (Kenny, Tr. 6525-6527). Had he known of Unocal's plans, he would not have given the needed approval. (Kenny, Tr. 6544).

CARB Chairwoman Jananne Sharpless testified that the CARB Board would not have approved the Phase 2 regulations if the Board were aware of Unocal's plans. (CX 7063 (Sharpless, Dep. at 198)). She testified that the Unocal pending patent would have been viewed as a "major concern" and a "red flag," and that Board members would have been concerned about one company having control over the marketplace. (CX 7063 (Sharpless, Dep. at 226-227)). Thus, she definitively testified that, if it had been aware of the Unocal patent during its review of the measure in November 1991, the Board would not have "marched off that cliff" and would not have approved the Phase 2 regulations as written because doing so "wouldn't be responsible." (CX 7063 (Sharpless, Dep. at 198-199)).

Even after the Board's approval of the regulations in November 1991, the record shows that the regulation would have been stopped had Unocal come clean. For example, Mr. Boyd, who had been delegated to finally "adopt" or not adopt the Phase 2 regulations (CX 816; Boyd, Tr. 6724-6727, 6729; Kenny, Tr. 6534), would not have approved the regulations if had known of Unocal's plans. (Boyd, Tr. 6728).

Mr. Venturini would have stopped the regulations in 1992. (Venturini, Tr. 244-245). One of his duties was to ensure that the Phase 2 regulation, before being finally "adopted" by the executive officer in 1992 and sent to the Office of Administrative Law, still (after the Board's changes) had "substantial evidence" to support it. (Venturini, Tr. 136-137, 244; Kenny, Tr. 6526-6527 (CARB general counsel stating that Mr. Venturini had veto authority at that "adoption" stage)). Had he known of Unocal's plans in 1992, Mr. Venturini would have vetoed the regulations. (Venturini, Tr. 243-245).

Judge Kenny also would have stopped the regulations in 1992. (Kenny, Tr. 6544). After the Board changes and approval, Judge Kenny had to ensure that the rulemaking record still contained "substantial evidence" and met other requirements of the California APA before the regulations were "adopted" and forwarded to the Office of Administrative Law in late 1992 (Kenny, Tr. 6525-6527). Had he known of Unocal's plans in 1992, he would not have approved the regulations as written. (Kenny, Tr. 6544).

The evidence shows that CARB could have prevented Unocal's scheme to seize monopoly power. (CCPF 4388-432). Delaying the regulations to find ways to avoid the Unocal patent rights was possible. (CX 7063 (Sharpless, Dep. at 151-152, 226-227)). Nor would CARB have been forced to issue the Phase 2 rule as written in order meet California's Federal Clean Air Act requirements. (CX 7063 (Sharpless, Dep. at. 195-196, 198)).

To the contrary, CARB had several options. CARB could have used different parameters and limits in its specifications. (CCPF 4388-432). It could have "defaulted" to the federal EPA regulations. (CCPF 4405-32). And it could have made more strict pollution reducing regulations that CARB imposed on other pollution sources. (CCPF 4397-404). Unocal's lies prevented CARB from taking any of these actions.

C. Had They Known of Unocal's Patent Application, The Other Refiners Could

Have Avoided or Lessened the Effect of Unocal's Patents

The evidence shows that Unocal's lies prevented its competitors – the other refiners – from taking actions to avoid or diminish Unocal's monopoly power.

1. The Other Refiners Would Have Warned CARB

The evidence shows that Unocal's lies prevented the other refiners from warning CARB of the implications of Unocal's patent application and intent to charge royalties. (CCPF Section XXVII.G.1). For instance, Steven Hancock testified that had Texaco known of the Unocal patent, it would have brought the issue to the attention of CARB, the Governor, and others. (CX 7048 (Hancock, Dep. at 263)). Similarly, Ronald Banducci testified that if Shell had known of the patent application in 1991, Shell would have alerted CARB staff. (Banducci, Tr. 3490). In addition, Thomas Eizember testified that if Exxon had known of the Unocal patent application in 1991, Exxon would have contacted CARB. (Eizember, Tr. 3208).

2. The Other Refiners Could Have Considered Alternative Refinery Modifications That Would Have Reduced Infringement

The evidence also shows that Unocal's competitors could have incorporated alternative modifications at their refineries (modifications that are no longer feasible) that would have helped to reduce infringement. The evidence shows that, **{**

} (Sarna, Tr. 6318, *in camera*; RX 1165 at 039, *in camera*). Mr. Sarna, Complaint Counsel's expert, meticulously details (on a refinery-by-refinery basis) the particular potential modifications that could have been made. (CCPF 4606-97; RX 1154A at 012-023). Testimony from refiner witnesses confirms that there were alternatives available at the time of the refinery modifications that would have helped the refiners to avoid the Unocal patents. (*See, e.g.*, Hoffman,

Tr. 4905-4912; Eizember, Tr. 3173-3179). These modifications are no longer possible. (CCPF 3819-904).

3. The Other Refiners Would Have Sought to Negotiate Licenses From Unocal Before They Made Investments

Refiner witnesses involved in the investment decisions each testified that, had they learned about Unocal's patent application and its plans to seek royalties for its invention prior to making their respective investments, each would have contacted Unocal to learn the intended charge for Unocal's technology. (*See e.g.*, Gyorfi, Tr. 5227 (Chevron); CX 7048 (Hancock, Dep. at 261-262) (Texaco); Banducci, Tr. 3487-3488 (Shell); Eizember, Tr. 3208 (Exxon)). Refiners could have used the threat of modifications to reduce infringement levels in these negotiations. Unocal's lies, therefore, prevented the refiners from negotiating for a license from Unocal before the regulations were set and before the refiners made their investments.

The evidence shows that any royalties for Unocal licenses negotiated in 1991-1992 would have been substantially less than what Unocal is now able to extract. Dr. Shapiro demonstrated that Unocal's bargaining power has increased because of the refiners' specific investments made, and the CARB regulations put in place, before Unocal corrected is misrepresentations. (CX 1720A at 010-013). More specifically, Dr. Shapiro calculated how Unocal's opportunistic behavior increased its market power because of (1) specific investments made by refiners to comply with the CARB Phase 2 regulations; (2) unexpected net benefits of the Phase 2 regulations (i.e., that the regulations improved air quality more than expected); (3) actual operating costs that were less than expected in 1991; and (4) unexpected net capital costs of the alternative technologies. (Shapiro, Tr. 7082-7095; as illustrated by CX 7098 and CX 7099). Thus, "we know as a matter of economic logic that Unocal's *ex post* profit-maximizing royalty offer is substantially greater than its *ex ante* profit-

maximizing (honest) offer."[106] (CX 1799A at 017).

Moreover, the evidence shows that the value of Unocal's patent applications, while still pending at the PTO, was far less than the value of the resulting patents after they issued. Unocal's own experts admitted that the value of an invention prior to the issuance of a patent is less than after a patent issues. (Teece, Tr. 7647-7648). Dr. Teece was even forced to reluctantly admit that it is "probably correct" that the Unocal patents have increased in value since 1991. (Teece, Tr. 7646-7647). Similarly, Unocal's patent expert, Dr. Linck, admitted that her company licenses pending patents but does not "pay very much" for those licenses because the scope of the pending claims has not been set. (Linck, Tr. 7858).

Finally, the refiners could have used the threat of the alternative technologies or going to CARB to bargain away any Unocal royalty demand.

4. The Other Refiners Would Have Considered Reducing Their Investments, Causing CARB to Intervene

The evidence also shows that if the refiners could not get an acceptable commitment from Unocal, each refiner would likely have reduced its refinery-modification investments, thereby reducing the supply of Phase 2 gasoline. (CCPF 4458-605). CARB staff, however, were monitoring supply and would have discovered this shortfall as a matter of course. (CCPF 433-50). The evidence clearly shows, as Unocal's own expert admits, that CARB could have intervened to remedy this problem. (CCPF 4604).

At the time of Unocal's deception, each of the refiners was seriously considering lower

[106] Unocal's expert, Dr. Teece, agrees that "the adoption of a standard can affect the bargaining position of the parties." (RX 1162A at 028). He further recognized that it is well established in the economic literature on bargaining that "the outcome of negotiations tends to favor firms with greater 'bargaining power.'" (CX1346 at 011). Thus, in a negotiation between Unocal and the California refiners in 1995 – after the refiners had made their investments – "Unocal could be expected to extract the 'lion's share' of the gains from trade." (CX1346 at 011).

investment options. (CCPF 4458-605). The evidence shows that, given the uncertainty and potential added cost associated with Unocal's pending patent, each refiner's decisionmaking would have been driven toward these lower cost options. (CCPF 4458-605). This would have resulted in significantly less Phase 2 gasoline production:

- Had ARCO chosen one of its lower investment cases, ARCO would have reduced its production by 43,000 to 99,000 barrels per day. (Hoffman, Tr. 4978-4979, CX 5052 at 036).

- Had Chevron chosen its lower investment case, Chevron would have made between 55,000 and 70,000 fewer barrels a day of CARB Phase 2 gasoline. (Gyorfi, Tr. 5219).

- Had Exxon chosen one of its lower investment cases, Exxon would have produced 25,000 to 60,000 fewer barrels per day of CARB Phase 2 gasoline. (CX 5054 at 009; Eizember, Tr. 3149-3153).

- Had Shell chosen a lesser investment option, Shell would have produced 10,000 to 55,000 fewer barrels per day of CARB Phase 2 gasoline. (Banducci, Tr. 3446-3451).

- Had Texaco chosen its lower investment options, Texaco would have produced **{ }** fewer barrels per day of CARB gasoline. (CCPF 4573).

To prevent even one of these actions, CARB would have acted. As Unocal's own expert pointed out, an output reduction as small as 80,000 barrels per day of Phase 2 gasoline would result in a wholesale price increase of 25.4%. (RX 1162A at 072). At the time, CARB was very concerned about maintaining an adequate supply of Phase 2 gasoline. (CCPF 433-50; Venturini, Tr. 263 (explaining that CARB need every major refiner "on board" to avoid "a significant supply shortfall")). CARB was therefore closely monitoring refiner modification investments and progress. (CCPF 433-50; *see, e.g.*, CX 355 at 005 (CARB letter showing refiner output projections and projected consumer needs); Hoffman, Tr. 4920-4921 (Texaco gave periodic progress updates to CARB); Banducci, Tr. 3476 (Shell obligated to give reports to CARB); CX 1702 at 001 (Chevron compliance report)). As Unocal's own expert admitted, CARB would have taken action had it seen

a projected supply shortfall. (CX1332 at 42; Teece, Tr. 7680).

D. The Economic Evidence Shows that Unocal Gained Monopoly Power From Deception and That There is No Need to Prove any Hypothetical "Competitively Superior Regulation"

Dr. Shapiro also demonstrated that Unocal's monopoly power is attributable to Unocal's deceit and that causation is not dependent on proof that CARB would have adopted some "competitively superior regulation" but for Unocal's lies. (CX 1799A at 016-020). Rather than thrashing about trying to construct hypothetical worlds to use as the competitive measure, Dr. Shapiro showed that the proper benchmark is the competition that actually occurred. (CX 1799A at 016). In other words, instead of assuming that Unocal made some disclosure or representation that did not occur (forcing the analysis into the ethereal), Dr. Shapiro examines competition in the technology market as it actually played out, but with the assumption that Unocal meant what it said – that the technology it explained to CARB and to other industry members was "non-proprietary." (CX 1799A at 016). In other words, the proper but-for world is one in which Unocal's representation that its technology was "non-proprietary" and available to the general public was honest instead of a lie. (CX 1799A at 016).

Dr. Shapiro's but-for analysis is therefore based on direct observations about real-world competition in the relevant market without any need to engage in fanciful examinations of roads long foreclosed by Unocal's conduct. (CX 1799A at 017). Dr. Shapiro's analysis demonstrates that Unocal's strategy of deception – never intending to make good on its representation – enhanced Unocal's bargaining power (and therefore market power) substantially. (CX 1799A at 017). This is because Unocal's lies induced specific investments for the production of Phase 2 gasoline that would not have been made had Unocal not engaged in deceptive conduct, leading CARB to forego other regulatory options. (CX 1799A at 021). These specific investments can "confidently be

expected to shift economic power toward Unocal." (CX 1799A at 021). To put it another way, Dr. Shapiro's analysis – which is simply an application of the well-settled economic theory of opportunism – demonstrates the causal connection between Unocal's lies and its monopoly power.

As Dr. Shapiro points out, Unocal's insistence of proof of some speculative and hypothetical world would create a no-lose proposition for liars and cheats. (CX 1799A at 018). Under Unocal's analysis, Unocal's lying created no harm to competition unless its present day royalty demands exceed some hypothetical price at which CARB, in 1991, would have chosen to go to an alternative that is "superior" given the Unocal demand. (CX 1799A at 018). Thus, according to Unocal, companies should be able to deceptively make very attractive offers, later jack up the price, and the worst that could happen is that they would receive the maximum price that competition would have borne at the time of the deception. (CX 1799A at 018).

Unocal's approach thus rewards lying. This makes no sense from an economic perspective. (CX 1799A at 018). Nor does it comport with the law. *See Microsoft*, 253 F.3d at 79 ("'the defendant is made to suffer the uncertain consequences of its own undesirable conduct.'") (quoting 3 Areeda & Hovenkamp, *Antitrust Law* ¶ 651c (1996)); *see also Bigelow*, 327 U.S. at 265 ("The most elementary conceptions of justice and public policy require that the wrongdoer shall bear the risk of the uncertainty which his own wrong has created.").

VI. UNOCAL'S MARKET POWER IS DURABLE: THE INDUSTRY IS LOCKED IN

The evidence shows that Unocal's monopoly power has been and will be long lasting. This is because there are no feasible means for either CARB or the refiners to avoid Unocal's patents, even in the long term.

A. Economic and Regulatory Lock In

The concept of lock in is relatively straightforward. Simply put, a purchaser's options can change over time, either because of changed external circumstances or the mere fact that a purchaser has selected and invested in an option. (CX 1720A at 028; Shapiro, Tr. 7062). The fact that alternative options are either no longer available or now less attractive leads to "lock in" – an increase in the cost of switching to an alternative.[107] (CX 1720A at 028). Thus, lock in occurs when price-constraining alternatives available at the time of the decision become less economically attractive after the decision is made.[108] (Shapiro, Tr. 7342-47).

Thus, in this case, there are two levels of lock in. First, regulatory lock in, *i.e.*, CARB is locked in to using the Unocal technology in its regulations. Second, economic lock in, *i.e.*, the refiners cannot economically switch to technologies that avoid Unocal's patents.

B. By the Time CARB Found out about Unocal's Patent and Intent to Charge Royalties, CARB Could Not Change the Regulations to Avoid the Patent

The evidence shows that by the time CARB was informed of Unocal's first patent, for a number of reasons, CARB was unable to change the Phase 2 regulations to assist refiners to avoid the Unocal trap. This inability to change the regulations has persisted and will persist into the foreseeable future.

---

[107] Unocal's economic expert incorrectly described the concept of "lock-in" as applied to this case as: "(a) a decision-maker (such as CARB or the refiners) made earlier decisions in ignorance of the existence of relevant patent applications; (b) the decision-maker *would have* made different decisions had it known of the patent applications; and (c) as a consequence of commitments and investments, the decision-maker cannot later adopt alternatives to its earlier decisions or switch to other alternatives that produce equivalent outcomes." (RX 1162A at 059 (emphasis added)). The important consideration is not whether the decision-maker *would have* made different decisions. Rather, lock in occurs when there were available alternatives that constrained the price of the technology at the time of the representation that are less attractive in the later period. (Shapiro, Tr. 7342-47). But even under Dr. Teece's more narrow definition, evidence proves that lock in exists.

[108] *See also* Teece, *Economic Aspects*, 573 PLI/Pat at 406 (explaining that after specific investment to make a patented product are made, "earlier options may have faded away or become substantially more costly to implement" opening the door "to opportunistic behavior by the patent holder").

1. By 1995, the Phase 2 Regulations Were Incorporated into the State Implementation Plan, Which Undermined CARB's Ability to Change the Regulations

By the time of Unocal's press release, CARB's Phase 2 regulations had become an important building block for a complex array of regulations known as the State Implementation Plan ("SIP"). (CCPF 3764). The Federal Clean Air Act required the State of California to file a SIP, which was the subject of intense negotiation between CARB, the EPA, and other interested parties. (CCPF 3764). In November 1994, CARB filed with the EPA California's proposed SIP, which incorporated the benefits of the Phase 2 regulations. (RX 820).

By early 1995, when Unocal issued its press release, CARB could not change or roll back the Phase 2 regulations without jeopardizing the SIP. As Judge Kenny, who was the lead negotiator of the SIP (Kenny, Tr. 6540-6541), explained at trial, this meant that CARB could not roll back the Phase 2 regulations:

> We had . . . moved down the path of adopting a state implementation plan that incorporated some of the emission reductions that were associated with the rule. We had submitted that state implementation to the U.S. EPA. We were involved in negotiations with the U.S. EPA and the environmental community. And so the combination of the time lag that had occurred from when the regulation was originally adopted until we found out about the patent really took the ability to roll back out of our hands because of the cost issues associated with the rollback and the legal issues associated with the state implementation plan.

(Kenny, Tr. 6539-6541). He reflected this problem in a contemporaneous memorandum, in which he wrote that changing the regulations was not "viable" because of "the emission reductions needed for SIP compliance." (CX 900).

In short, between the development and adoption of the Phase 2 regulations in 1991-92 and 1995, things had changed. In 1991-92, when CARB was developing the Phase 2 regulations, the SIP was years away and not a concern. In 1991, when the CARB Board approved the Phase 2 regulations, CARB was not motivated by the threat of a Federal Implementation Plan. (Kenny, Tr.

6554-6555; CX 7063 (Sharpless, Dep. 217-218) ("Q: It certainly was something that, based upon the measures available under a FIP, you wanted to avoid. A: Well I don't think we were motivated at that time by – by a threat of a FIP. Q: You don't recall – A: I don't think we were motivated by a threat of a FIP because we had just been working with the U.S. EPA, we'd just gotten reauthorization I believe in that timeframe of the federal Clean Air Act.")). However, within months after Unocal's press release, the EPA notified the public of its intent to approve Phase 2 as written as an acceptable control measure in the California SIP. (CX 7035 at 002). CARB was stuck.

2. CARB Knew That Changing the Regulations in 1995 Would Have Caused Massive Disruptions and Involved Substantial Delay for Refiners and Others

Not only did the SIP prevent CARB from changing the Phase 2 regulation, but CARB also could not change the regulation because doing so would have caused severe disruptions in the regulated industries. (CCPF 3716-62). As CARB executive officer James Boyd explained, "the regulation ship had sailed, the train had left the station, a huge investment by the regulated community in California had been made, probably the largest investment for any regulation ever passed in California, it would at that point in time be very difficult to just withdraw the regulation." (Boyd, Tr. 6741-6742).

Similarly, Peter Venturini explained, CARB "had adopted a regulation that was imposing costs on the order of, say, $5 billion on the refineries. They had relied on the action of our agency to commit to those investments . . . . We had directed the refineries to invest. They were proceeding on that." (Venturini, Tr. 308-309). In fact, CARB knew that these substantial investments began as early as 1993. (Venturini, Tr. 307). In addition, changing the regulations in 1995 would have undermined competition in the industry. (Kenny, Tr. 6539-6541 (rolling back the regulation "would be a

competitive issue with regard to the manufacturers.")).

This concern was not manufactured for trial; it was reflected in Judge Kenny's contemporaneous memorandum. As CARB's general counsel at the time, Judge Kenny wrote on March 6, 1995 that "recission [sic] of RFG" was "not a viable option since the companies have already spent the money for the modifications to the refineries." (CX 900; Kenny, Tr. 6541).

Not only did refiners make investments relying on the Phase 2 regulations, others did as well. For instance, by 1995, automobile manufacturers had used the Phase 2 regulations as an automobile design assumption to help them meet upcoming Low Emission Vehicle ("LEV") regulations. (Venturini, Tr. 307 ("By that time frame, . . . the auto manufacturers were relying on this fuel to help them meet the upcoming low-emission vehicle regulations, and a lot of investment had been made and we were basically locked in at that point")). CARB knew that changing the Phase 2 regulations would undermine these efforts. (Venturini, Tr. 308-309 ("Also the auto manufacturers were very interested in this cleaner-burning fuel because they could then design the next generation of vehicles, of the low-emission vehicles, using this fuel and may not have to use other fuels. It was important that there be some certainty, so if – so from our perspective, we were – felt that we had made this major commitment")).

What is more, CARB knew that changing the Phase 2 regulations could involve a substantial delay in implementing any revised regulations. CARB had worked hard to ensure that refiners were able to obtain the necessary permits to produce Phase 2 gasoline. (Venturini, Tr. 246). Changing the regulations in 1995 would have not only forced the refiners to make considerable refinery modifications, but also to go through the permitting process once more, resulting in substantial delay. (Venturini, Tr. 245-246 ("Basically after the regulation was enacted, the refiners had a relatively short period of time in which to make the investments, to secure all of the permits, do the engineering and the design, to make sure that they were ready to go in 1996. And by around the

late ’93 time frame, they’ve already made significant commitments in terms of getting to there in time, so that’s probably the practical time frame where they were getting locked in”)).

In sum, the evidence shows that CARB could not change the Phase 2 regulations to avoid Unocal’s patent trap.

3. CARB Could Not Change the Regulations to Avoid the Unocal Patents, Even Through the Phase 3 Regulations

CARB’s inability to create greater flexibility to avoid the Unocal patents persisted even through the amendments to create Phase 3 regulations. Those regulations were a response to concerns over ground-water pollution caused by an gasoline oxygenate called “MTBE,” which was used by refiners to meet the oxygenate requirements of the Phase 2 regulations. (Venturini, Tr. 127-128). The Phase 3 regulations were directed at eliminating MTBE from California gasoline. (Venturini, Tr. 127-28; CX 51 at 9).

Though the Phase 3 rulemaking proceeding would modify the Phase 2 regulations, CARB was unable to amend the regulations to avoid the Unocal patents. (CCPF 3765-800). First, CARB was aware that the refiners had spent billions of dollars to modify refineries in order to meet the Phase 2 regulations. (CCPF 3769-74). The Phase 3 regulations therefore had to take into account those existing modifications: CARB was not starting from scratch. (Kenny, Tr. 6475-6476).

Second, CARB’s ability to amend the regulations was severely constrained because the Phase 3 regulations had to have at least the same emissions reductions as the Phase 2 regulations. This was for two reasons. The Phase 2 emissions reductions were part and parcel of the complex State Implementation Plan; thus, any loss of emissions reductions would have required both offsetting benefits and renegotiation with the EPA. (Kenny, Tr. 6575-6576). In addition, the California legislature, in the so-called “Sher Bill” passed in 1999, had imposed a statutory

prohibition against reducing those emissions benefits.[109] (Venturini, Tr. 128, 847; CX55 at 075).

These factors meant that CARB had little ability to amend the regulations in order to avoid the Unocal patents. (CCPF Section XXVI.A-E). For instance, any substantial upward adjustment to the T50 specification to avoid the patents could not be adequately offset by more stringent requirements elsewhere. (*Id.*). **{**

}

(CX 1797 at 004-005, *in camera*; *see also* Sarna, Tr. 6288-6289, *in camera*).

C. The Other Refiners Were Already Locked In By The Time They Learned of Unocal's Plan to Extract Royalties

1. The Refiners Had Already Made Their Specific Investments

Refiners did not learn that Unocal intended to charge a royalty for its '393 patent until late January 1995. (Ingham, Tr. 2730; Banducci, Tr. 3483-3484; Derr, Tr. 5099; Gyorfi, Tr. 5239-5240; CX 369; CX 374; CX 375). By that point, refiners already had invested hundreds of millions of dollars in Phase 2-related refinery modifications and construction was almost complete for many refineries.

For example, at the time ARCO learned of the '393 patent and Unocal's intention to seek royalties, ARCO's Phase 2 project at Carson was nearly complete. ARCO had almost completed its engineering work, and had in fact finished all procurement. (Hoffman, Tr. 4938; CX 5093 at 019-020). Construction on key projects was between 50 and 100 percent complete. (Hoffman, Tr. 4938; CX 5093 at 006, 019-020). Moreover, by early 1995, ARCO had committed over $200 million, which represented nearly two-thirds (2/3) of projected expenditures. (Hoffman, Tr. 4940; CX 2063). ARCO considered stopping the project in light of Unocal's patent, but decided to

[109] Even Unocal's own expert, Professor Griffin, conceded that the SIP and the Sher Bill limited CARB's options in the Phase 3 proceeding: "It is possible that they may have precluded CARB from changing its regulations *ex post* to allow refiners more flexibility to avoid the patents." (RX 1164A at 053).

continue on with the project, because ARCO was already fully committed. (Hoffman, Tr. 4936, 4966). To "pull the plug" on the project at that late date would not have saved ARCO any money or added any value to the project. (Hoffman, Tr. 4940).

Similarly, Exxon had completed 91 percent of its Phase 2 project-related engineering, 94 percent of procurement and 16 percent of its field construction. (Eizember, Tr. 3134-3135; CX 5068 at 004). Moreover, Exxon had already invested about $125 million in its Phase 2 refinery modification project at the Benicia refinery by February 1995. (Eizember, Tr. 3130-3131; CX 980 at 005) .

Shell already had spent nearly all of the $300 million authorized for Phase A of its Martinez Clean Fuels project, and had invested $300 million in Phase B of the project. (Banducci, Tr. 3513-3514; CX 5114). (Phase A constituted units necessary to manufacture EPA - and CARB-compliant gasoline. Phase B involved the residue reduction project that allowed Shell to maintain its pre-Phase 2 California gasoline production level). (Banducci, Tr. 3513). Approximately 2500 construction workers were onsite at Martinez, including contractors, (Banducci, Tr. 3514; CX 5114), and Shell was spending "[a]pproximately a million dollars a day" on the project. (Banducci, Tr. 3514). To "call a halt to the project" at that point and "to demobilize" that many employees and contractors would have been "very difficult to manage." (Banducci, Tr. 3514-3515).

2. Phase 2 Modifications Had Pushed Refiners Towards the Claims of the Unocal Patents

In light of the Phase 2 CARB RFG regulations, refiners generally modified their respective refineries to accomplish two objectives: (1) lowering the concentrations of olefins in the gasoline pool; and (2) lowering the distillation temperatures (T50 and T90) in the gasoline pools. (CCPF 2478-95). Refiners pursued these dual objectives without knowledge of Unocal's patent claims, and these strategies had the effect of driving the refiners' CARB Phase 2 summer gasoline production

toward the numerical limitations of Unocal patent claims. (RX 1154A at 010).

Prior to the adoption of the CARB Phase 2 specifications, the average levels of olefins in, and the distillation temperatures of, the refiners' gasoline pools were high enough to avoid overlap with the numerical properties of Unocal's patent claims, but lower than the cap limits allowed by CARB. (RX 1154A at 010). Specifically, at this time, the average T50 temperature for all California refiners was 212 degrees F. (CX 5 at 16; Sarna, Tr. 6204). The average olefin levels in for all California refiners in 1991 was 9.60. (CX 5 at 16). Thus, in 1991, prior to the Phase 2 specifications, the average refiner had high enough T50 values (212 degrees) and high enough olefin level (9.60) in the gasoline pool to avoid overlap with the numerical properties of Unocal's patent claims. To achieve the objectives of the Phase 2 regulations, however, refiners lowered the average T50 and olefin concentrations in the gasoline pools of their respective refineries, thus increasing substantially the overlap with Unocal's patent. (CCPF 3905-24).

3. By January 1995 It Was Too Late to Restart the Planning and Permitting Process to Avoid Unocal's Patent Claims and Still Meet the CARB Phase 2 Compliance Date

By January 1995, California refiners no longer had the ability to make refinery modifications to mitigate the effects of Unocal's enforcement of the patent and still meet the March 1996 regulatory deadline. (CCPF 3806-18). In general, the lead time necessary for CARB Phase 2 refinery modifications was four years. This included time for planning, permitting applications, engineering, procurement, and construction. Thus, to meet the March 1, 1996 deadline for producing CARB Phase 2 gasoline, California refiners had to navigate the rigorous environmental permit process. Obtaining the necessary permits was a "critical path activity" for almost all California refiners. (Sarna, Tr. 6350; Eizember, Tr. 3109-3110, 3122-3123; Hoffman, Tr. 4877; Banducci, Tr. 3504-3505, 3515).

Given the difficult nature of the permitting process, refiners were thus unable by early 1995 to change course to complete the planning, engineering, and construction activities required by March 1996. (CCPF 3806-18). As Unocal's own technical expert, Mr. Stellman, conceded, even in the first half of 1994 refiners could not have abandoned their modifications and still have been able to produce the same amount of CARB gasoline by March 1996. (Stellman, Tr. 7941-7942).

4. There are No Economically Feasible Modifications or Other Steps that Refiners Can Make to Avoid Unocal's Patents

The evidence shows that even after 1994, refiners lacked, and still do not have, any economically feasible means to modify their refineries to avoid the Unocal patents. (CCPF 3925-45). Engineers with years upon years of experience have studied their refineries, searching for economically feasible modifications that would substantially avoid the Unocal patents. None can be found.

The evidence on this point is voluminous, detailed, and uniform. (CCPF 3545-654, 3819-904, 3925-45). To cite but a few examples:

- Robert Simonson evaluated Valero's Benicia refinery and, **{**

  } (Simonson, Tr. 6040, 6046 *in camera*). As he explained, **{**

  } (Simonson, Tr. 6079, *in camera*).

- Similarly, engineers at the Valero Wilmington refinery considered capital investments to avoid the Unocal patents, but they concluded that it was not possible to avoid the patents. (CX 7050 (Ibergs, Dep. at 67-68)).

- Shell's experienced refinery and technical experts have not found any "alternative technology available to achieve the means to blend around the five Unocal patents at comparable cost or comparable production rates for effectiveness." (CX 7048 (Hancock, Dep. at 255-256)).

- Dr. Lieder of Shell testified that **{**

}

(Lieder, Tr. 4815, 4819 *in camera*).

- BP was unable to identify any technologies that would enable it to economically avoid the claims of the five Unocal patents. (CX 7078 (Youngman, Dep. at 109-110); *see also* CX 7078C (Youngman, Dep. at 76-77, *in camera*) (estimating costs at **{ }**); Hoffman, Tr. 4995 (none of the studies done at BP have identified any capital modifications that would avoid the Unocal patents).

- Mr. Eizember of Exxon confirmed that **{**

} (Eizember, Tr. 3584, *in camera*).

This evidence was confirmed by Unocal's own expert, whose own analysis and modeling show that it is not economically feasible for refiners to **{ }** (CCPF 3944, *in camera*). As Unocal's expert Dr. Teece recognized, the refiners are "stuck." (CX 1332 at 051; Teece, Tr. 7706).

REMEDY

I. ENJOINING UNOCAL FROM OBTAINING ROYALTIES FROM OR ENFORCING ITS RFG PATENTS AGAINST PRODUCERS OF CARB-COMPLIANT GASOLINE IS NECESSARY TO RESTORE COMPETITION

The evidence presented at trial has shown that Unocal engaged in a pattern of deceptive conduct to acquire market power in violation of Section 5 of the FTC Act. That market power is manifested in Unocal's ability to charge a positive price for its technologies to producers of CARB-compliant gasoline. In light of that violation, and the manner in which Unocal exercises its illegal market power, the Commission must adopt measures to redress the effects of Unocal's anticompetitive conduct, restore competition, and protect consumers from further harm. The proposed remedial measures therefore are carefully tailored to prevent Unocal from taking further steps to exploit its illicit market power to the detriment of California refiners (and, ultimately, consumers) and from engaging in similar anticompetitive conduct in the future. Those measures are

consistent with the Commission's broad cease-and-desist powers under Section 5.

As discussed in greater detail below, the proposed measures would bar Unocal from enforcing any patents based on the data it presented to CARB and refiners as "non-proprietary" and in the "public domain" against any entities seeking to make, sell, distribute or use CARB summertime gasoline. *See* Proposed Order at IV. Unocal is using each of these patents to exact monopolistic prices, relying on a source of leverage common to all of them – Unocal's misrepresentation and omissions to CARB and refiners concerning the price of the technologies that those patents protect. This remedy is necessary to restore competition to its condition prior to Unocal's misrepresentations and omissions. Unocal, however, would retain ownership of its five patents and would be free to continue to enforce them against any gasoline other than CARB-compliant summertime gasoline, and the technologies to make use, and sell all other such gasolines. *Id*.

II. THE COMMISSION HAS THE AUTHORITY TO ORDER THE REQUESTED RELIEF[110]

As the Supreme Court has long held, once an antitrust violation is found, the remedy must "terminate the illegal monopoly, deny to the defendant the fruits of its statutory violation, and ensure that there remain no practices likely to result in monopolization in the future." *United States v. United Shoe Mach. Corp.*, 391 U.S. 244, 250 (1968). The remedy should "cure the ill effects of the illegal conduct, and assure the public freedom from its continuance." *United States v. United States Gypsum Co.*, 340 U.S. 76, 88 (1950). In short, antitrust remedies must restore competition; they

[110] Your Honor asked the parties to address "the authority of an administrative agency and of a federal district court to order the remedy sought by the government" and "each and every provision in the proposed order." Revised Scheduling Order (Sept. 9, 2004) at 1-2; Griffin, Tr. 8579-8581. The parties are "to expressly include any and all case law regarding the authority to order a party to cease and desist its enforcement of valid patents based on misconduct other than misconduct before the United States Patent and Trademark Office." *Id.*

must "unfetter [the] market from anti-competitive conduct and 'pry open to competition a market that has been closed by defendants' illegal restraints.'" *Ford Motor Co. v. United States*, 405 U.S. 562, 577 (1972) (citations omitted)). Moreover, "it is well settled that once the Government has successfully borne the considerable burden of establishing a violation of law, all doubts as to the remedy are to be resolved in its favor." *United States v. E. I. duPont De Nemours & Co.*, 366 U.S. 316, 334 (1961).

A. Congress Has Given the Commission the Authority to Adopt Measures That Effectively Remedy Violations of Section 5, Restore Competition, and Prevent Harm to Consumers

"In a broad delegation of power," *Atlantic Refining Co. v. FTC*, 381 U.S. 357, 367 (1965), Congress charged the Commission with combating "unfair methods of competition" and "unfair or deceptive acts or practices." 15 U.S.C. § 45(a)(2) (1997). When it adopted the FTC Act, Congress "explicitly considered, and rejected, the notion that it reduce the ambiguity of the phrase 'unfair methods of competition' by tying the concept of unfairness to a common law or statutory standard or by enumerating the particular practices to which it was intended to apply." *FTC v. Sperry & Hutchinson Co.*, 405 U.S. 233, 240 (1972) (*citing* S. Rep. No. 63-597, at 13 (1914)). Congress recognized that, since "'[t]here is no limit to human inventiveness,'" cataloging every type of prohibited conduct would be "'an endless task'" – "'[e]ven if all known unfair practices were specifically defined and prohibited, it would be at once necessary to begin over again.'" 405 U.S. at 240 (quoting H.R. Conf. Rep. No. 63-1142, at 19 (1914). Congress therefore rejected the "temptations of precision when framing" the Act (405 U.S. at 240) and instead left it to the Commission to identify and eradicate the "many and variable unfair practices which prevail in commerce." 405 U.S. at 240 (quoting S. Rep. No. 63-597, *supra*, at 13).

To carry out this "sweep[ing] and flexib[le]" charge, 405 U.S. at 241, the Commission's

remedial powers must be correspondingly robust and dynamic. Otherwise, the mandate that Congress gave the agency would be an empty one. Challenging anticompetitive conduct is "a futile exercise if the Government proves a violation but fails to secure a remedy adequate to redress it." *United States v. E.I. du Pont de Nemours & Co.*, 366 U.S. 316, 323 (1961).

1. The Commission's Enabling Statutes Provide It With "Broad Discretion Akin to that of a Court of Equity" To Cure Antitrust Violations

The courts have therefore observed that the "Commission has a broad discretion, akin to that of a court of equity, in deciding what relief is necessary to cure a violation of law and to ensure against its repetition." *Hosp. Corp. of Am. v. FTC*, 807 F.2d 1381, 1393 (7th Cir. 1986) (Posner, J.) (approving an FTC remedy requiring advance notification of future acquisitions).[111] *See also In re Ekco Prods. Co.*, 65 F.T.C. 1163, 1213, 1216-17 (1964), *aff'd, Ekco Prods. Co. v. FTC*, 347 F.2d 745 (7th Cir. 1965) (the Commission may employ a "complete array of essentially equitable remedies").

In the section 5 context, the Commission has exercised its broad remedial powers in a variety of ways, including forced divestiture (*see L.G. Balfour Co. v. FTC*, 442 F.2d 1 (7th Cir. 1971)); corrective advertising (*see Warner-Lambert Co. v. FTC*, 562 F.2d 749 (D.C. Cir. 1977)); and requiring advance notice to the Commission of changes in corporate structure and the filing of written compliance reports (*see Sterling Drug, Inc. v. FTC*, 741 F.2d 1146 (9th Cir. 1984)). (Similarly, the Commission has the authority to apply equitable doctrines within its proceedings to determine liability. *See, e.g., In the Matter of American Cyanamid Co.*, 363 F.2d 757 at 770-771 (explaining that inequitable conduct before the Patent Office may support the Commission's determination of a Section 5 violation)).

[111] While *Hosp. Corp. of Am. v. FTC* arose under section 7 of the Clayton Act, the court relied on two section 5 cases – *Jacob Siegel Co. v. FTC*, 327 U.S. 608 (1946) and *Herzfeld v. FTC*, 140 F.2d 207 (2d Cir. 1944) (L. Hand, J.) – in concluding that the Commission's broad remedial powers to prevent competitive harm are akin to those of a court of equity.

2. The Commission's Broad Authority Extends to Remedying Anti-Competitive Harm from Patents

The rules are no different where the unfair or deceptive acts at issue involve patents as opposed to any other type of property. In that circumstance, too, the Commission retains the full range of its powers to remedy anticompetitive conduct. Where necessary to prevent harm to competition and consumers, the Commission has limited the exercise of patent rights in FTC Act and Clayton Act cases.

In the merger context, the Commission has regularly required the divestiture or licensing of, or placed other limitations on, patent rights. *See, e.g., In re Cephalon, Inc., and Cima Labs Inc.*, 2004 F.T.C. LEXIS 162, at *22 (2004) (consent decree ordering the respondent to "grant irrevocable, perpetual, fully paid-up and royalty-free license(s)" to intellectual property, including patents, to a third party). Similarly, recent enforcement actions have resulted in orders restricting patent rights. *See, e.g., In re Bristol-Meyers Squibb Co.*, 2003 F.T.C. LEXIS 59, at *66–*67 (2003) (consent decree forbidding respondent from making certain patent infringement claims or receiving certain patent royalties). If the Commission were forbidden from taking actions that would impose limits on the enforcement or licensing of patents, entire industries that deal in technology development and licensing effectively would be given a blanket exemption from Section 5.

Moreover, to deal with the anticompetitive effects of conduct similar to that involved in this case, the Commission intervened to prevent the enforcement of patent rights in *In re Dell Computer Corp.*, 121 F.T.C. 616, 1996 FTC LEXIS 291, at *16 (remedy "prohibits Dell from enforcing its patent against those using the VL-bus standard").[112] As discussed in greater detail below, the

[112] While the *Dell* remedy was embodied in a consent decree, courts have cited it, as Judge McGuire noted in his Initial Decision in Rambus. *In re Rambus Inc.*, No. 9302, slip op. at 257 (FTC Feb. 23, 2004) (citing *Townshend v. Rockwell Int'l Corp.*, 2000 U.S. Dist. LEXIS 5070 (N.D. Cal. 2000) and *Intel Corp. v. VIA Technologies, Inc.*, 2001 WL 777085 (N.D. Cal. 2001). In fact, the Solicitor General relied on the *Dell* decree in advising the Supreme Court that "government agencies, such as the Federal Trade Commission," may impose remedies against

remedy ordered in that case was in the mainstream of what courts have long done in similar situations.

The federal courts also have frequently imposed various forms of compulsory licensing as an antitrust remedy. *See generally,* Lawrence Schlam, *Compulsory Royalty-Free Licensing As An Antitrust Remedy for Patent Fraud: Law, Policy and the Patent-Antitrust Interface Revisited,* 7 Cornell J.L. & Pub. Pol'y 467 (1998). In *United States v. Nat'l Lead Co.,* 332 U.S. 319 (1947), the Supreme Court explained that "depend[ing] on the facts" a court could impose a compulsory license on a patent holder for which the royalty rate "might be set at zero or at a nominal rate." *Id.* at 349. The Commission has a similar view of its own remedial powers, having expressed "no doubt that, where the circumstances justify such relief, [it] has the authority to require royalty-free licensing." *In re American Cyanamid Co.,* 72 F.T.C. 623, 1967 F.T.C. LEXIS 43, at *151 (1967).

3. Courts and Agencies Have the Power to Enjoin Enforcement from Patents

Courts and agencies in numerous contexts have prevented parties from enforcing their valid intellectual property rights, including patent rights – absent any proof of misconduct before the PTO. These decisions are based on these tribunals' broad authority to order effective antitrust relief, and on legal patent law doctrines such as implied licenses, equitable estoppel and patent misuse (or its counterparts, copyright or trademark misuse). *See, e.g., Morton Salt Co. v. Suppiger Co.,* 314 U.S. 488, 494 (1942) ("The patentee, like these other holders of an exclusive privilege granted in the furtherance of a public policy, may not claim protection of his grant by the courts where it is being used to subvert that policy.").

---

parties who make affirmative misrepresentations to a public or private regulatory body in setting industry standards. Brief for United States as Amicus Curiae, *Union Oil Co. of California v. Atlantic Richfield Co.,* 203 F.3d 989 (Fed. Cir.), cert. denied, 69 U.S.L.W. 3556 (U.S. Feb. 20, 2001) (No. 00-249).

a. Authority Based on Antitrust Doctrines

The Supreme Court has held that the broad discretion to fashion an antitrust remedy includes the ability to restrict or enjoin a respondent's use of its intellectual property rights. *See, e.g., Ford Motor Co.*, 405 U.S. at 576-77 (affirming limited ban on the use of a proprietary trade name as a merger remedy). The Court reasoned that "[e]ven constitutionally protected property rights such as patents may not be used as levers for obtaining objectives proscribed by the antitrust laws" and that where intellectual property "becomes a tool to circumvent free enterprise and unbridled competition, public policy dictates that the rights enjoyed by its ownership be kept within their proper bounds." *Id.* at 576 n.11 (citation omitted).[113] *See also Standard Sanitary Mfg Co. v. United States of Am.*, 226 U.S. 20, 49 (1912) ("Rights conferred by patents are indeed very definite and extensive, but they do not give any more than other rights an universal license against positive prohibitions."); *Int'l Salt Co. v. United States*, 332 U.S. 392, 395-96 (1947) ("International has engaged in a restraint of trade for which its patents afford no immunity from the anti-trust laws.").

For example, although a patentee generally has the right to determine the terms upon which to license its patents, the Court has held that patentees' licensing practices, such as unduly restrictive licensing arrangements and improperly tying the sale of unpatented goods to patent licenses, violate the Sherman Act and Clayton Act. *Int'l Salt Co.*, 332 U.S. at 393, 395-96; *United Shoe Machinery Corp. v. United States*, 258 U.S. 451, 463-64 (1922) (affirming tying judgment on the grounds that "the rights secured by a patent do not protect the making of contracts in restraint of trade, or those which tend to monopolize trade . . . ."); *Std. Sanitary Mf'g*, 226 U.S. at 47-50 (enjoining restrictive licensing practices).

[113] *Cf. Jacob Siegel Co. v. FTC*, 327 U.S. 608, 609-12 (1946) (holding that the Commission may order a firm to desist completely from using a proprietary trade name in the consumer protection context when necessary to eliminate harm, and remanding for such determination).

The Commission recognizes and has exercised its authority to enjoin patent enforcement efforts in an antitrust case: "The patentee may take proper measures to protect the nature and scope of his grant, but nothing is clearer than the fact that lawful means are capable of being used to achieve unlawful ends. When the fact of such an abuse is proven in a proper case, it is the duty of the Commission and the courts to fashion a remedy that will effectively terminate it." *In the Matter of Roberts Co.*, 56 F.T.C. 1569, 1960 WL 64436 (1960) (enjoining respondents from threatening to bring infringement suits, for the purpose of restraining or eliminating competitors who have not practiced the invention claimed by the patent).

The Commission also has stated that it has the authority to order the relief requested in this case. *See Unocal Noerr Opinion*, 2004 FTC LEXIS 115. In its opinion in this matter, the Commission stated that it understood that "the remedy sought" here requires that "Unocal cease and desist from enforcing its RFG patents on gasoline sold in, or imported or exported to or from California." *Id.* at *105. The Commission then affirmed its jurisdiction to hear this case, explaining that it has broad power to hear and "prevent" unfair methods of competition. *Id.* at *117. Citing Supreme Court precedent, the Commission stated that it has "adequate powers to hit at every trade practice, then existing or thereafter contrived, which restrained competition . . . ." *Id.* at *117-18 (citing *FTC v. Cement Inst.*, 333 U.S. 683, 693 (1948)).[114]

In this regard, the Commission was simply following its own precedent. In *Dell Computer Corp.*, the Commission explicitly stated that it may order a patent holder to cease and desist enforcing its patents against parties seeking to practice an industry standard. 121 F.T.C. 616, 1996 WL 33412055 (1996) (Statement of the Federal Trade Commission accompanying consent order). As in the present case, the complaint in *Dell* asserted that a respondent abused a standard-setting

[114] The Court noted that in enacting the FTC Act, Congress gave the Commission a broad mandate to halt unfair competition in all forms "then existing or thereafter contrived, which restrained competition or might lead to such restraint." 333. U.S. at 693.

process by misleadingly representing that it had no proprietary rights in its technology, while nevertheless obtaining and seeking to enforce patents on that technology. *Id.* at 623-24. The respondent agreed to a consent order, and the Commission issued a statement accompanying the consent that specifically authorized relief prohibiting the respondent from enforcing its patents against those using the standard. *Id.* at 623-25. This is precisely the relief sought here. Proposed Order Section IV.

The Commission carefully explained in *Dell* why it has the authority, in a proper antitrust case, to order a firm to cease enforcing its patent, in carefully circumscribed circumstances, in order to remedy a violation. *Dell Computer Corp.*,121 F.T.C. at 624-25. It reasoned under general antitrust remedial principles that this remedy would be necessary to assure that the "the competitive process is not harmed." *Id.* It also relied on patent cases precluding patent holders from enforcing patents under the doctrines of equitable estoppel and implied license. *Id*. at 624, 625 n.3-5. The same explanation offered in *Dell* governs the instant case as well.

b. Authority Based on Patent Doctrines

In patent cases, courts and agencies routinely bar patentees from enforcing presumptively valid patents under the doctrines of equitable estoppel, implied license, and patent misuse. As the Commission stated in *Dell*, these patent doctrines can provide support for legal relief under antitrust principles in standard-setting cases. *Dell Computer Corp.*,121 F.T.C. at 624, 625 n.3-5.

(1) Equitable Estoppel

Equitable estoppel bars a patentee from enforcing its patent against a party where (1) the patentee "through words, conduct or silence" misleadingly communicates that it will not use the patent to disturb the party, (2) the party relies on that communication, and (3) the party would be harmed if the patentee is later permitted to assert an infringement claim. *See, e.g., A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041-42 (Fed. Cir. 1992) (en banc). The courts

have applied this doctrine to bar patentees who have abused standard-setting processes from asserting infringement claims. For example, in *Stambler v. Diebold, Inc.*, the Federal Circuit affirmed a district court's decision estopping a patentee from enforcing its patent relating to an ATM card validation system when the patentee failed to disclose the existence of the patent to a standards-setting committee. 11 U.S.P.Q.2d 1709, 1714-15, 1988 WL 95479, at *5-*6 (E.D.N.Y. 1988), *aff'd mem.*, 878 F.2d 1445 (Fed. Cir. 1989) (unpublished). The court held that the patentee's silence was misleading because it "could not remain silent while an entire industry implemented the proposed standard and then when the standards were adopted assert that his patent covered what manufacturers believed to be an open and available standard." 1988 WL 95479 at *6; *see also Potter Instr. Co. v. Storage Tech. Corp.*, 1980 U.S. Dist. Lexis 14348 at *17-*18 (E.D. Va. 1980), *aff'd*, 641 F.2d 190 (4th Cir. 1981) (applying estoppel to dismiss infringement claims based on the patentee's failure to disclose patent to standard-setting body).[115] In addition, courts have routinely applied equitable estoppel to bar enforcement of patent claims in contexts other than abuses of standard-setting procedures.[116]

[115] The Fourth Circuit affirmed *Potter* without reaching the equitable estoppel issue, but indicated that it would be inclined to uphold the estoppel decision. 641 F.2d at 192.

[116] *See e.g., ABB Robotics, Inc. v. GMFanuc Robotics Corp.*, 52 F.3d 1062, 1064 (Fed. Cir. 1995) (affirming summary judgment dismissing infringement action based on estoppel); *Adelberg Labs., Inc. v. Miles, Inc.*, 921 F.2d 1267, 1273-74 (Fed. Cir. 1990) (same); *Scholle Corp. v. Blackhawk Molding Co., Inc.*, 133 F.3d 1469, 1471-73 (Fed. Cir. 1998) (same); *see also Gen. Motors Corp. v. Gen. Electric Co.*, 275 F. Supp. 2d 850, 858-59 (E.D. Mich. 2003) (denying patentee's motion for a preliminary injunction on the grounds that competitor was likely to prevail on equitable estoppel defense); *Stryker Corp. v. Zimmer, Inc.*, 741 F. Supp. 509, 512-15 (D.N.J. 1990) (holding on summary judgment that a patentee was estopped from asserting an infringement claim where it had "with knowledge of the alleged infringing activity, do[ne] nothing over a period of years other than mislead a purported infringer and those who have gone before to believe that there was and is no problem, lying in wait until it has become 'commercially and economically worthwhile' to do something . . . ."); *Forest Labs., Inc. v. Abbott Labs.*, 1999 U.S. Dist. WL 33299123, at *2, *21-*27 (W.D.N.Y. 1999) (granting post-trial judgment dismissing infringement claims based on equitable estoppel, where, among other things, the patentee encouraged its competitor to develop the infringing product); *Nordek Corp. v. Garbe Iron Works, Inc.*, 1982 U.S. Dist. WL 147, at *3-*5 (N.D. Ill. 1982) (granting estoppel summary judgment motion).

(2) Implied License

The implied license doctrine in patent law signifies a patentee's waiver of the statutory right to exclude others from making, using, or selling the patented invention. *Wang Labs., Inc. v. Mitsubishi Elec. Am., Inc.*, 103 F.3d 1571, 1580 (Fed. Cir. 1997). An implied license is established by "[a]ny language used by the owner of the patent, or any conduct on his part exhibited to another from which that other may properly infer that the owner consents to his use of the patent in making or using it, or selling it, upon which the other acts . . . ." *De Forest Radio Tel. Co. v. United States*, 273 U.S. 236, 241 (1927).[117] In the standard-setting context, the courts have held that an implied license barred a patentee's infringement action when the patentee had presented its technology to a standard-setting body, did not disclose pending patent applications on that technology, and yet encouraged the adoption of the technology as the standard. *Wang Labs., Inc. v. Mitsubishi Elecs. Am., Inc.*, 103 F.3d 1571, 1575-76, 1581-82 (Fed. Cir. 1997) (affirming denial of judgment as a matter of law after jury verdict finding an implied license).[118] Other courts, including the Court of Federal Claims (a non-Article III court), also have prevented patentees from enforcing their patent claims based on an implied license. *See, e.g., De Forest Radio Tel. Co.*, 273 U.S. at 241 (affirming dismissal of infringement suit based on implied license defense); *AMP, Inc. v. United States*, 182 Ct. Cl. 86, 389 F.2d 448, 450-54 (1968) (finding an implied license on the grounds that a license to an idea, regardless of its patentability, included a license to a patent stemming from that idea).

[117] An implied license may arise by equitable estoppel. *See Wang Labs., Inc.*, 103 F.3d at 1580; *see also* 6 Ernest B. Lipscomb III, *Walker on Patents*, 20:16 at 39 (3d. ed. 1985).

[118] The patentee's receipt of consideration for the implied license may also be an element of the implied license defense. The Federal Circuit so held in *Wang*, and further held that the benefits that Wang received by way of the adoption of its design as the standard constituted such consideration. *Id.* at 1579-80. The evidence in the case at bar will show that, like Wang, Unocal received benefits, including increased flexibility to blend and refine its own gasoline, by virtue of CARB's adoption of its technology as the industry standard.

(3) Patent / Copyright Misuse

Courts and agencies further hold patents unenforceable for patent misuse, a defense to patent infringement that springs from the doctrine of unclean hands. *B. Braun Med., Inc. v. Abbott Lab.*, 124 F.3d 1419, 1427 (Fed. Cir. 1997); *see, e.g., Morton Salt Co.*, 314 U.S. at 491-94 (denying patent infringement relief to patentee because of its misuse in tying sales of unpatented products to a patent license); *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661, 670 (1944) (denying relief to patentee based on misuse). The misuse doctrine restrains patentees' conduct "deemed to be contrary to public policy" that draws "anticompetitive strength" from the patent right, and has been held to include practices that unduly broaden patent scope, such as certain forms of tying and patent pooling. *B. Braun Med., Inc.*, 124 F.3d at 1427.[119] A finding of patent misuse renders a patent unenforceable until the misuse is purged. *Id.* The power to impose this remedy for misuse extends to agencies and non-Article III tribunals. *See, e.g., In the Matter of Certain Recordable Compact Discs and Rewritable Compact Disks*, 2004 WL 1435791 (2004), USITC Inv. No. 337-TA-474, Pub. No. 3686, *appeal docketed, U.S. Philips Corp. v. Int'l Trade Comm'n*, No. 04-1361 (May 10, 2004) (holding patents unenforceable for patent misuse for patent pooling).[120]

c. Compulsory Licensing Antitrust Remedies

Finally, although Unocal may contend otherwise, a line of cases bearing on courts' authority to order compulsory universal royalty-free licensing as an antitrust remedy is inapposite to the Commission's authority to order relief in this case. *See, e.g., Hartford-Empire Co. v. United States*, 323 U.S. 386, 413-17 (1945). The relief sought in such cases required the respondent to issue

[119] *See also Morton Salt Co.*, 314 U.S. at 491-94; *Mercoid Corp.*, 320 U.S. at 670; 35 U.S.C. § 271(d) (limiting the misuse doctrine with respect to contributory infringement and certain licensing and tying practices by requiring the patentee to have market power in the relevant markets).

[120] While the patent-holder in *Philips* is appealing the ITC's misuse determination, it has not challenged the ITC's authority to hold the patent unenforceable. Brief for Appellant, *U.S. Philips Corp. v. Int'l Trade Comm'n*, No. 04-1361 (Aug. 20, 2004).

royalty-free licenses to its patents to "any" and all applicants, essentially rendering the patents worthless. *See, e.g., id.* at 413-16 (stating that such a remedy might constitute a forfeiture).

The proposed remedy at issue here is not tantamount to a universal royalty-free license (or public dedication of its patents) because it only enjoins Unocal from enforcing its RFG patents to extract monopolistic royalties from parties who seek to make, sell, distribute or use gasoline for the CARB summertime market. Proposed Order at IV. Unocal would be free to continue to enforce, or license, the patents at issue at a rate of its choosing, to entities making, selling, distributing or using any infringing gasoline other than CARB-compliant summertime gasoline.

Moreover, cases such as *Hartford-Empire* are not on point because they do not address the anticompetitive conduct at issue here: deceptive statements by the patentee to the industry that a patent would not be obtained on the relevant technology or would not be enforced. *See, e.g., Hartford-Empire*, 323 U.S. at 400 (addressing anticompetitive conduct of restrictive cross-licenses and patent acquisition); *United States v. Singer Mfg. Co.*, 231 F. Supp. 240, 244 (S.D.N.Y. 1964),[121] on remand from *United States v. Singer Mfg. Co.*, 374 U.S. 174, 175, 189-93 (1963) (same). The antitrust harm in such other cases was capable of being remedied without requiring the patentees to provide their technology without charge to the industry. *Id.*

Here, the only way to eliminate the effects of Unocal's anti-competitive conduct of causing the industry to rely on its assertion that its technology would be available without charge is to keep Unocal at its word. The evidence shows that the reasonable (or competitive) royalty in this case is zero. *See, e.g., United States v. Nat'l Lead Co.*, 332 U.S. 319, 349 (1947) ("[I]t may well be that uniform, reasonable royalties computed on some patents will be found to be but nominal in value. Such royalties might be set at zero. . . "); *cf. United States v. Glaxo Group*, 410 U.S. 52, 62 (1973)

[121] The *Singer* district court equated a royalty-free license with a complete injunction on any enforcement of patents, a remedy that is not at issue here. 231 F. Supp. at 243.

(requiring patent holder to "grant patent licenses at reasonable-royalty rates to all bona fide applicants in order to 'pry open to competition' . . . [in a] market that 'has been closed by defendants' illegal restraints.'" (citations omitted)).[122]

B. The Proposed Remedial Provisions Are Carefully Tailored to Restore Competition and to Prevent Further Harm to Consumers

In light of the Commission's "wide discretion," its "choice of a remedy" will be upheld so long as it bears a "reasonable relation to the unlawful practices found to exist." *Jacob Siegel Co.*, 327 U.S. at 613. The remedies proposed in this case easily satisfy that standard. As has been shown, Unocal violated Section 5's prohibition against unfair competition by engaging in a pattern of deceptive conduct that has given its entire portfolio of RFG patents market power that it would not otherwise have, enabling the company to command supra-competitive royalty rates and licensing fees to the detriment of consumers of summertime CARB-compliant gasoline. The proposed remedies are narrowly tailored to redress Unocal's unlawful acquisition of market power, and they are appropriately designed to protect refiners and consumers in California from further harm and to avert a repetition of this type of anticompetitive conduct.

Unocal's portfolio of RFG patents provides the vehicle through which it is able to exercise market power and harm competition and, ultimately, consumers. The proposed remedial provisions target the enforcement of that portfolio in the relevant markets only. They limit the patents' enforceability only with respect to gasoline refiners that must comply with the CARB summertime regulations (that is, gasoline that is sold in California, imported into the state, or exported out of it).

---

[122] Nevertheless, even if a universal royalty-free license were at issue here, precedent supports the Commission's authority to issue such a remedy. *See United States v. General Elec. Co.*, 115 F. Supp. 835, 843-46 (D. N.J. 1953) (mandating royalty-free licensing / dedication of patent to public); *Nat'l Lead*, 332 U.S. at 349-51 (stating that a reasonable royalty rate might be set at zero depending on the facts of the case); *In re American Cyanamid Co.*, 72 F.T.C. 623, 1967 FTC Lexis 43, *150-52 (1967) (stating that the Commission has the authority to order royalty-free licensing), *aff'd. sub nom. on other grounds*, *Charles Pfizer & Co. v. FTC*, 401 F.2d 574 (6th Cir. 1968).

So limited, the remedial provisions clearly have a rational relationship to Unocal's unlawful practices and the parties injured by those practices. Refiners of summertime CARB-compliant gasoline stand to be injured by Unocal's anticompetitive conduct, whether they are in California or elsewhere.

The proposed relief is not only circumscribed in scope but also forward-looking. It does not seek to divest Unocal of the tens of millions of dollars of supra-competitive royalties and licensing fees that Unocal has already collected. Rather, the relief seeks only to stop Unocal from engaging in existing or new activities to collect any additional amounts. Such relief is consistent with the Commission's responsibility to protect purchasers of Unocal's technology – and, ultimately, consumers of CARB-compliant gasoline – from further harm.

To the extent that the proposed remedies prevent Unocal from collecting future monopoly revenues attributable to infringing gallons of CARB-compliant gasoline, that is no different from the many cases in which the Commission has imposed limits on a guilty party's prospective economic advantage. In the words of the Supreme Court, "those caught violating the Act must expect some fencing in." *Nat'l Lead Co.*, 352 U.S. at 431. The "fencing in" contemplated by the proposed remedy involves no forfeiture of Unocal's patent rights. The proposed remedy would affect neither the ownership, nor the validity of Unocal's patents. As noted, Unocal would retain the millions it has previously collected, and it would remain free to enforce its patent rights outside of the relevant markets.

The proposed remedy simply makes a reasonable effort to restore the competitive conditions that would have existed had Unocal not been deceitful. As Professor Shapiro explained, there is no straightforward and reliable way to re-create the competitive conditions and royalty rates, if any, that would have existed in the hypothetical world of no deception. Nor is there any legal obligation for the Commission to undertake that difficult and ultimately futile endeavor in order to ensure that it

fully protects a wrongdoer's interests. Under these circumstances, it is proper to rely on Unocal's representations that its technology was "non-proprietary" and "available" royalty-free as a reasonable benchmark for the competitive royalty rate at the time in question. (CX 1799A at 016).

Moreover, as Professor Shapiro emphasized, to devise a *post hoc* reasonable royalty would create an incentive for deception. Under such an approach, there would be no downside to engaging in deceptive conduct. Even if caught and prosecuted successfully, the deceiving party at worst would receive the benefits that it would have reaped had it behaved properly. (CX 1799A at 018 (Shapiro Rebuttal Report) ("[f]ollowing this approach would make lying a no-lose proposition in virtually any bidding situation.")). Moreover, the wrongdoer would be able to pocket any supra-competitive royalties collected in the interim.

Complaint Counsel's Proposed Order is narrowly tailored to remedy Unocal's violations of Section 5. Indeed, it is narrower than the provisions of the Notice of Contemplated Relief approved by the Commission on March 4, 2003.

Section I of the Proposed Order lists definitions. The most important of these definitions are I.B. "Action", I.C. "License Agreement", I.E. "Relevant U.S. Patents", and I.F. "Warmer Weather CARB Gasoline."

"Actions" encompass lawsuits or other actions, including legal, equitable, and administrative undertakings, as well as arbitration, mediation, or other forms of private dispute resolutions worldwide. "Actions" also includes threats of prosecution or assertion of affirmative defenses as well.

"License Agreements" cover contracts, agreements, arrangements or other understandings between Unocal and any other party or parties that requires or contemplates payment of fees, royalties, or other compensation associated with the manufacture, sale, distribution, or use of "Warmer Weather CARB Gasoline".

"Relevant U.S. Patents" cover any patents that claim priority back to the patent application that led to the '393 patent, originally filed on December 13, 1990, and any other U.S. patent application filed by or on behalf of Unocal before January 31, 1995. This definition is drafted to include any Unocal patent that derives from a patent application pending between the time that Unocal misled CARB and the industry into thinking that they could use Unocal's research results free of patents or royalties, and the time when Unocal finally corrected its misrepresentation by announcing that it had a patent that it intended to enforce covering its technology. This definition carves out, and thus leaves Unocal free to enforce against CARB summertime gasoline or any other gasoline, any Unocal patent with a priority date after January 31, 1995. This definition is fully consistent with the terms of the Notice of Contemplated Relief issued by the Commission on March 4, 2003.

"Warmer Weather CARB Gasoline" strictly limits the scope of the Proposed Order to the gasoline under CARB regulations that complies with "summertime" standards. The definition includes gasoline that meets CARB standards for sale in California, including gasoline imported into or exported out of California. This also includes gasoline splash-blended at a terminal (CARBBOB), as defined under CARB regulations.

The primary operative provisions of the Proposed Order are Sections II and III. Section II of the Proposed Order would require Unocal to cease and desist any and all efforts undertaken, and not to undertake new efforts, to bring Actions against alleged infringers of its Relevant U.S. Patents with respect to Warmer Weather CARB Gasoline. Section II would also require Unocal to dismiss with prejudice all prosecutions and affirmative defenses within 30 days of the Order becoming final.

Section III of the Proposed Order would require Unocal to cease and desist collection of fees, royalties or other payments in kind of the manufacture, sale, distribution or use of any Warmer Weather CARB Gasoline, including pursuant to any License Agreement. These provisions are fully

consistent with paragraphs 1, 2, and 3 of the Notice of Contemplated Relief issued by the Commission on March 4, 2003.

These provisions are necessary to restore competition in both the Technology Market and the CARB Gasoline Market. These provisions would return the markets to the competitive benchmark based on observed, real-world *ex ante* competition. (CX 1799A at 029-030). In the absence of these provisions, consumers will continue to suffer economic harm. Absent these provisions, Unocal is likely to impose future royalty costs on refiners, (CCPF 2693-97, 2711-15, 2720-21). A large portion of these costs would, in the absence of the provisions in Sections II and III of the Proposed Order, be passed on to consumers. (CCPF §§ XXVIII, XXIX).

Section IV of the Proposed Order would require Unocal to distribute a copy of the Order, within 30 days of final entry of the Order, to anybody it has contacted or taken Action against regarding the Complaint and the Relevant Patents, as well as anybody from whom it has collected or threatened to collect fees, royalties or other payments. Within ten days of final entry of the Order, Section IV would require Unocal to distribute a copy of the Complaint and Order to each officer and director, and to each employee and agent having managerial responsibility for Unocal's obligations under the Order. For a period of five years, Section IV would further obligate Unocal to provide a copy of the Complaint and Order to each new officer and director, each new employee and agent having managerial responsibility, and each employee and agent who has responsibility for the Order. These provisions are standard in Commission orders. They are necessary to ensure that the individuals with responsibility for implementing the Order, their superiors, and individuals or companies most likely to be impacted by Unocal's conduct have first-hand knowledge of the issues involved in this matter and Unocal's obligations under the Order. This in turn helps to ensure that the Order will be properly and completely implemented.

Section V of the Proposed Order would require standard compliance reports from Unocal,

both 60 days after final entry of the Order, and annually for a five-year period following final entry of the Order. Section VI contains standard record-keeping requirements, and a standardized provision to enable duly authorized representatives of the Commission access to inspect such records and books. Section VII contains a standardized provision requiring Unocal to give the Commission at least 30 days prior notice prior to a dissolution, acquisition, merger or consolidation. Moreover, any other change in the Unocal corporate structure that might affect compliance obligations related to assignment, creation or dissolution of subsidiaries also triggers the 30-day reporting requirement described in this section. These provisions are also standard in Commission orders. They serve to ensure that, if necessary, Commission staff can investigate to verify that the Order is properly and completely implemented.

Finally, Section VIII of the Order contains the standard 20-year sunset provision. Complaint Counsel respectfully requests that the Order in this case issue and remain in effect for 20 years. Pursuant to the Policy Statement Regarding Duration of Competition and Consumer Protection Orders, 60 Fed. Reg. 42,569 (August 16, 1995), the Commission has adopted a policy for administrative cease and desist orders to terminate after 20 years.[123]

The record evidence supports the 20-year period for retention of the Proposed Order. California remains subject to specific emissions requirements under the federal Clean Air Act requirements. California law also requires California to maintain emissions standards for summertime gasoline. There is every indication that California will have no choice but to continue to require use of CARB summertime gasoline in future years. Similarly, Unocal's patents covering the results of the 5/14 Project will not expire for years. Thus, absent the Proposed Order, Unocal will continue to have the power (resulting from its misrepresentations and deceptive conduct) to

[123] The Commission adopted a policy to sunset competition orders after 20 years on September 1, 1994. 59 Fed. Reg. 45,286 (1994).

extract monopoly profits for many years in the future. Therefore, public interest dictates that the provisions of the Order remain at the 20-year standard period used by the Commission.

CONCLUSION

Unocal obtained its monopoly position through lies and deceit. As established at trial, this conduct violated Section 5 of the FTC Act. Unocal now stands poised to claim its "pot of gold" and extract – by its own estimates – over $1 billion in monopoly profits. But Unocal cannot rationalize its deceptive and exclusionary conduct as just "business." Nor can Unocal's skullduggery lay valid claim to *Noerr* protection. Accordingly, Complaint Counsel respectfully request Your Honor enter the Proposed Order and put a halt to the harm Unocal is inflicting on California consumers.

Susan A. Creighton
Director

Bernard A. Nigro
Deputy Director

Geoffrey Oliver
Assistant Director

Patrick Roach
Deputy Assistant Director

Chong S. Park
Sean Gates
Lore Unt
Peggy Bayer Femenella
Lisa Fialco
Dean Graybill
John Roberti
David Conn
Counsel Supporting the Complaint

Thomas Krattenmaker
Office of Policy & Coordination

John T. Delacourt
Office of Policy Planning

Bureau of Competition
FEDERAL TRADE COMMISSION
Washington, D.C. 20580

Dated: March 9, 2005