EXECUTIVE SUMMARY

PUBLIC ATTITUDES TOWARD PETROCHEMICAL DEVELOPMENT IN ALASKA

prepared for

State of Alaska
Department of Environmental Conservation

by

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August 1981

On September 9, 1980, Governor Jay Hammond announced the selection of a group of companies headed by Dow Chemical Company U.S.A. and Shell Chemical Company to study the economic feasibility and environmental compatibility of a petrochemical industry in Alaska based on gas liquids. At that time the Governor also announced that the State would sponsor an independent study to inform the Alaskan public about the potential form and effects of petrochemical development and to seek and document Alaskan's attitudes, expectations, and concerns regarding the development of a petrochemical industry in Alaska.

The Alaska Department of Environmental Conservation (DEC) solicited proposals for the state study in January 1981. Following a review of submitted proposals, DEC selected the Institute of Social and Economic Research (ISER) of the University of Alaska to perform the work. This is a summary of the ISER study.

Study Components

The ISER study consisted of four major tasks:

1. To develop a description of the form and effects of an Alaska petrochemical industry.

2. To assess the attitudes and concerns of representative samples of the Alaskan public in six areas under consideration for a petrochemical development and of the statewide Alaskan public.

3. To design, produce, and conduct a statewide public information program.

4. To elicit public attitudes and concerns via public meetings, a telephone hotline, and by mail.

Development of Information

We developed a description of petrochemical development in order to provide the public with a preliminary basis upon which they might evaluate the costs and benefits of petrochemical development according to their own values. Neither we nor the State intended the information to represent the depth or scope of analysis required if a specific development proposal were made to the State. Rather, the purpose of the study was to assess public attitudes before a specific proposal is made and prior to negotiations to sell the State's royalty gas liquids.

We developed most of the information presented to the Alaskan public during this study independently of the Dow-Shell Group. We did, however, use the Dow-Shell Group's estimates as of March 8, 1981, of natural gas liquid volumes, product volumes, power and shipping requirements, and site locations as a starting point for our work.

Given the timing of the study, much of the information necessary to make firm projections of environmental, economic, and social impacts was not available. In addition, the information development phase of the ISER project was limited to three weeks in order to complete the public involvement phases of the study before the Alaskan public became preoccupied with summer activities. Therefore, our description of petrochemical development should be viewed as preliminary and incomplete. To the extent that further information raises new issues or significantly changes how the issues we have addressed should be treated, public attitudes and concerns may change as well.

The same description was used in the survey; in the television, radio, and newspaper documentaries; in the public meeting slide presentations; and in packets mailed to telephone hotline callers. Therefore, a meaningful interpretation of the results must rest on a review of the description which appears in Chapter Two of the full report.

Representative Assessment of Public Attitudes

A central objective of this study is to provide a representative assessment of the attitudes and concerns of all Alaskans regarding petrochemical development. In addition, the Governor has stressed that local acceptance is necessary for the State to encourage petrochemcial development. Representative assessments of the attitudes and concerns of residents in each of the six areas being considered for development are, therefore, also needed.

The only feasible way to obtain a representative assessment of public views on such a complex issue is to insure that adults in the populations of interest have a known chance of being selected to be a respondent in a personal interview. It is then possible to personally inform representative samples of Alaskans about the likely form and effects of petrochemical development and to assess their views based on the information provided as well as their own knowledge and values.

We designated nine target populations for the survey:

1. Valdez
2. Kenai, Soldotna, Nikiski
3. Seward
4. Remainder of the Kenai Borough
5. Fairbanks North Star Borough
6. Anchorage Municipality
7. Matanuska-Susitna Borough
8. Remainder of the State
9. Statewide

The survey results are based on 743 personal interviews conducted between April 15 and June 22, 1981. A summary of the survey sample and maximum estimated sampling errors appears in the following table.

Sample Design and Actual Sample Statistics

Region	Desired Number of Interviews	Actual Number of Interviews	Response Rate	Estimated Maximum Sampling Error
Statewide	670	743	74%	± 8%
Valdez	100	132	75%	± 8%
Fairbanks North Star Borough	100	113	76%	±10%
Kenai	50	50	70%	±14%
Seward	50	52	88%	±14%
Mat-Su Borough	100	119	66%	± 8%
Anchorage Municipality	150	156	79%	± 8%
Remainder of Kenai Borough	50	51	68%	±14%
Remainder of State	69	70	68%	±12%
Southwest				
Kodiak	7	8		
Bethel	4	4		
Eek	6	6		
Southeast				
Juneau	11	11		
Ketchikan	10	9		
Wrangell	3	4		
Hydaburg	6	6		
North/Northwest				
Kotzebue	4	4		
Noatak	4	3		
Wainwright	4	5		
Interior/Southcentral				
Nikolai	4	4		
Evansville	3	3		
Copper Center	3	3		

Major conclusions drawn from the survey are as follows:

- Most Alaskans want to know more about petrochemical development and want to take part in decisions concerning such development.

- Most people do not identify one overriding reason for choosing to live in Alaska. Rather, they see Alaska and their community as offering combinations of opportunities that may well be hard to find elsewhere in the country.

- Most Alaskans favor more growth and development, even in communities such as Anchorage where most residents perceive they already have economic opportunities.

- Alaskans tend to prefer jobs related to renewable resource industries such as agriculture, fishing, tourism, and recreation; but most welcome oil- and gas-related employment as well.

- Without petrochemical development, most Alaskans do not expect personal job opportunities to increase in their communities in the next ten years. In Seward and the Mat-Su Borough, most residents would like economic opportunities such as earning a high income, obtaining long-term employment, and obtaining a challenging job; but about half of the residents in these two areas believe such opportunities are not currently available.

- A third to a half of the residents of communities being considered for petrochemical development think that personal job opportunities will increase rapidly if such development occurs in their area.

- Most residents in the six study areas expect the local population to rapidly increase with petrochemical development which, in their view, is a mixed blessing.

- Many also expect increases in air and water pollution, in the distance one must go to find good hunting and fishing, in the distance one must travel to find outdoor recreation activities, and in the cost of living.

- After being informed about petrochemical development, a majority of a representative sample of Alaskans statewide thought the State should encourage such development.

- The same informed sample of State residents also said the State should pay special attention to concerns related to the transportation of chemicals, public health, air and water quality, and solid waste disposal.

- Most residents in Valdez and Fairbanks think their community would be a better place to live with petrochemical development. Seward residents probably feel the same way, but our survey sample is too small to be sure. Residents in Mat-Su and Kenai expect their areas to change with petrochemical development but not significantly toward being better or worse places to live. Finally, more Anchorage residents think their community will be a worse place to live with petrochemical development.

- The majority of adults in Valdez, Fairbanks, Kenai, Seward, and the Mat-Su Borough want the State to encourage petrochemical development. Survey responses indicated 52 percent of the Anchorage population feels the same way, but potential errors due to sampling make it impossible to conclude whether a majority of Anchorage residents support petrochemical development in Alaska.

- A significant proportion (24 percent) of residents in Anchorage, Kenai, Seward, the Mat-Su Borough, and Valdez expect a decrease in employment related to fishing if petrochemical development occurs.

Public Information Program

Our mandate was to provide information about petrochemical development to the majority of interested Alaskans. To accomplish this objective, we produced information features for television, radio, and newspapers. In association with Connections, an Anchorage-based video and audio production house, we designed and produced five 90-second television mini-features. Each feature started with an introduction by Governor Jay Hammond and focused on one of five topics:

- What are petrochemicals?
- What would a petrochemical facility look like?
- What are the possible locations for petrochemical development?
- What employment would result?
- What would be the effects on health and the environment?

The television features were aired on five commercial television stations, the public television stations in Anchorage and Fairbanks, and the state satellite television network between May 31 and June 16, 1981. In association with the T.H. Reynolds Advertising Company, we placed seventy-one spots during early evening news broadcasts, prime time, and late news broadcasts in order to reach a maximum viewing audience. We estimate that the features placed on Anchorage and Fairbanks commercial stations were seen by a cumulative total of more than 600,000 households during that period, where a household is counted as many times as it received a broadcast. We cannot calculate how many of the approximately 100,000 separate households in the Anchorage and Fairbanks areas actually viewed the television features, but we believe the likelihood is high that the majority of households viewed at least one of the series.

Western Media Concepts, Inc., produced five radio documentaries, again based on the description contained in Chapter Two. Using a question and answer format, these aired on nine public and commerical radio stations in Interior and Southcentral Alaska from May 22 to June 15, 1981. We estimate a cumulative total of over one million radios received a broadcast. In addition to the commercial stations, public radio carried the documentaries, and both commerical and public stations carried public service announcements about the public meetings.

We prepared feature news stories including the description, diagrams, and pictures shown in Chapter Two and worked with newspapers in each of the areas being considered for petrochemical development to run the stories during the first two weeks of June. In addition, we released highlights of the survey findings immediately prior to the public meetings.

We logged 113 calls on the petrochemical hotline, which operated from 8 a.m. to 5 p.m. weekdays between June 1 and June 20, 1981. We attempted to send to each caller an information packet containing the description of petrochemical development; the Governor's September 9, 1980, speech on petrochemical development; and a short questionnaire. In addition, we recorded questions and opinions and answered as many questions as possible at the time of the call. Unfortunately, technical difficulties interfered with calls placed to the hotline from Anchorage telephones. We believe the hotline would have been far more effective if Alascom's zenith numbers had worked in the Anchorage area.

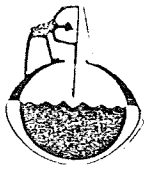
Public Meetings

The two principal objectives of the public meetings and the petrochemical hotline were to inform the interested public about petrochemical development and to enumerate the public's questions, concerns, and recommendations. The agenda and location of each of the six public meetings appear in the following table.

Over 1,000 Alaska residents participated in the public meetings, generating over 1,000 questions and 500 comments, questions, and recommendations. Our assessment of the distribution of public attitudes toward petrochemical development is not derived from the public meetings results; rather, it is based on the survey results reported earlier. The public meetings served the critical function of identifying the range of public concerns, opinions, and questions.

We designed the public meetings to provide the maximum amount of public input. Following the remarks reproduced above and a twenty-minute narrated slide presentation, we randomly assigned community residents to groups of approximately twenty people. In Fairbanks, Palmer, Anchorage, and Kenai, the local members of the League of Women Voters led the groups. In Seward and Valdez, we asked several community residents to moderate the small group sessions. In this way, the only participants in the small groups were local residents.

The full, final report contains both a summary and a complete enumeration of the questions, comments, and recommendations generated at the six public meetings. The following is a synopsis of major topics raised by the public.



INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA

STATE PETROCHEMICAL STUDY

SPRING 1981

AGENDA

Introductions By Moderator Lee Gorsuch, Director Institute of Social and Economic Research University of Alaska	7:00 - 8:00 p.m.
I. INFORMATION PROGRAM	
History of Petrochemical Project By Mary Halloran, Special Assistant for oil and gas matters to the Commissioner of the Department of Natural Resources, State of Alaska	
Slide Show and Narrative Prepared by ISER	
Environmental Concerns and Regulations Regarding Petrochemical Development By Glenn Akins, Deputy Commissioner Department of Environmental Conservation State of Alaska	
How Petrochemical Development Might Fit into Community's Overall Economic Development Plan By City or Borough Government Representative	
II. SMALL GROUP SESSION Citizens' questions, opinions, concerns, and recommendations	8:00 - 9:15 p.m.
III. RETURN TO GENERAL ASSEMBLY Answers to small groups' questions Summary reports from small group leaders	9:15 - 10:30 p.m.
Final Summary Hand in completed questionnaires	

Monday, June 8	Fairbanks, Ryan Junior High School
Tuesday, June 9	Palmer, Palmer High School Little Theater
Wednesday, June 10	Anchorage, Lucy Cuddy Center ACC Campus
Thursday, June 11	Valdez, City Council Chambers
Monday, June 15	Kenai, New City Hall
Wednesday, June 17	Seward, City Council Chambers

State Government (136 Questions)

- decision-making timetable and process
- available expertise and information to review Dow-Shell report
- role of public input in present and future decisions
- likelihood of state subsidies
- adequacy of state regulations

Local Government (65 Questions)

- position regarding petrochemical development
- site selection process
- conflicts with agriculture, recreation, land disposals
- location of taxable property
- ability to cope with new service demands
- plans for maintaining air quality

Dow-Shell (112 Questions)

- technical questions, including criteria for site evaluation
- intention to help local communities meet new service demands
- past corporate behavior, particularly with regard to meeting environmental regulations

Solid Waste (77 Questions)

- toxicity of incinerated waste and sludge
- adequacy of local land fill sites

Water Quality (71 Questions)

- impact on water supplies
- temperature and toxic effects

Air Quality (69 Questions)

- composition of emissions
- impact of reduced visibility on air traffic
- relative effects of direct plant emissions and indirect emissions due to increased population

Other Environmental Effects (54 Questions)

- noise
- unique problems posed by northern environment
- dredging difficulties, costs
- earthquake hazards
- difficulties in building causeways

Health (73 Questions)

- cancer risks
- monitoring responsibility

Transportation (68 Questions)

- potential conflicts with fishing boats
- likelihood of rail extensions
- method of transporting benzene from Interior
- adequacy of existing facilities and equipment
- general cost reductions

Safety (25 Questions)

- likelihood of being military target
- likelihood of fires and explosions
- legal and financial responsibilities

Resource Use (69 Questions)

- alternative uses of gas liquids
- necessity of immediate decisions
- effect of deregulation of natural gas

Employment (57 Questions)

- local hire
- training
- likelihood of increased unemployment due to in-migration

Relationships to Other Industries (43 Questions)

- likelihood of expansion and spinoff industries
- potential for heavy industrialization of Alaska
- potential impact on tourism and fishing

Other Economic Effects (75 Questions)

- allocation of service costs
- allocation of revenues
- effect on cost of living

Social Effects (55 Questions)

- impacts on housing, schools, medical care, traffic
- characteristics of in-migrants
- effect on distribution of political power
- likelihood of changing existing community character

DEC/ISER Study (20 Questions)

- survey methods
- sources for information

Most residents attending public meetings in Anchorage, Kenai, Seward, and Fairbanks were less supportive of petrochemical development than the corresponding representative sample of area residents. Palmer and Valdez public meeting participants tended to be more supportive than the respective survey samples taken in the Mat-Su Borough and in Valdez.

Recommendations

Under our contract with the state, part of our responsibility was to identify key issues of public interest and to recommend ways in which the state might address these issues. These recommendations

constitute part of the "scoping" process which precedes the preparation of an environmental impact statement and is intended to focus attention on issues of major public concern.

1. Both the public attending the six community meetings and the public participating in the survey repeatedly expressed an interest in continued opportunities to receive information of and participate in the decision-making process. Furthermore, the survey results of this study clearly demonstrate that public views concerning petrochemical development may change as more information becomes available. WE RECOMMEND THAT THE STATE REVIEW THE PUBLIC INVOLVEMENT PROCESS DESCRIBED IN THIS REPORT, REVISE THE DESIGN OF THE PROCESS AS THEY FEEL APPROPRIATE, AND ADOPT THE REVISED PROCESS AS AN INTEGRAL PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS ITSELF. WE ALSO RECOMMEND THAT THE STATE SEND A SUMMARY OF THIS REPORT AND THE STATE TECHNICAL GROUP REPORT TO THE PUBLIC MEETING AND SURVEY PARTICIPANTS.

2. Many public meeting participants also wanted assurances that the state would conduct an in-depth and independent analysis of the Dow-Shell report. Representatives of state agencies participating in this study responded that such an evaluation would take place. During our own work in preparing a description of petrochemical development, we found that the state currently does not possess the necessary expertise in some areas. In some other areas, the expertise exists but is committed to other tasks. WE RECOMMEND THAT THE STATE ASSEMBLE A TEAM OF INDIVIDUALS WHO CAN DEVOTE A MAJOR PROPORTION OF THEIR TIME TO A REVIEW AND AN ANALYSIS OF THE DOW-SHELL REPORT. MEMBERS OF THE TEAM WOULD INCLUDE A COMBINATION OF CURRENT STATE EMPLOYEES, NEW EMPLOYEES, AND CONTRACT STAFF. THE FOLLOWING AREAS OF EXPERTISE WARRANT REPRESENTATION ON THE REVIEW TEAM:

   - Economics of the petrochemical industry
   - Economics of gas liquids pipeline construction and operation
   - Facility engineering
   - Pipeline engineering
   - Chemical engineering
   - Marine transportation safety
   - Rail transportation safety
   - Truck transportation safety
   - Water quality
   - Air quality
   - Solid waste
   - Occupational safety

- Environmental medicine
- Manpower training
- Labor force economics
- Plant ecology
- Wildlife biology
- Municipal service

3. Our brief investigation of the health hazards associated with low-level exposures to benzene indicated that cancer risks to plant workers are small, but may not be negligable. At the same time, both the survey and public meeting results show that many Alaskans are concerned about the hazards of benzene. Basic research is required before definitive conclusions can be drawn and the prospects for national funding of such research are dim. WE RECOMMEND THAT THE STATE COMMISSION A PROFESSIONALLY RESPECTED RESEARCHER TO (1) REVIEW PAST AND CURRENT RESEARCH ON BENZENE-RELATED HEALTH HAZARDS, (2) REPORT ON THE KNOWN AND POTENTIAL RISKS POSED BY LOW-LEVEL EXPOSURES TO BENZENE, AND (3) IF WARRANTED ON THE BASIS OF THE REVIEW OF RESEARCH, ASSESS THE FEASIBILITY OF A STATE-SPONSORED BASIC RESEARCH PROGRAM DESIGNED TO ASSESS THE RISKS OF LOW-LEVEL EXPOSURES TO BENZENE.

4. Throughout the public meetings, individuals expressed concern that the Dow Chemical Company, in particular, and member companies of the Dow-Shell Group, in general, may not have conformed with environmental regulations. Because the companies have an economic interest at stake, their response to this concern, however accurate, may not be viewed as credible by those voicing concern. THEREFORE, WE RECOMMEND THAT THE STATE INDEPENDENTLY ASSESS THE RECORDS OF THE DOW-SHELL GROUP MEMBER COMPANIES.

5. Our description of petrochemical development indicated that accidents while transporting chemicals through urban and environmentally sensitive areas could occur, although we could not ascertain in the time available how likely or serious they might be. More than half of our survey respondents thought that the state, in studying a specific proposal for petrochemical development, should pay particular attention to the transportation of chemicals. Two areas of particular public concern are (1) health and safety hazards associated with the transport of benzene by rail or possibly by truck and (2) potentially adverse effects on fish of spills resulting from the marine transport of chemicals. WE RECOMMEND THAT THE STATE ADDRESS THESE CONCERNS BY IDENTIFYING RELEVANT TRANSPORTATION TECHNOLOGIES, THE

EXTENT TO WHICH THEY HAVE BEEN OR COULD BE APPLIED IN ALASKA, AND THE RISKS THAT SUCH APPLICATIONS MIGHT IMPOSE ON ALASKA'S POPULATION AND ENVIRONMENT.

6. Public concern was also expressed that petrochemical development may somehow adversely affect the fishing industry in Alaska. Recommmendation number five may address this concern in part, but the basis of public concern may also involve other relationships between the petrochemical industry and the fishing industry. WE RECOMMEND THAT THE STATE INVESTIGATE BOTH WHY MANY RESIDENTS BELIEVE PETROCHEMICAL DEVELOPMENT WILL DECREASE THE NUMBER OF JOBS RELATED TO FISHING AND WHETHER THEIR CONCERN IS WELL-FOUNDED.

7. In addition to concerns about the transportation of chemicals, survey respondents thought that public health, air quality, solid waste, and water quality are topics deserving special attention. WE RECOMMEND THAT THE STATE CONDUCT A COMPREHENSIVE REVIEW OF HOW PETROCHEMICAL DEVELOPMENT MAY AFFECT PUBLIC HEALTH, AIR QUALITY, SOLID WASTE IMPACTS, AND WATER QUALITY. THE PUBLIC COULD THEN BE TOLD WHICH CONCERNS ARE GROUNDLESS AND HOW THE STATE PLANS TO ADDRESS THE REMAINING CONCERNS.

8. Public support for petrochemical development appears to be primarily based on personal expectations of receiving employment benefits. In addition, many residents favor development because they assume other Alaskans will benefit from new employment opportunities. Although we have no reason to believe these assumptions are incorrect because they are asssumptions upon which a great deal of public support for petrochemical development is based, WE RECOMMEND THAT THE STATE EXAMINE (1) THE EMPLOYMENT EXPERIENCE OF OTHER AREAS IN WHICH PETROCHEMICAL DEVELOPMENT HAS OCCURRED AND (2) THE COMPETITIVE ADVANTAGES ALASKANS MAY OR MAY NOT HAVE WITH REGARD TO ACTUALLY OBTAINING JOBS CREATED BY PETROCHEMICAL DEVELOPMENT.

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Acknowledgments

More than fifty people worked directly on this project. We would like to acknowledge their contributions and the contributions of more than 1,500 Alaskans who participated in either the survey or one of the public meetings. We would also like to acknowledge the particular contributions of several members of the project team. Nan Elliot composed an effective and coherent description of petrochemical development despite the conflicting views and objectives surrounding that key task. She located excellent material for the public information program and supervised the production and placement of all media forms of information.

Virgene Hanna, with the able assistance of Carey Brink and Bobbie Ritchie, directed the statewide survey, adhering to an extremely difficult schedule and tight budget while, at the same time, insuring that the survey produced data of the highest quality.

Ellie Clifford arranged and rearranged the public meetings and provided the organizational skills we needed to hold six public meetings in ten days. We would also like to thank Dr. Louis York and members of the Stearns-Rogers staff who quickly produced cost and manpower estimates that caused Dick DeLine of Dow-Shell to jokingly question the necessity of the Dow-Shell Group's spending millions of dollars on the same questions. We believe that David Rychetnik of Connections produced outstanding material for our television spots. We also acknowledge the fine radio spots produced by Jim Buckley and David Harding of Western Media Concepts, Inc.

Elsa Aegerter provided excellent assistance as an interviewer and as the operator of our telephone hotline. Equally adept at facilitating public input was Lee Gorsuch, who moderated the six public meetings. We would also like to acknowledge the people who contributed to the task of transferring verbal and handwritten material into print: K.B. Bettisworth of Alaska Sound Labs, Helen Harrel of Business Support Services, and Lynne Coxon. Finally, we acknowledge Fred Ali, who served as contract manager during most of the project, for his ability to streamline the process of obtaining approvals and for his substantive input to the study itself.

Table of Contents

List of Tables

List of Figures

CHAPTER ONE

INTRODUCTION

On September 9, 1980, Governor Jay Hammond announced the selection of a group of companies headed by Dow Chemical Company U.S.A. and Shell Chemical Company to study the economic feasibility and environmental compatibility of a petrochemical industry in Alaska based on gas liquids. At that time the Governor also announced that the State would sponsor an independent study to inform the Alaskan public about the potential form and effects of petrochemical development and to seek and document Alaskan's attitudes, expectations, and concerns regarding the development of a petrochemical industry in Alaska.

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Organization of the Report

Chapter One provides an overview of the study and concludes with a summary of results. Chapter Two describes information developed and presented to the public, and Chapter Three documents how we conducted the survey of Alaskan's views concerning petrochemical development and describes the characteristics of those who participated in the survey. How Alaskans view changes in their community which might occur with or without petrochemical development is the subject of Chapter Four. In Chapter Five, we turn to how Alaskans expect their community to change without petrochemical development. Chapter Six uses the attitudes and expectations presented in Chapters Four and Five to assess Alaska's attitudes and expectations toward petrochemical development.

In Chapter Seven we leave our discussion of survey results to describe the public information program. Chapter Eight reports the results of the public meetings held in Valdez, Kenai, Seward, Palmer, Anchorage, and Fairbanks. Chapter Nine concludes the main body of the report with our evaluation of the study and our recommendations to the state regarding how the questions and concerns expressed by the public could be addressed.

The report includes four appendices, the most important of which are Appendices A and B. They exhaustively enumerate the public's questions, concerns, and recommendations. The length of these appendices should not deter the reader, but rather it underscores the public interest in the State's performing a detailed review of a broad range of issues surrounding petrochemical development.

Major Conclusions

- Most Alaskans want to know more about petrochemical development and want to take part in decisions concerning such development.

- Most people do not identify one overriding reason for choosing to live in Alaska. Rather, they see Alaska and their community as offering combinations of opportunities that may well be hard to find elsewhere in the country.

- Most Alaskans favor more growth and development, even in communities such as Anchorage where most residents perceive they already have economic opportunities.

- Alaskans tend to prefer jobs related to renewable resource industries such as agriculture, fishing, tourism, and recreation; but most welcome oil- and gas-related employment as well.

- Without petrochemical development, most Alaskans do not expect personal job opportunities to increase in their communities in the next ten years. In Seward and the Mat-Su Borough, most residents would like economic opportunities such as earning a high income, obtaining long-term employment, and obtaining a challenging job; but about half of the residents in these two areas believe such opportunities are not currently available.

- A third to a half of the residents of communities being considered for petrochemical development think that personal job opportunities will increase rapidly if such development occurs in their area.

- Most residents in the six study areas expect the local population to rapidly increase with petrochemical development which, in their view, is a mixed blessing.

- Many also expect increases in air and water pollution, in the distance one must go to find good hunting and fishing, in the distance one must travel to find outdoor recreation activities, and in the cost of living.

- After being informed about petrochemical development, a majority of a representative sample of Alaskans statewide thought the State should encourage such development.

- The same informed sample of State residents also said the State should pay special attention to concerns related to the transportation of chemicals, public health, air and water quality, and solid waste disposal.

- Most residents in Valdez and Fairbanks think their community would be a better place to live with petrochemical development. Seward residents probably feel the same way, but our survey sample is too small to be sure. Residents in Mat-Su and Kenai expect their areas to change with petrochemical development but not significantly toward being better or worse places to live. Finally, more Anchorage residents think their community will be a worse place to live with petrochemical development.

- The majority of adults in Valdez, Fairbanks, Kenai, Seward, and the Mat-Su Borough want the State to encourage petrochemical development. Survey responses indicated 52 percent of the Anchorage population feels the same way, but potential errors due to sampling make it impossible to conclude whether a majority of Anchorage residents support petrochemical development in Alaska.

- A significant proportion (24 percent) of residents in Anchorage, Kenai, Seward, the Mat-Su Borough, and Valdez expect a decrease in employment related to fishing if petrochemical development occurs.

- Most residents attending public meetings in Anchorage, Kenai, Seward, and Fairbanks were less supportive of petrochemical development than the corresponding representative sample of area residents. Palmer and Valdez

public meeting participants tended to be more supportive than the respective survey samples taken in the Mat-Su Borough and in Valdez.

- Public meeting participants generated over 1,000 questions and over 500 comments, concerns, and recommendations.

- Question topics included the role of state and local governments; specific Dow-Shell plans and past corporate behavior; environmental and health effects; transportation costs and hazards; use of natural resources; employment; effects of petrochemical development on other industries; local impacts on housing, schools, and other services; and the conduct of this study.

- Topics brought up during the meetings but not addressed in the survey included: Dow's record, effects of emissions on air traffic, the adequacy of state regulations, noise pollution, earthquake hazards, cost allocations for a proposed causeway to Fire Island, and the need for rapid transit improvements to avoid increases in air pollution that would otherwise accompany population increases.

- For recommendations resulting from the study, see Chapter Nine.

CHAPTER TWO

DEVELOPMENT OF INFORMATION

Information has been the cornerstone of the entire project. Each survey respondent heard or read exactly the same description of petrochemical development. Throughout the State, Alaskans watching television or listening to the radio saw and heard mini-features describing what petrochemicals are; where development might occur; and what environmental, economic, and social changes could be expected. The same information appeared in newspaper articles, public meeting slide presentations, and in packets mailed to telephone hotline callers. With one important exception discussed in Chapter Six, all of the public attitudes and concerns presented in this report reflect the public's views after being exposed to a brief but comprehensive description of petrochemical development. Therefore, a meaningful interpretation of the results must also rest on a review of the information provided to the public.

We developed a description of petrochemical development in order to provide the public with a preliminary basis upon which they might evaluate the costs and benefits of petrochemical development according to their own values. Neither we nor the State intended the information to represent the depth or scope of analysis required if a specific development proposal were made to the State. Rather, the purpose of the study was to assess public attitudes before a specific proposal is made and prior to negotiations to sell the State's royalty gas liquids.

Given the timing of the study, much of the information necessary to make firm projections of environmental, economic, and social impacts was not available. In addition, the information development phase of the ISER project was limited to three weeks in order to complete the public involvement phases of the study before the Alaskan public became preoccupied with summer activities. Therefore, our description of petrochemical development should be viewed as preliminary and incomplete. To the extent that further information raises new issues or significantly changes how the issues we have addressed should be treated, public attitudes and concerns may change as well.

Basic Assumptions

We developed most of the information presented to the Alaskan public during this study independently of the Dow-Shell Group. We did, however, use the Dow-Shell Group's estimates as of March 8, 1981, of natural gas liquid volumes, product volumes, power and shipping requirements, and site locations as a starting point for our work (see Table 1).

The Dow-Shell Group is studying the feasibility of two phases of petrochemical development. We chose to base our description primarily on the first phase since we judged the likelihood that the Dow-Shell

Table 1

Information Used From The Dow-Shell Group

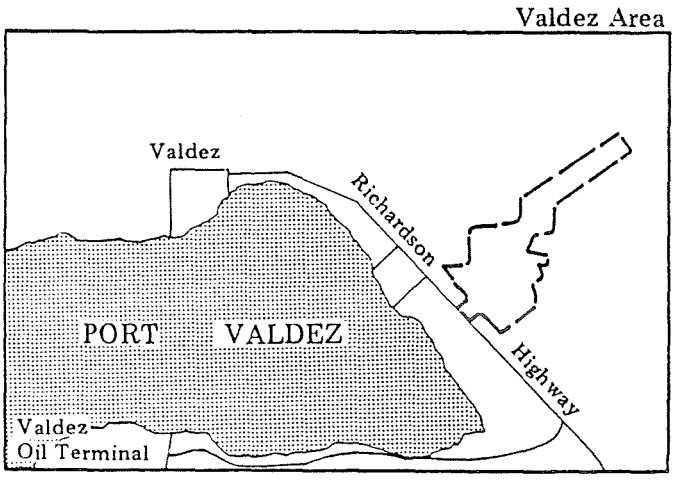
Natural Gas Liquid Volumes	Barrels Per Day
Ethane	90,000
Propane	61,000
Butane	34,000
Pentanes	21,000

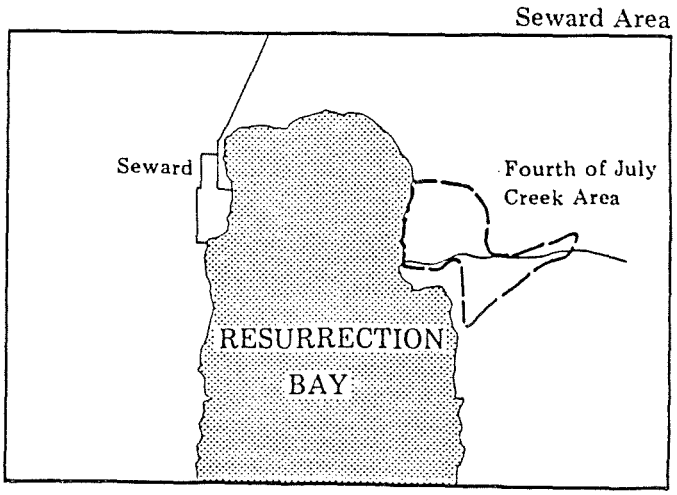
Product Volumes (Phase I)	Millions of Pounds per year
Ethylene (inter. product)	1,200
Ethyl benzene	1,500
Ethylene glycol	600
Polyethylene	400
Liquified petroleum gases	4,800
Ammonia	950
Urea	1,280
Methanol	4,000
Benzene (input)	970
Styrofoam *	not estimated as of March 8, 1981

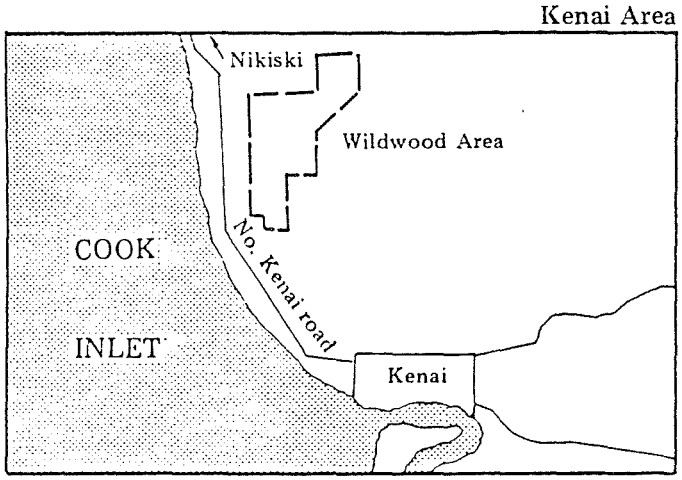
*Trademark of the Dow Chemical Co.

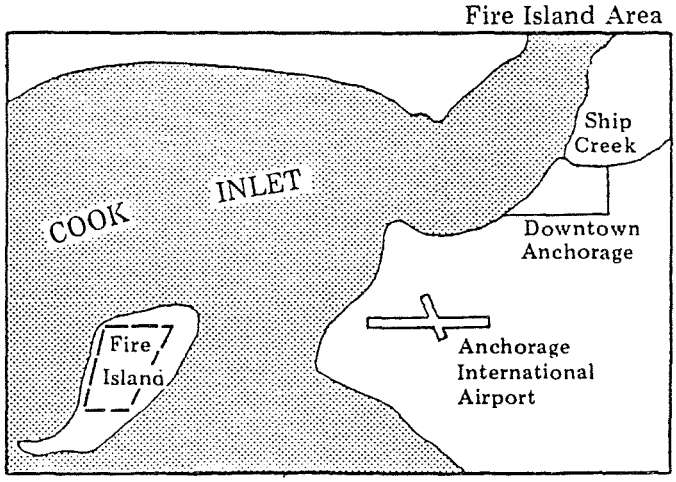
Site Locations

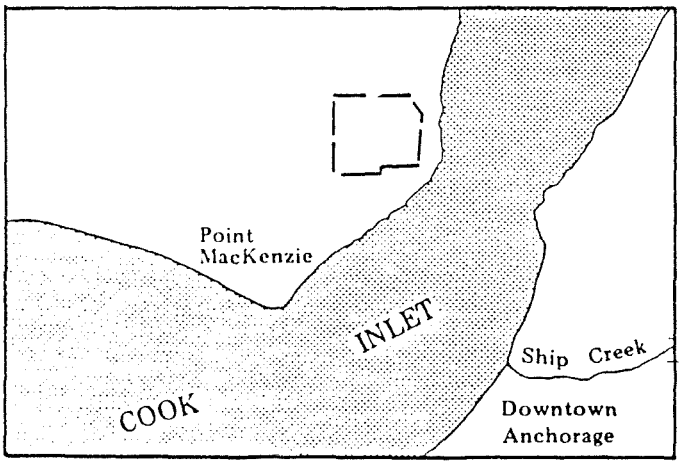
1. Valdez, at Glacier Stream Valley
2. Seward, east of town at the Fourth of July Creek area
3. Wildwood/Nikiski area north of Kenai
4. Fire Island, situated in the Cook Inlet, but within the boundaries of the Anchorage Municipality
5. Point MacKenzie, situated north of Anchorage across Knik Arm in the Mat-Su Borough
6. Bonanza Creek (now called Tanana River site), 30 miles southwest of Fairbanks

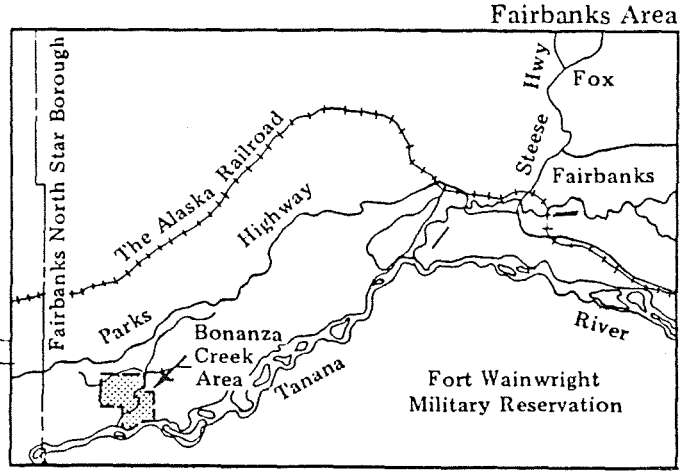












Power Requirements	70 megawatts per day
Shipping Requirements (Phase I)	150-250 ships per day

group could obtain enough gas liquids to proceed with the second phase of development to be quite low. We did raise the possibility of a second phase, however, at the conclusion of the description presented to the public.

In addition to obtaining the above information, we met with staff members of the Dow-Shell Group to become familiar with their study and to provide an opportunity for them to review our assessments. Members of the Dow-Shell Group provided information on employment, emissions, infrastructure requirements, and facility design which we compared to our own assessments. The final determination of the content of our description rested with ISER and the Department of Environmental Conservation.

Direct Employment and Capital Costs

ISER contracted with Stearns-Roger, a firm specializing in the assessment, design, and construction of industrial facilities, to use the Dow-Shell estimates presented above to develop estimates of direct employment, capital costs, and construction time requirements. The Stearns-Roger study included several variations in the combination of facilities that might be located at each of the six sites under study. These variations reflected ISER's and Stearns-Roger's assessments of the likelihood that all or some of the petrochemical facilities could be profitably constructed at each location. Ultimately, however, we decided that the public confusion that might result from site-specific variations in facility composition presented a greater concern than that of simplifying our presentation to a single development scenario. Therefore, we (ISER) derived a single set of estimates for direct employment, capital costs, and construction time requirements from the Stearns-Roger estimates. In addition, we estimated the direct employment and capital cost associated with the required gas liquids pipeline running from Prudhoe Bay to tidewater. Table 2 presents our final estimates.

Table 2

Construction Time, Direct Employment and Capital Cost Estimates

Time required for construction:	44 months
Average direct employment at selected site during peak year of construction:	2,500 workers
Average direct employment along pipeline route during peak year of construction:	2,500-3,000 workers
Average direct employment at main site during normal operations:	700-900 workers
Average direct employment along pipeline route during normal operations:	250 workers
Value of main facility (1981 dollars):	$2 billion
Value of pipeline (1981 dollars):	$2 billion

Induced Employment and Population

We (ISER) derived one set of estimates for induced employment and population increases during the construction and operations phases of development to apply in Seward, Valdez, Kenai, and Fairbanks. We calculated a second set of estimates for the Anchorage/Mat-Su area, given the greater likelihood that a development in that area would generate more indirect employment and population increases within the region (see Table 3).

Table 3

Induced Employment and Population Increases

	Anchorage/Mat-Su	Other Sites
Average induced employment during peak year of construction:	3,300 workers	2,000 workers
Average induced employment during normal operations:	1,000 workers	500 workers
Maximum population increase during construction:	12,000 people	6,000 people
Maximum population increase during normal operations:	4,000 people	3,000 people

Air Quality

Emissions from a complex of the type being considered by the Dow-Shell group principally include carbon dioxide; water vapor; nitrogen oxides; ammonia; hydrocarbons; and, during construction, particulates. The volume of emissions could substantially vary according to the technology used in the cooling system and to the control of emissions. The effect of these emissions would also vary according to local air dispersion conditions, temperatures, and the types and volumes of existing emissions.

The Dow-Shell group provided DEC with preliminary emissions estimates which DEC staff used along with their knowledge of local conditions to develop the information included in the description of petrochemical development.

Water Quality

All water leaving a petrochemical site would be subject to extensive water treatment. However, in consultation with DEC staff we decided that, depending upon the specific plant design, small amounts of chemical wastes could remain in water leaving the plant site. We also could not project the likelihood of thermal pollution or excess water demands since the basic design of the cooling system had not been fixed by the Dow-Shell group. We treated these issues by mentioning the possibility of environmental effects without specifying the magnitude of the effects.

Solid Wastes

According to the Stearns-Roger staff, solid wastes would be restricted to those generated by any manufacturing facility and would not include any hazardous wastes. Information provided by the Dow-Shell group indicated that a large amount of sludge would be produced; however, they also indicated that the plant design would not require them to apply for any hazardous waste disposal permits. At the time we developed the description of petrochemical development presented to the public, it was unclear why such a large amount of sludge would be generated. We later found that most of the sludge would be generated in Phase II in connection with the production of caustic soda and chlorine. Such sludge would consist of concentrated salts that are not hazardous. Because neither we nor the DEC staff could precisely determine the source and composition of the sludge and because some of the catalysts used in the plant could be hazardous, we decided the prudent approach would be to mention the possibility that the solid wastes could contain some hazardous materials.

Safety

The safety record of the petrochemical industry is among the best in the nation. At the same time, petrochemical plants and the transportation of chemical products have in the past involved spectacular accidents. We found that improvements in plant design render the risks associated with the operation of petrochemcial plants that are more than a few years old to be of marginal relevance. We also found that the major chemical companies insure their own plants, thus making it difficult to obtain data on accidents involving plant facilities. Finally, we concluded that the less spectacular accidents involving, for example, truck or rail transport may be cumulatively of greater significance than the rare major fire, spill, or explosion. We, therefore, decided that the safety issue requires detailed study before we can go beyond a general mention of the possibility of fires, explosions, chemical leaks, and transportation spills.

Health

Our initial review of the potential health problems associated with chemicals that would be used or produced in Phase I indicated that benzene, ethylbenzene, and ethylene oxide (an intermediate product) are of potential concern. Further study indicated that the concern about ethylene oxide is focused on its use as a disinfectant at higher concentrations than would be encountered in a petrochemical facility. Ethylbenzene acts as an irritant to the respiratory system before it reaches toxic levels. The major concern, then, is with benzene.

Worker exposure to benzene has been the subject of intense debate, not the least of which involved a five-to-four U.S. Supreme Court decision to let the current federal exposure limit stand at ten parts per million on a time-weighted average. According to Dr. Bernard Goldstein, Chairman of the Department of Environmental and Community Medicine at Rutgers Medical School, "There no longer should be any reasonable doubt that benzene causes leukemia in man."[1] The controversy rather lies in the as-yet-unanswered question of whether the toxic effects of benzene involve some threshold exposure level or whether one molecule of benzene can result in leukemia.[2] Until more funding for the necessary research becomes available, it appears likely that the issue will remain unresolved.

Review and Approval of Description

On March 31, we received comments on an outline of our description of petrochemical development presented to representatives of the following state departments: Natural Resources, Fish and Game, Health and Social Services, Labor, Community and Regional Affairs, Environmental Conservation, and the Office of the Governor. Representatives from Valdez, Kenai, Anchorage, Fairbanks, and the Mat-Su Borough reviewed a draft description on April 2. A second meeting on April 2 involved members of the following interest groups: Alaska Resource Development Council, Alaska Public Interest Research Group, Alaska Center for the Environment, and the National Wildlife Federation. On April 8, we met with members of the Dow-Shell study team to review our description. Following these meetings, we revised the description and obtained final approval from the Department of Environmental Conservation. A copy of the final text and figures concludes this chapter.

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[1] Dr. Bernard Goldstein and Carroll A. Snyder, Benzene Leukemogenesis, paper presented at Symposium on the Genotoxic Effects of Airborne Agents, Brookhaven National Laboratory, February, 1981.

[2] Ibid.

INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH April 14, 1981
Anchorage, Alaska

PETROCHEMICALS IN ALASKA

1 Introduction

Unless you are a politician or in the oil and gas business, you probably rarely think about petrochemicals. Yet you are surrounded by hundreds of petrochemical products every day--you wear them, write with them, drive on them, and swallow them. Some of the most common examples include: aspirin, plastic wrap, films, leisure suits, panty hose, rubber tires, fertilizers, films, paints, medicines, and inks.

2 Last year, the state chose a group of companies, headed by Dow Chemical and Shell Chemical Company, to study whether it makes economic sense to build a petrochemical complex in Alaska. The study will be complete in September. The intent of the Hammond Administration is to encourage the best use of the state's oil and gas resources, preferably using those resources in state to foster the economy. But the Governor wants to hear what the people of Alaska think about possible petrochemical development before any decisions are made. That is why I'm asking you these questions today. If the companies say the project is economically possible, the Governor and his commissioners must make a decision on whether or not to sell the state's royalty gas liquids to the Dow-Shell Group.

3 As yet, there are many unanswered questions. But here is what a petrochemical development in Alaska might look like. This description is based on information from the Dow-Shell group with independent analysis from petroleum engineers, economists, environmental scientists, and public health experts. Please keep in mind this is only what could happen, but may not resemble exactly what Dow-Shell finally proposes in September.

4 Gas Liquids: The Basic Building Blocks of Petrochemicals

Our story begins at Prudhoe Bay. Petroleum which comes out of the ground at Prudhoe can be separated into oil and gas. The gas can further be separated into dry gas, which is often used for heating purposes, and gas liquids, which are the basic building blocks for petrochemicals. These are the starting point for our discussion today.

5 The Trans-Alaska Pipeline takes oil from Prudhoe to Valdez. The Northwest Gas Pipeline, which you've probably heard about, proposes to take gas from Prudhoe to markets in the Lower 48, but it has not yet been constructed. It is possible to build a third

pipeline to take the gas liquids from Prudhoe to a petrochemical development further south. However, it is important to note that if a liquids line were built, it might reduce the amount of energy which would be available for the Northwest Gas Pipeline. This might make it more difficult for Northwest to get financing for construction of the line.

6 Diagram A shows you how the gas liquids could be separated out at Prudhoe Bay and then travel by pipeline to a petrochemical complex.

7 The Main Petrochemical Site: The Individual Plants

On the diagram, you can see there would be a number of different plants for processing the gas liquids and subsequent products at the petrochemical complex. The first plant would separate the ethane from the heavier gas liquids, called LPGs (liquid petroleum gases). A small portion of the LPGs may be used for a local bottle gas industry, but most would be shipped out of Alaska for processing elsewhere in the United States.

8 That leaves ethane. Ethane gas is one of the foundations of the petrochemical industry. From it comes ethylene, an extremely versatile chemical. Ethylene is used as the primary building block for products such as fibers, antifreeze, plastics, paint, films, and hundreds more. It is not an end product in itself, but is used only to make other products.

9 From ethylene, Dow-Shell would produce three new substances during the initial phase of development in Alaska. They are called ethylbenzene, polyethylene, and ethylene glycol. Once produced--and it takes an entire plant to produce each one--these substances are still considered raw materials. Diagram B shows the kinds of products made from those chemical substances. It's a long process from ethane gas to a plastic bottle. With transportation costs so high, it is currently not economical to produce the finished products, such as a plastic bottle, in Alaska. So these substances--in both solid and liquid forms--would then be shipped out for processing closer to market demands. This would require the construction of port, warehouse, and dock facilities. As many as 150-250 tankers and large cargo ships a year would move in and out of Prince William Sound or Cook Inlet, depending on the chosen site.

10 In addition to these five plants, the complex would need a power plant to provide steam and electricity. Power requirements would be about 70 megawatts a day, which is equal to one and a half times the power needed in the city of Fairbanks on an average day in winter.

Related Development

11 Production at the ethylbenzene plant, which we mentioned, requires benzene which is made from crude oil. This could be produced outside and shipped in or produced at an existing Alaska refinery such as the North Pole Refinery in Fairbanks, if its current capacity was expanded.

12 Fairbanks is also being considered by industry as a possible location for two other plants not directly related to the main petrochemical site: (1) a plant which uses "dry gas" (known also as methane) to produce methanol and to generate electricity; and (2) a styrofoam plant to produce material needed for insulation. The electricity from the first plant would far exceed the needs of Fairbanks and could supply in addition part of Anchorage and the railbelt. The methanol would be shipped out of Alaska for use in the Lower 48. Only enough styrofoam would be produced to meet the demands of the Alaska market.

13 Possible Locations for the Main Site

The map pinpoints likely locations for a major complex.

1. Valdez, at Glacier Stream Valley.
2. Seward, east of town at the Fourth of July Creek area.
3. The Wildwood/Nikiski area just north of downtown Kenai.
4. Fire Island, situated in Cook Inlet but within the boundaries of the Anchorage Municipality.
5. Point MacKenzie, which is north of Anchorage across Knik Arm and situated in the Mat-Su Borough.
6. Bonanza Creek area, about 30 miles southwest of Fairbanks.

14 Employment: How many and what kinds of jobs would be created?

The construction of the petrochemical complex and the gas liquids pipeline could not begin before 1983 and would take nearly four years to build. An average of 2,500 workers would be needed during the peak year of construction activities at the main plant site. Pipeline construction would involve another 2,500 to 3,000 workers along the pipeline route during the peak year.

15 Construction activities for a project of this magnitude can have a stimulating effect on the local economy through the growth of local businesses, service industries, and government jobs. We estimate that the total increase in employment during this phase, counting those involved directly in construction and those involved in jobs stimulated by construction activities, would be about 4,500 in Seward, Valdez, Kenai or Fairbanks, if the petrochemical plants were located in one of these communities; and

5,800 in Anchorage/ Mat-Su area, if located on Fire Island or Pt. MacKenzie.

16 However, the influx of workers and people seeking jobs can put an added strain on existing services such as schools and utilities, and sometimes more people move into a community than there are new jobs created. Construction in the smaller communities would certainly create a boom town atmosphere. In comparison to the current levels of employment in these communities, this increase in jobs would quadruple employment in Seward, triple employment in Valdez, double it in Kenai, and raise employment 25 percent in Fairbanks, and 8 percent in the Anchorage/ Mat-Su area.

17 Permanent jobs involved in the operation of a petrochemical complex would employ 700 to 900 people, and in the operation of a liquids pipeline another 250. Jobs would include administrative positions from pump station and plant managers to secretaries and clerks; craft jobs such as pipefitters, laborers, and electricians to provide maintenance; operators who monitor the chemical processes in the plant; and contractual services such as security, janitorial, catering, and fire protection. About three-quarters of these jobs could be filled by local residents. For example, unskilled workers could become plant operators with six-to-twelve months of training.

18 Revenues from Petrochemical Development

If built today, a liquids pipeline would cost $2 billion. The building of a petrochemical complex in Alaska would cost an additional $2 billion in current prices and would require about two square miles of land for development. Current property tax laws are in the process of being changed today. Therefore, we do not know the exact amount of revenues a local community would receive from such a development. However, a community could anticipate some share of the revenues. It is also likely that the demand for local government services will increase with new development--services such as schools, roads, water and sewer expansion. Thus, some of the additional revenues may be needed to offset increased demands.

19 Environmental Concerns: Effects on Air, Water, and Land

If you were looking at the kind of plant we have described so far, what would you see? First of all, a lot of pipes in various shapes and sizes, towers, furnaces, storage tanks, docks, and a port. The most visible emission into the air would be a white stream of condensed water vapor rising from the cooling towers (see photo). In cool weather, this water vapor could limit visibility. Sometimes you would also see flames coming from a tall flaring tower, which is used as a safety precaution

to release the build-up of pressure from volatile gases. Flaring occurs when the plant starts up or shuts down operations for routine maintenance or if the system is not functioning correctly. The tallest piece of equipment at the site would be the power plant stack, rising to the height of a four-story building. The power plant would run on coal, gas, or oil, but most likely gas, which is a relatively clean-burning fuel. The technology exists to make the emissions from this stack nearly invisible.

20 In Kenai and Valdez, existing industries sometimes create a haze that reduces visibility. A new petrochemical plant in either of these two communities could produce more haze. Haze includes dust, smoke, water vapor, smog, and industrial emissions. In Anchorage, the most noticeable change to air quality from any petrochemical development would most likely come from the increase in population brought about by development. More people mean more cars, which are the primary source of air pollution and smog. Since the plant would be processing gases rather than oil, it should not produce the brown-colored smoke or the rotten egg smells that you may associate with industries elsewhere.

21 The kinds of chemicals produced by these plants do have some odor. How much would depend on the specific chemical and an individual's sensitivity of smell. Inside the plant, the background odor would smell somewhat similar to paint thinner. This should not be noticeable outside the plant, except in the event of a leak or spill.

22 Depending upon the design of the cooling system, these plants could use a tremendous amount of ocean or fresh water. In some communities, such as Kenai, the amount of available fresh water may be limited. Therefore, water requirements for a petrochemical plant could compete with existing or future uses.

23 Government regulations require all petrochemical companies to treat the water used in the plant before returning it to the outside environment, including rain water which has fallen on the property. Chemical companies have various methods for removing wastes from the water, but until we know more about the specific ways in which the plant will operate, it is not possible to say how much, if any, wastes will remain in the water after treatment.

24 If the plants use sea water for cooling, the water would be returned to the ocean at a slightly higher temperature than when it entered the plant. The state limits the amount the temperature can be raised, but even small increases could affect some marine life.

25 A petrochemical plant such as this would produce about three truckloads of garbage and many tons of sludge a day. Depending

upon the processes used by the companies, this sludge, a mudlike substance, may contain some hazardous material. To limit the amount of solid and hazardous wastes left in the environment, government encourages companies to recycle or incinerate their waste and dispose of the remainder in approved landfills. Until we know more about plant operations, we do not know how much or what kinds of solid wastes will be produced in Alaska.

26 Health and Safety

As for the dangers involved in a petrochemical industry, it must be recognized that all heavy industries pose some dangers. A petrochemical plant in Alaska would involve some hazards common to chemical plants throughout the world. Plants are built with many safety features which reduce risks. New methods are continually developed and required to protect worker and public safety. Nevertheless, there are always some potential dangers. These might include fires, explosions, chemical leaks, transportation spills, and worker health problems from exposure to chemicals. Government regulations on industry are designed to minimize any possible dangers as far as existing technology is capable.

In regard to the petrochemical plants so far described, we would like to mention two areas of specific public concern.

27 One of the most dangerous chemicals which might be used in Alaska would be benzene. Over the years, the amount of worker exposure to benzene has been reduced by government and industry because scientific research shows that workers exposed to high concentrations of benzene may get leukemia. Under normal operating procedures, exposure to benzene at any petrochemical plant built in Alaska would be well under the allowable amount set by the federal government. But some scientists believe that any amount of benzene can be harmful. Others maintain that the current standard adequately protects the workers. More research is needed to resolve this issue.

28 Secondly, accidents while transporting chemicals through urban and environmentally sensitive areas can occur, although how likely or serious they might be, we don't know right now. Companies transporting these chemicals would be required to develop emergency clean-up measures for handling these materials in case of accidents anywhere along the route.

29 Possibility of Future Expansion

Once built, future expansion could occur. The kind of plant we have described would use about half of the gas liquids available in the Prudhoe Bay field. If all the liquids were used, the main facility would double in size and would probably include the production of some different chemicals. This would result in

further increases in employment and population, and would also involve different environmental and health issues.

FROM GAS TO A PETROCHEMICAL: The Flow of Gas Liquids from Prudhoe Bay to a Possible Petrochemical Site in Alaska.

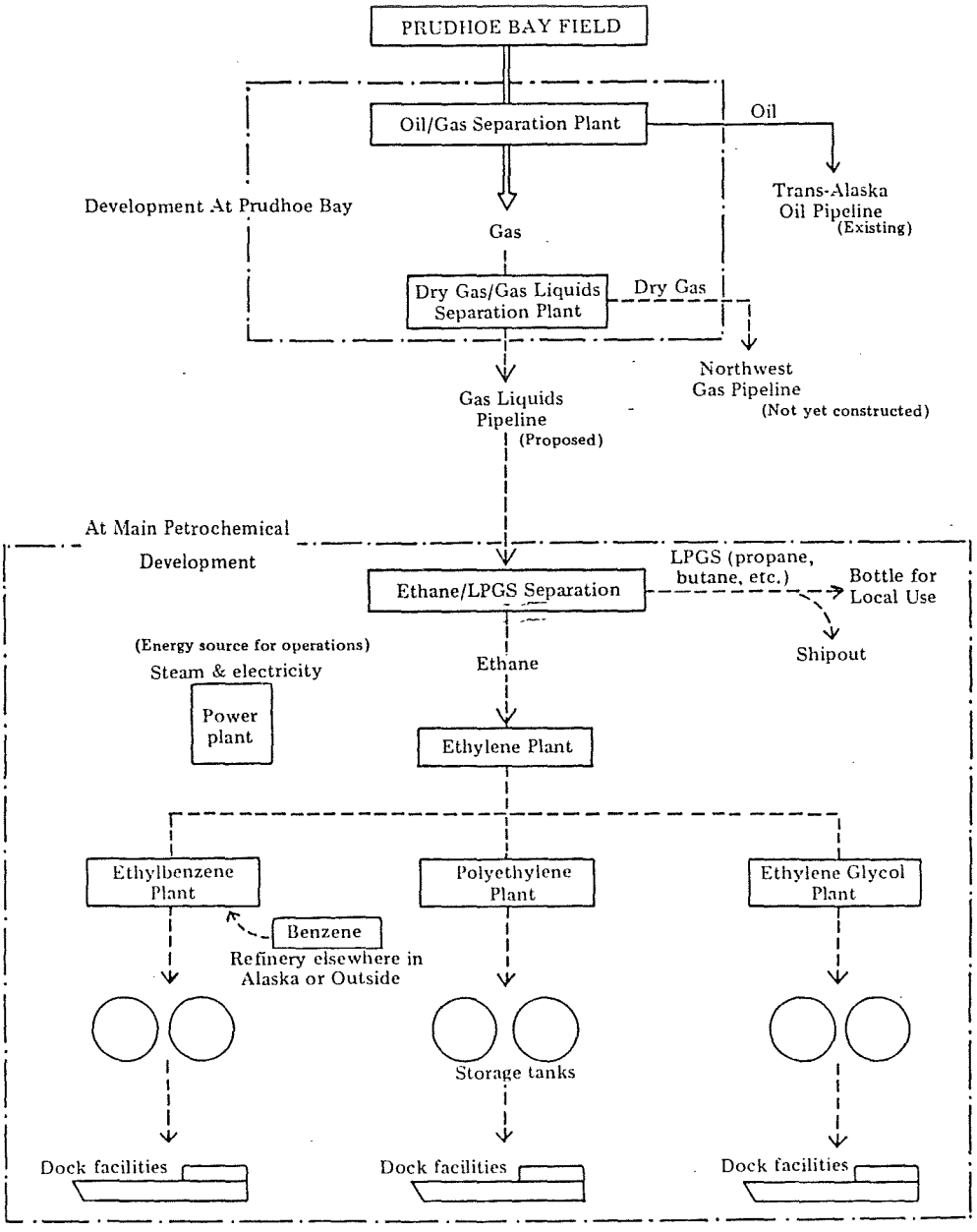
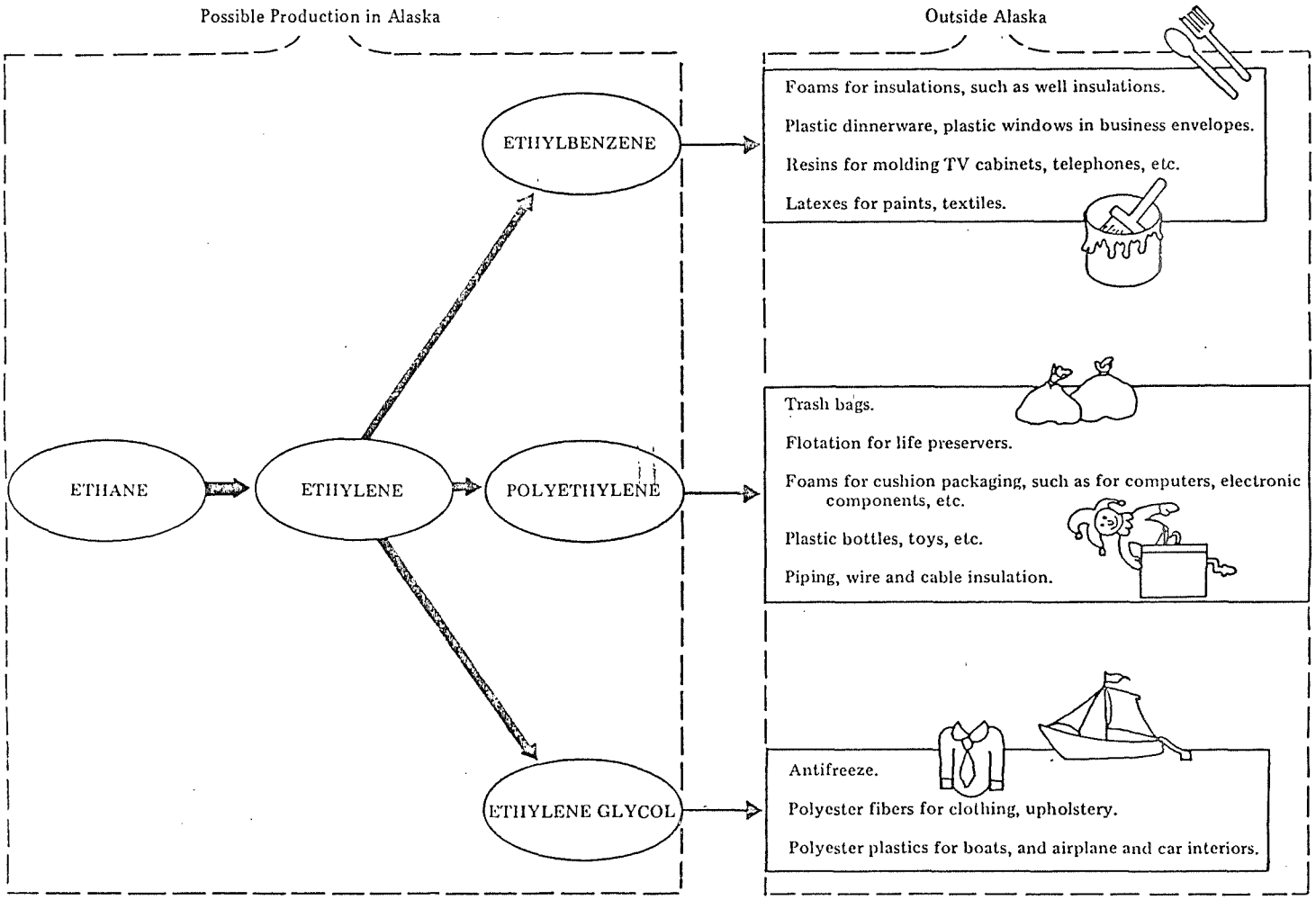


DIAGRAM B. PETROCHEMICAL PRODUCTS



CHAPTER THREE

SURVEY METHODS AND RESPONSE CHARACTERISTICS

A central objective of this study is to provide a representative assessment of the attitudes and concerns of all Alaskans regarding petrochemical development. In addition, the Governor has stressed that local acceptance is necessary for the State to encourage petrochemcial development. Representative assessments of the attitudes and concerns of residents in each of the six areas being considered for development are, therefore, also needed.

The only feasible way to obtain a representative assessment of public views on such a complex issue is to insure that adults in the populations of interest have a known chance of being selected to be a respondent in a personal interview. It is then possible to personally inform representative samples of Alaskans about the likely form and effects of petrochemical development and to assess their views based on the information provided as well as their own knowledge and values. In this chapter, we describe the methods we used to select our respondents and the procedures we followed to insure that we obtained a good response rate. We conclude the chapter with an overview of the characteristics of the survey respondents.

Sample Design

We designated nine target populations for the survey:

1. Valdez
2. Kenai, Soldotna, Nikiski
3. Seward
4. Remainder of the Kenai Borough
5. Fairbanks North Star Borough
6. Anchorage Municipality
7. Matanuska-Susitna Borough
8. Remainder of the State
9. Statewide

For the first seven target populations, all non-institutional households except those located on military installations were eligible for selection. We divided each target area into segments averaging 20 households per segment based on tax assessment records, census data, and field counts. We then randomly selected a sample of segments in each area with the probability of selection varying according to the size of the segment. Field staff exhaustively listed households in each selected segment. Households were then selected so that the chance of any one household being selected in a target area such as the Anchorage Municipality was exactly the same as the chances of selection for all other households in that target area.

Interviewers used a random selection procedure within a selected household to determine the adult to be interviewed. We permitted no substitutions of households or respondents within households.

To insure that we obtained a representative sample of the state adult population, we divided the state into five regions and three community-size classes in addition to the first seven target areas discussed above:

Regions

Anchorage:	Anchorage Municipality
Fairbanks:	Fairbanks North Star Borough
Valdez:	Valdez City and Vicinity
Kenai Peninsula:	Kenai Borough
Southwest:	Aleutians, Bethel, Bristol Bay, Dillingham, Kodiak Census Areas
Southeast:	Haines, Juneau, Prince of Wales, Outer Ketchikan, Sitka, Skagway, Ketchikan, Wrangell/Petersburg Census Areas
North/Northwest:	Kobuk, Nome, North Slope, Wade Hampton Census Areas
Southcentral:	Mat-Su and Valdez/Cordova Census Areas Except Valdez
Interior:	Southeast Fairbanks, Yukon-Koyukuk Census Areas

Community-Size Classes

Large:	3,000 population or over
Medium:	1,000 to 2,999
Small:	50 to 999

All large communities, with the exception of Sitka, were self-representing, meaning that they automatically fell into the sample. The Sitka sample (designated for four interviews) we reallocated to Ketchikan in order to remain within our budget. We initially selected one medium-sized community in each region to represent its size class. Extremely small samples sizes in Dillingham (2) and Cordova (1) led us to reallocate these samples to Bethel and Copper Center, respectively. Sampling procedures within large and medium-sized communities were the same as described above.

All small communities in each region (281 overall) were listed in the order they appear in the preliminary 1980 census count local review listing. We selected communities with probabilities according to size, listed all households in the selected communities, randomly selected households, and then applied the same respondent selection procedure.

We assigned each target area a sample size based on discussions with DEC concerning the best allocation of available resources. The reliability of survey data is principally related to sample size. We designed the statewide sample to yield a maximum estimated sampling error of $\pm$ .08. This means that if 60 percent of our respondents statewide would like the State to encourage petrochemical development, we can be 95 percent sure that the true population value lies between 52 and 68 percent. Table 4 provides a summary of the sample design and actual sampling statistics.

Table 4

Sample Design and Actual Sample Statistics

Region	Desired Number of Interviews	Actual Number of Interviews	Response Rate	Estimated Maximum Sampling Error
Statewide	670	743	74%	± 8%
Valdez	100	132	75%	± 8%
Fairbanks North Star Borough	100	113	76%	±10%
Kenai	50	50	70%	±14%
Seward	50	52	88%	±14%
Mat-Su Borough	100	119	66%	± 8%
Anchorage Municipality	150	156	79%	± 8%
Remainder of Kenai Borough	50	51	68%	±14%
Remainder of State	69	70	68%	±12%
Southwest				
Kodiak	7	8		
Bethel	4	4		
Eek	6	6		
Southeast				
Juneau	11	11		
Ketchikan	10	9		
Wrangell	3	4		
Hydaburg	6	6		
North/Northwest				
Kotzebue	4	4		
Noatak	4	3		
Wainwright	4	5		
Interior/Southcentral				
Nikolai	4	4		
Evansville	3	3		
Copper Center	3	3		

Field Procedures

Professionally trained interviewers made up to three contacts as necessary at each selected household in order to complete an interview. We designed and pretested the questionnaire used in the survey and had it reviewed by government representatives, interest groups, members of the Dow-Shell Study team, and approved by DEC. The questionnaire is reproduced in Appendix D. Interviewers read each question to the respondent and recorded their answers verbatim. We then edited each interview to insure all questions were answered, coded all interviews, verified 10 percent of the coding, and entered the data on computer tape with 100 percent verification. We processed the data on the University of Alaska Honeywell computer using the Statistical Package for the Social Sciences. The data is available for further analysis.

Weighting

Data for each of the target populations with the exception of the statewide results are self-weighting. This means that all interviews taken within a target population are treated equally. In order to compute the statewide results, some interviews must be given a greater weight then others. This is because we deliberately took larger samples in the communities under consideration for petrochemical development than we did in the remainder of the State. We calculated the correct weight that should be given to each interview by computing the ratio between the actual proportion of the State's population residing in a target area and the proportion of completed interviews in a target area. The weights are as follows: Anchorage interviews (1.89), Fairbanks interviews (.82), Valdez interviews (.04), Kenai interviews (.31), Seward interviews (.07), interviews in the remainder of the Kenai Borough (.62), Mat-Su interviews (.30), and interviews in the remainder of the State (3.76).

Respondent Characteristics

The statewide results reported in Chapters Four, Five, and Six are based on 743 interviews properly weighted to yield a representative sample of all Alaskan adults. What does a representative sample look like? First, 51 percent of our respondents are male and 68 percent are married (see Table 5). Reflecting Alaska's relatively young population, 32 percent of our repondents are between 18 and 29 years old. Alaskans also tend to be highly mobile: almost a third of our respondents have lived in their current community less than 5 years.

Our representative sample also captured Alaska's more stable population. Nine percent of our respondents are Alaska Natives, and 39 percent have lived in Alaska for over ten years. The vast majority of our respondents (83 percent) are registered to vote in Alaska, and 63 percent reported that they had voted in the last local election. Some 44 percent of our respondents have more than a high school education. In sum, we have a diverse, politically active, well-educated population in Alaska. Their views are reflected in the next three chapters.

Table 5

Characteristics of Survey Respondents

(Number of Respondents: 743)

Sex	
Male	51%
Female	49
	100%

Age	
18-29	32%
30-39	28
40-49	17
50-59	13
60 and over	10
	100%

Marital Status	
Married	68%
Single	32
	100%

Length of Residence in Community	
Less than 5 years	31%
5-10 years	30
Over 10 years	39
	100%

Ethnicity	
Alaska Native	9%
Non-Native	91
	100%

Voting Characteristics	
Registered to vote in Alaska	83%
Voted in last national election	72%
Voted in last local election	63%

Education	
Less than high school	14%
High School	42
More than high school	44
	100%

CHAPTER FOUR

ALASKAN ATTITUDES TOWARD CHANGE IN THEIR COMMUNITY

The central objective of the survey is to find out what Alaskans think about petrochemical development. While it is tempting to interpret this objective as a yes/no vote on petrochemical development, the issue is obviously more complex. In this chapter, we identify the values that Alaskans place on the many community characteristics that could be affected by petrochemical development. At this stage we are not concerned with petrochemical development itself, but rather with what Alaskans like about living in their community and how they view the specific changes that might occur with or without petrochemical development.

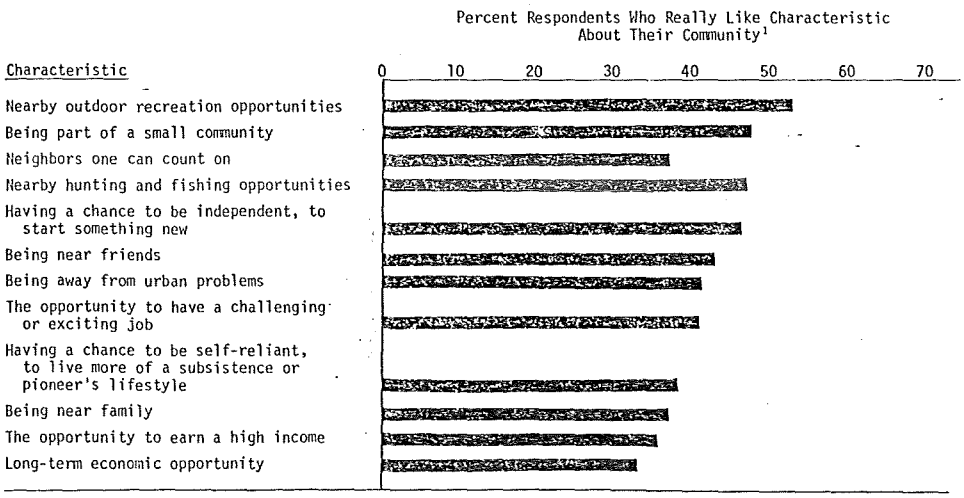
What Alaskans Like About Living in Their Community

Alaska is often called the land of opportunity, and our respondents confirmed the statement by indicating a wide diversity of characteristics that they particularly like about their community. In fact, a third or more of Alaska's residents feel that each community characteristic mentioned is something they really like about their community (see Figure 1).

It may appear that long-term economic opportunity and the chance to earn a high income are relatively less important than such characteristics as nearby outdoor recreation opportunities and being part of a small community. However, many Alaskans are also looking for opportunities that they currently do not see in their community. Among the most commonly mentioned missing opportunities are being near family, earning a high income, having an exciting or challenging job, the chance to avoid urban problems, and long-term economic opportunity. When we take these deficits into account, the diversity of desired community characteristics becomes even more apparent (see Figure 2).

Figure 1

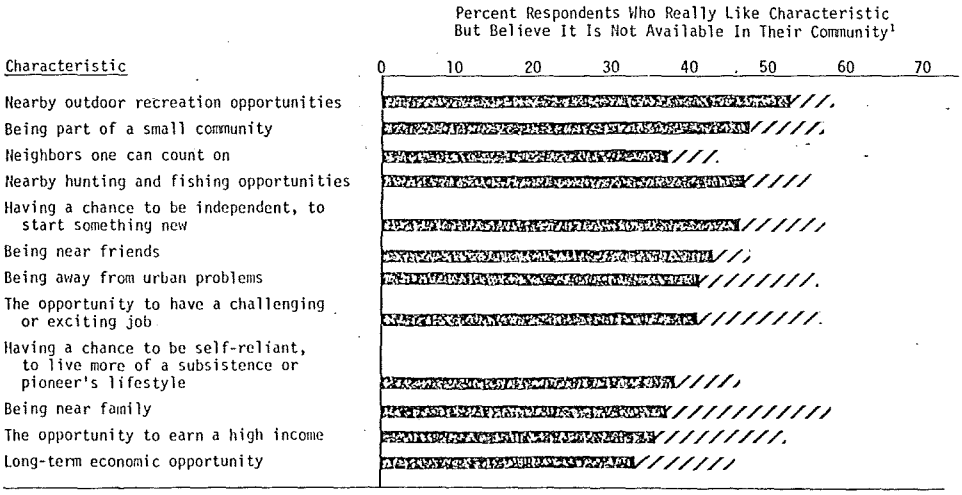
Community Characteristics Most Liked
Statewide Results



[1]The question read, "There are many things that people like about their community compared to other places they might live. I would like to read a list of items that you may or may not particularly like about your community. Please look at this card and tell me the number of the category that best describes how you feel about each item." 1. I really like this about my community; 2. I like this about my community; 3. This doesn't matter to me; 4. This isn't available in my community but I would like it.

Figure 2

Community Characteristics Liked But Not Available:
Statewide Results



[1]The question read, "There are many things that people like about their community compared to other places they might live. I would like to read a list of items that you may or may not particularly like about your community. Please look at this card and tell me the number of the category that best describes how you feel about each item." 1. I really like this about my community; 2. I like this about my community; 3. This doesn't matter to me; 4. This isn't available in my community but I would like it.

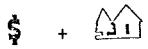
= Percent respondents who really like characteristic

////// = Percent respondents who like characteristic but believe it is not currently available in their community.

Often public debates on development issues appear to pit those favoring economic opportunity against those wanting to preserve a small town atmosphere or to protect outdoor recreation and subsistence opportunities. Actually, most Alaskans want all three (see Table 6).

Table 6

Major Community Characteristics Desired:
Statewide Results

	47%
	15
	10
	7
	6
	4
	4
NONE	7
	100%

 = Desire for outdoor recreation/subsistence opportunities

 = Desire for economic opportunity

 = Small town atmosphere

[1]Outdoor recreation/subsistence opportunities, small town atmosphere and economic opportunities are computed variables. We coded a respondent as desiring outdoor recreation/subsistence opportunities if he or she said they really like or would like nearby hunting or fishing, nearby outdoor recreation opportunities or having a chance to be self-reliant, to live more of a pioneer's lifestyle. We coded a respondent as desiring a small town atmosphere if they said they really like or would like being part of a small community and being away from urban problems. We coded a respondent as desiring economic opportunities if they said they really like or would like the opportunity to have a challenging or exciting job, to earn a high income and really liked the long-term economic opportunities in their community.

The statwide tendency to desire a mix of opportunities within communities is generally maintained in comparisons among the six areas being considered for petrochemical development (see Table 7). There are some differences, however, in resident perceptions of economic opportunities. Anchorage, Valdez, Fairbanks, and Kenai residents are more likely to "really like" the current economic opportunities in their area than the residents of Seward or the Mat-Su Borough (see Figure 3). Only a third as many Seward residents responded in the same way as Anchorage or Valdez residents.

Table 7

Percent Residents in Potential
Petrochemical Development Areas
Desiring Multiple Community Opportunities

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks
	42%	50%	39%	46%	48%	40%
Number of Respondents:	156	50	52	119	132	113

[1] See footnote to Table 6

Figure 3

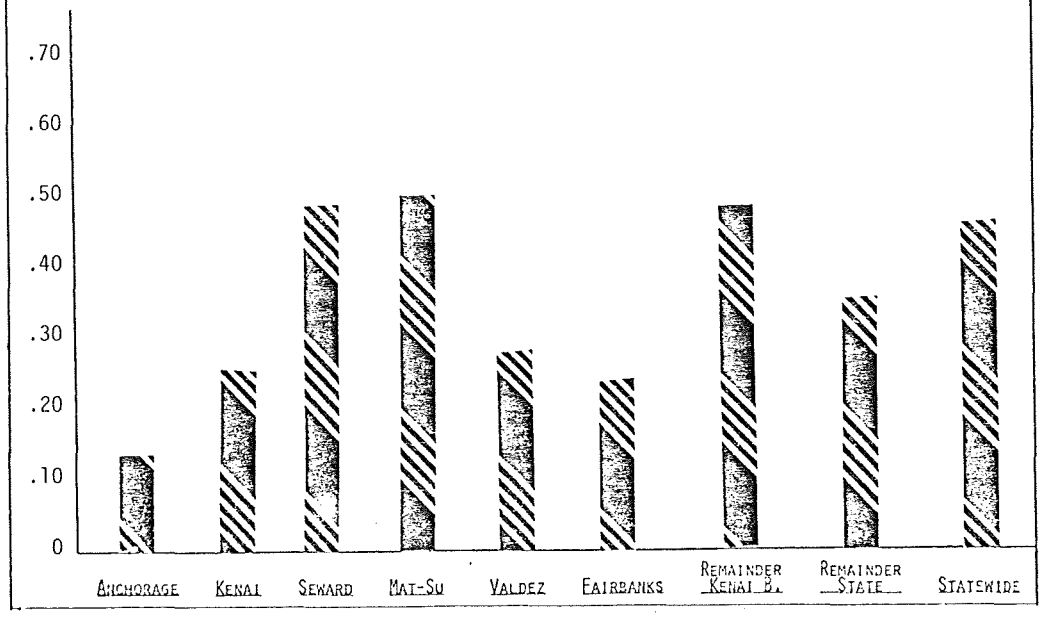
Proportion of Residents Who
"Really Like" Economic Opportunities in Their Area[1]

[1]See footnote for Table 6

To what extent does this mean Anchorage, Valdez, and Fairbanks residents are relatively more oriented towards economic opportunities? We first need to know how many residents are attuned to economic opportunities but do not find them in their community. Almost half of the residents of Seward and the Mat-Su Borough would like to see local economic opportunities but believe they are unavailable today (see Figure 4).

Figure 4

Proportion of Residents Who
Would Like Economic Opportunities
But Who Don't Find Them Locally[1]



[1]See Footnote to Table 6

People may desire more growth and development because they are attracted to economic opportunities and want more or because they feel a lack of opportunities. Both these reasons appear to apply in Alaska. We asked our respondents, "How much growth and development would you personally like to see in your community: a great deal, some, little, or none at all?" The pattern of responses (see Table 8) does not tell us whether residents would like their local economy to expand at 5 percent or 10 percent a year, but the responses do suggest that most Alaskans favor at least some further growth and development. Proportions of residents favoring a "great deal" of growth and development are actually quite high in Seward, Anchorage, and Valdez compared to responses reported for other areas in the country.

Jobs

Our first set of community characteristics concerns different types of basic employment that might drive a local economy. How does the public view oil- and gas-related jobs compared to employment in the renewable resource industries or to government employment? Numerous state studies have shown Alaskans favor the development of renewable resource industries. Here, our focus is on jobs and only indirectly involves the other costs and benefits of alternative forms of development. Even from this narrower perspective, Alaskans show a preference for increases in jobs related to agriculture and fishing (see Table 9). Only 33 percent of the State's residents want government employment to increase in their community. Yet, in counting those who believe increases in government employment are a necessary evil, we find that 69 percent of Alaskans feel they would benefit from more government jobs. In short, a substantial majority of the Alaskan public would like to see increases in job opportunities in any of the industries mentioned, including the oil and gas industry.

Table 9

Attitudes Toward Increases
in Jobs Related to Basic Industries:
Statewide Results

	Jobs Related To					
	Agriculture	Fishing	Tourism & Recreation	Oil & Gas	Logging	Government
Like Increase	88%	80%	72%	70%	65%	33%
Increase a Necessary Evil	6	8	17	21	19	36
Do Not Want Increase	6	12	11	9	16	31
	100%	100%	100%	100%	100%	100%

Number of Respondents: 743

The above statewide results hold in each of the areas under consideration for petrochemical development (see Table 10). The only variation of interest is one not shown in Table 10: the proportion of residents viewing oil- and gas-related jobs as a necessary evil is higher in Anchorage (26 percent) than in Kenai (16 percent), Valdez (13 percent), the Mat-Su Borough (11 percent), Fairbanks (11 percent) or Seward (9 percent).

Table 8

General Attitude Toward Growth and Development

Amount of Growth and Development Would Personally Like to See	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
A Great Deal	28%	12%	31%	20%	26%	18%	14%	16%	21%
Some	52	72	57	65	54	62	53	48	53
Little	14	14	10	10	15	13	16	24	17
None at All	6	2	2	5	5	7	17	12	9
	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents:	156	50	52	119	132	113	51	70	743

The two most important conclusions we can make concerning why people live in Alaska are:

1. Most Alaskans do not live here for any one particular reason. Rather, they see Alaska and their community as offering combinations of opportunities that may well be hard to find in many other locations in the country.

2. Most Alaskans favor more growth and development, even in communities such as Anchorage where most residents perceive there already are economic opportunities.

We did not ask our respondents if they were willing to trade recreation and subsistence opportunities or a small town atmosphere for more economic opportunities. However, the response patterns suggest that many, if not most, Alaskans do not perceive that their community has grown to the point that a serious tradeoff exists.

Alaskans' Attitudes Toward Specific Changes in Their Community

To provide our respondents with a means of expressing how they think petrochemical development might affect their community, we developed a series of questions based on a set of 17 community characteristics. We asked each respondent whether (1) they would like a given community characteristic to increase, (2) they would like it to stay the same but would tolerate an increase (labelled "a necessary evil" in the interview) in order to obtain some other benefit, or (3) they would especially not want the community characteristic to increase. We also asked each respondent how they expect these community characteristics to change with and without petrochemical development. In the next chapter we will begin to look at Alaskans expectations. Here we want to attach a value to each expectation. In other words, we want to know whether Alaskans view each type of community change as good, bad, or a necessary evil.

Table 10

Attitudes Toward Increases
in Jobs Related to Basic Industries:
Community Results

Proportion of Residents Who Would Like Jobs Related To Industry To Increase	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State
Agriculture	93%	94%	90%	94%	93%	91%	90%	79%
Fishing	77%	78%	89%	80%	91%	77%	80%	84%
Tourism & Recreation	83%	72%	90%	87%	83%	83%	67%	53%
Oil & Gas	68%	74%	85%	78%	78%	80%	68%	68%
Logging	66%	50%	83%	71%	55%	71%	81%	59%
Government	27%	14%	28%	23%	30%	22%	24%	19%

Population

Alaskans view population increases as a mixed blessing (see Table 11). Only 25 percent of adults would like the population in their community to increase. Since many Alaskans like to live in small communities to escape urban problems and to engage in activities which are more difficult to pursue in populated areas, their disenchantment with population increases is understandable. At the same time, 39 percent see population growth as a necessary evil to obtain other benefits. This leaves 36 percent who especially do not want the population in their area to increase.

Table 11

Attitudes Toward Increases
in Community Population

Attitude Toward Increase In Community Population	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Like Increase	20%	20%	40%	34%	43%	27%	33%	29%	25%
Necessary Evil	45	48	36	38	38	35	37	34	39
Don't Like Increase	35	32	24	28	19	38	30	37	36
	100%	100%	100%	100%	100%	100%	100%	100%	100%
Number of Respondents:	156	50	52	119	132	113	51	70	743

Turning to the six areas being considered for petrochemcial development, we find significant differences in attitudes toward population increases. While nearly one out of every two Valdez residents would like their community's population to increase, only one in five residents in Anchorage and Kenai feel the same way (see Table 11). Again, however, taking into account those who feel that population growth is a necessary evil, we find that a majority of residents in each community view population growth as directly or indirectly beneficial.

Services

Public attitudes toward increases in the number of cultural and recreational activities, in the quality of public services, and in the number of stores are positive statewide and in each potential development area (see Table 12). There is some evidence (see Appendix C) that the rapid growth in the retail sector in Fairbanks and Anchorage during and after the construction of the trans-Alaska oil pipeline has exceeded the level preferred by approximately one-fifth of the population.

Table 12

Attitudes Toward Public and Private Services

Percent Who Would Like Increases In:	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
The Number of Cultural and Recreational Activities	90%	82%	100%	88%	89%	92%	84%	85%	88%
The Quality of Public Services	89%	70%	90%	77%	85%	92%	70%	85%	86%
The Number of Stores	51%	76%	72%	66%	88%	59%	72%	66%	60%
Number of Respondents:	156	50	52	119	132	113	51	70	743

Undesirable Changes

Increases in six of the seventeen community characteristics addressed in our survey are unquestionably undesirable when considered alone. These are water pollution, air pollution, distance one has to go to find good outdoor recreation opportunities, distance one has to go to find good hunting and fishing, the cost of living, and property taxes. The vast majority of Alaskan residents think increases in each of these community characteristics are especially undesirable (see Table 13). This uncompromising attitude is particularly apparent with respect to air and water pollution and is virtually unanimously held by Kenai area residents, who already live near gas-processing facilities.

Table 13

Undesirable Changes

Percent Who Would Especially Not Like Increase In:	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Property Taxes	76%	64%	59%	69%	61%	69%	68%	58%	68%
Cost of Living	83	72	80	77	77	71	74	67	75
Distance to Good Hunting and Fishing	87	80	84	85	75	74	84	76	81
Distance to Good Outdoor Recreation	89	70	88	89	82	75	84	79	83
Air Pollution	86	96	80	86	79	92	88	92	89
Water Pollution	88	96	86	90	83	92	92	96	91

Summary

In the first section of this chapter we looked at the reasons why people live in Alaska. Our survey results strongly suggest that no single reason predominates; instead, there are three major areas of desired community attributes: nearby outdoor recreation and subsistence opportunities, the benefits of living in small communities, and economic opportunities. In addition, the phrases "being independent" and "starting something new" capture the feelings of many Alaskans. Today, "growth" and "development" are still desirable terms for most Alaskans.

We then turned to residents' attitudes toward specific changes that might occur in their community. Alaskan residents look favorably on increases in the number of jobs related to both the renewable resource industries and the oil and gas industry. At the same time, residents are, at best, ambivalent about population increases, and the largest proportion think of population growth as a necessary evil.

Most Alaskans would still like to see more cultural and recreational activities, better public services, and more stores. These benefits as well as the desire for more job opportunities probably constitute the indirect benefits of population growth for many Alaskans.

Residents are less willing to tolerate reductions in outdoor recreation and hunting and fishing opportunities. They also registered a strong aversion to increases in local water and air pollution.

CHAPTER FIVE

EXPECTATIONS FOR CHANGE WITHOUT PETROCHEMICAL DEVELOPMENT

Chapter Four described how Alaskans feel about seventeen specific changes that might occur in their community as a result of any major development, including the establishment of a petrochemical industry in Alaska. Now we turn to what Alaskans expect to see change in their community if petrochemical development does not occur in the State. Since community living conditions are likely to change over the next ten years even without petrochemical development, we cannot know what difference such a development will make without first constructing a base case.

We asked each respondent to tell us whether they thought a given community characteristic--the number of jobs in their community related to the oil and gas industry, for example--would decrease, stay the same, increase slowly, increase rapidly, or increase very rapidly over the next ten years assuming a petrochemical industry based on gas liquids did not develop in Alaska. Only a few respondents expected any community characteristic to increase rapidly or very rapidly on the one hand or to decrease on the other. Therefore, we can easily document the expectations of Alaska residents by reporting the percentage who expect a given community characteristic to increase at least slowly over the next ten years.

Employment

Without petrochemical development, 45 percent of Alaska's residents expect the number of jobs in their community related to the oil and gas industry to increase at least slowly in the next ten years (see Table 14). Expectations about oil and gas employment increases are comparable to expectations concerning the number of jobs related to government, tourism, and recreation and are generally higher than that expected for logging and fishing. Of course, there are differences in relative expectations within each community under consideration, with Anchorage expectations running predictably higher in oil and gas, tourism and recreation, and government; Kenai being relatively high on oil and gas; Seward, on tourism and recreation; Mat-Su, on government and agriculture; Valdez, on fishing; and Fairbanks, on agriculture. The survey results show that most Alaska residents do not expect the number of personal job opportunities to increase over the next ten years.

Table 14

Expectations for Employment Changes
Without Petrochemical Development

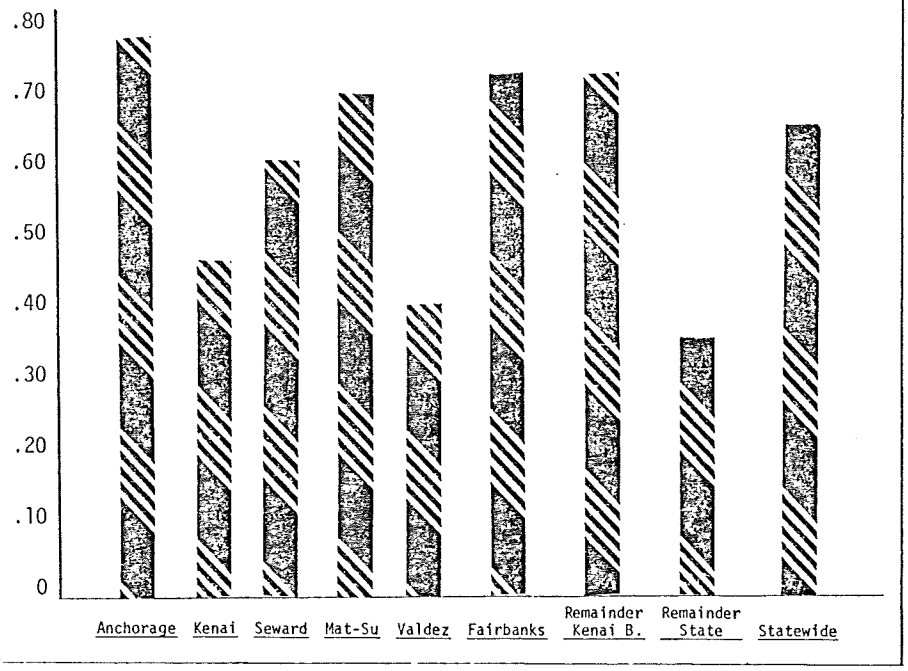
Proportion Expecting Jobs In Community To Increase At Least Slowly	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Oil and Gas	60%	48%	33%	49%	31%	54%	46%	25%	45%
Agriculture	38%	25%	8%	51%	12%	55%	27%	19%	35%
Fishing	32%	30%	29%	23%	37%	8%	45%	28%	28%
Tourism and Recreation	57%	34%	41%	45%	30%	41%	54%	41%	48%
Logging	21%	8%	8%	20%	10%	20%	17%	27%	22%
Government	48%	32%	22%	53%	29%	41%	28%	37%	42%
Jobs for Respondent	35%	17%	19%	22%	15%	24%	25%	18%	26%

Population

About three-quarters of the residents in the Anchorage Municipality and the Fairbanks and Mat-Su Boroughs expect the population in their area to increase at least slowly in the 1980s (see Figure 5). Residents in Kenai, Seward, and particularly Valdez are not as sure growth will occur. It is important to note that two-to-three times as many residents expect the population in their area to grow than expect personal employment opportunities to increase.

Figure 5

Proportion Residents Expecting
at Least Slow Increase in
Community Population
Without Petrochemical Development



Public and Private Services

As in the case of employment, residents are more likely to expect population increases than increases in cultural and recreation activities, the quality of public services, and the number of stores (see Table 15). Valdez residents are the major exception, generally expecting public and private services to match the moderate expected growth in population. In addition, Anchorage and Kenai residents expect the number of stores to roughly keep pace with the number of people.

Table 15

Expectations for Public and Private Service Changes Without Petrochemical Development

Proportion Expecting At Least Slow Increases	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Cultural and Recreational Activities	59%	50%	33%	48%	46%	40%	46%	30%	45%
Quality of Public Services	38%	28%	31%	51%	32%	46%	49%	37%	39%
Number of Stores	70%	56%	35%	48%	30%	52%	43%	31%	51%

Undesirable Changes

Of the changes overwhelmingly viewed as negative, the one most commonly expected to increase is the cost of living (see Table 16). Despite state and local action this year, more than a third of the state's residents expect property taxes to increase at least slowly. Concerning the two changes viewed most negatively, air and water pollution, most residents in most potential development areas do not expect much change. In Anchorage and Fairbanks, however, substantially higher proportions of residents expect air and water pollution to increase.

Table 16

Expectations Regarding Undesirable Changes

Proportion Expecting At Least Slow Increases	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Property Tax	45%	43%	40%	55%	43%	39%	57%	39%	43%
Cost of Living	74%	60%	53%	74%	61%	78%	76%	71%	73%
Distance to Hunt and Fish	41%	28%	17%	34%	15%	38%	39%	28%	35%
Distance to Out-Door Recreation	31%	26%	8%	25%	12%	36%	16%	17%	25%
Air Pollution	52%	22%	15%	29%	19%	47%	26%	22%	38%
Water Pollution	47%	22%	17%	26%	19%	36%	35%	26%	36%

Overall Expectations

We have seen that residents do not expect rapid changes in their community over the next ten years if petrochemical development does not occur. Most residents do not expect personal employment opportunities to increase significantly, although they do foresee their community growing in population and the cost of living increasing. Finally, most residents do not expect the amount of air and water pollution in their community to significantly increase. Variations in expectations between communities appear to stem from differences in the expected change in economic activity without petrochemical development. Anchorage heads the list in expected increases in employment, population, cultural and recreational activities, stores, distance to hunting and fishing, air pollution and water pollution. Valdez falls at the other extreme.

How have residents combined their expectations and values to form an assessment of the future? Sixty-four percent statewide expect their community to be just as good a place to live ten years from now as it is today (see Table 17). There is little variation in this proportion among the communities being considered for petrochemical development. There are some differences, however, in how the balance of the population divides between positive and negative assessments, with residents of Valdez and the Mat-Su Borough being relatively more optimistic and Seward residents being relatively more pessimistic. With these assessments in mind, we now turn to how residents expect their communities to change with petrochemical development.

Table 17

Overall Assessments of Community Change Without Petrochemical Development

Next Ten Years Compared To Now[1]	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Better	19%	16%	17%	26%	25%	17%	26%	9%	16%
Just As Good	60	68	50	54	60	67	65	69	64
Worse	19	16	29	19	15	16	8	10	15
Don't Know, Depends	2	--	4	1	--	--	1	12	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1]The question read, "Given what you expect to see change in your community over the next ten years assuming no petrochemical development in Alaska, would you say your community will be a better, a worse, or just as good a place for you to live as it is now?"

CHAPTER SIX

EXPECTATIONS AND ATTITUDES TOWARD CHANGE WITH PETROCHEMICAL DEVELOPMENT

During the interview we told our respondents, "Let's now assume a petrochemical industry does develop in your community.[1] The most likely locations for petrochemical plants are Kenai, Seward, Fire Island in the Cook Inlet, Point MacKenzie across from Anchorage in the Matanuska-Susitna Borough, and Valdez. Some development might occur in Fairbanks. A gas liquids pipeline would run from Prudhoe Bay to the Gulf of Alaska or the Cook Inlet." Without providing any further information, we then asked our respondents how they expected their community would change if petrochemical development occurred. We next asked questions concerning the respondents' familiarity with petrochemical development, presented respondents with the petrochemical development information contained in Chapter Two, and asked them for their revised expectations and attitudes.

In this chapter, we begin by explaining why the information presented during the interview was necessary to make a valid assessment of public attitudes. We then compare residents' expectations before and after the information presentation with their expectations assuming no petrochemical development takes place. The final section of the chapter focuses on the public's overall attitudes toward petrochemical development.

Familiarity with Petrochemical Development

Half of the residents of Alaska believe they are at least somewhat familiar with the petrochemical industry (see Table 18). Almost half have read about the Dow-Shell study and talked with others about petrochemical development. On the other hand, our respondents were reluctant to guess how much a petrochemical complex might cost to build, and when they did, they usually guessed far too low (see Table 18). Residents also underestimated the number of people who would work at a petrochemical facility, and few could think of a product that actually could come from a petrochemical facility based on gas liquids.

Given the lack of public awareness about some of the basic characteristics of a petrochemical plant, the chances are high that many Alaska residents are basing their opinions on misinformation. This is

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[1]Throughout the interview, we used the word "community" in interviews conducted in Valdez, Seward, and Kenai; the word "borough" in interviews conducted in Fairbanks, Anchorage, the Mat-Su Borough, and the remainder of the Kenai Borough; and the phrase "in Alaska" in interviews conducted elsewhere in the State.

why we designed much of our interview around an information package that explained petrochemical development. It is also interesting to note that 97 percent of our respondents think the approach of providing information should be used in other studies.

We designed our survey sample to be representative of the general public. Once we presented each respondent with information, however, we transformed our sample to represent an informed general public; that is, as if they, too, had the opportunity to personally learn about petrochemical development from an interviewer. Since the vast majority of the general public did not have this opportunity and since their concerns and opinions, however misinformed, are important both politically and as an indicator of the need for public information, we asked our respondents to provide parallel sets of expectations and attitudes: one before and one after we presented information on the form and effects of petrochemical development.

Table 18

Familiarity with the Petrochemical Industry

Personal Assessment	Percent
Very Familiar	4%
Somewhat Familiar	47
Just Heard Of It	36
Never Heard Of It	13
	100%

Personal Experience	
Read about Dow-Shell Study	43%
Talked with Friends and Relatives about Petrochemical Development	39%
Lived Near a Petrochemical plant	27%
Attending public meeting where petrochemical development was discussed	8%

Personal Knowledge

Median public estimate of plant workforce:	300	ISER estimate:	700-900
Median public estimate of plant cost:	$75 million	ISER estimate:	$2 billion

Products	
Mentioned Possible Product	27%
Mentioned Inappropriate Product	29
Did Not Know, Declined to Guess	44
	100%

Expectations for Change with Petrochemical Development

In Chapter Five, we noted that few respondents expected any specific community characteristic to change rapidly without petrochemical development. The clearest way to compare expected changes, then, is to report the difference in the proportion of residents who expect a rapid increase in a given community characteristic with petrochemical development versus without petrochemical development. For example, 13 percent of Anchorage's residents expect the number of jobs in their area related to the oil and gas industry to increase rapidly over the next ten years without petrochemical development. With petrochemical development, but before information was presented in the interview, the comparable figure was 78 percent. For this and other comparisons, we will report the difference between 78 percent and 13 percent, or 65 percent.

Employment

Residents living in or near the six sites being considered for petrochemical development expect such development would rapidly expand employment related to the oil and gas industry (see Table 19). Residents living elsewhere in the State expect some increase as well. As residents heard about the probable employment requirements at the facility, they revised their own expectations upward, particularly in Kenai, Seward, and the Mat-Su Borough (see Table 19).

Table 19

Expectations for Changes in Employment
With Petrochemical Development
(Before and After Information)

Increase in Percent Expecting Rapid Increase in Employment In Community	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Oil and Gas									
Before	65%	78%	70%	65%	78%	66%	63%	26%	52%
After	68	90	82	96	85	72	61	25	55
Government									
Before	38%	42%	41%	41%	36%	47%	31%	17%	32%
After	50	56	67	53	51	61	51	24	43
Tourism and Recreation									
Before	32%	28%	35%	14%	30%	16%	19%	13%	21%
After	30	42	35	19	28	11	41	14	23
Logging									
Before	20%	10%	12%	11%	2%	17%	7%	10%	15%
After	18	14	12	17	5	17	6	12	16
Agriculture									
Before	14%	14%	8%	4%	2%	18%	0	2%	10%
After	14	16	8	12	3	10	2	6	12
Fishing									
Before	11%	12%	10%	5%	3%	3%	2%	7%	7%
After	7	6	2	5	4	8	4	7	6

Following the expected direct surge in employment, residents think the next largest increase will be in government jobs (see Table 19). Remember, however, that we asked our respondents only about employment changes in sectors that are the driving force in the economy. Residents may expect other industries (which we did not ask about) to expand more rapidly than government.

We included questions on renewable resource industry employment because we thought the public might believe the introduction of a new industry would help or hurt industries we already have in Alaska. If our respondents' expectations are correct, the petrochemical industry will spur employment related to tourism and recreation, perhaps because of anticipated population increases (see Table 19). Information presented during the interview did not significantly change this expectation in most areas. In Kenai and the remainder of the Kenai Borough, however, expectations for an expanded tourism and recreation industry increased following the information presentation. Since Kenai and Kenai Borough residents perceived the tourism and recreation industry as the most likely to expand without petrochemical development and since they expected more rapid expansion of the industry with petrochemical development, it appears that the residents expect that petrochemical development and tourism and recreation could become complementary cornerstones of the Kenai Peninsula economy.

Residents in all areas foresaw much smaller complementary effects with regard to logging and agriculture. We should point out that given time constraints during the interview we did not mention the ammonia-urea plant that is part of the Dow-Shell feasibility study. The association between petrochemical development and agriculture might have been stronger had we described this component of the project.

Residents' perceptions of how petrochemical development would affect fishing are not adequately described by changes in the proportions of residents expecting rapid employment increases as reported in Table 19. Rather, we need to look at the proportions of residents who expected employment opportunities related to the fishing industry would decrease (see Table 20). Residents in Anchorage, Kenai, Seward, the Mat-Su Borough, and Valdez are clearly more likely to expect a decrease in employment related to fishing if petrochemical development occurs. The effect of our petrochemical information on resident expections, if any, was to increase concern.

We do not know the basis for the perceived conflict between the fishing and petrochemical industries. Two of the possible reasons may be that residents think the anticipated volume of shipping (150-250 tankers and cargo ships per year) will conflict with fishing boats or pose hazards of potential spills. Alternatively, residents may think warm water discharges could affect fishing, or they may expect higher relative wage rates in the petrochemical industry will draw people

away from the fishing industry. Further study is needed to identify the real basis of concern and to determine whether or not there are grounds for expecting the concern to prove to be valid.

Table 20

Perceived Conflicts Between Petrochemical Development and the Fishing Industry

Percent Residents Who Expect Decrease in Employment Related to Fishing	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Without Petrochemical Development	4%	2%	2%	3%	2%	3%	0	7%	2%
With Petro. Before Information	23	6	18	18	22	11	10	11	5
With Petro. After Information	27	14	29	23	25	10	10	10	7

Our final employment-related comparison shows how residents expect petrochemical development will affect personal job opportunities. We find that roughly a third to a half of the State's residents expect that their own job opportunities will increase rapidly because of petrochemical development (see Table 21).

Table 21

Expectations for Changes in Personal Employment Opportunities (Before and After Information)

Increase in Proportion Expecting Rapid Increase in Personal Employment	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Before	38%	42%	49%	33%	42%	36%	26%	15%	31%
After	40	54	61	47	60	47	43	23	36

Population and Services

Without petrochemical development, most residents expect that the population will increase slowly in their community. With petrochemical development, most residents in areas being considered for potential sites believe the local population will increase rapidly (see Table 22). Our information led even more residents to expect rapid increases, probably because many respondents underestimated the size of the proposed facility before they were given the information package.

As we have seen in Chapter Four, most residents would prefer the local population not to grow but are willing to tolerate such growth if it provides other benefits such as cultural and recreational activities, stores, and better public services. The results reported in Table 22 suggest that many, but generally not most, residents expect that these benefits will accrue as rapidly as the population will expand.

Table 22

Expectations for Changes in Population and Services with Petrochemical Development (Before and After Information)

Increase in Percent Expecting Rapid Increase		Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Population										
	Before	61%	78%	72%	58%	87%	62%	47%	29%	50%
	After	66	88	86	72	91	71	68	25	54
Cultural & Recreational Activities										
	Before	29%	28%	31%	16%	29%	20%	16%	8%	19%
	After	23	26	33	30	31	25	30	12	19
Quality of Public Services										
	Before	21%	24%	25%	25%	27%	22%	25%	5%	16%
	After	29	36	49	40	36	27	41	13	25
Stores										
	Before	45%	48%	37%	41%	46%	40%	29%	6%	30%
	After	52	56	70	57	60	52	27	10	37

Undesirable Changes

To briefly tally the expected positive and negative effects of petrochemical development we have discussed so far, we found that roughly a third to a half of the residents in the potential development areas and a quarter of state residents living elsewhere expect personal employment opportunities will rapidly increase. Up to 90 percent of the residents in the potential development areas expect the local population to increase rapidly. Most view this increase with mixed feelings.

In most instances, about a third of the residents in potential development areas expect petrochemical development would result in rapid increases in the property taxes, the cost of living, the distance one must go to find good hunting and fishing or outdoor recreation opportunities, and in the amount of air and water pollution (see Table 23). Expected effects elsewhere in the State are predictably smaller.

Our information appears to have had the biggest effect on expectations concerning air and water pollution. Anchorage residents seemed more likely to expect rapid increases in air pollution from petrochemical development, perhaps because the scenario linked air quality primarily to population growth, not to the petrochemical facility itself. A similar shift among Anchorage residents with regard to water pollution is less understandable but nevertheless evident in Table 23. Kenai and Seward residents' expectations that rapid increases in air and water pollution would accompany petrochemical development may have increased slightly following the information presentation, but the difference is not significant.

Table 23

Expectations for Undersirable Changes
With Petrochemical Development
(Before and After Information)

Increase in Percent Expecting Rapid Increase		Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Property Taxes										
	Before	21%	27%	22%	16%	15%	11%	38%	14%	18%
	After	26	38	29	21	17	12	45	0	17
Cost of Living										
	Before	35	32	21	20	36	31	24	19	28
	After	39	46	29	30	39	31	41	18	31
Distance to Good Hunting and Fishing										
	Before	35	30	33	29	17	32	30	6	24
	After	37	36	35	32	30	34	39	8	27
Distance to Good Outdoor Recreation										
	Before	25	22	24	18	9	26	18	17	18
	After	31	30	25	28	22	30	35	8	23
Air Pollution										
	Before	38	31	32	31	36	45	26	17	31
	After	54	36	40	29	33	41	31	5	33
Water Pollution										
	Before	41	27	31	28	26	37	26	11	29
	After	54	40	40	29	30	33	29	6	32

Overall Assessments

Alaskans agree that the most important benefits of petrochemical development involve the economy (see Table 24). Fifty-nine percent mentioned jobs as the most important benefit, and 28 percent mentioned other economic effects, including 16 percent who think petrochemical development would provide a more stable economic base in Alaska.

Our question concerning the most important negative effects brought a much more diverse response (see Table 24). Eighty-five percent mentioned some form of environmental effect, air pollution and water pollution being the principal concerns. Other negative effects considered important included social, economic, health, and fish and wildlife impacts.

Table 24

Most Important Benefits
and Costs of Petrochemical Development

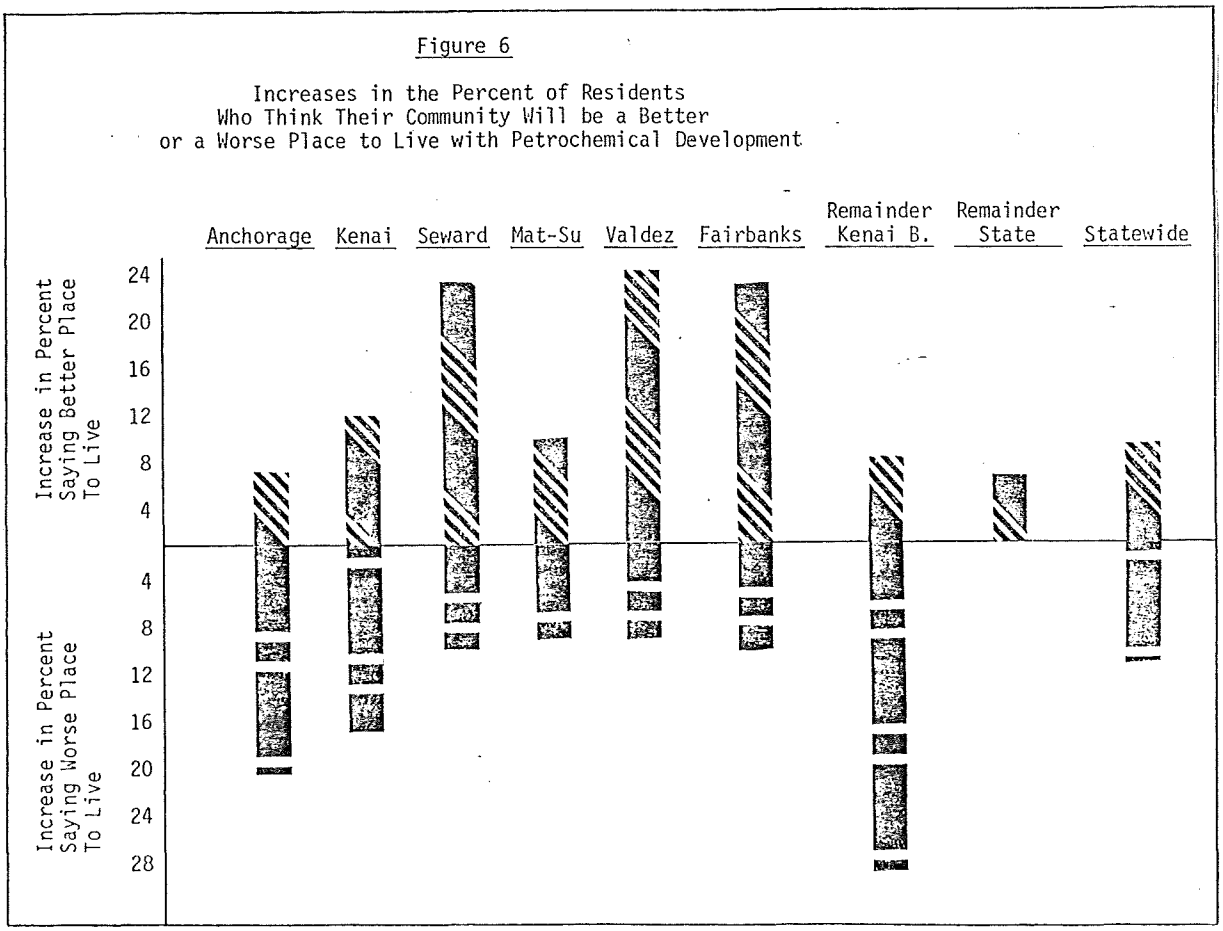
	Percent
Benefits	
Employment	59%
Other Economic Effects	28
New Products	10
Best Use of Resources	4
No Benefits	5
Costs	
Environmental Effects	85
Air Pollution	18
Water Pollution	15
Social Effects	40
Population Increases	20
Economic Effects	15
Increase Boom, Bust Cycle	6
Health Effects	13
Fish and Wildlife Effects	5
No Costs	5

How do Alaska residents think all these changes will affect the quality of their community as a place to live? We noted in Chapter Five that without petrochemical development most residents expected their community to be just as good a place to live in ten years as now. With petrochemical development, substantially fewer residents felt the same way. They were more likely to believe their community would change for the better or the worse, depending on how they weighed the disparate changes we have discussed above.

To understand Alaskan attitudes toward petrochemical development, we have to look at our survey results from several different perspectives. First, comparing overall assessments of the quality of the resident's community as a place to live with and without petrochemical development, we find that the shifts in residents' assessments vary by community (see Figure 6). Anchorage residents and people living on the Kenai Peninsula outside of Seward and Kenai itself tended to shift toward negative assessments should petrochemical development occur in their communities. Valdez and Fairbanks residents, on the other hand, tended to shift toward positive assessments. In Kenai and in the Mat-Su Borough, shifts toward positive and negative assessments did not significantly differ. The Seward shift appears as positive as that observed in Valdez and Fairbanks, but because of the small sample size in Seward, we cannot statistically conclude that the shift is positive.

Figure 6

Increases in the Percent of Residents
Who Think Their Community Will be a Better
or a Worse Place to Live with Petrochemical Development



Another way to look at the survey results is to ask, "how many people think their community will be just as good or a better place to live ten years from now assuming both petrochemical development and other expected changes?" The answer in every community exceeded 50 percent of the adult population (see Table 25). Although the assumption of petrochemical development caused many residents to shift from thinking their community would be just as good a place to live to a more positive or a negative assessment, the group of people who believed their community on balance would not be adversely affected by petrochemical development can be viewed as a "swing vote" in the sense that they create the majority whether they are added to those giving negative assessments or to those voicing positive assessments.

Table 25

Overall Assessments of Community Change With and Without Petrochemical Development

With Petrochemical Development[1]	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Better Place to Live	26%	28%	40%	36%	49%	40%	34%	15%	25%
Just as Good a Place to Live	31	37	17	33	27	32	28	67	44
Worse Place to Live	39	33	39	28	24	26	36	10	26
Don't Know	4	2	2	3	--	2	2	8	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%
Without Petrochemical Development									
Better Place to Live	19%	16%	17%	26%	25%	17%	26%	9%	16%
Just as Good a Place to Live	60	68	50	54	60	67	65	69	64
Worse Place to Live	19	16	29	19	15	16	8	10	15
Don't Know	2	--	4	1	--	--	1	12	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1]After information presented

Finally, did the information presented during the interview influence public opinion? Overall, the patterns of response are remarkably similar (see Table 26). Despite the superficial similarity, however, we found that 41 percent of our respondents changed their opinion.

Table 26

Changes in Public Attitudes
Concerning Petrochemical Development

Overall Assessment of Community Change After Information	Overall Assessment of Community Change Before Information: Better Place To Live	Just as Good A Place To Live	Worse Place To Live	Don't Know
Better Place to Live	57% [1]	26%	12%	18%
Just As Good a Place To Live	35	56	17	2
Worse Place To Live	6	10	69	26
Don't Know	2	8	2	54
	100%	100%	100%	100%
Number of Respondents:	183	317	192	26

[1]This percentage means that 57 percent of those who thought their community would be a better place to live with petrochemical development, but before becoming informed, made the same assessment after we presented our description.

Public Attitudes Concerning State Actions

Although petrochemical development is a complex issue and although we have seen that public perceptions are equally complex, we can and have asked the public to provide some guidance to the State concerning petrochemical development. When asked, "Should the State encourage petrochemical development in Alaska?", a majority of our respondents said "yes" (see Table 27). Assuming a maximum sampling error for each target population, we concluded from the survey responses that a majority of the adults in Valdez, Fairbanks, Kenai, Seward, the Mat-Su Borough, the remainder of the Kenai Borough, and in the State as a whole want the State to encourage petrochemical development. We should note, however, that many of our respondents explicitly stated conditions along with their support. They did not intend to relieve the State of its responsibility to insure that such development makes economic sense, is environmentally sound, and is socially responsible.

Table 27

Should the State Encourage Petrochemical Development?

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Yes[1]	52%	74%	67%	71%	83%	76%	67%	58%	59%
No	36	16	12	21	10	20	19	25	28
Don't Know	12	10	21	8	7	4	14	17	13
	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1]Note: Many responses included conditions.

The survey responses in Anchorage and in the "remainder" of the State were too close to 50 percent to allow us to conclusively state that a majority of adults want the State to encourage petrochemical development. If we were to interview all Anchorage adults, we would expect the actual level of support to be between 44 and 60 percent. In the remainder of the State we would expect the actual level of support to be between 46 and 70 percent.

The difference in response patterns between the assessments of community change and the question of state support for petrochemical development is noteworthy. It suggests that most residents who see neither a net gain or loss in terms of the quality of their community as a place to live, nevertheless, want the State to support petrochemical development. Why? Perhaps because a surprising number of people are interested in work associated with petrochemical development (see Table 28). Many of these residents may not think of personal employment opportunities as contributing to the quality of community life as they define it. Forty-eight percent of the people who believe their community will be just as good a place to live with petrochemical development expressed an interest in work associated with petrochemical development. Even 12 percent of those who think their community will be a worse place to live want such work. Certainly, attitudes toward petrochemical development and employment interests are strongly related (see Table 29).

Table 28

Interest in Work Associated
With Petrochemical Development

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Yes	32%	52%	49%	39%	51%	43%	31%	24%	32%
No	59	44	35	54	42	53	57	64	59
Don't Know, Depends	9	4	16	7	7	4	12	12	9
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 29

Interest in Work Associated
with Petrochemical Development
and Public Attitudes

Should State Encourage Petrochemical Development	Interested in Work Related to Petrochemical Development: Yes	No	Don't Know
Yes	83%	47%	58%
No	5	42	15
Don't Know	12	11	27
	100%	100%	100%
Number of Respondents:	292	382	60

We also asked our respondents if the State should negotiate with the Dow-Shell Group to sell the State's royalty gas liquids. In this case, a clear majority of residents in the Fairbanks and Mat-Su Boroughs and Valdez indicated "yes." The data suggest support in the other areas and statewide as well, although we cannot be absolutely sure a statistical majority would say yes (see Table 30). Comments recorded during the interview suggest that many of our respondents did not feel qualified to judge the alternatives: what other companies are interested? must the State sell its gas liquids to have petrochemical development? We interpreted the results to mean that the public would support State negotiations with the Dow-Shell group if the State would examine the alternatives and determine that is the best course of action.

Table 30

Public Attitudes Toward Negotiation with the Dow-Shell Group

Should the State Negotiate with the Dow-Shell Group to Sell the State's Royalty Gas Liquids?	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Yes	50%	50%	63%	71%	64%	62%	59%	62%	54%
No	33	22	4	17	16	22	20	22	25
Don't Know	17	28	33	12	20	16	21	6	21
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Finally, we asked our respondents if they thought the State should help finance local costs associated with population increases stemming from development even though property tax revenues and employment benefits would probably primarily accrue locally. Residents of the communities being considered for petrochemical development as well as residents statewide supported this action (see Table 31).

Table 31

Public Attitudes Toward State Assistance with Local Public Service Costs

Should the State Consider Using State Money to Help Provide Public Services?[1]	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
Yes	75%	78%	84%	84%	77%	85%	80%	62%	72%
No	21	18	18	14	20	12	18	32	23
Don't Know	4	4	2	2	3	3	2	6	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1]The question read, "Most of the benefits of a petrochemical development in Alaska would occur in the communities near the plant's location. At the same time, the area's population would increase, requiring additional services like schools, electric power, water and sewer systems. The local government may not be able to finance all these services when they are first needed. Do you think the state should consider using state money to help provide these public services?"

Public Interest in Special Studies

During the interview, we stated, "If the State conducts a detailed study of the potential effects of a specific petrochemical plant, the study will address many topics. The State would like to know which of these topics deserve special attention. Which three topics listed on this card do you think deserve special attention?" The responses, displayed in Table 32, indicate essentially equal levels of concern about five of the eight topics covered. Overall, the pattern of results suggests greater concern for environmental and health effects than for social and economic effects, perhaps because the latter are better known.

Table 32

Public Interest In Special Studies

	Percent Mentioning Among Top Three Choices
Transportation of Chemicals	53%
Public Health	48%
Air Quality	48%
Solid Waste	47%
Water Quality	47%
Employment	31%
Population	15%
Public Services	10%

CHAPTER SEVEN

PUBLIC INFORMATION PROGRAM DESCRIPTION

Our mandate was to provide information about petrochemical development to the majority of interested Alaskans. To accomplish this objective, we produced information features for television, radio, and newspapers.

Television Features

In association with Connections, an Anchorage-based video and audio production house, we designed and produced five 90-second television mini-features. Each feature started with an introduction by Governor Jay Hammond and focused on one of five topics:

- What are petrochemicals?
- What would a petrochemical facility look like?
- What are the possible locations for petrochemical development?
- What employment would result?
- What would be the effects on health and the environment?

Each feature ended with an invitation to call the petrochemical hotline and to come to the public meetings. We constructed the script of the information portion of each feature from the description of petrochemical development given at the conclusion of Chapter Two.

The television features were aired on five commercial television stations, the public television stations in Anchorage and Fairbanks, and the state satellite television network between May 31 and June 16, 1981. In association with the T.H. Reynolds Advertising Company, we placed seventy-one spots during early evening news broadcasts, prime time, and late news broadcasts in order to reach a maximum viewing audience. We estimate that the features placed on Anchorage and Fairbanks commercial stations were seen by a cumulative total of more than 600,000 households during that period, where a household is counted as many times as it received a broadcast. We cannot calculate how many of the approximately 100,000 separate households in the Anchorage and Fairbanks areas actually viewed the television features, but we believe the likelihood is high that the majority of households viewed at least one of the series.

Radio Features

Western Media Concepts, Inc., produced five radio documentaries, again based on the description contained in Chapter Two. Using a question and answer format, these aired on nine public and commerical radio stations in Interior and Southcentral Alaska from May 22 to June 15, 1981. We estimate a cumulative total of over one million radios received a broadcast. In addition to the commercial stations, public radio carried the documentaries, and both commerical and public stations carried public service announcements about the public meetings.

Newspapers

We prepared feature news stories, including the description and diagrams shown in Chapter Two, and worked with newspapers in each of the areas being considered for petrochemical development to run the stories during the first two weeks of June. In addition, we released highlights of the survey findings immediately prior to the public meetings.

Telephone Hotline

We logged 113 calls on the petrochemical hotline, which operated from 8 a.m. to 5 p.m. weekdays between June 1 and June 20, 1981. We attempted to send to each caller an information packet containing the description of petrochemical development; the Governor's September 9, 1980, speech on petrochemical development; and a short questionnaire. In addition, we recorded questions and opinions and answered as many questions as possible at the time of the call. Unfortunately, technical difficulties interfered with calls placed to the hotline from Anchorage telephones. We believe the hotline would have been far more effective if Alascom's zenith numbers had worked in the Anchorage area.

CHAPTER EIGHT

PUBLIC MEETINGS

The two principal objectives of the public meetings were to inform the interested public about petrochemical development and to enumerate the public's questions, concerns, and recommendations. Over 1,000 Alaska residents participated in the public meetings, generating over 1,000 questions and 500 comments, questions, and recommendations, which we summarize in this chapter.

Our assessment of the distribution of public attitudes toward petrochemical development is not derived from the public meeting results; rather, it is based on the survey results reported earlier. The public meetings served the critical function of identifying the range of public concerns, opinions, and questions.

Format of the Public Meetings

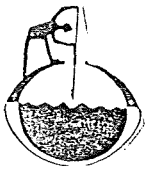
The agenda used in the six public meetings is reproduced in Figure 7. We edited the remarks by Lee Gorsuch, Mary Halloran, Glenn Akins, and each of the local government representatives and present them here to give the reader an actual sense of the public meetings. The script for the slide show consisted of a narration of the text reproduced in Chapter Two.

Introductory Remarks by Moderator Lee Gorsuch, Director, Institute of Social and Economic Research

Good evening, ladies and gentlemen. And welcome to the Anchorage community meeting on petrochemical development in Alaska. My name is Lee Gorsuch. I am the Director of the Institute of Social and Economic Research with the University of Alaska. We have been contracted by the Governor's office to perform a series of tasks concerning the possibilities of a petrochemical development in Alaska. One of those consisted of a statewide survey to assess the public attitudes toward the petrochemical development. The second was to conduct a media campaign providing objective information associated with the project. The third, and our reason for being here this evening, was to hold public meetings in the six possible sites for petrochemical facilities to identify the public's concerns, recommendations, and opinions regarding the possibilities of a petrochemical development.

Our basic purpose this evening is not to argue in favor of or against petrochemical development, but rather to provide you with an objective assessment of what we understand the possible development to be. The first half of the meeting this evening will be dedicated towards providng that information base. From 7:15 to 8:15, we will have a series of presentations to make to you. At 8:15, we will break up into small groups of fifteen to twenty people. The first purpose

Figure 7



INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA

STATE PETROCHEMICAL STUDY

SPRING 1981

AGENDA

Introductions By Moderator Lee Gorsuch, Director Institute of Social and Economic Research University of Alaska	7:00 - 8:00 p.m.
I. INFORMATION PROGRAM	
History of Petrochemical Project By Mary Halloran, Special Assistant for oil and gas matters to the Commissioner of the Department of Natural Resources, State of Alaska	
Slide Show and Narrative Prepared by ISER	
Environmental Concerns and Regulations Regarding Petrochemical Development By Glenn Akins, Deputy Commissioner Department of Environmental Conservation State of Alaska	
How Petrochemical Development Might Fit into Community's Overall Economic Development Plan By City or Borough Government Representative	
II. SMALL GROUP SESSION Citizens' questions, opinions, concerns, and recommendations	8:00 - 9:15 p.m.
III. RETURN TO GENERAL ASSEMBLY Answers to small groups' questions Summary reports from small group leaders	9:15 - 10:30 p.m.
Final Summary Hand in completed questionnaires	

Monday, June 8	Fairbanks, Ryan Junior High School
Tuesday, June 9	Palmer, Palmer High School Little Theater
Wednesday, June 10	Anchorage, Lucy Cuddy Center ACC Campus
Thursday, June 11	Valdez, City Council Chambers
Monday, June 15	Kenai, New City Hall
Wednesday, June 17	Seward, City Council Chambers

of these discussion groups is to give you the opportunity of specifying what additional questions you have about the project for which an answer would help you establish your position, your point of view, or your recommendation. We will circulate among the groups about 30 minutes after they have convened to collect the questions and to come back and begin preparing our responses. The balance of the small group session of about 45 minutes would then be dedicated to enumerating the specific concerns and recommendations you have about the project which you would like to share with the Governor's office. The idea is not to try to develop any kind of concensus. Everyone here this evening is a citizen of Anchorage and is entitled to express his or her own opinion, to state his or her concerns, and to forward any kind of recommendations he or she wishes to make.

With the large number of people here this evening, we will not be able to respond to all the questions; but in the two meetings we have held to date in Fairbanks and Palmer, we have done a fairly good job of covering at least a broad representation of the questions the public has about the project.

If you have not picked up an information packet, please do so at the back of the room. In the packet, you will find an agenda for the evening as well as a series of biographical sketches of the persons who will serve as our resource panelists. There is also included a very brief description of the possible petrochemical development. Finally, there is a one-page questionnaire that gives you an opportunity before leaving here this evening to state your point of view. Before we break into our small discussion groups, there are three presentations we would like to make this evening.

Mary Halloran, Special Assistant to the Commissioner, Department of Natural Resources

The impetus for this project actually started out of the TAPS experience where Fairbanks faced the typical Alaskan experience, a great boom and then a bust. People in Fairbanks wanted to look at ways of possibly using Alaska's resources so that there was some long-term local value to that resource use.

About two years ago, the Governor appointed a task force of people to look into the possibility of receiving some additional value from our royalty gas liquids through a petrochemical development. The only other way that we could use them would be to put them in the Northwest pipeline and ship them out of the state. The task force was to examine whether or not petrochemical development in the State might be economically feasible and environmentally sound. What the task force finally decided was that the only way to really test that out was to contact private industry and see if they were interested in looking at the question. We, at the Department of Natural Resources, then sent out a letter of solicitation of interest to about 700 chemical firms worldwide and received back about 40 replies from major

chemical companies. We sent them a list of further questions and asked for a sound commitment from the firms. We wanted them to understand what they were getting if they began to do business in Alaska. We got back about seven proposals, one of which was the proposal from the Dow-Shell Group which was later joined by Earth Resources, which is now known as MAPCO Alaska, or the North Pole Refinery and Mitsubishi Chemical, ASAHI Dow, and other companies. These proposals then went out for public hearings in Anchorage and Fairbanks. After the public hearings, the task force met again and went through a series of deliberations and finally decided that out of the groups that were interested, they would like to recommend the Dow-Shell Groups to the Governor to do a feasibility study here. The Governor accepted that recommendation, and on September 9th of 1980, we signed a memorandum of understanding between the Dow-Shell Group and the State of Alaska, providing basically that they do the feasibility study and that we in turn would not sell our royalty gas liquids to anyone else during the course of the study.

On September 9th the Dow-Shell Group is to return to the State with the results of their feasibility study. We have asked that the study be in enough depth so that they can tell us whether or not they are willing to make an investment here. We have also asked them to examine the environmental considerations, and they have agreed to add the health considerations and several other infrastructure issues. When we review the report, we will determine whether or not the State feels that it is in its best interests to go ahead with the sale of its royalty gas liquids to the Dow-Shell Group. And if the State does feel that it is in its best interests, then the next step would be contract negotiations, including what conditions must be met to sell the royalty gas liquids. For example, do we want standards here that are stricter than Federal standards? That is one of the main reasons why we think the public hearings are so important. We want to have a good handle on what local communities want if we do, in fact, go ahead with this project. What you feel is important in having the project work.

The Governor has said that he has three policy considerations in making his determination about whether to continue with the project. Number one is that it be environmentally sound; number two is that it be economically sound; and number three is that it have local community acceptance. Those are the three things that we will be trying to look at in September and in the 75 days that follow. Depending on the outcome of all that review and analysis, we may or may not have a gas liquids contract that we would then take out for public hearing again and go to the State Legislature for approval or disapproval. That is the process so far, and that is the process we see in the future.

Glenn Akins, Deputy Director of the
Department of Environmental Conservation

The role of the Department of Environmental Conservation in Alaska is to prevent pollution because we have a clean environment here. The environmental business in this State is somewhat different than in other states where cleaning up the problems that already exist is the main issue. In terms of this project, the Department has a slightly different role than we had for many other projects in the past. In the case of an existing industry, such as the seafood processing industry or oil refineries, we have looked at the State standards and we have looked at the characteristics of the industry to see if it meets the standards. If an industry meets the state and federal and local standards and regulations, permits are issued.

With this particular project, the Dow-Shell proposal, the Department has a couple of additional roles. The first one is what we are doing tonight, taking a look at the industry overall to see if it meets the Governor's criteria, that it is an environmentally sound industry. Tonight we are getting your questions and concerns. We are also taking a look at the technical questions that surround such an industry, using a team of technical experts both in the State and, where necessary, out of State. We are looking at the petrochemical industry as it operates in different parts of the country.

Also, we are reviewing existing State standards. With a new industry we have to ask, "are the standards that we have at the State level right now adequate to deal with any new pollutants, any new operations that we have not previously dealt with." And I have to tell you that State standards are constantly in the process of being revised based on new information. So this is nothing that is unique to the petrochemical industry; it is a process that continues.

If the project, the Dow-Shell proposal, is found to be economically feasible, overall environmentally sound, and if there is community acceptance, it would go into the next stage, the preparation of an environmental impact statement. The preparation of an EIS could take up to two years and could possibly cost 10 to 15 million dollars, just at a guess. Under new federal regulations for environmental impact statements, the Federal lead agency has to initially conduct the process that is known as scoping. And what that means, simply, is that the agency responsible for the EIS has to go out to the communities concerned, to agencies, and to interest groups, and ask what concerns you have that should be addressed on the impact statement. They are then responsible for seeing that those questions and concerns are addressed through the preparation of the EIS. These meetings I regard as being inputs to that scoping process. The questions that you develop in the small groups will be a part of the record and can be used at the time an EIS is prepared.

What permits and regulations would be required for the construction of a petrochemical facility in Alaska? There are federal permits that would be required; there are state permits that would be required and also local authorizations. I personally don't feel that this results in a lot of duplication. Basically the federal permits emphasize technology, pollution control, and pollution-treatment technology. The requirements are that a new facility would have to include the best pollution control equipment available.

State standards, on the other hand, emphasize local conditions at the area of discharge: what special air quality concerns--what special uses of the waters are made at the areas of discharge? And finally, local governments, through planning and zoning, emphasize land-use compatibility, community lifestyle concerns.

A question that has come up in other communities is, who has the final word? Does the federal permit override the state permit? Basically, State standards can be used to modify a federal permit, and there have been cases in Alaska where the State has applied more stringent conditions to an operation than has the federal government. The State does have the ability to look at a new industy and include more stringent concerns if there is evidence that the federal standards may not be adequate for the needs of the State.

What are the main environmental impacts from the petrochemical industry, and what permits would be applied to those impacts? From the slide show, remember that there are four components to the project: an extraction plant at the North Slope; a pipeline running from the North Slope to the Interior and to tidewater; possible production facilities in the Interior around Fairbanks; and finally, the main production facilities at a tidewater site. I will be talking primarily about the main complex. First, the facility would produce oxides, hydrocarbons, and solid particles, basically equal to a power plant that would run a city of about 200,000 people. However, the discharge from that plant may not be the main effect. There would also be the effects of growth. You saw from the slide program that there would be major population growth from such a facility. The automobiles and the overall growth effects from the plant actually might be the main air quality control concern. A permit from the federal government under the Clean Air Act would be required. This permit requires at least a year of monitoring of the existing air quality in the community and also extensive mathematical modeling of where the pollutants would go, what areas they would effect. It would have to be determined that the pollutants would not reduce the quality of the air, basically the clean air, in an Alaskan community beyond a certain limited amount.

Any waste water from a petrochemical plant would require a very high degree of treatment, including secondary treatment through a biological system, and then final polishing or filtering using a mechanical process. Also, any plant would include several days of

retention time for the final waste water before it was discharged, in case there was some kind of an upset in the process.

Waste water disposal from a petrochemical plant would come under regulation both by the federal government, under the federal Clean Water Act, and also by the State of Alaska, under our State Water Quality Standards. The federal regulation would require the application of best waste treatment technology. In addition to that, we have State water quality standards that basically protect the uses of waters at a particular site. In other words, specific standards are applied to waters used for recreation, waters used for drinking, and waters used for the production of fish and shellfish. At a particular discharge point, we might find that the federal standards are not adequate to protect the uses that Alaskans are making of the water at that site. We can apply stricter standards to make sure that those uses are protected.

A facility of this size that would produce in the neighborhood of 50 tons of solid waste a day. This would impact local land fills. The state does issue solid waste permits, so there would be a control over the disposal of solid wastes.

Dow-Shell has indicated to us that no hazardous wastes would be taken off the site to a land fill. Hazardous wastes would be incinerated on site, and the ash residue would be neutralized before disposal. Currently, the State of Alaska does have permit authority over hazardous wastes. That authority is faily general, and as a result, we are currently supporting legislation to give us more specific authority over the generation and transport and disposal of hazardous wastes.

A water appropriation permit would also be needed since these types of facilities use a great deal of water. The pipeline coming from the North Slope to the Interior would go across many streams, and a Title 16 permit to protect streams having trout and salmon would be required from the Alaska Department of Fish and Game. Finally, the state through DEC has regulatory authority over tanker transport and the ports.

What is the next step after these meetings? At Fairbanks, at Palmer last night, here, and the other communities, we are going to be getting a lot of questions that we have not yet addressed. We intend to take the results of all of these questions and give them to our State technical group. We will also make some follow-up visits to plants in other parts of the country that are conducting processes similar to what is proposed here. By September 9th, we will have gathered as many answers to the questions that have been raised by you and the technical experts as we can. We will include the answers in our final report, and I can say there will be some method of getting those results back to you. We will indicate the questions that we have answered. We will indicate the questions that we have not been able to answer and need to be answered in the long term.

One final thing. There has evidently been some interest in how long it takes for a proposal to get through all these different regulatory requirements. We feel very strongly that the environmental impact statement can be used to coordinate the permit process. Some of you may be familiar with the ill-fated Alpecto proposal. There was a time, three or four years ago, when the oil industry said that you cannot build a refinery in the United States becuase of the environmental regulations. By using the EIS as a permitting tool, all the permits for Alpetco were issued within 18 months. If industry does a good job in identifying how the standards and regulations can be met, it does not take a long time to get through the permitting process. But it would take probably two years to conduct an environmental impact analysis. If the permit reviews are done within the same period of time as the EIS, that considerably shortens the period of time that is necessary. We also favor using the EIS as a permit coordination tool because it puts in place all of the authorizations that are required for the project. And there is an opportunity through public meetings and public hearings to let people see the results of the review as it proceeds.

Chuck Becker, Director of Economic Development, Anchorage Municipality

The interest that the Municipality of Anchorage has had in Fire Island goes back a long time. Fire Island, for those of you who are a little bit unfamiliar with it, is about 4,100 acres; it is 5.3 miles in length and 2.2 miles in width. It sits about 3 and 1/2 miles off the mainland, off Point Campbell. Back in 1948, the Army Corps of Engineers took a look at the potential of Fire Island offering the Municipality a port site. They found, at that time, that the west point on Fire Island contained a site which had 54 feet of mean low-low water, enough for deep water vessels. They found also that Race Point, another site on Fire Island, had 45 feet of mean low-low water at that time. They also identified a big problem, which was how to access the Island. They designed and engineered a causeway from Point Campbell to Fire Island and identified the cost of that causeway as being $16,400,000.

In 1970, there was additional interest in the Port of Anchorage to take a look at optional sites for port expansion. The port then commissioned a firm called Tipps, Abbott, McCarthy, and Stratton--TAMS. TAMS did a cost estimate based on the Corps of Engineers' original study. They found that the costs has escalated to between 32-to-40 million dollars for the development of that causeway. They said at that time, it was a no go; they also said the factor that would change this assessment was concurrent development of Fire Island for other purposes. In addition, they indicated that the Island would make an ideal site for the storage for liquid petroleum products since it is removed from the center of population.

As you know, we have been exploring the idea of exporting coal. We began thinking about developing Fire Island as our own Robert's Banks. Robert's Banks is an island connected by a three-mile causeway to the coast of Vancouver and is used for the export of coal from British Columbia. We know that we've got the island; all we have to do is build a 3 and 1/2 mile causeway. Minerals are going to be coming out of the Interior and have to get out some way. There was also kind of a unique proposal here about a year and one-half ago, when Baron Edmund de Rothschild brought an idea of harnessing the tides to produce power. His vision of harnessing these tides incorporated Fire Island directly with a causeway going from Point Campbell across the Turnagain Arm and another one going across the Knik from a point north of the Port of Anchorage over to Point MacKenzie. These are examples of the factors that increased our interest in Fire Island. It offers some potential that we just couldn't ignore.

When Dow-Shell began they were only studying five sites in the State of Alaska. Point MacKenzie was not one of those sites. However, we thought that Fire Island clearly has some potential, and we learned that they would not study a site within the State of Alaska unless they were invited to do so. We learned also that they would not locate in a community unless the community wanted them to do so. We learned that the tidewater investment was of such magnitude that it could increase the tax base of Anchorage by an excess of 50 percent. We learned, too, that it would employ about 1,000 persons at the tidewater facility and that 80 percent of those could come from the high schools and the colleges in the State of Alaska and provide jobs for residents of Anchorage.

We also identified a potential for backhauling 1,000 containers every month down to the lower 48, thereby reducing, or at least stabilizing, the cost of the transportation, a cost always reflected in the prices of groceries on our shelves. We found that the Dow-Shell group was seeking no waivers to environmental regulations from the federal government, from the state government, or from any local government. Finally, we learned that there were no hazardous wastes which would be produced by the facility which would have to be disposed of in land fills.

Based on all these considerations, we felt that the residents of Anchorage ought to be able to study the issues attendant to petrochemical development and ought to have an option of accepting or rejecting such development. We felt that not to do so would be a breach of a responsibility of us as public officials. Thus, Mayor Sullivan and his staff approached the future owners of the island, Cook Inlet Region, Incorporated, and along with members of the Assembly, asked Dow-Shell to take a look at the island as a site for petrochemical development.

Subsequently, we learned that by upgrading our waste water treatment system to secondary standards we could sell it to Dow for use in

their process cooling and thereby provide Dow with about four-fifths of their water demand. We are generating effluent at the rate of about 25 million gallons a day, and we are only using primary treatment. The rest goes into Cook Inlet on a special waiver from the Environmental Protection Agency, one of the few such waivers in the United States.

We also are taking a look at the Municipal Power and Light Company. It is very interested in the possibility of co-generation of power. This could provide Muncipal Power and Light with revenues from the sale of power to the Dow-Shell group and also an additional spending reserve to the residents of the municipality in the event of a power outage. So, in keeping with our long-range economic development planning, we feel that petrochemical development on Fire Island is an option that we simply can't ignore.

Mayor Vincent O'Reilly, City of Kenai

Welcome on behalf of the City of Kenai to our citizens certainly and to those visiting the area and then to the representatives from the Dow-Shell group and from the State. We truly are very pleased you are with us. The City of Kenai is in rather a unique position since the facility would not be located, at present, within the city limits. The city is primarily involved due to municipal considerations such as housing impacts, which mean water, roads, and sewers. This primary involvement would take place during the construction phase and certainly during a permanent work phase if the Wildwood location is selected. We would also have a secondary involvement in the major supply of water, ports, and harbors and road transportation.

To get to the subject which Mr. Gorsuch wanted discussed, however, I have to go back a little bit and touch on the historical and the present situation of the city. Historically, Kenai was a primary fishing and processing area. This all changed with the Swanson oil field discovery in late 1950. Now the city has a meld of industries including oil servicing, petroleum products/transportation, fishing and fish processing, commercial services, and retail trade.

The city's population is 4,300 plus; and the area's population, including Nikiski, North Kenai, Sterling, Ridgeway, Soldotna, Kalafonski, is approximately 12-to-14 thousand. The city covers 40 square miles. It has a 7,500 foot instrument-landing system runway with commercial air service, commuter service, charter, and fixed base operations. Takeoffs and landings at the airport average 76,000 in past years, and it now appears that there will be close to 90,000 takeoffs and landings in 1981. The city has a home-rule charter with a city manager and council form of government. The city has 80 plus workers providing municipal services, including police, fire and emergency medical service.

The assessed value within the city is approximately $150,000,000. The proposed city budget for 1981-1982 is 4.7 million dollars. Our proposed mill rate is 4.2, which is a decline from 9.9. Our sales tax is 3 percent on the first 500 dollars of sales.

Our municipal assets are estimated at about 15 million dollars to cover roads, water, sewer, this building, the police-fire station, the sewer plant, and the airport. We have major capital improvement projects under way and proposed. Those cover additions to the roads, the water, the sewer, the airport, parks and recreation, the library, perhaps a senior center and some kind of culture and convention center. In the two construction seasons, 1980-1981 and 1981-1982, we may have a total of 14-to-16 million dollars worth of capital improvement projects. So you have to relate that figure, 14-to-16 million dollars of new construction in municipal improvements, to our present municipal assets of 15 million. That is a 100-percent increase. This is prior to, and certainly not in anticipation of, the Dow-Shell proposal.

The city adopted a comprehensive plan two years ago and exercises planning and zoning powers within the city limits. The comprehensive plan estimates the area could serve 67,000 people on suitable land with single family and multifamily housing. The city has experienced in the past, as many of you in this audience know, massive impact on a very, very small base. And it has had a mixed record of results. The general sentiment, however, seems to be at this point that the city and the area benefitted from that development. The city has in place the sales tax mechanism, which is among the fastest reacting tools to handle major construction impacts.

If the Dow-Shell facility is going to need anywhere near the quantity of water now estimated, we are talking about some type of cooperative effort. The state, borough, and both cities would be required to supply it. That is, if the water is supplied via the municipal route. Well, in doing that, it has to be a "win-win" situation where the cities, borough, state, and also Dow-Shell wins. If they gave us, for example, a contract such as the one they gave in Midland, Michigan, for 15 million gallons of water per day, our system would be much more efficient compared to our present 800,000 gallons per day. And it would enable us to finance the water supply project which would then ease the financing of the water supply to our own residents.

Darryl Schaefermeyer, City of Seward

I have here on the board an area that depicts the site that the Dow-Shell group is looking at for a facility. Most of you who are familiar with the geographical layout of Seward are familiar with the location of Fourth of July Creek which is situated east of where we are right now, across the bay. The blue-line print that we have here is divided up into various tracts and parcels and reflects the great

deal of work that has been done on the site, both from a geotechnical standpoint and also from an environmental standpoint. The site consists of between 600 and 800 acres. A portion of the site is bench land, land that would be in elevations upwards of 500 feet above sea level. Much of this upland site would have to be terraced to be made suitable for the location plant facilities, such as storage tanks.

An additional important area with any site that is being considered for this development is access to a port. Here, the port would consist of several terminals or areas to handle a dry bulk or container loading facility, a liquids dock, a roll-on, roll-off facility for handling rail cars, and a barge dock--to name four of the different types of docks that may be used. The port site that is proposed here is adjacent to Resurrection Bay and is close to some very deep water, which is attractive from the marine standpoint in that it reduces the dredging and other work required.

Further to the south in the site area, there is in the back part of the valley a number of tracts that would also be part of the project site. There are some other tracts in the foreground, also along the waterfront, that are presently reserved by the city for other development purposes. The city is presently negotiating one tract with a company by the name of Torgeson/Kellog, who wants to lease this area for the purpose of constructing a world-scale coal terminal. In the middle of the valley itself is a tract of private land which could possibly be made available to the Dow-Shell group as part of their project if they were to select this site. However, that would require negotiations between Dow-Shell and the private property owner. To the south is the area known as the Seward Marine Industrial Park, which is under development at this time. It will be the location of a port facility which would include a marine vessel repair and steel fabrication facility. Work is proceeding this summer on that facility. We have also identified and indicated to the Dow-Shell group the location of approximately 1,200 acres of land that have been selected by the state in the Chugach National Forest under the Statehood Act.

The city has spent considerable effort and money in determining the suitability of this site for large-scale industrial development, both from the geotechnical standpoint--as far as soils, water, natural hazards, and that kind of thing--and from an environmental standpoint.

As a part of the development of the Marine Industrial Park, we have recently completed the permitting effort that Bob Martin briefly ran through with you. The city prepared an environmental assessment, which is a pretty extensive effort, but not quite as extensive as an EIS document. We also were required to obtain Corps of Engineers' permits for work in some wetland areas and also work in the tidal zone. This past week the city obtained the Corps of Engineers' permits, a Section 216 permit from the Department of Fish and Game, a Section 401 permit from the Department of Environmental Conservation, and a series of other concurrences from such agencies as U.S. Fish and

Wildlife Service, U.S. Environmental Protection Agency, and the National Fisheries Service. The Environmental Protection Agency would be involved very heavily in any petrochemical permitting process.

As a part of the permitting process for the facility in the Fourth of July Creek area, we have agreed to conform with a number of environmental stipulations. These take the form of fisheries facilities, ponds, lagoons, and new channels for the Fourth of July Creek. These kinds of things are new in the State of Alaska. It has taken a great deal of effort on our part and on the part of the State Department of Fish and Game, to develop measures that we feel will not only mitigate any loss of fishery habitat from the development of this marine and vessel repair facility but also will quite likely enhance the productivity of the salmon habitat.

The site is also well-suited to meet water requirments. The U.S.G.S. has done a study, with the assistance of the Kenai Peninsula Borough, on water resources in the area. We have done some air quality monitoring of a limited degree, and we have a great deal of environmental data available on the site. We feel that steps have been taken and can be taken to accommodate any stresses or impacts that would be put on Resurrection Bay and this particular environment as a result of locating a facility of the magnitude envisioned in this area.

Lee Wyatt, Planning Director, Matanuska-Susitna Borough

What I want to talk about is not just the project itself but also a commitment to economic development by the Mat-Su Borough. It started as early as 1964 when the Borough incorporated itself and they were given the opportunity to select lands. The Borough selected approximately 7,000 acres in the Point MacKenzie area for economic development in the form of an industrial area. There was also some interest by an outside group in forming a residential area over there known as "Seward's Success."

In 1971 the Borough voters made more of a commitment to economic development when they decided to acquire the powers of ports, which included wharfs and access to them. Later during that year, an attempt was made to put together a comprehensive planning process. The Borough comprehensive plan presented in 1972 recommended industrial development and community facilities in the Point MacKenzie area.

In 1974 the Borough Planning Department put together a more detailed plan for the Point MacKenzie area. Between 1974 and 1978, there was not too much action because of the fact there was no access and because there was literally no infrastructure in the Point MacKenzie area.

Early in 1979, bills were introduced in the legislature to evaluate the potential for using gas liquids in the State of Alaska. At that point in time, there were also other resource industries that were interested in the Point MacKenzie area. The resources included coal, peat, lumber, and agriculture. The borough assembly and the Mayor formally requested the State of Alaska to include Point MacKenzie as a site for study for petrochemical facilities.

Now I'll try to talk a little bit about our plans for the Point MacKenzie area. What you see in the yellow is the Borough patented or tentatively approved land. There is essentially 17,000 acres in this area, 3,000 of which we plan to zone as industrial property. The gray is State and University land being devoted to a large agricultural project. This is the Susitna Flats Game Reserve bordering on the west. The white areas that you see in here are private homesteads. Currently taking off from the Knik-Goose Bay road is the Point MacKenzie road. Approximately 12 to 13 miles of a 17-mile road have been built. There is also a rail corridor that comes down in this area, and we are looking at several areas along the coast line for port development. We see some opportunities for deep draft navigation, and we see some opportunities for barge navigation.

Mark Lewis, City Manager, Valdez

Thank you, Lee. As many of you know, there are two sites within the Valdez industrial park under study by the Dow-Shell Group. Both of these sites are located in the Glacier Stream Valley. Tract A is a 1,400-acre site located west of the Glacier Stream road. Tract B is about a 1,300-acre site located east of the Glacier Stream extending to the foot of the mountains and Slater-Corbit Creek area. This area is one of the most thoroughly studied tracts of land within the State as result of the extensive environmental impact statements conducted for the Alpetco project.

Numerous favorable physical factors render these sites a prime location for a petrochemical facility. The area has a gradual 8/10-of-one-percent slope, ideal for siting gradage and drainage. There are no fish streams or biologically sensitive areas in the vicinity. There is ample supply of ground water which would meet industrial requirements without adversely affecting the community ground water supply. The air shed has been throughly studied, and the results indicate a petrochemical complex would operate well within the state and federal quality standards. The sites are remotely located and would not encroach upon existing residential areas or community facilities. The sites would enable the establishment of buffer zones to guarantee adequate separation between the facility and other development areas. Perhaps the most important point to emphasize in describing the Valdez sites suitable for a petrochemical chemical complex is the fact that the industrial park has already undergone thorough public environmental review process for the Alpetco project. All of the critical environmental issues have been addressed to the

satisfaction of the state and federal regulatory agencies, and, most importantly, the citizens of Valdez.

It would be inappropriate to discuss the industrial site and its suitability for the Dow-Shell project without referencing its compatibility with the community as a whole. The development of the industrial park is just one aspect of the project. Of equal importance is the ability of Valdez to supply community services and facilities that would be required to support new households that would arrive on completion of the project. Thus, not only must we be confident in the environmental compatibility of the project but also the social compatibility--that is, our ability to retain the integrity and lifestyle of Valdez.

Through the experience gained during the pipeline construction boom, the City of Valdez has proved itself willing and able to work closely with industry to mitigate impacts associated with the project. The city has a current five-year capital improvements program which demonstrates the communities preparedness to handle major demographic impacts through the provision of public services and community facilities from streets, water, port, and harbor improvements, and through new recreational and cultural facilities. Finally, Dow-Shell is conducting a feasibility study, not only to determine if the processing of natural gas liquids is economically viable but also to insure that, if the project is built, it will be compatible with the community selected for the project. Throughout our participation with the Dow-Shell group, we have been impressed with their thoroughness in the evaluation of the potential sites and their insistence that the project both be environmentally and socially compatible with the selected community. In this respect, we are confident that the project would be a desirable addition to the Valdez economy and that the Dow-Shell group be a welcomed, concerned member of the community.

Ben Harding, Special Assistant to the Mayor,
Fairbanks North Star Borough

First of all, I would like to stress that the Borough has not selected a site for the processing of natural gas in this area. Like the Dow-Shell group, we are involved in a feasibility study, if you would like to call it that, trying to identify those lands in the Borough which have the highest and best potential for industrial activity. And we are not limiting our search to those lands that might be useful for natural gas processing, but also are searching for lands suitable for hard-rock mineral, timber, coal, and even some forms of agricultural processing such as grain-handling or red-meat-processing facilities. Unlike Valdez, Anchorage, Kenai, Seward, and the Mat-Su Borough, we in Fairbanks North Star Borough have not specifically selected a site at this point.

Dow-Shell, as part of its own feasibility project, is looking at the Tanana River site. The final site selection, however, will require Assembly action.

I would like to very briefly go from the general to the particular. In about 1976, the Borough government started taking some long, hard looks at what lay ahead in the 1980s. There was a great deal of discussion and soul searching. All the socioeconomic trends we uncovered and identified were, quite frankly, very unhealthy. They showed the private sector in Fairbanks and in this part of Alaska developing more and more as a purely construction-oriented boom-and-bust type of community. And let me stress, there is nothing wrong with construction; Lord knows, to a large extent, Fairbanks was built on it. But if you depend primarily on a single type of economic activity your community is subject to great fluctuations, both economically and socially. And the construction industry, of all industries, is the one most prone to economic fluctuations.

As Mary Halloran pointed out in her remarks, we, of all communities in Alaska, saw what happened following the end of a major construction period. There was a very considerable economic slump, with all the social impacts and all the political impacts that go with it. I would like to point out just a few of these social and political impacts. For one thing, with a very weak economy, we find that one of our major exports is young people. People who graduate from school with skills go elsewhere in the state or leave the state to find employment. That is one very serious social effect of our weak economy.

We have also experienced high unemployment, 18 percent, I remember seeing at the height, or I should say at the depths, of the post-oil pipeline period. That means high welfare and often high social costs in terms of crime and in terms of hardship on families. I am sure all of you have seen, at least the winter before last, a great deal of public interest concerning child abuse. I don't know how scientific this is, but some people pointed to high unemployment as one of the causes for the child abuse, particularly among the male members of families. What I am trying to point out is that there are all sorts of ramifications of a poorly balanced economy.

The most obvious political effect of our current weak economy is that we are losing one seat in the Alaska Legislature. That will have a number of ramifications on programs that exist here, such as University programs.

With all these factors in mind, we started looking at what type of alternatives we had in this area to broaden and diversify our economic base and to buffer the swings in our economy. We focused very quickly on resource processing, since this area has a great number of resources and since resources it doesn't have--i.e., Prudhoe Bay oil and gas--flow through this area to get to ports and transshipment facilities. Natural gas leaped up fairly high among the alternatives. It seemed to fit a number of criteria that we liked. One was the aspect of high technology, meaning that we could expect the resource to be handled in a technically advanced way. The other aspect had to

do with the fact that it is capital intensive rather than labor intensive. Even though we traditionally have very high unemployment here, our population base is so low that the impact of labor intensive employment would basically flood this area with people coming in from other states. For these reasons, natural gas processing looked very good to us. With that, the Fairbanks North Star Borough, in particular Mayor Carlson, became very active in encouraging state attention to this area. The state did respond, and here we are today.

Given this general overview, I will talk briefly about the specifics of what the Borough is doing to identify sites that could be used for processing of the natural gas and other natural resources. One area that you see has been referred to earlier as the Bonanza Creek site. I apologize for some mix-up in terminology. The Borough prefers to refer to it as the Tanana River Site because there is a second site that is right by the Bonanza Creek experimental forest that we feel should have the name of the Bonanza Creek Site. Our Bonanza Creek site is not as attractive for development as the Tanana River Site. A third site is in the Ohio Creek area, but again further down our list of preferences.

We have zeroed in on the Tanana River Site for a number of environmental, transportation, and socioeconomic reasons. Again, I would like to emphasize we are still in the process of evaluating the site and we could get new data which would wash it out. One of the chief concerns is the impact that these types of facilities would have on air quality primarily through their production of water vapor. The Tanana River site, as the presentation made to you earlier indicated, is about 30 miles southwest of town. Our preliminary air flow work shows that air moves from that area predominantly to the south and to the southwest across the Tanana Valley Flats. We found that encouraging. The other areas that we looked at we felt all involved some form of environmental impact.

We also are looking at rail, highway, and even river transportation access. And we are attempting to find sites that don't immediately impact existing population areas. The Tanana River site met that criterion as well.

Again, I would like to emphasize in closing that the Borough is continuing this effort and it is not something that has been signed, sealed, and delivered. It will come up before the Assembly later on this summer for final action.

Questions Concerning Petrochemical Development

We designed the public meetings to provide the maximum amount of public input. Following the remarks reproduced above and a twenty-minute narrated slide presentation, we randomly assigned community residents to groups of approximately twenty people. In Fairbanks, Palmer, Anchorage, and Kenai, the local members of the League of Women Voters led the groups. In Seward and Valdez, we asked several community residents to moderate the small group sessions. In this way, the only participants in the small groups were local residents.

The first task of each small group was to list everyone's questions on poster paper. These we collected 40 minutes after the group session started and displayed them on the walls of the central meeting area. The groups proceeded with their enumeration of concerns and recommendations while our resource panel reviewed the questions and prepared responses.

The number of questions generated in each meeting is presented in Table 33. Given the 60 to 90 minutes we allotted for the resource panel to provide the reassembled public with answers, we obviously could not address all the questions. Rather, we attempted to answer a cross-section of questions. Our purpose here is to present summary of the questions in order to alert the state to issues the public feels are important and should be considered in decisions regarding petrochemical development. A complete listing of the questions appears in Appendix A.

Table 33

Questions Generated During Public Meetings

	Number
Anchorage	466
Fairbanks	176
Kenai	155
Valdez	118
Seward	80
Palmer	74
	1,069

To facilitate the state's review, we organized the questions by seventeen broad subject areas. The number of questions by subject area is shown in Table 34.

Throughout the remainder of this chapter we use such phrases as "residents asked" and "residents commented" to summarize public input. We have deliberately avoided any attempt to use qualifiers such as "some" or "most" since the public input came as a product of group sessions. The reader should not infer from our summaries that all, some, or even more than one resident posed a given question or stated a particular opinion.

Table 34

Distribution of Questions
By Subject Area

	Number of Questions
State Government	136
Local Government	65
Dow-Shell	89
Dow's Track Record	23
Solid Waste	77
Water Quality	69
Air Quality	71
Other Environmental Effects	54
Health	73
Transportation	68
Safety	25
Resource Use	69
Employment	57
Relationships to Other Industries	43
Other Economic Considerations	75
Social Impacts	55
DEC/ISER Study	20
	1,069

Summary of Questions During Public Meetings

State Government
(136 questions)

The amount of public interest, and hence the number of public questions in each area, is largely a function of the amount of attention each area received in the meetings themselves, in the press, and among interest groups. It is not surprising, then, that the state's decision to actively involve the public called considerable attention to its own actions, policies, and plans.

We timed the release of highlights of the survey results to stimulate participation in the public meetings. The survey results themselves raised questions about how the state will gauge community acceptance of the project.

Public interest in continuing participation was, perhaps, the theme underlying all the public meetings, as well as the survey. Questions indicating this included, "When will the public see the Dow-Shell report?" "Will there be more opportunities for public input?" and, "Will the state answer all our questions before a decision is made to go ahead with the project?"

The public would also like to know who performs and who pays for the environmental impact studies which could follow the state's decision. They wonder if an environmental impact statement (EIS) can properly handle all the public's concerns and whether combining the EIS and permitting processes will not foreclose options to reject the project. Other residents questioned why so much time is needed before construction can begin.

Questions about possible state subsidies were common and ranged from state spending for infrastructure, to financing a portion of actual petrochemical construction costs, to selling the state's royalty gas liquids below fair market value. Concerning another form of potential state encouragement of industry, residents wondered if any environmental regulations could be waived or if some questions would be left unresolved when the state commits its resources to the project.

Another area of questioning concerned the perceived trend in the federal government of relaxing environmental regulations. Residents asked if the state would use its own regulatory power to maintain existing standards and whether the state would consider special regulations which take Alaskan conditions into account. The public was confused about the current state policy toward environmental controls. They heard that federal controls are based on the best available technology and that state regulations primarily reflect an assessment of the controls required to avoid significant adverse environmental effects. The term "significant" confused some, and the prospect that

state controls might be less strict then federal controls worried others.

Some residents asked if industry and environmental groups were making political contributions to state officials. Finally, the public questioned whether the state could force a developer to compensate a community for losses if a project were not completed.

Local Governmnent
(65 questions)

Residents in all areas under consideration for petrochemical development wanted to know the present and future role of local government regarding promotion of development; site selection; public approval; expansion of schools, roads, and other services. In addition, specific questions were raised in Seward and Fairbanks concerning alternative sites. In Kenai, questions concerned (1) the location of taxable property outside the area that would require revenues for more services and (2) the site location being so near local population concentrations. In Palmer, questions dealt with potential conflicts with agriculture, residential development, and recreation. Questions were raised in Valdez about revenue bonds and waste disposal sites. In Fairbanks, questioners wondered about the distance of the proposed site from town, the potential conflicts with land disposals and woodcutting, and how the Borough might deal with increased ice fog and carbon monoxide.

Dow-Shell
(89 questions)

Many of the questions directed toward the Dow-Shell Group involved project details, particularly pipeline routing, desirable site characteristics, and method and timing of site choice and the group's motivation for considering each of the six sites. Other questions included, "Can Dow-Shell use energy from the Susitna Hydro project?"; "Is there a large enough market in Alaska to produce styrofoam?"; "Will detailed information on plant processes be available?"; and "What supplies and services will the facility need?" Finally, residents asked if Dow-Shell would work with communities to handle growth impacts and whether Dow-Shell would provide financial assistance to communities.

Dow-Shell's Record
(23 questions)

While the terms Dow and Dow-Shell are often used indiscriminately, we repeatedly got the impression that the issue of past corporate behavior primarily concerned the Dow Chemical Company. The two perceptions which appeared to be implied by these questions were (1) Dow has not complied with environmental standards and (2) Dow has produced chemicals for warfare.

Solid Waste
(77 questions)

According to the Dow-Shell Group, much of the waste products from an Alaska petrochemical plant would be incinerated. Residents asked what chemicals the remaining ash would contain. They also were unsure, as we were in writing our description, about the chemical composition of the sludge. Two-thirds of the questions on solid waste concerned how it would be handled and what environmental effects might occur as a result of such handling. Since our description did not state whether there would be hazardous wastes, and because of recent national publicity concerning public health problems associated with solid waste disposal sites, the public showed great concern about the type and treatment of hazardous wastes. Finally, residents wondered if public land fills would be used and if there were adequate landfill sites.

Water Quality
(71 questions)

The public raised questions about both water supplies and water discharges. Concerning water supplies, residents wondered who would be responsible for providing required water, how much would be required, and how such a demand would compare with existing supplies.

If fresh water were to be used in large amounts, residents asked where it would come from, how it would affect existing water tables, and who would monitor water tables. Kenai residents asked how the cost of treating Kenai River water would compare to the cost of desalinizing sea water.

Questions on water discharges concerned the effect on marine life of slightly heated water, the wastes remaining in treated effluents, and monitoring responsibilities and cumulative demands on existing treatment plants.

Anchorage residents asked if the normal sedimentation process in Turnagain might trap chemicals. They also wondered how hazardous plant effluents would be in comparison with current municipal effluents. In Fairbanks, the question of downstream effects on Nenana was raised; and in Palmer, residents questioned whether water could be obtained without affecting fish populations.

Air Quality
(69 questions)

The scenario we presented to the public mentioned that the technology existed to make the emissions from the power plant stack nearly invisible. On the basis of that statement, questions came up about invisible emissions: their composition, their toxicity, and their

effect on the natural environment. There was also remaining uncertainty about the characteristics of odors that might be produced and how odor could be measured.

Visible emissions, particularly water vapor, caused residents in each community to ask if air traffic would be disrupted. Valdez residents wondered specifically about the effect on planned airport improvements of using tract A. The public also asked how seasonal air flows would affect the direction and environmental effect of emissions. The potential for acid rain was brought up as well.

Anchorage residents asked how often and how severe might be odors, visibility problems, and noxious emissions. Specifically, residents wondered if inversions would trap air pollutants. Fairbanks residents asked how pollution standards could be met, particularly if pollution standards are already being exceeded. In Valdez, residents wondered if emissions could be reduced and at what cost. They also asked if maintenance shut downs could be timed to coincide with periods of poor dispersion conditions.

Other Environmental Effects
(54 questions)

In addition to raising questions on solid waste, water quality, and air quality, residents asked if noise levels would be noticeable and/or hazardous, if earthquakes posed particular dangers, and if vegetation near the plant would suffer. "What are the arctic's specific problems?" was asked as well. There was a general call for information about the effects of other similar plants.

Anchorage residents questioned whether it is feasible to dredge the Cook Inlet and wanted to know what problems such as tides, unstable land, and natural disasters might affect a causeway to Fire Island. Another question was, "Is it safer environmentally to refine the products in Alaska or does it really matter?"

In Kenai, residents had specific questions about where the fill from dredging for a port facility will be dumped and the comparative dangers of fire and explosion between liquid natural gas (LNG) and petrochemical feedstocks and products. Valdez residents wondered if the plant would be as visible from town as the pipeline terminal facility. Fairbanks residents had specific questions about permafrost, the potential effects on the state and federal forestry programs, and the possibility that as-yet-unknown air conditions would interact with emissions to produce hazardous situations at ground level.

Health
(73 questions)

Most of the health questions concerned cancer risks. First, the public wanted to know all the chemicals involved in the proposed facility that are known or suspected carcinogens, what exposures would be involved, and what federal standards currently apply. Of course, the general question underlying all these questions was, "How safe will it be to work in or live near the facility?"

Residents also wanted to know who would monitor exposure levels to toxic chemicals and if workers would be told of all risks they face. Finally, several specific questions were raised about a current investigation into the causes of a possible abnormal rate of brain cancer among workers in a Dow plant in Freeport, Texas.

Transportation
(68 questions)

Concerning marine transportation, the public asked how many ships and of what types, sizes, and hull designs would be used and whether ships of foreign registry would carry products. Residents also wanted to know about potential conflicts with commercial fishing fleets and if rail extend ons would be used to transport benzene or petrochemical products.

Anchorage residents asked, "How will the cost of a causeway be distributed?" and "What are the hazards of high tides?" They and Fairbanks residents questioned how benzene would be transported from the interior, what special preventative and emergency procedures would be used, and if the railroad is presently safe for such transport.

In Kenai, questions instead concerned road expansion and increased airport traffic. Seward residents wondered if port facilities could be split, with smaller ships coming to Seward. They also asked if increased demands would overtax the Louisiana-Pacific facilities and rolling stock. Valdez residents wanted to know if Valdez had any particular advantages or disadvantages as a port and whether petrochemical development could lower freight rates in general. Fairbanks residents also wanted to know about possible transportation cost reductions, in their case by increasing the southward flow of goods.

Safety
(25 questions)

Several of the other topic areas concern safety. We grouped here questions about whether the facility would be a military target, whether Dow-Shell would have the financial and legal responsibility for accidents and for cleaning up spills. The public also asked if fires and explosions can usually be contained in one part of the plant and how likely they might be.

Resource Use
(69 questions)

The key questions asked about resource use were, "What is happening to the State's gas now?"; "What alternative uses are there for the gas liquids?"; "Can they be used for heating and energy in Alaska?"; "When will the supply of gas liquids start declining?"; "What is the best use of the gas liquids?"; and "Do we have to decide now whether or not to develop a petrochemical industry?" Residents also wanted to know more about the relationship between the Northwest gas pipeline oil production and petrochemical development. Finally, the public asked several questions about the economic feasibility of the project: "How does Reagan's commitment to the decontrol of the price of natural gas affect the economics of the petrochemical industry?"; "Why are gas liquids being processed in Alaska instead of outside?"; and "Why do the plants have to be so big?"

Anchorage residents asked if the cost of dredging the Lower Cook Inlet would not be prohibitive; and Fairbanks residents wondered what comparative economic advantage Fairbanks could have, given its distance from port facilities.

Employment
(57 questions)

Not unexpectedly, most questions on employment concerned Alaska hire. Residents wondered what the state can now do, what Dow-Shell can do, and what the chemical companies have done to insure that local residents are provided opportunities for training and employment.

Residents were also aware of past situations in Alaska where unemployment increased after or even during large construction projects. They wondered if this situation could recur.

Relationships to Other Industries
(43 questions)

The public perceived both positive and negative potential relationships between petrochemical development and other industries. They asked if expansion of the petrochemical industry itself were likely once one major facility is built. Residents also wanted to know what specific industries might develop to use petrochemical products and what supply and service industries would be needed.

Anchorage residents asked, "What will petrochemical development do to tourism in Anchorage and Alaska?" They wondered if heavy industrialization would follow petrochemical development. Many questions were also raised about the effects of shipping, spills, thermal pollution, and increased population on sport and commercial fishing. Finally, Kenai residents asked how a local petrochemical development would affect the Pacific LNG project.

Other Economic Effects
(75 questions)

Residents wanted to know what service costs would have to be borne by the public sector and how long it would take communities to recoup front-end costs. Regarding privately provided services such as electric power generation, residents asked if they could be shared with the local community. They also asked what revenues the state would receive, what profits the chemical companies could expect, and what proportion of the profits would go to foreign interests.

Residents asked if the petrochemical industry is stable and if it would counteract Alaska's tendency toward a boom-bust economy. They also wondered if the industry could use electricity from the Susitna hydro project. Kenai and Valdez residents asked if the cost of living would be driven up by the increased population, and Valdez residents asked if the project would result in more cultural and recreation facilities. Fairbanks residents wanted to know what local positive effects might stem from benzene production.

Social Effects
(55 questions)

By far the most common question was, "What will the impact be on housing, schools, medical care, and traffic?" Residents wanted to know more about projected population increases and the characteristics of in-migrants and the chemical companies themselves. Another question was, "What data now exists on impacts in communities of comparable populations and environments?"

Anchorage residents asked if petrochemical companies would influence local politics since they might account for a large proportion of the municipal tax base.

The public also wondered if petrochemical development would bring a "sophisticated urban lifestyle" to Alaskan communities and whether communities would become "company towns."

DEC/ISER Study
(20 questions)

Residents raised questions about this study as well. They asked how we conducted the survey and what information we used in addition to that provided by Dow-Shell. A question was raised about the "pro" petrochemical feature prepared by ISER, and another about the "anti" petrochemical TV feature. Our television information program consisted of a series of five mini-features. Quite likely, these inquirers saw only one of the series and thought it represented the entire information campaign, not just one piece of the puzzle. Residents also asked if the survey sample was large enough to reliably represent each community's feelings.

Comments, Concerns and Recommendations

While our resource panel organized their responses to the questions generated in the small groups, the groups themselves proceeded to enumerate their comments, concerns, and recommendations. Since the public had not yet had the opportunity to hear the resource panel respond to the public's questions, some issues mentioned as concerns and recommendations may have been addressed later in the meeting. We grouped the comments, concerns, and recommendations into twenty-five categories. Table 35 indicates the number of statements in each category.

Table 35

Summary of Comments,
Concerns and Recommendations
By Subject Area

	Number of Statements
Do not proceed with project; go slow	70
Proceed with project	43
Obtain best balance of objectives	31
Need for independent evaluation	16
Need for public input	18
Need for information	8
Need for more regulation	16
Encourage a different industry	14
State ties with industry	8
DEC/ISER study	27
Other State conditions	45
Health	24
Dow-Shell behavior	23
Local Government conditions	23
Site considerations	23
Transporation	14
Water Quality	18
Air Quality	18
Waste	9
Other Environmental Concerns	12
Resource Use	9
Employment	28
Relationships to other industries	15
Other economic effects	6
Social Effects	40
	558

Do Not Proceed With Project; Go Slow
(70 statements)

Reasons given for not proceeding with petrochemical development included pollution impacts, hazards, Dow's record, additions to an already excessive contruction work force, industrialization of Alaska, further centralization of economic development, inadequate need for products, distance from market, and insufficient information to make a decision.

Proceed with Project; Speed Up
(43 statements)

Reasons given for proceeding with petrochemical development were economic stability; permanent jobs; past successful experience in Alaska, particularly with the oil pipeline; personal experience with the industry; and excessive dependency on foreign resources.

Obtain Best Balance of Objectives
(31 statements)

In between the above two categories, public meeting participants pressed the need to consider economic, social, environmental, and health objectives and to avoid giving too much weight to economic considerations.

Need for Independent Evaluation
(16 statements)

Statements in this category concerned the lack of expertise in state government to evaluate the Dow-Shell report; the propriety of Dow-Shell's conducting the feasibility study; and the need for independent studies of Dow's safety and environmental record, impacts experienced in comparable locations, health issues, and reactions of people who live near petrochemical plants.

Need for Public Input
(18 statements)

Public meeting participants registered concern that their views would not be considered, that those attending the meetings were not representative of the public, that further opportunities for public input would not be available, and that people living in the immediate vicinity of the development and all state residents should be consulted.

Need for Information
(8 statements)

Statements requested (1) a debate between Dow and the Alaska Center for the Environment and (2) education concerning hazards and information on the proposed state legislation on hazardous waste disposal.

Need for More Regulation
(16 statements)

Public comments were general but indicated concern that the state needed more authority and better enforcement procedures.

Encourage Different Industries
(14 statements)

Statements requested the state to look for opportunities to encourage industries that would use renewable resources, would have relatively large labor demands, and would be decentralized.

State Ties with Industry
(8 statements)

Comments indicated concerns that political contributions made by industry will have influenced or will influence state policy decisions.

DEC/ISER Study
(27 statements)

Residents were concerned that the public meetings were futile exercises--too informal, too general, biased, and not representative of community attitudes. They also expressed concerns about the credibility of the survey and the size of the survey sample.

Waste
(9 statements)

Residents perceived a need for more control over waste disposal and were concerned about encouraging industries which produce hazardous wastes.

Air Quality
(18 statements)

Public meeting participants were concerned about invisible but harmful emissions, local air pollution problems, and enforcement of regulations.

Water Quality
(18 statements)

Public concerns included deterioration of fish habitat, excessive use of fresh water supplies, alternatives to dissipating waste heat in water, and contamination of fish.

Other Environmental Impacts
(12 statements)

Some residents thought environmental impacts could be avoided by using current technology while other participants felt the petrochemical industry was not structured to avoid environmental impacts.

Health
(24 statements)

Statements concerned health hazards, in general, and benzene exposures, in particular. Participants also raised the issue of the incidence of brain cancer among Dow workers. Residents recommended that the state contact the Occupational Safety and Health Administration, the Chemical Workers Union, and victims of exposure to toxic chemicals.

Transportation
(14 statements)

Residents, particularly in Fairbanks, expressed concern about transportation-related hazards and pollution resulting from increased automobile use. They recommended rapid transit system expansion and residential development near the petrochemical facility.

Resource Use
(9 statements)

Participants commented that Alaska's resources should be used. Others thought that using gas liquids to produce petrochemicals would be a wasteful use of resources, or that the most efficient location for production of petrochemicals would be outside the state.

Employment
(28 statements)

Public meeting participants, particularly in Palmer, wanted assurances of maximum local hire. Other participants thought current unemployment levels would not be reduced by petrochemical development since a large workforce would immigrate from out of state. The need for training programs was mentioned as well.

Relationship to Other Industries
(15 statements)

Residents, primarily in Anchorage, commented that the initial development would foster an undesirable industrialization of Alaska and might conflict with agriculture, logging, fishing, tourism, and the natural gas pipeline.

Other Economic Effects
(6 statements)

Participants thought petrochemical development would promote another boom-bust economy. Concerns were registered about increased property taxes and land prices.

Social Effects
(40 statements)

Residents, particularly in Kenai, worried about increased service demands, changing lifestyles, excessive competition from outside businesses, and impacts on fish and game. Participants recommended that local financial assistance would be needed and that developers should sell excess electric power to the community.

Survey of Public Meeting Participants

We did not expect or intend the public meeting participants to collectively represent the views of all local residents. The survey served this purpose. The objective of the public meetings was to enumerate the interested public's questions, concerns, and recommendations. In order to provide the public attending each meeting with a structured means of registering their opinions, we distributed a short questionnaire containing five questions that we had also used in the statewide survey.

Most meeting participants in Anchorage, Kenai, Seward, and Fairbanks believe that petrochemical development in their area would make their community a worse place to live (see Figure 8). Most Valdez meeting participants thought the reverse, and residents attending the Palmer meeting tended to fall between these two extremes.

More than half of the Anchorage, Fairbanks, and Seward meeting participants thought the state should not encourage petrochemical development, and a third or less thought the state should negotiate with the Dow-Shell group to sell its gas liquids (see Table 36). Kenai meeting participants split on the first question and tended to support the second, while most Palmer and Valdez meeting participants supported both state actions. Finally, most Kenai, Palmer, and Valdez meeting participants think the state should assist communities in meeting new service demands.

Figure 8

Increases in the Percent of
Public Meeting Participants Who Think
Their Community Will Be a Better or a
Worse Place to Live with Petrochemical Development

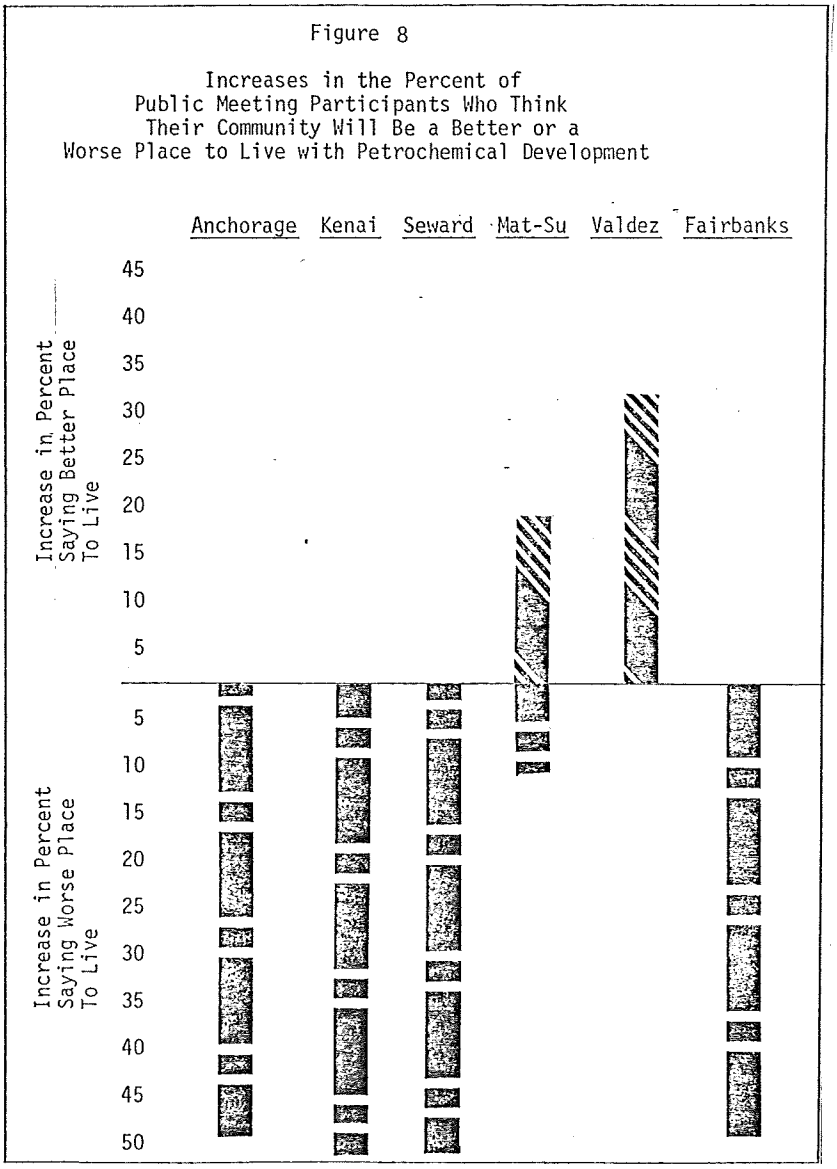


Table 36

Attitudes of Public Meeting
Participants Toward Petrochemical Development

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks
Response Rate	81%	80%	72%	65%	63%	81%
Should the State Encourage Petrochemical Development?						
Yes	28%	40%	31%	60%	82%	28%
No	67	43	56	35	9	58
Don't Know	5	17	13	5	9	14
	100%	100%	100%	100%	100%	100%
Should the State Negotiate with the Dow-Shell Group to Sell its Royalty Gas Liquids?						
Yes	33%	51%	28%	68%	85%	26%
No	55	30	38	22	4	46
Don't Know	12	19	34	10	11	28
	100%	100%	100%	100%	100%	100%
Should the State Help in Financing Local Public Services?						
Yes	35%	52%	48%	61%	70%	39%
No	54	35	45	36	22	47
Don't Know	11	13	7	3	8	14
	100%	100%	100%	100%	100%	100%

CHAPTER NINE

EVALUATIONS AND RECOMMENDATIONS

Chapter One contains a summary of our major conclusions. In this chapter we assess the extent to which we met our study objectives. This chapter also contains the recommendations required by our contract. These recommendations address topics identified by the public and topics that arose during the development of our description of the form and effects of an Alaskan petrochemical industry.

Description of Petrochemical Development

Both we and the public recognized many uncertainties associated with petrochemical development in Alaska, and our description reflects these uncertainties. The timing of the project precluded our making specific projections regarding such key topics as the addition of chemical wastes to Alaskan lands and waters and the extent to which the transportation of chemicals will pose environmental and health hazards. Despite these unknowns, the real question is whether the information presented contributed to informed public discussion and comment. The vast majority (97 percent) of our survey respondents thought the description of petrochemical development presented during the interview was useful. This response supports both the process and the adequacy of the information provided.

However, it would be a serious mistake to assume that the public now knows all it needs or wants to know about petrochemical development. On the contrary, our study whetted the public appetite for information, as the 712 questions reproduced in Appendix A show. Furthermore, the fact that the information we presented caused 41 percent of the survey respondents to shift their views of petrochemical development is strong evidence that new information may continue to alter public opinion in the future. In short, the public's views toward petrochemical development are conditioned by the information available.

Representative Assessment of Public Attitudes

Basing assessments of public opinion on small survey samples is nerve-racking for the researcher and frequently outrageous to the public whose views are purportedly represented. The multiple objectives of this study heavily competed for project resources. Of the total budget, approximately half was devoted to the survey component. The survey used a sampling technique selected to insure that the results would be within a predetermined range of error and would properly reflect the views of each population of interest. To accommodate DEC's request to expand the number of target populations from five to eight with limited additional funds, we could only afford to reallocate the sample, not to expand its total size. In so doing, we

had to accept a decrease in reliability in several areas in order to obtain a tolerable level of reliability in others.

Fortunately, most of the survey questions received a majority of responses well above the range of our sample error. We can be less concerned with a sampling error of ± 10 percent when we are evaluating a survey response involving 70 percent of the sample than we are when the response involves only 55 percent of all respondents.

Perhaps more important, behind the sample size is a complex set of alternative selection and interviewing procedures, some of which can introduce unknown biases to the survey results. The use of telephones, for example, excludes many people in Alaska from any chance of selection. Substitution of one household for another can seriously bias results as well. We employed sampling and interviewing procedures that reduce the chances of bias to a minimum. Thus, although each of our interviews costs a comparatively large amount of money, we can assure the state and the public that our samples are representative.

Public Information Program

The effectiveness of our public information program is the most difficult of all our project components to evaluate. Ideally, we would have timed the survey to follow the media campaign. In practice, we had four months to complete the project. With the survey requiring a total of three months, and the media production requiring two months, we had to run the two project components concurrently.

We do not know how large a number of Alaskans were exposed to information aired in several hundred television and radio spots and in more than a dozen newspaper features. Perhaps the best gauge of public response is the fact that the attendance at each of our public meetings was well over the estimate provided by local government representatives.

Telephone Hotline

We thought the hotline would provide Alaskans who could not attend a public meeting a chance to obtain information and to register their views. We anticipated that we might receive an average of 25 calls per day for two weeks, or a total of 250 calls. Instead, we received less than half that number of calls, and a significant proportion of calls came from people planning to attend a public meeting and people who had recently attended a public meeting.

The hotline, in fact, was a toll-free Zenith number. Once it was operating, we found Anchorage callers could not reach the correct operator to connect the call. Therefore, we assume many Anchorage residents attempted to call the hotline but were unsuccessful in making a connection. Some callers who did reach our hotline operator expected immediate answers to technical questions. Our operator could

not assume the role of our entire resource panel and, therefore, told the caller that their questions would be answered by mail by the most appropriate person at ISER, government, or in industry. This procedure was satisfactory to most callers.

Public Meetings

Our approach to the public meetings placed a maximum value on information exchange. By adopting this approach, we had to depart from the common format of a public hearing where relatively few people speak. The use of small groups for input and a moderator who later voices each group's questions and directs them to a resource panel is an efficient way to exchange information but does preempt eloquent and impassioned speeches. Therefore, a criticism that we received and accept as the price of meeting another objective is that questions or comments from individuals within the assembly as a whole were scheduled as the last agenda item, which invariably came late in the evening.

Throughout the project, we attempted to insure that all information provided to the public was accurate and unbiased. We received almost no suggestions from the public that our written materials or media productions were biased in favor of or in opposition to petrochemical development. During the public meetings, however, we did receive some criticism that our resource panel was biased in favor of development. In part, we believe this was true. We constructed the membership of the resource panel to be able to answer as many of the public's questions as possible. Many anticipated questions could only be answered by a representative of the Dow-Shell group; therefore, we invited such a representative to participate on the resource panel. Naturally, the Dow-Shell representative was favorably disposed toward the project.

We believe another source of the criticism of bias is based on an understandable misperception. Many public meeting participants expect that the environmental effects of a petrochemical development will be severe. In the best judgment of our resource panel, most of the direct environmental effects of the specific type of facility being studied would not be substantial. Occasionally, the gap between public expectations and the panel response was too large for some participants to accept. This suggests to us that (1) panel members need to be more sensitive to differences between public expectations and expert opinion and (2) some issues require a great deal more public discussion.

Concerning our primary objective of information exchange, we believe the meeting format was singularly successful. In the course of six public meetings more than 1,000 Alaskans each heard and saw approximately 2 hours of presented information and presented a total of 75 hours of public input.

Recommendations

Under our contract with the state, part of our responsibility was to identify key issues of public interest and to recommend ways in which the state might address these issues. These recommendations constitute part of the "scoping" process which precedes the preparation of an environmental impact statement and is intended to focus attention on issues of major public concern.

1. Both the public attending the six community meetings and the public participating in the survey repeatedly expressed an interest in continued opportunities to receive information of and participate in the decision-making process. Furthermore, the survey results of this study clearly demonstrate that public views concerning petrochemical development may change as more information becomes available. WE RECOMMEND THAT THE STATE REVIEW THE PUBLIC INVOLVEMENT PROCESS DESCRIBED IN THIS REPORT, REVISE THE DESIGN OF THE PROCESS AS THEY FEEL APPROPRIATE, AND ADOPT THE REVISED PROCESS AS AN INTEGRAL PART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS ITSELF. WE ALSO RECOMMEND THAT THE STATE SEND A SUMMARY OF THIS REPORT AND THE STATE TECHNICAL GROUP REPORT TO THE PUBLIC MEETING AND SURVEY PARTICIPANTS.

2. Many public meeting participants also wanted assurances that the state would conduct an in-depth and independent analysis of the Dow-Shell report. Representatives of state agencies participating in this study responded that such an evaluation would take place. During our own work in preparing a description of petrochemical development, we found that the state currently does not possess the necessary expertise in some areas. In some other areas, the expertise exists but is committed to other tasks. WE RECOMMEND THAT THE STATE ASSEMBLE A TEAM OF INDIVIDUALS WHO CAN DEVOTE A MAJOR PROPORTION OF THEIR TIME TO A REVIEW AND AN ANALYSIS OF THE DOW-SHELL REPORT. MEMBERS OF THE TEAM WOULD INCLUDE A COMBINATION OF CURRENT STATE EMPLOYEES, NEW EMPLOYEES, AND CONTRACT STAFF. THE FOLLOWING AREAS OF EXPERTISE WARRANT REPRESENTATION ON THE REVIEW TEAM:

   - Economics of the petrochemical industry
   - Economics of gas liquids pipeline construction and operation
   - Facility engineering
   - Pipeline engineering
   - Chemical engineering
   - Marine transportation safety
   - Rail transportation safety

- Truck transportation safety
- Water quality
- Air quality
- Solid waste
- Occupational safety
- Environmental medicine
- Manpower training
- Labor force economics
- Plant ecology
- Wildlife biology
- Municipal service

3. Our brief investigation of the health hazards associated with low-level exposures to benzene indicated that cancer risks to plant workers are small, but may not be negligable. At the same time, both the survey and public meeting results show that many Alaskans are concerned about the hazards of benzene. Basic research is required before definitive conclusions can be drawn and the prospects for national funding of such research are dim. WE RECOMMEND THAT THE STATE COMMISSION A PROFESSIONALLY RESPECTED RESEARCHER TO (1) REVIEW PAST AND CURRENT RESEARCH ON BENZENE-RELATED HEALTH HAZARDS, (2) REPORT ON THE KNOWN AND POTENTIAL RISKS POSED BY LOW-LEVEL EXPOSURES TO BENZENE, AND (3) IF WARRANTED ON THE BASIS OF THE REVIEW OF RESEARCH, ASSESS THE FEASIBILITY OF A STATE-SPONSORED BASIC RESEARCH PROGRAM DESIGNED TO ASSESS THE RISKS OF LOW-LEVEL EXPOSURES TO BENZENE.

4. Throughout the public meetings, individuals expressed concern that the Dow Chemical Company, in particular, and member companies of the Dow-Shell Group, in general, may not have conformed with environmental regulations. Because the companies have an economic interest at stake, their response to this concern, however accurate, may not be viewed as credible by those voicing concern. THEREFORE, WE RECOMMEND THAT THE STATE INDEPENDENTLY ASSESS THE RECORDS OF THE DOW-SHELL GROUP MEMBER COMPANIES.

5. Our description of petrochemical development indicated that accidents while transporting chemicals through urban and environmentally sensitive areas could occur, although we could not ascertain in the time available how likely or serious they might be. More than half of our survey respondents thought that the state, in studying a specific proposal for petrochemical development, should pay particular attention to the transportation of chemicals. Two areas of particular public concern are (1) health and safety hazards associated

with the transport of benzene by rail or possibly by truck and (2) potentially adverse effects on fish of spills resulting from the marine transport of chemicals. WE RECOMMEND THAT THE STATE ADDRESS THESE CONCERNS BY IDENTIFYING RELEVANT TRANSPORTATION TECHNOLOGIES, THE EXTENT TO WHICH THEY HAVE BEEN OR COULD BE APPLIED IN ALASKA, AND THE RISKS THAT SUCH APPLICATIONS MIGHT IMPOSE ON ALASKA'S POPULATION AND ENVIRONMENT.

6. Public concern was also expressed that petrochemical development may somehow adversely affect the fishing industry in Alaska. Recommmendation number five may address this concern in part, but the basis of public concern may also involve other relationships between the petrochemical industry and the fishing industry. WE RECOMMEND THAT THE STATE INVESTIGATE BOTH WHY MANY RESIDENTS BELIEVE PETROCHEMICAL DEVELOPMENT WILL DECREASE THE NUMBER OF JOBS RELATED TO FISHING AND WHETHER THEIR CONCERN IS WELL-FOUNDED.

7. In addition to concerns about the transportation of chemicals, survey respondents thought that public health, air quality, solid waste, and water quality are topics deserving special attention. WE RECOMMEND THAT THE STATE CONDUCT A COMPREHENSIVE REVIEW OF HOW PETROCHEMICAL DEVELOPMENT MAY AFFECT PUBLIC HEALTH, AIR QUALITY, SOLID WASTE IMPACTS, AND WATER QUALITY. THE PUBLIC COULD THEN BE TOLD WHICH CONCERNS ARE GROUNDLESS AND HOW THE STATE PLANS TO ADDRESS THE REMAINING CONCERNS.

8. Public support for petrochemical development appears to be primarily based on personal expectations of receiving employment benefits. In addition, many residents favor development because they assume other Alaskans will benefit from new employment opportunities. Although we have no reason to believe these assumptions are incorrect because they are asssumptions upon which a great deal of public support for petrochemical development is based, WE RECOMMEND THAT THE STATE EXAMINE (1) THE EMPLOYMENT EXPERIENCE OF OTHER AREAS IN WHICH PETROCHEMICAL DEVELOPMENT HAS OCCURRED AND (2) THE COMPETITIVE ADVANTAGES ALASKANS MAY OR MAY NOT HAVE WITH REGARD TO ACTUALLY OBTAINING JOBS CREATED BY PETROCHEMICAL DEVELOPMENT.

APPENDIX A

Enumeration of Public Questions

Questions and Comments from the Audience at Large:
Anchorage, Fairbanks, Valdez,
Seward, Palmer, and Kenai

Enumeration of Public Questions

State Government

1. What announcement will be made in September? When will the site study be completed? (P 1).
2. Who will make the final decision: Governor, DEC, DNR, or Borough? (P 1, A 4).
3. When the Governor makes the decision, does the bid go out to all the companies? (K 1).
4. What is the degree of State commitment at the time the study is complete? (K 1).
5. How binding is the State's decision? Can the State change its mind as we go along? (After the 75 days). (A 1).
6. Is 2-1/2 months long enough for the State to make such a big decision? What will the decision entail? (A 1).
7. How and why was Dow-Shell chosen to conduct a study for possible petrochemical development in Alaska and have the first option on the State contract? (P 1, A 4, S 1).
8. Does the government need to be involved at all? (P 1).
9. Why go through the process of talking to the State? (A 1).
10. What is the role of the State if the owners of the natural gas choose to sell liquids directly to Shell? (A 1).
11. How will the Governor guage community acceptance of the project? (A 2).
12. What is meant by wide community acceptance and how will it be determined? (A 4).
13. How much reliance will Hammond place on ISER questionnaires and public meeting opinions? (F 1, A 1, V 1).
14. Suppose the public overwhelmingly rejects the project. Will it be approved anyway? (A 1).
15. How will specific questions raised at public meetings be used by the State in determining whether petrochemical is good for Alaska? (A 1).
16. Will the results of the Dow-Shell study be made public before the petrochemical development site is determined? (A 1).
17. How will the State make the results public? (A 1).
18. Will the public have a say before the decision is made to have a petrochemical industry here? (F 1, S 1).
19. How will public opinion be monitored and measured? (K 1).
20. Will there be a public vote on petrochemical development? (A 2).

Key: A = Anchorage, K = Kenai, S = Seward, P = Palmer, V = Valdez, F = Fairbanks, 1 = one mention, 2 = two mentions, etc.

State Government (Continued)

21. How else can the public make their feelings and opinions known? (F 1).

22. After Sept. 9 what opportunities will be available for public input? (A 2).

23. Will residents of Alaska as a whole have an opportunity to voice their opinion or only those communities presently being considered? (A 1).

24. When will there be another public meeting where community people can speak up? (A 1).

25. How will community support be defined? Who will measure it? (A 2).

26. Will there be subsequent public meetings during the subsequent steps - such as the environmental impact statement? When will a flow chart be available to the public showing the total process of building the plant? Who prepares this information? (A 1).

27. What control will local residents have on expansion of the petrochemical development? (A 2).

28. Will the public be given answers to questions asked before the decision is made to go ahead with the project? (F 1, A 2, K 1).

29. Is the Dow-Shell study funded by the State of Alaska? (A 1, K 1).

30. Is it a conflict of interest for Dow-Shell to conduct their own feasibility study? (F 1).

31. Who is monitoring the Dow-Shell study? (F 1).

32. Are arctic and subarctic specialists involved in the environmental studies? (F 1).

33. How much of the feasibility study is based on information from plants in sub-arctic conditions? (F 1).

34. Have state representatives gone to other plant locations, assessed the impact and reported back? (A 1).

35. Have any of the State decision makers been to Midland, Michigan? (P 1).

36. Is the State gathering information from other plants before the Sept. 81 deadline? (P 1).

37. Is there a comparable study being done by the State that considers BOTH economics and health/safety? (F 1).

38. Will the information provided by Dow be independently confirmed? (Especially environmental considerations). (A 1).

39. Why isn't there a more independent party involved in the initial phase of the study? (A 1).

40. Where will Alaska get the experts to evaluate the feasibility study? (A 1).

41. Who comprises the environmental review group for the State's "Pet" project"? How BALANCED is this composition? (A 1).

42. Why haven't there been more studies regarding petrochemical development's effect on vegetation, wildlife, environment, etc? (S 1).

43. Who besides Dow is doing studies? (P 1).

State Government (Continued)

44. Who does the Environmental Impact Studies? (P 1).

45. Who pays for Environmental Impact Studies? (P 1).

46. Are there any unpublished studies done that have already been done in Alaska? Are there any being done by uninvited companies? i.e., Exxon? (A 1).

47. Will the study from AlPetco shorten the time for this study? (V 4).

48. What decision process can be employed that can possibly consider all factors fairly .... social, economic, health and safety? (F 1).

49. Is using the EIS as a tool for attaining permits healthy to the overall project? (A 1).

50. What will be the extent of the judicial review of the EIS? (A 1).

51. Why can't the Environmental Impact Statement take 6 months instead of 18 months? (A 1).

52. Don't exercises like this automatically and implicitly support projects like this? (A 1).

53. Do the gas liquids HAVE to be sold to Dow-Shell if they develop the petrochemical complex? (A 1).

54. What will the tax subsidies be for the plant construction and operation? (A 1).

55. What will the State's roll be in subsidizing the infrastructure? (A 1, S 1).

56. Does the State have to subsidize such a petrochemical venture or could a company do it on its own? (A 1).

57. Are there any State subsidies to Dow being contemplated? (Land, resources, etc.). How long would a contract for resources be? (A 2).

58. Will this project (including the pipeline) be economically feasible without direct or indirect State subsidy? Will Dow-Shell list the subsidies? (A 2).

59. Re: plant construction funding. Has Dow-Shell proposed any ratio of what they'll put up compared to the State? (A 1).

60. How far below market value would Dow-Shell have to buy the gas liquids to make petrochemical development feasible? (A 1).

61. What are the implications of Dow's project for the Alaska Growth Policy? (A 1).

62. Why did the State choose to promote the controversial petrochemical industry instead of expanding and improving existing industries such as fishing, lumber, etc.). (A 2).

63. What is DEC's attitude regarding petrochemical development? (K 1).

64. Will Dow be granted any environmental waivers? (A 1).

65. Will the petrochemical plant be restricted to feed stocks and products described in the scenario? (F 1).

State Government (Continued)

66. Will they go ahead with the project with inconclusive studies on such things as the dangers of Benzene? (K 1).

67. Why does a private company need approval for a project when they cannot do a thing without a permit anyway? (P 1).

68. What controls are there on the growth of the plant? (A 1).

69. Does the State anticipate recommending any type of zoning? (K 1).

70. To what extent will the State use independent research in evaluating product safety? (A 1).

71. Will the State or the community have any control over the products produced in the future? (A 3, K 1, V 1).

72. Will the State select a site? (S 1).

73. What is the likelihood of Dow-Shell accepting an Alaska site as an escape from tighter regulations in the "Lower 48". Would guidelines be uniform despite proximity to a large population? (F 1).

74. What are the Federal regulations on the chemicals used by Dow-Shell; will they change with Watts as Secretary of Interior and with the Reagan administration's attitude? (K 1).

75. Is there an environmentally sound way to satisfy EPA guidelines? (K 1).

76. What will happen if the Federal Government lessens the limitations on environmental standards? (P 1, A 1).

77. How applicable are current environmental data compiled for Marine Industry Development to that of petrochemical industry? (S 1).

78. What are the standards concerning the quality and quantity of air emissions? Will the standards be enforced? How and who will measure them? (F 2, A 2, S 1).

79. If national environmental standards are lowered, will Dow-Shell also lower theirs? (F 1, A 1).

80. Are national environmental standards adequate for the specific sites selected. (F 1).

81. What committment will the State make to strict hazardous waste regulations? (A 1).

82. What controls and regulations can we impose to safeguard our posterity, health and environment? (A 1, S 1).

83. How will compliance with Federal and State regulations be assured? (A 1, K 1).

84. Are the environmental restraints put on TAPS sufficient for the new pipeline? (A 1).

85. Who pays the legal expenses to keep the regulations enforced? (A 1).

86. If DEC sets its standards for water pollution based on effects on the environment, does this mean that industry may not be required to use the best available technology? (P 1).

State Government (Continued)

87. How does Dow-Shell know they won't need any variances when the State hazardous waste regulations are still in the process of formulation? (K 1).

88. Can the State weaken the terms of the Federal permit? (A 1).

89. Which State agencies would handle environmental violations? And How? (F 1).

90. Is it possible to shorten the time it takes to change standards? Why did it take 2 years for Valdez to change the hydrocarbon content in the water? (P 1).

91. Would the State recommend changes in State Statutes for environmental standards? (P 1).

92. What will be the permit variances for shutdown and start-up? (K 1).

93. How much money has been contributed by environmental groups to politicians? Who are they and how much? (A 1).

94. In the last 2 years how much money has been contributed to a political campaign in Alaska (Senate, House, etc.). Which politicans have received money and how much? (A 1).

95. How many additional State employees will be required for regulating the petrochemical development? (K 1).

96. Can Dow-Shell be forced to post a bond to offset community losses if they decide not to finish their project? (K 1).

97. Does Alaska protect whistle blowers who release company secrets? (A 1).

98. Does the Federal Government regard these meetings as official? (A 1).

Local Government

99. How will schools handle the increased population - is the Borough prepared to build more? (S 1, V 1).

100. If the plant, once built is expanded, will community approval be required? (F 1, A 1).

101. Was the site selected by Dow-Shell or the local government? (F 1, P 1, A 1).

102. Why should the public pay for a road to a private site? (A 1).

103. Why was there a lack of public input into the decision for Dow-Shell to use any of the sites as feasibility study sites? (A 1).

104. Request a straw vote of all attending Anchorage public meeting June 10 to determine number of people in favor, unfavor, and don't know. (A 1).

105. What government decisions must be made if Fire Island is the chosen site? (A 1).

106. Is the City Council actively pursuing petrochemical development here? (S 1).

Local Government (Continued)

107. Is this petrochemical development plan compatable with the City/ Borough plan for growth and development? (S 1).

108. Would the petrochemical development generate sufficient taxes to pay for the increased fire, health and road services, etc? (S 1).

109. Are there alternative sites in the Seward area? (S 1).

110. Will the City of Seward retain ownership of the petrochemical development site property? (S 1).

111. What will the role of the Borough be? (S 1).

112. What kinds of committment does Dow-Shell want from the City? (S 2).

113. Are the mayors of Kenai and Soldotna pro Dow-Shell? What is their vision of petrochemical development? (K 1).

114. How do we protect the cities, Soldotna and Kenai, from the people problems when the ratables are outside the citites? (K 1).

115. Is it possible for Nikiski to secede from the Borough thereby taking the tax base with them? (K 1).

116. How can the City of Kenai benefit from the increased assessed value in Nikiski? (K 1).

117. Why is the proposed site located so close to present downtown Kenai? (K 1).

118. Why are they building the plants in heavily population areas? (K 1).

119. Without Borough comprehensive zoning and planning how can we assure ourselves that we won't become the State's most lucid example of urban sprall? (K 1).

120. Given the current Borough philosophy of reducing government - how will the Borough cope with the expected growth? (K 1).

121. Why aren't we satisfied with Kenai the way is is? (K 1).

122. Will the land in Wildwood be bought or leased? (K 1).

123. What is the Borough's assessment of a petrochemical development in Mat-Su? (P 1).

124. Has the Mat-Su Borough conducted a recent study which reflects citizen's attitudes toward industry and petrochemical development? (P 1).

125. How will the local Borough handle local opposition and Dow? (P 1).

126. Has the Borough assessed the problems involved with both agriculture and a petrochemical plant in the area? (P 1).

127. People living near a new site - will it be a new community or existing subdivision? (P 1).

128. How would this facility be taxed by the municipality? (V 2).

129. Would petrochemical development reduce Valdez taxes? (V 2).

130. Will Dow-Shell desire financial assistance from the City of Valdez such as industrial development bonds? (V 1).

Local Government (Continued)

131. Will there be tax free revenue bonds? (V 1).

132. Available land for landfill for wastes and how long will it be sufficient? (V 2).

133. What usually happens when a large company comes into a small town (re: government)? (V 1).

134. How is the possible petrochemical development being placed in the overall picture of development (water usage with respect to agriculture)? (F 1).

135. Is Dow-Shell pushing a Fairbanks site, or is it the Borough Government? (F 1).

136. What happens if the Bonanza Creek site is not acceptable to the people at the public hearings? (F 1).

137. Why was the site selected so far from town (markets, labor, etc)? (F 2).

138. Why was a site along the Richardson Highway not selected instead of the Parks Highway? (F 1).

139. Why was an area of low population density and having few services for economic development selected? (F 1).

140. Why has the Borough waited so long before having public hearings? (F 1).

141. When will Borough-wide vote on desirability of local petro be held? (F 1).

142. Will the Borough make a special effort to involve residents who live relatively near the proposed site, including Ester residents?

143. Will Borough citizens have any say on site selection? (F 1).

144. Will the residents of the community nearest the selected site be allowed to participate in the final selection? If so, how critical is community support/approval? (F 1, P 1).

145. How will the land for the site be made available? (lease, sale?) (F 1).

146. What is the ownership status of the land that is being considered for each site? (F 1).

147. Will there be land near the site available for private residential development? (F 1).

148. What effect would the proposed site have on the State/Borough land disposals in the adjacent Rosie Creek Area? (F 1).

149. What kind of local economic/financial incentives can a community offer for industrial development?

150. How does the Borough plan to deal with the increasing problems resulting from higher population, ice fog levels, etc? (F 1).

151. What will be the advantages gained by the community where the plant is located? (i.e., property taxes, etc.). (F 1).

Dow-Shell

152. What is the realistic date of the start-up of construction? (K 1, V 1).

153. Why was Alaska chosen for possible petrochemical development? (F 1).

154. How much land fill will be needed and where will it come from? (K 1).

155. How much area is needed for the site? How large is the 4th of July site? (S 1).

156. How much land area is needed for each phase? (V 1).

157. Are the proposed sites large enough to accommodate the maximum plant size? (A 1).

158. Who chose the sites? (K 1).

159. Is Fire Island Dow's first choice? What is the first choice? (A 1).

160. Is inexpensive public land necessary to make (Fairbanks) sites feasible? (F 1).

161. What importance does the North Pole Refinery play in the consideration of Fairbanks as a possible petrochemical plant site? (F 1).

162. What are the chances of the Mat-Su site being selected? (P 1).

163. Why does Dow want to build on the Peninsula? (K 1).

164. Which site has the least physical limitations? (P 1).

165. Is the site linked to whether we have petrochemical development or not? (A 1).

166. When will the site be selected? When will we be informed? (A 1, S 1, V 1).

167. How valid is the feasibility study if the site isn't firm? (F 1).

168. Will it be possible to consider alternative sites once the general geographic location is chosen? (i.e., alternative to Bonanza Creek if Fairbanks is chosen, etc.). (F 1).

169. What are the possibilities of splitting the facilities between two areas? (S 1).

170. What tax incentives are being considered in Dow-Shell's feasibility study? (A 1).

171. Was Dow-Shell put together just for this study? (P 1).

172. How many other states did Dow attempt to build plants in before coming here? (A 1).

173. If report comes back negative, where does Dow-Shell go from here? (P 1).

174. If Dow-Shell does not build a plant in Alaska where will they build the plant? (A 2).

175. What conditions would render petrochemical development not feasible to Dow-Shell? (A 2).

176. What will be the size of the proposed pipeline? (V 1).

177. What is the proposed routing of the feeder pipeline? (F 1).

178. Could the existing pipeline pad be used for the gas line? (V L).

Dow-Shell (Continued)

179. How close will the gas liquids line be to other pipelines? Will it be cold or hot? (F 1).

180. Is there a proposed route for a pipeline to Seward? (S 2).

181. Where are similar petrochemical development sites for comparison? (F 1, V 1).

182. Is is economically feasible to produce only enough of a product, such as styrofoam, for an Alaskan market only? (F 1).

183. What supplies and services would Dow-Shell need from existing businesses and commercial interests in Alaska? (A 1).

184. What would be the difference in products produced in a Fairbanks plant from those produced at a dockside plant? (P 1).

185. Who will Dow buy gas from other than the State? (P 1).

186. How many years have these products been produced on a large scale? (P 1, A 1).

187. Has Dow-Shell thought of using energy from the Susitna Hydro project at any stage in the petrochemical development? (A 1).

188. Does Dow-Shell have the financial ability to complete this project? (P 1, A 1).

189. What is the volume (gallons or barrels) of chemicals that will be produced per month? (P 1, A 2).

190. What end products will be produced? (F 1, A 1).

191. Why doesn't Dow-Shell know what they are going to produce? (A 1).

192. What additional products will the facilities be capable of producting? (A 1, V 1).

193. What chemicals could be used in this petrochemical development in the future? What are their hazards? (P 2, A 1).

194. Are halogen-substituted ethylenes going to be produced? (A 1).

195. What is the maximum size of the proposed plant? (A 1, V 1).

196. Please explain the flaring process for routine maintenance and malfunction. (F 1).

197. Will there be fire protection at the plant? (S 1).

198. Will the final plant processes be made available to the public in print or is this proprietary information? (F 1).

199. How will this proposed plant compare with the Midland, Michigan plant? (productivity? products?). (A 1).

200. From which industrial process will the sludge come? And what will be its molecular composition? (A 1).

201. What kind of concentrations of sulfur will be in the feed stock? (F 1).

202. What is involved with the coal gasification process? (F 1).

203. How much is Dow spending to fight State and Federal clean air and clean water acts? (A 1).

Dow-Shell (Continued)

204. Will Dow-Shell try to stop OSHA from regulating standards for their plant? (A 1).

205. How will the industry work with the community in handling the impacts created by the influx of people? (V 1).

206. Will Dow-Shell absorb the community services costs of impact? How? (A 1, V 1).

207. What type of expertise will Dow-Shell provide to local communities to assist in planning for growth? (K 1).

208. How will Dow-Shell help local interests interpret investment and business opportunities that will come with development? (K 1, V 1).

209. Would the company be willing to provide funds for construction of housing? (via loans through banks - short term money). (V 1).

210. Would Dow-Shell be willing to endow a chair of chemical engineering at the Univ. of Alaska as a precondition to acceptance for their project? (A 2).

211. Does Dow have statistics which would show what the impact would be on a small community? (P 1).

212. What forces of moderation are being massed to stop construction of the petrochemical plant? (A 1).

213. Why doesn't Dow go away? (F 1).

214. Why did Dow feel obligated to pay off the debt of the Governor and Lt. Governor? (F 1, P 1).

215. What percentage of yearly profit does Dow-Shell donate to charity? (P 1).

216. How much is being spent on public relations compaigns as compared to research on epidemioalogy, accident procedures and safe levels of contamination? (A 1).

217. Would any chemicals involved in producing warfare agents be manufactured by this plant? (F 1, A 1).

218. Has Dow-Shell taken a position on S.B. 84? How much money has Dow-Shell spent on lobbying? (A 1).

219. What is Dow-Shell's attitude toward "environmentalists"? (P 1).

Dow's Record

220. Why should Alaskans trust Dow-Shell to do a better job of protecting the health and environment than they have in other States - especially considering the Alaskan environmental conditions? (F 1, A 2, K 1).

221. With Dow's past environmental record, why can we expect them to be truthful with us? What guarantees do we have? (F 1, A 2, K 1).

222. Are there any lawsuits pending against Dow? Plant workers suits? Agent Orange suits? EPA suits? OSHA suits? What is Dow's record? (A 1, K 2).

Dow's Record (Continued)

223. In general, what is the safety record of the petro chemical industry? And compared to other industries? (A 2).

224. How does Dow-Shell respond to the fact that Dow-Shell has 350 violations? (A 1).

225. Why does Dow have a poor record of compliance with environmental standards? (A 1).

226. When Dow-Shell makes Napalm and Agent Orange, how can we as morally responsible citizens have them in our backyard? (A 1).

227. Are previous violations considered before granting subsequent permits? (A 1).

228. How factual is what we read about Dow-Shell's safety record? Who actually determines safety compliance? Are charges against companies factual? (A 1).

229. I have observed petrochemical development in Calif. and saw a lack of integrity on behalf of the industry - do we want this type of immoral development? (K 1).

230. Would other chemical companies present the same problems? (K 1).

231. What kind of track record does Dow-Shell have on local fish and game resources and vegetation? (S 1).

232. What is Dow's policy going to be with respect to Labor Relations in light of their record in Michigan? (V 1).

233. Why was the EPA forced to take surveillance flights over the Midland, Michigan site? Why wasn't the EPA allowed on the site? (F 1).

Solid Wastes

234. What solid wastes will be incinerated? What emissions will result? Are facts available on the toxicity or fate of these emissions in Alaska? Relate these questions to all possible types of products to be manufactured. (F 1, A 2, K 1 , S 1, V 1).

235. How can we decide if we favor the petrochemical industry if we cannot find out basic facts such as wastes produced? When will we find out? (F 3, A 3, S 1).

236. What chemicals, in what quantities, would be present in the effluent from the chemical waste treatment plant? How would these chemicals be removed? (i.e., activated carbon, etc.). (A 6, K 2, S 1).

237. Will there be a public listing of all the hazardous wastes? (Before the petrochemical development plant is built) When? (F 1, A 2).

238. What types of hazardous wastes will there be that cannot be incinerated? (K 1, V 1).

239. What are the harmful chemicals (by name) that are in the sludge? (A 3, K 1).

240. What kinds of things are present in residue left in petrochemical waste? (e.g., metals trace organics, etc.). (A 1, S 1).

Solid Wastes (Continued)

241. What is the toxicity duration of the toxic waste? (A 1).

242. What are the combined levels and costs of air, water and solid waste products from all related sites of petrochemical development? (A 1).

243. What other hazardous wastes will there be besides benzene? (F 1).

244. What waste products are produced by a petrochemical plant producing styrofoam? (F 1).

245. Where and how will solid wastes be disposed? (F 1, P 1, A 3, S 1, V 1).

246. Does the technology exist to incinerate solid wastes without creating other toxic problems? (F 1, A 2).

247. How much of the "4 ton-a-day" sludge will leak into the water table? (A 1, K 1).

248. How will wastes be disposed - into air and/or water? (A 1, V 1).

249. Levels of dioxins from incinerated waste. (K 1, S 1).

250. The Department of Environmental Conservation has not adequately monitored the State's existing special waste site (in Sterling). How will future hazardous waste sites be monitored? (A 1, K 1).

251. What chemicals will go into the incinerators? How will they dispose the residue from the incinerators? Where? (A 6).

252. How will the bulk wastes be removed if the Fire Island site is chosen? (A 1).

253. Why is burning sludge just encouraged instead of required? (A 1).

254. Who determines the safest method of waste disposal? (A 1).

255. Are there any State Statutes on waste disposal? Are they enforced? (A 1).

256. Will a new hazardous waste law affect the feasibility of the Dow-Shell study? (A 1).

257. What safeguards are there for storing and transporting toxic wastes? (A 1).

258. What are the long term effects of buried chemicals? (A 1).

259. Do we have to upgrade our present waste disposal facilities in Anchorage to accommodate 15 tons of solid wastes per day? What form is the solid waste in? How much space does 15 tons take up? (A 1).

260. In which land fills will sludge be disposed? (A 1).

261. Please site an example of a plant whose solid waste is being dumped in an ordinary land fill. (A 1).

262. What oxidizing agent is involved in the incinerating of chemical wastes? (A 1).

263. Where will the solid waste be put? What percentage will be contaminated? (K 3).

264. If wastes aren't incinerated where will they be stored? (K 2).

Solid Wastes (Continued)

265. What will happen to the accumulated waste over the decades? (K 1).

266. What are the long term on-site plans for waste disposal? (K 1).

267. Why not deal with residential waste before dealing with chemical waste? (P 1).

268. What happens to the tons of neutralized sludge? (P 1).

269. Could the petrochemical facility develop a common use solid waste, waste water treatment systems? (V 1).

270. Will there be a recycling process for waste? (V 1).

271. How will the waste produced by a styrofoam plant be handled? (F L).

272. Has above-ground storage been considered for hazardous wastes? (F 1).

273. How will concentrations of sulfur be disposed of? (F 1).

Water Quality

274. Who will provide the additional water required for the plant and where will it come from and under whose management will it fall? (F 3, A 4, K 7).

275. What amount of water will be consumed by the plant compared to the present water consumption of the local community? (F 3, A 2, K 2).

276. How will the water resources be affected in this area? (F 1, A 3, K 2).

277. Can water needs be satisfied with salt water instead of fresh? (A 1, K 2).

278. Has a study been made to determine where the chemical processing water will come from at each site under consideration? (P 1, K 1).

279. What kind of monitoring will there be of the water table? (A 1).

280. What are the disadvantages of using salt water? (A 1).

281. What demands on the Anchorage water supply will a fully operational petrochemical plant incur? (A 2).

282. If subterrain water is used, will it be taken from the Anchorage water shed? (A 1).

283. Where does the water come from for use at Fire Island (especially the fresh water)? (A 1).

284. Compare the amount of water and electricity needed to current amounts used by Anchorage. (A 1).

285. Has a study of the Kenai River water supply been done? (K 3).

286. How big a stream is 2000 gallons a minute in comparison to the Kenai River flow? (K 1).

287. Was the study of industrial water from Soldotna area to Nikiski completed? Could it be used? (K 1).

Water Quality (Continued)

288. What is the cost of taking salt out of salt water vs. the cost of purifying the Kenai River Water? (K 1).

289. Is the purity of water required going to be possible using the Kenai River water? (K 1).

290. What would be the effect on the water table if a community that is dependent on a septic system has to switch to a municipality type water system? (K 1).

291. How many people (especially those downstream of the Tanana River) know about potential impacts on water resources? (F 1).

292. What effect would silty water from the Tanana River have on the facility? (F 1).

293. Is there any data on ground water supplies in Pt. MacKenzie test wells? (P 1).

294. What will be the affect of return water on marine life? What are the statistics in other comparable areas with petrochemical development? (P 1, A 1, K 1, S 1).

295. Are the effects of re-injecting waste water (especially in Winter) being studied with specific attention being paid to temperature elevation? What are the effects? (F 1, A 2, K 3).

296. How effective is filtering water? What percentage of waste remains in the returned water? (A 3, K 1, V 1).

297. Who will monitor effluent? How often? (F 1, K 2, S 1).

298. What impact will a petrochemical plant have on waste water treatment plants? (A 1, K 1).

299. Specifically, how will waste water be treated? (F 1, A 1, V 1).

300. Where will chemicals be discharged in Cook Inlet? (A 1, K 1).

301. What affect is increased water traffic, elevated water temperatures and toxic spills going to have on marine mammals and other endangered species? (A 3, K 1).

302. Do the state water quality standards indicate the amounts of pollutants produced by the petrochemical industry which are safe? (A 1, K 1).

303. What will be the effect of spilled chemicals? (A 1).

304. Which kinds of trace contaminants in the liquid wastes will be most likely to concentrate in filter feeders (clams)? (A 1).

305. Have there been spills in water? What affect do the chemicals have on sea life? How effective is the clean-up? (A 1).

306. Would raising the water temperature stimulate aquatic growth? (A 1).

307. In view of the natural sedimentation influx in Turnagain Arm, what is the content/characteristics of the liquid waste and what is its longevity/persistence. (A 1).

308. Are tides accounted for in cleansing potential spills? (A 1).

Water Quality (Continued)

309. Are potential dangers of carcinogens greater than current dangers of our dumping city sewage into Cook Inlet? Quantify please. (A 2).

310. What will be the cost to the City/State to upgrade the sewage treatment facilities? (A 1).

311. What is the capacity of the sewage treatment plants? (K 2).

312. What pollutants are in the discharge water and what are their toxicity level? (K 1).

313. Will there be advance baseline studies on the outfall areas prior to the anticipated thermal and chemical pollution? (K 1).

314. How much discharged water will there be? (K 1).

315. Will any of the chemicals effect our drinking water? (S 1).

316. What waterways do not have fish that would be affected by the plant? (P 1).

317. What problems are likely to occur due to percolation from settling ponds? (F 1).

318. What effect will the additional discharge of warm water into the Tanana River have on the Nenana Ice Classic? (F 1).

319. Considering Midland's experience with dioxins, what downstream problem may occur? (F 1).

320. Is recycling of water planned? Instead of dumping water into the ocean is it possible to dump it back into the plant? (F 1).

Air Quality

321. What are the invisible emissions from the power plant stack? (paragraph 19). (F 2, P 1, A 2).

322. How much and what kind of odors will be produced? (A 1, K 1).

323. Will the city residents smell anything in the air? (A 1).

324. Can the smell be measured? (A 1).

325. What would be the difference in this plant that it would have no air pollutants like other plants? (A 1).

326. How much and how many carcinogens could be released into the atmosphere? (A 1).

327. What will be the chemical content of the water vapor emitted from the facility? (A 1).

328. How much more SO_2 will be discharged into the air from the petrochemical plant? (A 1).

329. Will there be smoke and ash from toxic waste incineration? Will the wind transfer it toward the city? (A 2).

Air Quality (Continued)

330. In Paragraph 20 of ISER's scenario (page 5 last sentence) it states "... should not produce the brown-colored smoke..." Is this correct? If natural gas produces haze in Kenai wouldn't it produce haze in the other communities? (F 1).

331. Is natural gas flared or something else such as chlorinated hydrocarbons? (F 1).

332. What kind and how much stack emissions will there be? (F 1).

333. Explain what is meant by "brown haze"? What is it made up of? (K 2).

334. Are the emissions from the power plant in phase II equivalent to the emissions from a city of 200,000 people? (K 1).

335. Will there be NO_2 pollution? Will visibility be affected? (K 1).

336. What will the particulate matter amounts be? Types? (K 1).

337. What gases will be emitted? (K 1).

338. If a petrochemical plant were built at Valdez, Pt. McKenzie or Fire Island, how would it effect visability at the airport. (A 5, K 2, V 1, P 1).

339. Have there been any studies conducted measuring seasonal air flows (velocity, direction, etc.) in any or all of the potential sites? (F 1, A 2).

340. What specific effects will production and waste disposal have on the air quality? (i.e., sludge burning). (F 1, A 1).

341. Will there be acid rain caused by the inversion factor in the atmosphere? (A 2, K 1).

342. If air is used as an oxydizing agent, what will be done with the petrochemical smog produced? And acid rain? (A 1).

343. What fuel will be used for power production for the plant and what are the effects of this on the environment? (A 2).

344. What effect will the pollutants from the power plant have on the Anchorage area? (A 2).

345. What is the ice fog potential in sub zero weather for Fire Island and Pt. McKenzie? (A 1).

346. How often does Anchorage, Fairbanks or other proposed sites experience a temperature inversion? (A 1).

347. How will a temperature inversion affect the toxicity of waste put into the air. (A 1).

348. What will be the effect on the air quality if nitrides and sulfides are released into the atmosphere? (A 1).

349. What would make the air pollution problem less severe here than at other plant sites? (A 1).

350. Who determines nose sensitivity to the smell of the plant emissions? (A 1).

351. What specific standard of air quality will be used if the plant is built? How will it relate to air quality of Kenai before the plant is built? (K 1).

Air Quality (Continued)

352. What is the definition of a "significant change in air quality"? (K 1).

353. Concerning odors from the plant - how can Dow-Shell prevent winds from taking smells to other areas. (K 1).

354. Emissions are invisible. But are they safe? (S 1).

355. Will weather conditions effect the dispersal rate of emissions?

356. What about the effect of normal emissions (NO_2, CO, etc.) on the community (S 1).

357. Will tract A restrict flying with the planned airport improvements. (V 3).

358. Will institutions (U of A, hospitals, Ft. Wainwright) have the same regulations pertaining to waste discharge as the petrochemical industry? (F 1).

359. Do State standards take precedence over National standards? (F 1).

360. In the cost/benefit analysis for setting pollution standards, who pays the "hidden" costs and who received the benefits? (F 1).

361. Does the Borough have plans to upgrade the public transit system and/or any other strategy to reduce the impact of vehicle emissions during cold weather? (F 1).

362. How can further pollution be allowed or tolerated when (Fairbanks) air quality standards are not currently being met? (F 1).

363. What amounts of water vapor will come from the cooling tower compared to Ft. Wainwright? (F 1).

364. Are the air quality standards being met in Fairbanks at this time? (F 1).

365. Because of the already high pollution in the Fairbanks area, is it realistic to consider an industry which would add to it? (F 1).

366. Could the problem of smog created by petrochemical development be reduced? What would the additional cost be? (V 1).

367. Could annual or bi-annual maintenance shutdowns be scheduled to coincide with times when air quality is at its worst? (V 1).

368. How many days per year would haze be visible as compared to now? (V 1).

Other Environmental Effects

369. What are the noise levels produced in a petrochemical plant? Are they environmentally hazardous? (A 1, K 3, S 2).

370. What affect would an earthquake have on a petrochemical plant? And on the environment? (A 6, S 1, V 1).

371. Will emissions from the plant effect growth of vegetation near the site? (F 1, V 1).

Other Environmental Effects (Continued)

372. What chemicals (by name) will affect the air and water quality and marine life? How? (A 1, S 1).

373. How many existing petrochemical development plants are in sub-arctic climates? Who owns them? What are the arctic's specific problems? (F 1, A 1).

374. What will the effects on wildlife be? Waterfowl? (F 1, K 1).

375. If dredging is necessary will it be a continuous operation or only at intervals? What will be the cost? (A 1).

376. Does the technology exist to prevent irreversible affects of petrochemical development problems? (A 1).

377. On the existing projects such as North Pole, Cook Inlet, Alyeska pipeline, what kind of impacts have there been to the environment? (A 1).

378. Why was the slide show narrative so specific about employment and not so specific about the environmental impact? (A 1).

379. How will Dow deal with the various problems that might affect a causeway? (i.e., tides, unstable land, natural disasters, etc.). (A 1).

380. What are the environmental hazards of a pipeline to the petrochemical plant? Spills? (A 1).

381. Is it safer environmentally to refine the products in Alaska or does it really matter? (A 1).

382. Is baseline info sufficient for detection and monitoring? Devices used to monitor? (A 1).

383. What is Dow's liability in the event of a natural disaster (quakes, floods, fires, etc.). (A 1).

384. Are there completed geological studies done on Fire Island and is it on an Earthquake fault? (A 1).

385. If Dow was turned down in California due to the environment, why have they come to Alaska? (A 1).

386. Has there been a negative impact on the area surrounding other existing plants? (A 1).

387. What other plants existing at tidewater, produce ethane derivatives in similar quantities as proposed here? And what has been the local impact? (A 1).

388. When dredging for the port facility, where will the fill be dumped? (K 1).

389. Is "Petrochemical" synonomous with "L.N.G." and is it as explosive? (K 1).

390. What will happen if there is a disaster? (K 1).

391. When will specific answers to environmental impact questions be answered? (K 1).

392. What is the extent of the area immediately around the plant that may be in jeopardy, environmentally? (K 1).

Other Environmental Effects (Continued)

393. What will happen to the trees around the plant? (K 1).

394. What effect will the plant emissions have on the surrounding forests? (S 1).

395. To what degree are environmental factors being considered for the first phase? (P 2).

396. Would this project be as visible from Valdez as the terminal? (V 1).

397. Does the E.I.S. take into consideration the increased population? (V 1).

398. How many red back voles will be exterminated during the site preparation? (V 1).

399. Is permafrost present under the proposed sites? (F 1).

400. What will be the petrochemical producers liability for unpredicted environmental damage? (F 1).

401. What effect will a petrochemical plant at Bonanza Creek have on the State forest program and the U.S. Forest Service research? (F 3).

402. Can this geographical area cope with the environmental (air, water) impact that comes with industrial development? (F 1).

403. Is thermal degradation a problem? (F 1).

Health

404. Explain the controversy concerning the "safe" level of benzene inside a plant (10 ppm vs. 1-3 ppm; toxicity). (F 1, P 1, A 1).

405. Are benzene, ethylbenzene, ethylene dichloride, ethylene glycol presently being produced and used in the lower 48? In what volumes? Are they safely being used and manufactured? (F 1, A 2).

406. What level of benzene will be in the plant in Alaska? (P 1, S 1).

407. Who will monitor the level of benzene in the plant? (State, Federal, industry). (P 1, F 1).

408. Will demographic studies of health effects on residents near other petro plants be studied and publicized? (A 1, V 1).

409. How hazardous are the materials that are to be manufactured in the plant? (F 1, K 1).

410. Will workers be fully apprised of possible exposure to hazards on the work site? Including catalysts and long range reactions? (A 4).

411. What chemicals is Dow currently manufacturing that are banned in the U.S.? (A 3).

412. How much exposure to benzene does a person get from filling a snow machine or car with gasoline? (A 2).

413. How do the health and safety statistics of petrochemical plant workers compare to statistics of workers in other large industries? (A 2).

414. Is there any product now made in Alaska, with benzene? (A 1).

Health (Continued)

415. Is the threshold of exposure established for all living things - or just humans. (A 1).

416. How do they establish a threshold of exposure that is determined to be safe? Do they establish long term exposure? (A 1).

417. What is Dow-Shell's definition of "significant health hazard" and does the State agree with that definition? (A 1).

418. What is the long range effects of benzene at low levels of exposure? (A 1).

419. Is it feasible to protect petrochemical workers in a manner like nuclear plant workers? (A 1).

420. If Dow-Shell creates any health hazards will they assume responsibility and how much? (A 1).

421. Does Dow believe there are threshold levels for carcinogens? (A 1).

422. What increase in (%) cancer will petrochemical development bring? (A 1).

423. Why will the plant be in a highly populated area if the products are potentially carcinogenic? (A 1).

424. Is the cancer rate higher in areas that have existing petrochemical plants? Are these studies done in a scientific manner, supported by evidence of a control sample? (A 1).

425. In general how much is not known about the effects of toxic chemicals on human health? (A 1).

426. Is the cancer occurance rate different between Dow managers and Dow plant workers? Why? (A 1).

427. Dow Shell has said there are no significant health hazards. How can Dow-Shell make that claim when there have been 24 recorded cases of brain cancer in their Texas plant and the average age of death is 55 for workers and 75 for executives? (A 1).

428. The Freeport, Texas Dow plant has 2-1/2% more incidence of brain cancer - how long does medical coverage/employer liability extend - ex-employees? (A 1).

429. Will concrete toxic safety levels be firmly established prior to the decision on the acceptability of petrochemical development here? (A 1).

430. Is there a high incidence of brain cancer in the workers in the Texas Dow plant? (A 1).

431. What is Dows explanation for 24 cases of rare brain cancer in their Texas plant? (April issue, Wall Street Journal). (A 1).

432. Has a study been conducted on the effects to the health of Alaskans? (A 1).

433. Will Dow-Shell assume the potential costs of health effects of plant workers (and general population) within the decades it may take for cancer to develop? (K 1).

Health (Continued)

434. What potential for harm is there from chemicals that are unidentified at the present? (K 1).

435. What are Dow's and the State's standards for worker exposure to benzene? (K 1).

436. What are the specific effects of benzene on employees and the community? (K 1).

437. How will Dow-Shell deal with workers contracting lukemia after benzene exposure? (S 1).

438. Did the Union Carbide Plant in Texas, at which 18 workers developed fatal brain tumors, involve the same petrochemicals that are being considered here? (S 1).

439. What health and safety concerns are there for workers? (S 1).

440. What is Dow-Shell's safety record during production? (Overall and for employees). (P 2).

441. Will chemicals that require descrimination of employees be used? (i.e., child bearing-age women)? (P 1).

442. What is the present federal safety standard for benzene? (P 1).

443. How long will it take for the study of the safety factors concerning benzene to produce results? (P 1).

444. Is there data available to indicate industry's safety record in dealing with benzene? (P 1).

445. What data is available on the overall safety record of the chemical industry? (P 1).

446. Shouldn't the building of the complex be postponed until all the data is collected on health hazards? (P 1).

447. What is the general physical health impact? (V 2).

448. Have independent, non-industry sponsored studies been done on health impacts on residents near plants? (F 1).

449. When will the benzene controversy be settled? Before or after a plant is built here? (F 1).

450. What is the State going to do to set acceptable levels of benzene exposure? (F 1).

451. What are the health and social effects of benzene production in the North Pole area? (F 1).

452. Does Dow acknowledge the finding of 240-1400 leukemia cases per year attributed to occupational exposure to benzene? (F 1).

453. How can the State of Alaska adequately monitor and regulate possible health hazards in view of the fact that the present Federal policy is reducing the requirements on industry? (F 1).

454. Is the "bad smell" in the plant emitted from something that is a health hazard? (F 1).

Health (Continued)

455. Is there any chance for chlorinated wastes and spilled or discharged hydrocarbons to combine to form carcinogenic substances? (F 1).

456. Could this project provide an opportunity to research long range effects on health? (F 1).

457. What data is available on the effects of stack emissions to the health of workers/community? (F 1).

458. Why did the oil, chemical and atomic workers unions take such a strong stand against a proposed petrochemical worker safety standards in the Bay area? (F 1).

Transportation

459. What amount of shipping traffic will there be after the plant is completed? (A 1, K 1, S 1, V 1).

460. Where will they place docking facilities? (transportation facilities). (K 2, S 1, V 1).

461. What type of ships will be used? Size? (K 1, S 1, V 1).

462. Will foreign registered ships be used? (K 1, V 1).

463. Will a rail line be brought to the area to aid in shipping? (K 1, V 1).

464. Will there be transportation problems in shipping channels?
- conflicts w/fishing fleet?
- fishing boat right-of-way situation?
- how many tankers?
(K 1, S 1).

465. What are the aspects regarding the marine facility (products, dock)? (S 1, V 1).

466. What are the plans for transporting chemicals? R.R. Spur? (Which direction will it go? Who builds it?) (F 1, S 1).

467. How will the cost of a causeway be distributed? (A 2).

468. What are the hazards of high tides on tankers and large cargo ships? What's the potential for spills? (A 1).

469. How will carcinogens be transported from the Interior? And in what form (i.e., solid, vapor)? What cleanup methods will be used if the carcinogens are in vapor form? (A 1).

470. Will shipping of products be protected from avalanche? (A 1).

471. Will Dept. of Environmental Conservation conduct a study of transportation accidents which resulted in chemical spills? (A 1).

472. If transportation is a hazard, should we consider a plant in the Prudhoe area instead of piping it down State? (A 1).

473. What precautions will be made in insure that the Alaska Railroad can haul wastes and chemicals safely? (A 1).

474. How will liquids get to Fire Island from Prudhoe Bay? (a railbelt, trucks?) (A 1).

Transportation (Continued)

475. If Bonanza Creek is selected how will chemicals be transported from the Creek to the port and which port? (A 1).

476. If Dow-Shell has to build port facilities, will Port of Anchorage be able to use them or to expand on them? (A 1).

477. Is the causeway necessary? (A 1).

478. What effect would the plant's port have on the downtown port - would the present port be moved? (A 1).

479. What size road will be needed for the increased highway traffic from Wildwood to Nikiski? (K 2).

480. What's the probability of shipping accidents? (K 1).

481. Is Dow-Shell going to build an additional port facility? (K 1).

482. Will ships' hulls be reinforced to withstand ice pressure? (K 1).

483. Was there a proposal for a 5 lane highway? (K 1).

484. Will it be an open port? (K 1).

485. How much increase in airport passenger traffic and freight traffic will there be? (K 1).

486. What new roads will be constructed as a result of petrochemical development? Where? (K 1).

487. Could large ships dock at a Seward plant and smaller ships go to another location? (S 1).

488. What will be the primary mode of transportation used for people and equipment? (S 1).

489. How will this affect Louisiana-Pacific rail cars and facilities? (S 1).

490. Which site has the least transportation limitations? (P 1).

491. Would the railroad be used for transportation between the plant and a port? (P 1).

492. Will Dow-Shell use a deHaviland-7 in and out of the Valdez Airport? (V 1).

493. How toxic are the products that are being transported out? (V 1).

494. What type of utility corridor is needed? (V 1).

495. What advantages and disadvantages does Valdez have in regard to marine safety? (V 1).

496. How will petrochemical development effect transportation to Valdez? (V 1).

497. Would an ice-free port be an asset to this project? (V 1).

498. Will the freight rates decrease? (V 1).

499. What is the proposed means of transportation of chemicals to North Pole if the plant is located in Fairbanks? (F 2).

500. Railroad accidents involving toxic chemicals happen periodically. Will <u>any</u> toxic gas or fluid be shipped by rail in any proximity of Alaskan population concentrations? (F 1).

Transportation (Continued)

501. How will benzene or other hazardous materials be transported out of the area? (F 1).

502. If benzene comes from the North Pole Refinery, will it be transported through town? What kind of safety measures will be developed? (F 1).

503. How and who determined that the railroad is safe for transporting petrochemicals? (F 1).

504. What is the final destination of the chemicals? (F 1).

505. Would there be a significant beneficial effect for a 2-way haul by the Alaska railroad? (F 1).

506. If transportation is a primary concern, why would Fairbanks be selected? (F 1).

Safety

507. Isn't a petrochemical plant a prime military target? (A 1, K 1).

508. Are there plans to educate the people in case of a disaster? Fall-out shelters, etc? (K 1, S 1).

509. What financial and legal responsibilities will the Dow-Shell group have in cleaning up spills? (A 3).

510. In the event of an accident what is Dow-Shell's insurance liability and coverage? (A 1).

511. What provisions for clean-up of a possible spill have been made? (A 2).

512. What spill technology is available (marine and terrestrial) for petrochemical development? (A 1).

513. In case of a serious accident, what guarantees will we have so that the tax payer does not have to pay? (A 1).

514. What are the emergency clean-up procedures in case of accidents? (A 1).

515. Isn't the likelihood of a serious industrial accident (in production, transportation or construction) inevidable? (A 1).

516. If there is an explosion in one section of the plant would it spread to the entire plant? And what would the radius of the effects be? (A 1).

517. What materials could leak or spill within the plant? (A 1).

518. How many safe plants now operate in the world? Define safe? (A 1)

519. How safe is it to work in a petrochemical plant? (A 1).

520. What are the dangers of working inside the plant or outside the plant? (A 1).

521. Why do we have to consider hazardous pursuits in Alaska? (A 1).

522. What about malfunctions? What are the statistics concerning the affect on the community? (S 1).

523. Will there be government protection in the event of a nuclear attack? How? Also in the event of a conventional type war? (V 1).

Resource Use

524. What is happening to the State's gas now? Where is it now being distributed? (S 1).

525. If 50% of the liquid gas is used - what happens to the other 50%? (P 1).

526. Will Dow-Shell still be interested in building a plant without a long term contract for the royalty gas? (A 1).

527. Is the feasibility of the project contingent upon the state selling its royalty share? (A 1).

528. Is the State's share of liquids adequate for a plant the size proposed? If no, what leverage does the State have with the procedures? (A 1).

529. When will the supply of gas liquids from Prudhoe Bay start declining? (P 1, A 3).

530. How long will the petrochemical plant be in operation? How would it coincide with the loss of oil revenue? (F 1, P 1, A 1).

531. What will become of the project when gas liquids run out? (A 3).

532. If the petrochemical industry isn't developed now is it irrevocable? Could it come 10-15 years from now? (F 1).

533. If the gas line isn't built and the petrochemical industry doesn't develop, what will happen to the gas liquids? (F 1, A 1).

534. How valuable are the gas liquids and what will happen if the plant is not built? (A 1).

535. What will the natural gas liquids be used for if not petrochemical development? (A 6).

536. Do we have an option to selling our royalty oil? (K 1).

537. Has a study been done to determine best use of liquid gases or best place for that use? How will this be determined? (A 2).

538. Can we justify the States use of royalty gas liquids for petrochemical development (instead of for home energy use)? (K 1).

539. To what extent has natural gas been looked at for heating and energy? (A 1).

540. Is the alternative to the petrochemical production simply to burn the liquid? (what are the effects of burning?)

541. Why not build a 3rd pipeline to take the gas to existing plants in the lower 48? (A 2).

542. Would the liquid gas pipeline decrease the chances of the building of the Northwest Pipeline? (P 2, A 3, K 1).

543. How would a world scale petrochemical plant in Alaska affect the viability of the natural gas pipeline? (F 1, A 1, S 1).

544. What will we do with the dry gas which is left if the quantity left doesn't warrant the construction of the gas pipeline? And what are the economic costs? (A 1).

Resource Use (Continued)

545. Is the Dow-Shell plan for a petrochemical plant contingent upon the construction of the natural gas pipeline? Why? (F 1, P 1, K 1).

546. Will the Dow-Shell feasibility study examine the economic feasibility of the Northwest gas pipeline to the existence of the petrochemical plant? (A 1).

547. What reduction of crude oil production is due to lower well head pressures due to gas removal? (A 2).

548. How do the following relate to each other: 1- depletion of North Slope oil, 2- likelihood of petrochemical development without/with gas pipeline? (F 1).

549. If the gas liquids are extracted at Fairbanks will the Northwest pipeline still be feasible? (P 1, A 1).

550. How does Reagans committment to decontrol the price of natural gas affect the economics of the petrochemical industry? (A 2).

551. Are petrochemical developments cutting back like refineries and how would that affect this project? (V 1).

552. Alaska is a high energy consumption per capita environment. What is the energy efficiency ratio of petrochemical development here as opposed to the lower 48 as it relates to our nation's total energy consumption?

553. Why are gas liquids being processed in Alaska instead of outside? (V 1).

554. Would it be cheaper for the State or the industry to ship the gas out? (A 2).

555. Why do the plants have to be so big? (A 1).

556. Does the world need so many petrochemical products when so much is thrown away? (A 1, K 1).

557. What is Dow-Shell's response to the U.S. Corp of Engineers report that the Lower Cook Inlet shoels are becoming uneconomical to dredge? Who would pay for the dredging? (A 1).

558. Would building a causeway facilitate the development of a petrochemical plant?

559. Are there significant market advantages to Fire Island compared with other Pacific Rim locations? (A 1).

560. What economic advantages does Valdez have as a port compared to other possible locations? (V 1).

561. Which of the 6 sites is most likely to be selected? (S 1).

562. How does the fact that ALPETCO failed to obtain financing affect the feasibility study? (F 1).

563. What is economically feasible about situating a petrochemical development in Fairbanks? (F 1).

564. What makes Fairbanks a competitive site? How much of a disadvantage is it that Fairbanks is not a tidewater site? Can Fairbanks meet fresh water requirements? (F 1).

Resource Use (Continued)

565. What kind of plants would be feasible for Fairbanks since it has no port facilities? (F 1).

566. Is the Alaska gas line and North Slope facilities useable by Dow-Shell or do the gas liquids have to be separate? (A 1).

Employment

567. How are resident Alaskans assured of employment? (A 2, K 1, S 1, V 1).

568. Can a 3/4 local Alaskans hire legally be done? (Local hire law is "unconstitutional"). What is the definition of an Alaskan? (F 1, P 1, A 3, K 2).

569. How many permanent jobs will be created in the completed plant? (A 1, S 1, V 1).

570. Will this project create another "boom" - will 900 permanent positions actually create a long range stabilization? (F 2, A 1).

571. Does Dow-Shell have a hiring program for Alaskans? (A 1, K 1).

572. Will Alaskans be trained to work in the plant by the industry? What have past statistics shown? (F 1, A 1).

573. What percentage of the plant's permanent employees (management and labor) will be hired from the present local community? (F 2, V 1).

574. What permanent annual payroll will the petrochemical development generate ($/year)? (A 1, V 1).

575. What will happen to the unemployed construction workers after the project is constructed? (S 1, V 1).

576. How will Dow-Shell work with local school districts to prepare high school students for jobs at the petrochemical development and careers in the industry? (K 1, V 1).

577. Are local educational facilities being prepared to train local people for these new petrochemical development jobs? (F 1, V 1).

578. Where will the job training facilities be located? (F 1, S 1).

579. Is Dow-Shell going to provide the training programs for local people? (A 1, V 1).

580. If the plant is built, what level of training will plant personnel require? (A 3).

581. How many jobs will be created outside the plant? (A 1).

582. What alternatives to petrochemical development exist for providing jobs? (A 1).

583. What is the unemployment rate in Anchorage now and what is it expected to be during plant operation? (A 1).

584. Will unemployment be produced as a result of petrochemical development? (A 1).

585. How many temporary jobs will be created during the construction of the plant? (A 1).

Employment (Continued)

586. How many people may be unemployed after construction is completed? (A 1).

587. Has ISER studied the increase of total unemployment by job seekers? (A 1).

588. When the Swanson River is depleted in 10 years, how are the people going to make a living? (K 1).

589. How many unemployed people from Seward will find permanent employment with petrochemical development? (S 1).

590. Has the State studied the impact of the construction labor force on the Borough? (P 2).

591. What assurance can be given that there would be a long term decrease in unemployment? (F 1).

592. Will the potential long term (700-900) workers contribute to the local community? (F 1).

593. What kind of jobs will be available and out of which unions will they come? (F 1).

594. How can low labor intensive cure unemployment? (F 1).

595. How many young people really want to work at a Petrochemical plant? (F 1).

596. How much advance notice will the public be given concerning specific job opportunities? (F 1).

597. How will a site 30 miles from Fairbanks increase employment in Fairbanks rather than in Nenana? Which is closer? (F 1).

Relationships to Other Industries

598. Is there any restriction to growth on the plant? (A 2, K 2).

599. What support industries could we expect to develop? (F 1, A 1, V 1).

600. What percentage of products and LPG's will be exported rather than domestically used? (A 1, V 1).

601. Do Alaskans need the end products? (A 1).

602. What will petrochemical development do to tourism in Anchorage and Alaska? (A 4).

603. What products and chemicals being studied for manufacture in Alaska could be used in Alaska and to what degree? (A 2).

604. What other industrial development will promote economic expansion? (A 1).

605. Any other uses for Fire Island, other than a port facility or a petrochemical plant? (A 1).

606. Will the State evaluate the impact of the Dow-Shell proposal in the context of certain proliferation of petrochemical industry? (A 1).

607. Will petrochemical development encourage heavy industrialization? (A 1).

Relationships to Other Industries (Continued)

608. What products will be produced in Alaska which are now shipped in? (A 1).

609. Is it more expensive to ship products than raw materials? (A 1).

610. Why will the products produced in the facility be exported instead of further processing being done in Alaska which would provide more industry and more jobs? (A 1).

611. Will plant construction create more demand for the end products? (A 1).

612. Is the Alaskan market sufficient to support petrochemical products? Is there any Alaska market? (A 1).

613. How will this project mesh with the Pacific LNG's project? (K 1).

614. Where will the products go? (S 1).

615. Would a local styrofoam plant result in lower prices of styrofoam to local residents? (F 3).

616. Will subsidiary industries be developed in the community to process the petro products? (F 1).

617. What impact of thermal pollution/water quality have on fisheries? And fishing? (F 1, A 1, K 2).

618. What impact will petrochemical development have on commerical fishing and sports fishing? (Including the increased population.) (A 1, K 1 , V 1).

619. Ethylbenzene affects the flavor of fish. What other adverse impacts on the fisheries can be expected? (A 1).

620. What will happen to fishermen on Fire Island? (A 1).

621. What effects will petrochemical development have on fishery habitat? Who will be responsible? Who will be financially liable? (K 1).

622. Has a study been done which compares effects on fishing in Louisiana with what might happen in Cook Inlet?

623. How could spills of caustics and other non-floating materials affect the fishing industry? (K 1).

Other Economic Effects

624. What is the estimated amount of support services needed? (A 1, K 2, S 1, V 2).

625. Who will put up the money for the support services? And the Environmental Impact Statement? (F 1, A 4, K 2).

626. Could the local community use some of the power generated by the facility? Could there be a cooperative agreement? (K 1, V 2).

627. How will petrochemical development benefit the individual Alaskan resident? (F 2, A 1).

628. What type of fuel would be used to power the plant? (S 1, V 1).

Other Economic Effects (Continued)

629. Where would the power plant be build if the petrochemical plant is located in Fairbanks? What would be the impact of the power plant on the community? (F 1, A 1).

630. Why would Fairbanks need the capacity for additional electric power? If surplus electricity is produced will it make the average home owner rates cheaper? (F 1, A 1).

631. How long will it be before the front end costs of the community are paid back? (Schools, etc.). A 1, V 1).

632. What will be the economic impact on a community as a result of the additional salaries and services purchased locally? (F 1, V 1).

633. With Alpetco dropping out of Valdez, how does Dow-Shell propose its financing? (A 1, K 1).

634. What is the projected income for the State of Alaska from this project? (P 1, A 3).

635. How much will the State make from royalty gas sales? (P 1, A 1).

636. What are costs to state and local community of the plant (initial and permanent)? (A 1, K 1).

637. What will the economic impact be on the community? (Cost of living, goods, and services.) (P 1, A 1).

638. What percentage of the profits will go to a foreign interest? (S 1, V 1).

639. What is the potential profit to the industry? (A 2).

640. What guarantees against a Boom-Bust economy? (A 2).

641. What benefits other than jobs will Alaska receive from this project? (A 2).

642. How much will Alaska and local governments collect in property and corporate taxes? (A 1).

643. Will the surplus of electricity produced by a facility in Fairbanks compete with power production potential of the Susitna hydro projects? (A 1).

644. Is there an adequate power supply presently adequate? (A 1).

645. How much money is Dow-Shell spending on the feasibility study before capital investment? (A 1).

646. How will the smaller urban centers pay for the increased social services necessary during the construction period? (A 1).

647. What will be long term effects for industry, in general, in Anchorage? Will it cause Anchorage to shift to being an industrial community indefinitely. (A 1).

648. How does selling NGLs to the petrochemical development effect the long term economic stability in Alaska? (A 1).

649. How can petrochemical development decrease Alaska's economic dependence on petroleum? (A 1).

Other Economic Effects (Continued)

650. What will the economic impact be on low income persons (such as subsistence people in the Mat-Su Valley)? (A 1).

651. What will happen to prices of land, food, housing, etc. if these commodities were in short supply due to increased population? (K 1).

652. What will be the economic impact on the community following industrial development and construction? (K 1).

653. Do the hopes and aspirations for our children lie with Dow-Shell? (K 1).

654. Will H.E.A. help with power? (K 1).

655. Will Seward furnish the power? (S 1).

656. Would this project cause more cultural/recreational facilities to be built? (V 1).

657. Will there be cost of living increases due to the impact of construction and afterward? (V 1).

658. If petrochemical development is not built, what will the negative economic impact be? (V 1).

659. Are there any positive effects of benzene production locally? (F 1).

660. What are the advantages of having an aromatic plant (in Fairbanks) as well as a tidewater plant? (F 1).

661. How will the production of benzene affect me as a consumer? (F 1).

662. Who will provide the electricity for the plant? (F 1).

663. Why not create some industry in Fairbanks to strengthen our economy now? (F 1).

664. What assurance does the Borough get from the State that the Borough will receive its share of the potential 30 year economic development? (F 1).

665. Who will benefit from petrochemical development in Alaska? (F 1).

666. Are there other benefits besides jobs? e.g., cheaper fuel? (F 1).

667. Why don't we go ahead and do something for Fairbanks instead of letting it go to Anchorage. (F 1).

668. Will we collect taxes before or after plant goes on line? (F 1).

Social Effects

669. What will the impact be on housing and schools and hospitals and traffic? (A 5, K 3, S 2, F 1, V 3).

670. What will be the population increase? (F 2, P 2, A 3).

671. What will the boom and bust sociological effects of construction be on the chosen community? (A 1, K 1).

672. What percentage of the population growth would be permanent? And what affect will it have on the schools? (A 1, V 1).

673. What is it like to have Dow-Shell for a neighbor (from a neighbor's perspective NOT Dow-Shell's)? (F 1, P 1, A 1).

Social Effects (Continued)

674. How long will it take the community to gear up for the impact? (K 1, S 1).

675. What data now exists on the impact of a community of comparable population and environment, etc. when a plant of comparable size is built? (A 2).

676. What % of the tax base will the petrochemical development represent in Anchorage? And what impact will that have on the political process in Anchorage? (A 2).

677. What can I as a businessman do to help Dow get started ASAP? (A 1).

678. If the petrochemical development closes, what effects will the closing have on the population, economy, etc. (social impacts)? (A 1).

679. Why do we have to have our life styles changed by big business? (A 1).

680. What part do petrochemical products play in maintaining the Alaskan lifestyle? (A 1).

681. Do projected population figures assume workers AND families will be moving in; OR single workers moving in for only a while? (A 1).

682. Is socio-economic impact being studied for all the locations? (A 1).

683. What will be the impact on the schools - particularly the community college? (K 1).

684. What are we going to do about the INCREASED CRIME rate? (K 1).

685. Do people of this area want the "sophisticated urbanized city" that Dow-Shell says is necessary? (K 1).

686. Does this area really need this type of hugh growth? (K 1).

687. Do we really want twice as many people? Schools, law envorcement, postal service, etc. can be overburdened. (K 1).

688. Can a city of 4300 people realistically absorb 4500 more without utter chaos? (K 1).

689. If they pick our small area will Dow-Shell be committed to later increases in the size of the facility to the point of crowding the community? (S 1).

690. What would the impact of 4500 workers be on this area? (S 1).

691. Would Seward become a company town? (S 1).

692. What can a small business in Valdez do to improve the atmosphere and attract Dow Chemical to Valdez? (V 1).

693. What is the anticipated growth in the U of A/TVCC? Is expansion needed? (F 1).

694. What would be the impact on Nenana if petrochemical development were at Bonanza Creek. (F 1).

695. How will we prevent Fairbanks from becoming a company town dominated by one industry? (F 1).

696. How many current residents might be expected to leave if this plant is constructed? (F 1).

DEC/ISER Study

697. Explain how the survey was conducted. (Sample selection, interview techniques, questionnaire). (F 2, S 1).

698. Will the registration list for this meeting be used as a mailing list for petrochemical development information? (A 1).

699. What other sources of information are being used besides Dow? (A 1).

700. To whom can we write to express our concerns and request information? (A 1).

701. Who sponsored the "pro" construction commerical on T.V.? (A 1).

702. We received ISER materials and fact sheets from environmental interest groups. Does Dow-Shell have fact sheets as well? (A 1).

703. Why didn't the survey address any environmental questions? (S 1).

704. We've gotten a lot of information about the positive effects - what about the negative effects? (S 1).

705. Was the 2-1/2% survey taken in Seward a true representation of the total community's feeling? (S 1).

706. Does Dow-Shell feel the questions in the ISER survey were fairly presented? (P 1).

707. There were many responses of "lack of data" to questions posed. Will there ever be enough? When?

708. Are overlapping impacts on communities being considered? (Impacts from all the major projects going on in one area). (F 1).

709. When was the health panel, who sponsored it? And how was it run? (F 1).

710. How many of the participants in the public meeting (other than the resource panel) were State and/or Federal employees? (F 1).

711. What is the credibility of the ISER survey? 1- How accurate was sample, 2- how accurate was the information that was given? (F 1).

712. On the ISER questionnaire was there a distinction made between petrochemical development "somewhere" and petrochemical development "at home"? (F 1).

Anchorage Questions and Comments from the Audience at Large

(1) Mr. Roberts. The question is, are those resources going to be used in the highest and best way, or are they not. And currently if these plants or something similar do not go forward, those gas liquids will be mainly burned to fuel the field on Prudhoe Bay or move the dry gas down that pipeline. I think that is a crime against conservation. We are all concerned about the shortages of resources. Here is an extremely valuable one. Yes, it will disturb us to a certain degree; yes, it will affect our lifestyles to a certain degree; but weighing that against the needs of the world for products and resources of this kind, I think Alaska should stand firmly behind this effort to produce the petrochemicals. Thank you.

(2) Michael Kallahan. I think it is pretty obvious what the board up here thinks. I think one thing that hasn't been addressed at this session is what do the people think--which to me is the most important thing. Now I read a headline in the newspaper. I am not sure about how accurate it was, that Dow said that they didn't want to go where they weren't wanted. O.K. what I'd like is a voice vote of the people that are here. Who is in favor and who is against it. I want to hear, O.K. Just a simple vote. Who is in favor? Thank you. Who is against it? O.K. the people have spoken.

(3) Michael Anson. So much for democracy. I am an independent reporter. One question which has really not been addressed in a creative manner is the matter of health liability and health reliability of the petrochemical industry. We have an opportunity in Alaska should we go ahead with a petrochemical industry to set up a program to insure that anyone who has the misfortune of being the one in one million or the one in one hundred thousand to contact one of these unpleasant diseases is provided for from the start. That there is a fund or a compensation provided for anybody or any group of people or any industry, such as fisheries, that may be impacted by petrochemical development. Since it seems to be relatively inevitable, perhaps this should be structured and provided for now. Look at how much money is going to be needed, what kind of health testing, what kind of latency period is involved, and provide for it now. Think about it now.

(4) David Chatfield. I guess I would first say that I was concerned by process being used at this meeting. My concerns were somewhat alayed when the process we used with the small group discussions was very orderly, that the concerns on both sides were listed. But when I listened to the reports I felt perhaps I'd been at a different meeting. Concerns which were directed to the waste of the resource that Mr. Roberts referred to and concerns that reflected a desire for orderly economic growth in this state were not reflected at all in the reports and so I am once again concerned by the process. I think we are regressing to a point where those that speak the loudest and were able to attend the meeting at a particular point in time suddenly represent

the public. I don't believe that is true, and I think the process itself is faulty, and I think that was reflected in the reports that were given. Thank you.

Moderator. I might just mention one of the things that goes into the report is a summary of all the questions. They will be c typed, and enumerated. To the extent that the small group discussions were able to record their concerns, they will be a part of the final report.

(5) Blair Wandell. I am a long-time Alaska resident--about 30 years--ex-commercial fisherman, and I am now raising a family here. One of the things that concerns me is about a future job for my children. The main concern I have is that Dow-Shell may, in fact, find that it is not economic to build a plant in Alaska. And I hope that we do not come under such sad fate. Thank you.

(6) Bob Farrell. I am a meteorologist and atmospheric scientist. I would like to draw your attention to the fact that in Los Angeles there is a phenomenon that is caused by the cold water in the sea and the land that is warmed by the sun. The sea breeze comes in every day and is backed up against the mountains, goes back out to sea, and then comes back again. And that is why there is pollution in Los Angeles. I would like to draw your attention to the fact that a similar situation exists in Anchorage in that we have the sea breeze off Cook Inlet every afternoon. It gets pretty strong around about 3 or 4 o'clock in the afternoon. It brings anything that is cooking in Fire Island ashore, backs it up against the mountains, returns it back to the inlet, and brings it back once again, reinforced by more pollutants, a similar effect to that which we find in Los Angeles. Thank you.

(7) Millet Keller. If it is true that one of the major components coming out is carbon dioxide, then the sea breeze may be one of the greatest things that has happened to our vegetation in Anchorage as it blows the carbon dioxide in across the plants. But my question, Mr. Chairman, was directed to you more on the process or what I hope is the due process. I understand the areas of concern that were enumerated will be part of the formal record, but I was wondering if also reponses to those concerns will be part of the record that goes to the Governor? There was a question and response part of the meeting here and then we heard the areas of concern, some of which were charges which I think need to be answered. And it seems to me some of those areas of concern that represent charges could be slanderous if they are not true. At least an answer to those charges should be part of the record, if the charges are part of the record. I wasn't sure if that was your intention that the responses would also be included?

Moderator. Let me just state a brief response and I'll turn it over to Fred Ali, who serves as the coordinator on the project. My understanding is that we will be recording your concerns, but we will not try to respond to them; rather, those concerns will be given to the Governor's technical advisory group, who will then try to develop specific responses. Fred, is that an accurate reflection of what is supposed to happen?

Fred Ali. Yes, the final report will include the questions and concerns that have been noted in the public meetings and elsewhere. The frequency of the concerns will be analyzed and there will be recommendations following.

Millet Keller (continued). So that there would be an opportunity to differentiate in those areas of concern what are factual, those that are not factual, and not use just the enumeration of the areas of concerns as if they were facts?

Fred Ali. Certainly. I think the whole process is to try to give everyone who has a concern an opportunity to have it substantiated or addressed by this technical advisory group.

(8) Laurie Tarrell. I have a concern that I also felt was expressed by many members of my group. And that is the concern that we feel as public participants in this meeting that we really don't have a voice. We can come to a meeting and say what we want to say, but eventually the big bucks are what really speaks out. And I have participated in very similar groups, and I have worked with very similar groups and made statements and heard statements, and I have worked with very similar groups and made statements and heard statements and gotten comments that I feel made very little difference, OCS being one. The oil companies are the ones with the money, and they are the ones that are being heard, and eventually they are going to get what they want. If it comes to a change of administration, they are going to get what they want and that is another concern of mine. What kind of guarantees do we have that any of our meager voices were heard or that when the administration changes, all of that is not going to change back again. One person can step in with a new legislature and say, "Well, we have changed our minds; we want petrochemical to come in, and we want to do it under the standards we set." What kind of guarantees do we have that the kind of input that we've taken the time to put here will be taken into account? And I've taken my time. I mean, I have a lot of other things I do. And I took my time to be here and make my comments.

Moderator. I can't really give you any guarantees other than to say that the people who are going to be involved in the decision will have a record of what took place here, as well as in Palmer and Fairbanks and Kenai and Seward and Valdez, as a basis of trying to make their decision. As we indicated earlier, your comments and questions will be turned over to the technical advisory group which will also be formulating recommendations for the Governor to consider. Ultimately, your guarantee is in the people that you elect to the Alaska State Legislature who will vote to ratify the contract.

Laurie Tarrell (continued). Yes, but I don't have the money to put those people in office.

Fred Ali. If I could add something to the points I made earlier: the Governor has noted three points that will go into his decision. (1) public acceptance, (2) environmental quality, (3) the economical

feasibility of the project. The other point I would like to make is that we are really involved in a feasibility study. To my knowledge, this has been unparalleled. The state's one share of royalty liquids is not sufficient in and of itself to provide feed stocks for this industry. But the state using its 1/8 share to encourage the industry to come in and take a look at the feasibility of petrochemical development in this state. At the same time, the state started a public interest finding process and has placed the Dow-Shell group under a great deal of public scrutiny. Pete (Lehman-Dow), I am not sure if you have ever been in a process like this before?

Pete Lehman. No, when we accepted to do this study, the Dow-Shell group asked the State of Alaska to appoint a citizen's advisory committee to express their concerns. We also asked that a representative from each locality under study become a member of a community advisory board to express their concerns. We have written a progress report every month that has a distribution of over 700. We have responded to requests for speaking engagements all over the state. We have done this in complete public openness, bearing everything we know about the project to your scrutiny. You have responded. You have responded with applause and with allegations. Some of the allegations have no factual point about them, and we would be pleased to talk about them to you individually any time. This is done in the public, and we appreciate the public's interest. Your concerns are our concerns. We will not build a plant in a locality where we are not wanted by the majority of the people.

(9) Mano Fry. I am the president of the Laborers Union Local 341 here in Anchorage. I have several areas that I would like to address, mostly concerning the State of Alaska's involvement. First of all, there has been a proposition to spend 2 million dollars for a public relations promotion outside in the Lower 48, promoting the State of Alaska. And if I might paraphrase the bumper sticker "we don't care how they do it outside," the most important resource in the State of Alaska is the human resource. The state government has an obligation to promote stable economic development. Not just resource development, but especially a stable job market. If I might speak on behalf of 1,500 members based here in Anchorage, Alaska, 95 percent of whom are unemployed, we welcome economic development, as long as it is economically sound and environmentally safe. Thank you.

(10) Maryann Slyth. I would like to know if it is true that Dow has made a sizable contribution towards paying off Governor Hammond's campaign debts, since you gentlemen have gotten this contract to research this project?

Pete Lehman. Do you want me to respond to that? Dow and Shell have had business interests in the State of Alaska for many years. We did both make a donation after solicitation by the Hammond/Miller group. It has been a matter of record, and it was done in October. And we do that to encourage government that we believe promotes the free enterprise system.

(11) Lynn Vodner. I would like to see a list of pros and cons, so I can see what I am getting. I know what I am sacrificing, but I am really having a hard time weighing in the balance all of these things. It is so complicated. I know why I don't want a petrochemical plant, but I don't know why I would want it. I want someone to tell me the biggest single factor that would improve my quality of life here in Alaska. I am addressing that to the members of the panel.

Moderator. How would the petrochemical plant improve your quality of life?

Vodner (continued). My quality of life or Alaska's quality of life? Is the sale of the gas up on Prudhoe Bay going to improve the amount of money that the state makes enough to outweigh all of the dangers and all of the cons in the controversy?

Moderator. That is a question that every member of the audience is going to make, considering what they regard to be benefits and costs. It is obvious that points of view differ, and there is a lot of information that is still out in terms of the environmental records, the economic record, and the quality of life record.

Vodner (continued). I am just interested in the single, largest factor that, in your opinion, this project would offer Alaskans.

Pete Lehman. Solid economic development of the private sector is one big advantage, and then you can go from there according to what your preferences are. If you are against development, there is nothing we can do or say and we honor that. If you don't want any development, that is your opinion. Then I will fight with you. You have got the possibilities of economic development within the private sector. Not based on government. You've got the possibilities of developing and continuing your lifestyle supported as it is by oil now, when that starts running slower.

Glenn Akins. I think there are several things that are interrelated here. I think that the report that the Governor's office is going to get an extensive report on the economic feasibility of this project from Dow-Shell. The report that we will be turning in, the Department of Environmental Conservation with the assistance of many other State agencies, will essentially be a review of the environmental costs and benefits of the project. The process that goes on then is what you are asking for. The credibility issue that has been raised has to do with the results of that process. Which questions were addressed? Which questions could we not address? What judgments were made? The results that come back from that deliberation will be the answer for how the information is handled.

(12) Eric Geist. Many of the old timers can remember for years whenever a company moved into this state, all they did was rape it. Those days have gone. They are gone with the dog sled. It is over. All of us are worried about our environment. All of us want better life. I am quite sure Dow realizes they have a commitment to protect

the environment. We have a change to produce, enlarge, and help our renewable resources with the money we get from Dow, our fishing, our timber, that sort of thing. We can make a lot better life for our children when they are gone. That is what I am concerned about. I want the things that can be renewed, renewed. And we can have a whole lot better state when they get done. That is all I have to say.

(13) Bob Freer. I am concerned with the emissions from the proposed incinerator. I believe that they are planning on using air as the oxidizing agent, which is about 70 percent nitrogen, and you are going to have as a result nitrogen oxide which will cause both photochemical smog and also acid rains. The meteorolgist has covered the dangers of the smog. The geology around Anchorage is not capable of neutralizing any acid rain. There is very, very little limestone in the Anchorage area. I would propose that they use oxygen, and there is a subsidiary of Air Liquid in France up here that can supply the oxygen. It will be expensive, but I think it should be done.

(14) Harry Donahue. I want to repeat that I think the small group reporters did an excellent job under very difficult conditions. On the other hand, I think the emphasis on the concerns is very unfortunate. I think there is a question of hope here. Hopes for a new era that will bring Alaska into a better mix between the public and the private sector. We are now 40 percent on the public payroll. If we don't get some private sector in here as a result of these oil revenues, we are going to be 60 percent or more on the public payroll before the end of the decade. I think developments like the Dow-Shell group will start a new trend. I think a lot of people in Alaska are looking forward to that.

(15) Nancy Cramer. I have two questions about the economics of the proposal. Is Dow-Shell proposing to buy just the ethane or all the natural gas liquids?

Pete Lehman. We would like to buy as many as the producers would sell us.

Cramer (continued). And the second question, are you proposing to market these petrochemicals in the Lower 48 or are you considering other countries such as Japan?

Pete Lehman. The market for these products is the Pacific Rim, and yes, Japan is considered. The liquid petroleum gases of the natural gas liquids is more than half. Those would be marketed by law in the Lower 48. And the other portion of the gas liquids, the ethane, we are proposing to use and convert to the products we have talked about in the State of Alaska. Some of those products could be used in Alaska. On the other hand, there is not a state in the union and few countries that cannot use the output of the complexes that we have under study. The ethane products could go to Japan, also, particularly since some of our member companies are Japanese. We have a market in Japan, and we would like to sell and help the balance of trade a bit by selling products in the Pacific Rim.

(16) Barry McKiven. And I would like to voice my concern about the way Dow-Shell group and their people have been intentionally deceptive in most of these meetings. I am afraid that the costs of the developments that are going to be required if the kind of project goes through has been skimmed over. The cost of developing a causeway, a railway, the water supply have all been skimmed over. The problems of pollution of various kinds have been skimmed over. We don't know. And so on. I think if there have been so many advances in the petrochemical field and if there have been so many successful and advanced technological advancements in handling petrochemicals that these questions should be able to be answered before we start building a plant. I am certain that you gentlemen really do know what is going to be in the ashes; you probably just don't want to tell us about it. The need for and the costs of and the hazards related to the natural gas terminal haven't been discussed and that sort of thing has been fought heavily in other locations, including California and Texas. Liquid natural gas terminals are not what you'd want for your neighbor. They are expensive and they are dangerous. I just suggest that we all have a look at the poor record that Dow has, especially associated with environmental concerns and that way we can get an idea of what our future will be with a petrochemical plant here in Alaska. And specifically in Anchorage. I think if the whole truth were to be told, the story they would be telling would be a little bit different.

(17) Frank Neyman. And I have been going on 32 years as a resident of Alaska. I would like the record to reflect that on shouting yes and no, I didn't respond in either direction during the shouting of "yes" and "no." I think we have an orderly process here. We have a chairman and that is the way these meetings should be conducted. I don't think we need to respond to that sort of thing. And I didn't respond in either direction. So don't go by the shouts. I also want to point out that I was in Los Angeles when the meteorologists were studying this smog thing for 10 years and some really dumb person finally got up on top of Griffith Park and looked down after a rain and noticed that all the smog was coming from the freeways. They had been studying it for ten years, the meteorologists, trying to figure out, blaming the chemical plants and that sort of thing. And finally they discovered that it really wasn't all that magical; it really was the automobile. I think you'll find that the automobile will continue to be the principal problem in most of our economic situations.

The other point I'd like to make is that I have 4 college graduates and my children were born and raised here. I worked in the government for 8 years and I have been in private enterprise for 24. Believe me, even though I worked over the weekend and I worked 12 hours today and came here to this meeting, I like the private enterprise system. I enjoy it. It is a great life, and far superior to working for the government. I hope that my kids will have an opportunity to be in the private enterprise area rather than in the government. That is why I support what Dow is trying to do here today.

Finally, the lady talked about democracy and not having a choice. I had an office boy here several years ago. He went out and rang all

the doorbells and he is now a legislator and has been re-elected several times. I think if you want to put on the shoe leather you can get elected in Alaska. You can elect your people. I think we do have a democratic state. And I think our process is working. As long as we let it work and don't try to do it by shouting.

(18) Ed Wassell. I am concerned about the process of participatory democracy carried to an extreme, which I think these meetings tend to represent. I think you know there was a gentleman who spoke at this microphone a few moments ago representing 1,500 people who couldn't all be here because they are working. When we have meetings like this, we tend to get the meetings dominated to a certain extent by either the people who can shout the loudest or the people who can afford the time to come and make comments, or political action committees running government. I think this has lead to tremendous abuses, both federally and statewide. The other comment is that this just seems like a gigantic rehash of the TAPS. Instead of caribou and ruining the tundra, this time it is the fish, and its the ocean temperature, and it is more scare tactics, and I am sick of it.

(19) Skell Sanoffsky. I think the facilitators did a wonderful job; I think the summaries were lousy. I didn't hear any of the comments that were made in my group that were positive. I would like to protest, and I would like to say there are some of us that want to go on record. We welcome Dow, we welcome some new jobs in the city, and do you have an affirmative action plan?

Pete Lehman. You bet.

(20) Pete Eureka. I have been an Alaskan citizen going on 7 years now. We have heard an awful lot tonight about the negative aspects and the hazards of the potential project. Now obviously, the petrochemical industry is not a new industry, and it is a very large part of the economy in the Lower 48. I would like to address a question to both Mr. Lehman and Dr. York. What is the health and safety record of the chemical industry? Where does it stand up compared to other industries in the United States? Is it a safe industry, or a hazardous industry?

Pete Lehman. The National Safety Council who records safety in the 42 industries in the United States rates the chemical industry as the second safest industry which they monitor. It is a safe industry. Employee health and safety is very high on our list. And I think that you would find that extremely true if you talked to the people who worked in the operations of the members companies.

Dr. York. I would like to add that if you are interested in comparison, a person who is in a petrochemical plant is twice as safe as if he is in his own bathroom. He is roughly ten times as safe as he is working for the government, according to the latest statistics.

(21) Martin Oaks. I would like to just express an opinion about the need for the end products of the petrochemical industry. I think that

everybody is aware over the last decade or so that we've learned that there are many ways in which we can do without a lot of things that we thought were essential. Thirty or 40 years back we didn't even know about them. We learned that they were essential and for a short period of time we became, as it were, addicted to their use. I am talking about energy products primarily. We have been forced to cut back by economics and other concerns recently. I think that the same thing is true of petrochemicals. Since 1940, or there abouts, we have greatly increased our use of plastics and related materials, in automobiles, for one thing, and in all kinds of home appliances and clothing. I think that we can really learn to do without those things. I think that if we were to realistically assess our need for the products of the petrochemical industry and identify those things which are truly beneficial to us--some of the medicines, and some of the applications of plastics, which really can't be duplicated by natural materials--we might find that we need about 1/4 of the current industry. To say nothing about new plants in Alaska.

(22) Eric Meyers. I would like to ask for some clarification of a point that is very important to me. On May 18th the Environmental Subcommittee of the Dow-Shell group met with the Citizen's Advisory Committee and I asked the representatives of the Dow-Shell group what kinds of information may or may not be known to workers in these plants concerning potential occupational exposure to chemicals. I was informed that afternoon that, in fact, there would be certain kinds of chemicals and chemical reactions and notably catalysts that would be considered proprietary information and be denied to the workers. That evening in a public forum, Dr. Gehring of Dow, maintained the contrary. He said that, in fact, workers would be apprised of all chemical substances in their work environment. Given the fact that this information is conflicting, I would like to ask the question once again of Mr. Lehman. Will there be any chemical exposures to the workers that they will not be able to know precisely what it is?

Pete Lehman. Thanks for asking that question, Eric. Both the answers you received were right. Our employees do know all the chemicals they handle. They know the contents of them. They don't know how the catalysts are put together, but they know the contents. More precisely, they are taught how to use it. They are told about the hazards of using it if they don't follow the appropriate procedures. The compounds consist of many different things and catalysts are highly complex. Also, the structure of the catalysts are complex. Whether the silver or the silver catalyst is on the surface, entwined in the matrix, and so forth. They do know what products they are working with and how to handle them.

Eric Meyers (continued). Just in order to be precise. The workers will have full access to all chemical data concerning their work exposures, including not only brand names, but chemical structures?

Pete Lehman. They will know the chemical composition, and the hazards of those products and how to handle them.

Eric Meyers (continued). And there will be no proprietary information?

Pete Lehman. We've got proprietary information within Dow. They are Dow employees; they are privy to it.

Eric Meyers (continued). O.K.

(23) Irene Ryan. I first came to Anchorage in 1931. And it was during the time the territory was losing its population because there was no industry, except fishing and timber. The young people who graduated from high school had to go outside to college or to Fairbanks. But even those who went to Fairbanks, most of them left Alaska because there were no jobs here. I also served in the territorial legislature in the days when the only resource we had to tax was fish. And there was a heavy tax on fish to support government. Everybody was working to broaden the economic base so that we could bring more people to Alaska and to give those people and the people here jobs. Now I am astonished to find that there is a new generation that is not interested in keeping that base. Thank you.

(24) Dan Becker. The question seems to be whether or not Alaska would like a petrochemical plant in this state. It seems to be that the easiest, maybe not the least expensive, but the easiest possibility, would be to publish the issues and answers that have been brought up here. Present them to the public and take a public vote. It just seems simple. You know you said you wouldn't come into Alaska if you didn't have the majority. Find out, there is only one way to do it, really. Thank you.

(25) Michael Armstrong. I am a science fiction writer and a member of the Science Fiction Writers of America. As far as I know I am the only member of the Science Fiction Writers of America living in the City of Anchorage, so I represent only myself. I am also a two-year resident of this fair city and this state. And I love this state. And I love its wilderness, and I intend to keep it that way. I appreciate the opinions of the sourdoughs, people who have lived here for 30 years or more. And I appreciate the concern for their children. I would also ask that they appreciate the concern of my children, who are not yet born. I would like to see them born. I sometimes wonder if that will be possible. I sometimes wonder if I'll die of cancer before I reach the age of having children. And if I do have children I wonder what kind of lives they will live. I am not worried about jobs because I am sure my children will be raised to be fine human beings and eke a living out of this great land. But I am worried about the kind of lives that they will live in this state, and what kind of resources, what kind of beauty they will have in the future. That is my concern, and I hope it is your concern as well. Thank you.

(26) Bill Knoll. I lived in Anchorage for 13 years. That is, after the earthquake and before the pipeline. I was here in plenty of time to catch a breakfast here about a year ago with Buckminster Fuller, who was the keynote speaker that morning. He was passing through, and

I must say he was in perfect form that morning. He was very enthusiastic about being in Alaska. In fact, he noted that years ago he had taken pains to make a special map of the earth, as a globalist, and he had found the best way to get a true picture of what the world is like was to peel it open like an orange from the bottom of the orange. And he peeled the map open from the south pole like that. The north pole was in the middle then. Very near it was Alaska. He found that it was pretty amusing. Here he was in Alaska. He was very proud to be here and to tell us what a great opportunity we have. There we are in the middle of his orange, with an enormous population base to the north of us on this new map, hundreds of millions of people in Asia and to the south of us, in the Lower 48, the biggest consuming market in the history of the world, the United States. What an opportunity he said we have in front of us in the decades ahead. I was completely stirred by that. He was a fellow I'd read for years. I rushed up as well as my failing knees would take me, after breakfast, and I asked Dr. Fuller, I said, how can we Alaskans prepare for what we have in front of us? He looked down in his very, very beautiful face, at his age, and he said "Get ready to serve." That is all he said. He then turned to somebody else and their question. I was stunned by the simplicity of his answer.

But I remind those here today that we have a very peculiar phenomenon in Alaska. We have a land of beauty, we have a land of bounty. At this moment under our current configuration in world governments we are lucky to have a choice. We have a choice. We can do or we cannot do. I caution us all against acting as if Alaska is some sort of gigantic sandpit that is ours to play in and no one else's. Maybe that is true for now, maybe also it won't always be true. I think that today is a time for courage. Courage on the part of our leadership. Courage on the part of our people. I didn't come up here to work for Dow. I came up here because the army brought me here, like a lot of others. I stayed here because I like it. I think people like me, I think people, like people in this room, ought to look inside themselves and find some courage. Because we certainly do have rights. Obviously we do have rights. We want to protect them, but with those rights, I feel we have responsibilities. Responsibilities to that fat market to the north of us and responsibilities to that big fat market to the south of us. People need what Alaska has. Somewhere in between those rights and those responsibilities lies the true path. And I hope that we, being well informed, and not in a big rush, that we take the couragous path. Thank you.

(27) Virgil Grampain. I am a local business person and a concerned citizen here. I would like to thank the Dow group for their openness and trying to re-educate the public on their purpose. They are making a good effort at it. I think we should commend them as opposed to criticize them. Thank you.

(28) Chris Gates. I am with the Port of Anchorage, but I am here talking for myself. First of all, a compliment to the panel members and to most of the members of the audience on the great amount of grace that they have shown in handling such an emotionally charged

topic. Second of all, a question to Dr. York. How would you compare the effect of the 25,000,000 gallons per day of raw sewage that is going into the Cook Inlet versus the potential for pollutants coming out of the petrochemical plant? Would we not have a net benefit from cleaning up the municipal effluent and havng some potential pollution from the plant?

Dr. York. We are talking about two different kinds of pollution, in the sense that usually in the sewage, the pollution is biologic in nature, although in many areas you would also find pollutants related to industrial type products. That is a large task; in fact, the cost and difficulty of doing it may be one reason why Anchorage has the exemption that has been mentioned here and is now discharging it into Cook Inlet. That does have a potential for a certain amount of problems for the fisheries and on the Inlet. The cleaning up of municipal sewage either in the process of delivering it to a plant such as this would be a benefit to the Inlet. Pollution to the Inlet would be negligible, particularly if they choose not to go to sea water cooling.

Chris Gates (continued). So there might be a net benefit to the community should a petrochemical industry were developed? A net environmental benefit?

Dr. York. We were talking about only the impact upon the aqueous discharges and in that sense there is a net benefit.

(29) Diane Sheridan. I am a local business woman. I have been involved in Alaska politics for about 10 years. I would like to ask the Dow-Shell group, since I believe in Murphy's Law, that if anything should happen, would they be willing and able to compensate the people who have been hurt by this?

Pete Lehman. I am sure that if we were proved negligent, we'd be responsible. We clean up our spills when we do have accidents. We repair our damages, and we take care of our people.

Diane Sheridan (continued). Okay, perhaps I am referring to "Bitter Harvest," a movie about a true story in Michigan. The sad part I feel about it was that the people who were established by a court of law to be responsible for the problem didn't have any money to compensate the people. Would that happen with your group?

Pete Lehman. I think our insurance companies are pretty solid.

Diane Sheridan (continued). Could you also contrast for me how much money you spend on public relations, as opposed to how much you spend in concern for the health and safety of your environment and the people who work for you and live around your plant?

Pete Lehman. I will tell you we spend an order of magnitude more on the safety and the health of our employees than we do on public relations.

Diane Sheridan (continued). Is there a possibility for actual figures? Could I have them?

Pete Lehman. Sure, but I don't have them with me now. Give me your name and address and I'll send them to you.

Diane Sheridan (continued). I will certainly do that, thank you.

(30) Jane Angvik. I have a question for Mr. Lehman. It is clear to me that the State of Alaska is only one potential seller of gas liquids. I am wondering if the state chooses not to sell that resource, if Dow-Shell would pursue the development of a petrochemical industry in Alaska with the potential of purchasing those resources from the other owners?

Pete Lehman. It is possible to develop a petrochemical industry in the State of Alaska without the state's 1/8 share. If we determine through the studies that it is feasible and we are able to get the gas liquids from other purchasers, the state may choose to sell theirs to somebody else. This is a possibility; we hope not. We would also like to buy the state's share if the project is feasible.

Jane Angvik (continued). What percentage of or volume of the probable estimates of gas liquids that are currently known on the slope will you need to be able to have an economically viable plant?

Pete Lehman. About 25 percent or half of the ethane available in the state to produce what we call in Phase One. It becomes more economically viable with larger amounts. To add to that second ethylene cracking unit down the road aways and to utilize basically the same facilities we have to build for Phase One would be an economic advantage. And obviously, as our markets grow and we are able to market the products based on these plants, we would like to expand.

Jane Angvik (continued). One last question. You may not be able to answer it, but I understand Exxon has been conducting its own feasibility study in relation to developing petrochemicals. Even though you don't represent Exxon, do you think there is any possibility that you would ever end up in a situation where the Dow-Shell group had one petrochemical activity going on in the state and Exxon Chemical Company had another going on in the State?

Pete Lehman. That is possible. Very possible since they own a lot of those liquids up there. They are doing their own study. They have announced that publicly. They are doing a study in-house, using their own consultants and when they will make a decision, I don't know.

Jane Angvik (continued). One last question for Mr. Akins. I am concerned about the decisions that will be made between September 9th and the 75 days that the Governor has to make his decision. I would encourage you to encourage him to have as much technical capability to be brought into the state, when he is making that decision, as is possible. I think these forums have provided an opportunity to give

some feel at least for how the people feel about it. But I think that some of the issues that he will have to look at will probably be requiring expertise that is greater than that which currently exists within the state departments.

Glen Akins. I would like to respond to that. I agree with you. We have already had one meeting at the Governor's office to discuss the technical group. We feel we have the capability to address some of the questions that have been raised. Obviously, we don't have the capability to address others. We will be making an effort between now and September to upgrade the capability that we have and there will be another meeting this coming week to talk about specific ways to do that. But I think the first thing we really needed to be armed with is a better agenda of questions to pursue. Some of those we have gained through the health panels. Some we are gaining through this process. But there is still another step. I agree with you.

(31) David Rose. I am a local realtor and five-year resident. We live under a free enterprise system which is probably one of the best ways of running our lives in the world. We've got to make some sort of sacrifices for it some time. And if that necessitates seeing the sunlight glancing off the silvery tower instead of just looking at bare Fire Island, then maybe we should get used to it. Look at the beauty of the accomplishments of man, and look at the plant in a different light. I would like to offer my support to Dow-Shell group, and I would like to welcome you to our community.

(32) Gene Rutledge. It has been a real struggle on trying to determine the parts per million, for example, of benzene. And there is a little story I think that might be of interest to you that was told to me by a responsible person in a position of a knowledge in the Congress. He wanted to know how these limits are set when you get right down to it in the closed committees. I was rather astonished to find that in one case they decided on a number for a given pollutant by pulling out dice and rolling them. That actually ended up to be the number that was used. Another story that was told, and here again it was supposed to be true. They invited over a member from either the EPA or one of the state agencies, and he was talking with them with respect what number to use for a solid waste. The industry people would say well, it should be 20 units. In this case the government man said, well, it must be 15. And this sort of thing went on and on. But the one at the very end I thought was very interesting. It concerned liquid discharge. They were discussing ph and what number should be used. The government man insisted on 0.

(33) Tim Buckley. I have a question. I understand that in the feasibility process there is a subcommittee that is called the Environmental Review Subcommittee, or something like that. Could you tell me what the makeup of that subcommittee is? When it is that you meet? And is the public invited and encouraged to attend those environmental subcommittee meetings?

Pete Lehman. The Environmental Subcommittee is made up of a member from each of the member companies and the Commissioner of the Department of Environmental Conservation. It meets, I think, at least once a month, but when needed. It is not an open meeting. We have, at the request of the Citizen's Advisory Committee, met with them and reviewed the activities of the Environmental Subcommittee and reviewed the emissions estimates with them.

Tim Buckley (continued). If the Citizen's Advisory Committee determined that perhaps the subcommitee should meet more often, would you be agreeable to that? Would you also be agreeable to opening it to persons like myself, who are just interested citizens at some point?

Pete Lehman. If the Citizen's Advisory Committee wants to meet with us more often we would certainly invite that. To invite the open public to meetings is difficult. It is a working committee. A lot of the things we discuss are not final. Speculation has been made over indications as to where the plant will be built. Fortunes can be made and lost. We think that some of the material discussed there in the study stage is not germaine to the open public and could cause some consternation. Now the emissions from our plant will be a record. A matter of public record. We have to get permits. The Department of Environmental Conservation has to have this data before we can be issued any permits. There will be a public hearing procedure that comes along with that. So it isn't a desire to be secret. It is a desire to do it in an orderly manner. Putting the appropriate emphasis on what we are doing. And devulging all this information to the state.

Tim Buckley (continued). Okay, just an opinion. I feel a little bit nervous that forums like this are designed for us to speak and we have done it pretty well. And you guys have done a pretty good job yourself. My concern is that I feel like I am missing alot. A subcommittee meeting, where you are actually working, is much more to my interests. Because whether I was an observer or a participant, I think that I would learn a hell of a lot more about what is really going to happen then I would waiting until September to read it in a booklet. Maybe then it will be too late for me to change my mind or change my legislator's mind.

(34) Martin Oaks. I just wanted to extend the previous speaker's questioning just a little bit. I, too, would very much like to have those meetings open to the public. And then I might have to accept that they can't be. But it seems unusual to me that the Commissioner of the Department of Environmental Conservation's participation wouldn't make that something of a state government meeting which would come under laws that make it mandatorily open to the public. Somebody from the state want to reply to that?

Glen Akins. Well, it is seldom that I discuss decisions that my boss has made in public, but he did check that out and I believe that his finding was that is was appropriate for him to attend. Basically, his role is that of advising an industry that is looking at development

what the state standards are. One thing we have to remember is that whatever industry comes into Alaska, be it the chemical industry or seafood processing industry, it must meet the standards that we set, and it is our job to provide them with the information on what those standards are. So he sees his role in that light.

I might just add that it is not all uncommon to find in private enterprise that companies compete with one another and proprietary information becomes absolutely vital in a competitive process. There are instances in which the state, for example, can have privileged information as part of exercising its responsibilities which is not made available to the public at large, but it is available to the state agency. This is certainly the case, for example, when oil companies are drilling test wells and trying to get information that might assist them in their oil and gas leasing. The state does have a record of the test results, but it can't be released for a specific period of time.

Martin Oaks (continued). Are the meetings recorded? Or transcribed? Will the record ever be made available to the public?

Pete Lehman. The working scenario is recorded. I don't know, once the study is over, and the final data is in. That is the final data that we are going to base our work on that will be a record to the State. You can read our progress reports too.

(35) Terry Deckler. I had posed this technical questions to Mr. Anderson (Dow), not publicly, but on a one-to-one basis, after the May 18th meeting on health hazards. It concerned the fact that I understand there are certain processes that are used to heat cooling water that use chromates. Chromates are supposed to be highly toxic, difficult to dispose of, and difficult to handle properly. I was told that, yes, indeed, chromates are used in some plants but that they were not going to be used in Alaska. Nor are they used in any of Dow's western regional plants. I then asked Mr. Anderson if he could tell me if they are used in any of Dow's plants. I was told I would get an answer, but I haven't; so I thought I would pose the question again.

Bill Anderson. Yes, we do use chromates, as I told you.

Terry Deckler (continued). My specific question was where do you use them?

Bill Anderson. I don't have that information at this time. We would use them, in principle, where it wouldn't hurt anything. In other words, where the water would be used for drinking. We wouldn't use them where they would be discharged in that case.

Terry Deckler (continued). Is it possible to get the information as to which Dow plants do use chromates?

Bill Anderson. It is public information, yes.

Terry Deckler (continued). If I provide my address again, will I now get the information?

Bill Anderson. What I meant by public is that it is indeed truly public information. It is listed in public places. I guess I could go get that for you.

Terry Deckler (continued). Thank you; I'd appreciate it.

Fairbanks Questions and Comments from the Audience at Large

(1) Steve LaRue. One is for Mary, which I am confused on. If the Dow-Shell study comes in and says it is economically feasible, the state then has 75 days to do what? Does Dow-Shell have first option on the gas or can the state say, go to a competitive vehicle or say we don't feel it is in our economic interest? If the state decides that it is in their economic interest, does Dow-Shell then have first option on the gas liquids?

Mary Halloran. First of all, Governor Hammond has made it clear that economic feasibility is not the only principle that he is going to be acting on. It not only has to be economically sound; it also has to be environmentally safe and it has to be accepted by the local community in which the site will be built. We have the option of deciding that because of any number of factors. If it is not in the state's best interest to continue to promote this project, we could say that. I have no idea of whether that decision will be made that way or some other way. We also have the option of deciding, after reviewing this feasibility study, that we think that this is in the state's long-term best interests to proceed to promote this project. We would then, what I would hope that we would do, is (1) to review independently each segment of the feasibility study that Dow-Shell offers us. That (2) to put the results of the feasibility study out again for some sort of public scrutiny. I don't know at this point what shape that is going to take. We just haven't made that decision. Three, we will consult with people at the legislature and other places to see what ideas they have about what should be done. And finally, if we do negotiate a contract to public hearing by statute and by policy and then we send it to the legislature for review and approval. All the way through, we are constantly going to be trying to look at what is the best thing to do. And you know we may make a mistake. I hope we don't.

Steve LaRue. Does Dow-Shell have first option on the gas liquids?

Mary Halloran. Yes they do.

Steve LaRue. The other concern is that there seems to be conflict with what Mr. Harding is saying and what Billy Vehnekamp (Shell) is

saying. He stated that each of the political subdivisions was to offer a site. Harding is saying that, in fact, the Borough has not made a selection. I see a conflict there. I know it has been a local concern because the administration says one thing; the assembly says another. But here we have a member of the industry saying that the Fairbanks North Star Borough offered this site for consideration. The North Star Borough is saying, no we didn't.

Ben Harding. We have not selected that site at this time, because we haven't finished our own studies. That is what I indicated earlier at the start of the meeting, before we broke up into the smaller groups. We, on the Borough side, are involved in our own feasibility study. But what Billy Vehnekamp said is absolutely correct. The Borough went to Dow-SHell and said as far as your Dow-Shell feasibility study is concerned we would like you to look at this area, here, for study purposes. And by this area here, I mean the Tanana River Site. But at the same time, it may be that as we continue our studies at the Borough level, data information will come in that will cause the Assembly to not designate that land for that purpose even if Dow-Shell is interested in the land.

(2) Glenn Shaw. I have two statements and a question. The statements are that recent scientific research has found that the polar atmosphere, particularly continental locations like the Interior Alaska, are somewhere between 10 and 100 times more susceptible to air pollution than their southern latitude counterparts. This is a current research project and the results are somewhat tentative. But this is being studied by a number of the largest research organizations in the world. That is background fact number 1. Background fact number 2 is that Fairbanks has convective air currents over it during the winter time due to the heat output of the city.

What we know now is really a quite different paradigm than we had last year at this time. It appears, and I think this can be substantiated that this is an objective statement, that pollutants will travel in a narrow ribbon if and when they are injected in the interior regions of Alaska or Canada and can then enter into the convective air currents over the town and be transported down to the surface. This situation is called fumigation, and it can be quite serious.

If there have been health hazards associated with petrochemical plants in the past, then I believe we can say that those health hazards are going to be amplified by some number that can be debated during the next few months. Now my question is this. Given this unfavorable meteorological situation, why hasn't an area like Big Delta, where the wind dispersion is good, been considered by the Dow group? I've asked the Dow-Shell group and my answer has been because they weren't invited by the appropriate borough. My question is, is there not some way that the state or some state agency could encourage Dow-Shell group to investigate very seriously the Big Delta area where wind dispersion is better?

Billy Vehnekamp. In my response, I might pick up on what Ben Harding mentioned too in his report with regard to the Fairbanks site. We have gone to the political jurisdictions and asked them to identify a piece of ground because that is the only way, realistically, we have been able to work up preliminary designs. It is the starting point for determining costs of actually building a petrochemical facility in a given location. We are treating each of those as a unique case study. In Seward, you are looking at building part of a facility at one time or another on top of a mountain. We have to know those kinds of things upfront and you work that into your design costs and building costs and so forth and so on.

We approached a number of communities, and Delta Junction wasn't one of them. We didn't need to include 15 or 30 locations up here in a feasibility study of the scope envisioned in this one. We figured five or six sites realistically pretty well covered the score board. And that is where we are. That's why we really haven't gone down into the Delta Junction area and looked at that.

I will make one further comment that in the final report published by the Dow-Shell group there will be no site selections made. We don't intend in the final report to identify one site as being more ideal than another. We are going to publish capital cost comparisons and essentially follow through on the case study philosophy. If you are going to build this kind of facility in a given location, then this is what it would probably cost as compared to another location. But we aren't actually going to put a finger on one site and say that is better than another, just from the stand point of capital costs.

Moderator. Glenn, Mary had to leave. Could you respond on the part of the state as to whether or not it considered directing Dow to look at other sites? For that matter, from Billy's response, it is conceivable that even after the September 9 deadline there still might be another site that would actually be offered as a negotiated process.

Glenn Akins. Well, there is an answer to a part of that question, but I don't think a full answer. At least, the Department of Environmental Conservation has not gone to Dow-Shell and said, look at this site over another site because of air quality and water quality. Obviously, some sites have advantages and disadvantages compared to the others. If, when a site is chosen, a federal permit under the prevention of significant deterioration part of the clean air act would be required. That reqiures a year of background meteorological monitoring which looks at air currents among other things. A mathematical model is used to determine what will happen with the disbursement of pollutants from the plant. In areas of complex topography or inversions such as, let me use Valdez because I am more familiar with that than the Fairbanks area, there may be specific difficulties in getting approval for some of the reasons that Dr. Shaw just explained. Where there is stratification, the pollutant is concentrated and when it intercepts a mountian in the air shed, right at that point there is a violation. Now that may be an uninhabited mountain side, but it is still a violation under federal law and may eliminate the site from consideration.

However, the susceptibility of the public to health problems in a northern environment under greater environmental stress is not involved in the federal standards that would apply to Peoria, Illinois, or to Fairbanks, Alaska. I don't think that susceptibility differences considered in the Federal Air Quality Standards.

(3) Kate Darling. And I understand when the Borough passed the resolution giving $100,000 for the industrial site selection, there was an amendment tacked on that said when a site was selected there had to be public hearings. Also, as I understand it, those public hearings for Bonanza Creek aren't scheduled until July, is that right?

Ben Harding. You've mentioned a more specific time frame than is the case. Yes the amendment that was added to the ordinance was that once the sites have been identified, they will come before the Borough Assembly for designation by the assembly for industrial purposes and there will be public hearings. There has been no specific time scheduled for those public hearings because we are not through with our technical study yet.

Kate Darling. Two different assembly people told me that the hearings for Bonanza Creek would be in July. What I am really concerned about is that if there is a really strong negative public reaction to that site in July and the decision has to be made by September, is there going to be a really strong push for Bonanza Creek simply because there won't be enough time for the assembly or for the borough to come up with a new site and for Dow to be able to evaluate that site. So my question is, why is it that you are waiting so long for public hearings? And the second one is, what are you going to do if there is strong reaction, are you going to go to those other four sites or come up with a completely new one?

Ben Harding. Your first question, why have we waited so long? I'll break that into two parts: why have we waited so long to identify a site, and why have we waited so long to have public hearings. On the first part of your question, the Borough has been remiss in not identifying years ago sites for these types of purposes. Other communities in Alaska have done so; Valdez has done so. This Borough has not. but we are doing it now. If the natural gas issue passes us by, we are going to pursue timber and hard rock mineral processing--the whole spectrum. As far as the delay in holding public hearings, we started in February, pulling together technical information about the sites. Until we get that information pulled together and present it to the Assembly, the Assembly cannot hold its public hearings. Thirdly, what will the Borough do if the public reaction is negative? That has to be a collective decision of the Assembly. And the Assembly will make that decision at the time it concludes the public hearings.

(4) Denise Cox. I just would like to make note of one error that was made in the summary. It was said that Ester is the closest town to the site that is under consideration. That is not true; there are people who live in the Bonanza Creek area. There are not many of us,

but if Mr. Harding said earlier that one of the reasons that the site was chosen because there was no population involved, then that is wrong. We are a little tired of being overlooked. We want to be considered in this. If the site is chosen, the plant will be built right next door to me. And I think I have a right, and the other residents have the right, to be considered.

Ben Harding. I apologize if I indicated that there were no people there. What I was attempting to say was the Borough is trying to identify areas that have the least population impact. Why don't you come forward; I can tell already that we won't be able to hear you. She's got her jacket on; she's already to go out the door and just couldn't resist the last parting shot.

I didn't really get a clear answer from Ben Harding with regards to the last woman's question.

Your name is?

(5) Carol Reichart. I would like to know if the Borough Assembly decides upon another location than Bonanza Creek and the Tanana River location, will a new study have to be done by Dow? And how long would that take? Perhaps somebody else can answer that than Ben Harding?

Ben Harding. The reason I didn't give a clear answer regarding that is that I cannot predict what the Borough Assembly will do.

Carol Reichart. I realize that.

Ben Harding. Only the Borough Assembly can make up its collective mind.

Carol Reichart. If the Borough Assembly decides upon another location, will Dow have to do a re-evaluation, and how long will that take?

Billy Vehnekamp. To the extent that you've got the data for a site such as this one, such as historical data, seismic activity data, and atmospheric data and if it is a site relatively close to one you have already studied, and you can identify out a lot of obvious difference like site preparation cost differences, then you could probably go ahead and make adjustments, but it's going to take you a minimum of probably six months to do that. And probably some considerable expense. I am saying it can be done. It just costs you money and takes you time, and it is very tough to really land on really how much time and money it might cost you. I am not an expert in that field.

Carol Reichart. Six months. Then it couldn't be done by September.

Billy Vehnekamp. I am just guessing; that is just a number that comes to the top of my head. Depending on the piece of ground, you might do it in two months; I don't really know. What I am saying is you could do it; it just is going to cost you some money, take you some time. And I couldn't really say how much either of those would be.

Carol Reichart. Then can I assume we'd be in a quandary if the Borough would decide to pick another site?

Ben Harding. The earlier response was that final report that Dow-Shell would report would not pick a specific site. So they would not necessarily be in a quandary, although I am sure that when they got into the negotiations of where the sites would be, EIS statements would have to be prepared and that whole process would be repeated.

As far as the Borough Administration's reaction, if the Assembly picks another site, sort of second guessing Mary Carlson here, but we are looking at industrial processing sites for other types of natural resource processing as well, and we would continue our study. I might add, as a point of history, when Seward identified the land that now Dow-Shell is looking at, they identified it for ship building and ship repair facilities. Mat-Su initially identified its land for coal export and for importing materials into the Interior, which has not materialized. When Kenai originally identified its site, it identified it as part of its competition with Valdez for the Alpetco site, which didn't pan out for Kenai and didn't pan out for Valdez either. So all of these areas were selected for general criteria and evaluated for general criteria and for things that didn't happen at that time. This is why we are looking at a broad spectrum--timber processing, coal processing, hard rock mineral concentration--and possibly on the agricultural side, we are looking more to the east of town. So we would go on, not necessarily for natural gas.

Billy Vehnekamp. Let me add a point, too. September 9th is when the final report is due, and the member companies of the Dow-Shell group will reach some kind of consensus, whether it is economically feasible or environmentally compatible. But that is not the decision to go out and start driving stakes in the ground. We've still got a long period of time there, particularly since the legislature has to review and approve some kind of purchase option. After that, you've probably got another two years to complete an environmental impact statement. So September the 9th isn't a magic date for anybody else except for the Dow-Shell group. We have to have a final report into the state, and then a number of other things start happening after that. But it is not a decision to proceed with putting stakes into the ground, starting preparation work, or anything like that.

Moderator. I am sure representatives of Aleptco could certainly add a strong second to that comment.

Valdez Questions and Comments from the Audience at Large

Speaker's Name Not Known: I certainly didn't intend to interpose a question at the wrong time. I just want to support something that Ed Walker has said. Our group recommended whole-heartedly that Valdez be chosen as the site. And we did this not just because we want the project or think we'd like to have the jobs; we did it on the basis of the fact that we observed the Alyeska Pipeline construction and the operation of their terminal site. I would just like to point out that the state government required that the maximum amount of oxide discharge from their stack over there was to be 30 parts per billion. I said per billion. They put in four monitoring sites, three of which never even indicated any oxide discharge, and one of them indicated three parts per billion. I think that is a pretty good record. In the matter of the state discharge of the water ballist treatment water, the law indicates that you can discharge that water as high as 20 parts per million. Their actual track record has shown that they discharge it between two and three parts per million, and they averaged 2.2 parts per million last year. On the basis of these track records and their other track records in terms of spills and other matters of operation, we feel that this industry could equal or better perhaps the performance of Alyeska. Therefore, we feel that we have a foundation to base our recommendations on.

I'd like to ask a two-part question now that Dick DeLine, I think, surfaced. He interposed a question, at least in the minds of some of us. He indicated that if the plant were to be build in Valdez that they would have to pipe methane gas from the Cook Inlet area. I have one question: why cannot they put methane down their pipeline and use it for fuel to manufacture their electricity? And two, if that is not practical, why couldn't they put in a topping plant and produce bunker fuel?

Dick DeLine. John, I appreciate what you have asked, and let me tell you the answer to the first one. To me, bringing the methane down the NGL line today, from a feasibility stand point, would not be politically very smart to do because of the ANGTS line. Now let me use an example: if the ANGTS line for some reason went away, technically there is no problem in transporting the methane. In fact, I talked with Dr. York on that; I've talked with your mayor again; I've talked with Mark Lewis here about it; so technically, it could be done. But remember, today the methane is planned to go down on the ANGTS line and we are not about to go out and try to undermine, as an example, the Northwest Pipeline. Now, if for some reason the decision is made that there will not be a gas line, then I'll tell you it would certainly be technically feasible to do. Rather than top off the crude over here at Alyeska, which you are suggesting. We've also talked about the possibility of burning the header, meaning the LPGs. That is another way to skin the cat; technically, it is certainly feasible. But LPGs and crude oil have a greater long-term value than methane itself in this area. So it is a matter of economics. But there are three or four ways of doing it. For the feasibility study purposes only that we have assumed a methane line from the Cook Inlet area. It

does mean though, that if we really got into this thing full bore, we would probably do something different than all the scenarios we put together for the study.

(2) George Hiller. I have been recently appointed to the City Council. A good friend of mine, John Kelsey, called me up and gave me his condolences as soon as he heard. But for your information, I have a lot of faith in these people. When I was the mayor, Mr. Lagfelt somehow or other found out that there was a Dow Chemical executive in Anchorage. And he and I flew over there, and we talked to this gentleman for some two and a half hours at breakfast at the Holiday Inn. I asked Mr. DeLine if he could remember his name, but the man told me at that time that they were building a large complex at Red Deer in Canada. He said, "As soon as we are done here, he says, I am going to assure you, I just can't say it as a fact, that we are going to look for a place in Alaska." So Mr. Lagfelt and I offered to fly him down here and let him look at the town. But he had a meeting in Houston, and he was leaving at 1 o'clock, and he couldn't come down. But I feel these people followed up, and they've done everything, and I sit on the council whether somebody doesn't like it or does like it. I certainly support these people whole-heartedly. Thank you.

Mayor of Valdez. I'd just say something as long as all of the concerns about the project are completed--something that is often overlooked. We appreciate the manner in which this project has been conducted. Public information is being sought. Political inroads were made into the Alpetco project that we feel this type of process is going to avoid. And I honestly believe when you are in Valdez you realize what the community attitude is. This is the type of process that will at least allow orderly discussion. Your recent studies indicate that Valdez is very favorable towards the project and feels very strongly for attracting the project towards this community. There are, of course, those individuals who are opposed and have a legitimate right to be heard. I think that this process allows for that to be done. And on behalf of myself, and I think all of the group, I'd like to thank you.

Seward Questions and Comments from the Audience at Large

(1) Karen Forth. I was the facilitator, and a question was raised about taking a vote. And I may have been in error, but I thought we were there to take questions and not to take a vote. I hope I didn't take away your right to say anything by doing that, and I'd like to clarify that.

Jack Kruse. That's right because we view the purpose of these meetings, not to take a vote, but rather to represent the range of your recommendations, concerns, and questions and to give that information to the Governor in September.

(2) Curt Young. I was in Karen's group, and I just like to say that everyone in our group was opposed to Dow/Shell coming into this town. I'd just like to make that clear.

(3) Lew Depree. I am just a concerned citizen, and I was also in Karen's group. And I took a vote of all eleven people, and they don't want Dow/Shell to come into Seward, and we don't want them to come to Alaska. We'd rather they stayed in New Jersey and Southern California and leave the pollution there.

(4) Herman Lear. I have been here since 1924. And I intend to stay here probably for another 50 years or maybe even longer. One thing I've always said: there are always a lot of people here that say, "well, let us not have a chemical plant or let's not have this, or let's not have that." And I wish these bush bunnies would go back to the states that they came from. Go where they usually go in the wintertime when the rest of us stay up here and starve to death. And I am not speaking for myself because I've got it made. Hell, I could retire anytime. But there's a hell of a lot of people here have a hard time.

(5) Anonymous. I am afraid I can't match Herman. I've only been here 36 years. I am not a bush bunny, I don't think. But I certainly have some concerns about a petrochemical plant coming to Seward; in fact, I don't believe I'd live in Seward if there were a petrochemical plant here. It's not that I object to living in a town of 10,000 instead of a town of 2,000; I object to living in a town that grows so rapidly the changes come about in a very haphazard way. We also have rather scarce resources here to compete for. There are not many moose, not a lot of fish, and only 20 slots on the varsity basketball team for your kids. So these are all things that are going to be competed for: land, etc. We are going to have to share them with more people. I guess I am a little selfish. I wouldn't want to share them with that many more. I think some of the other proposals that have come up for Seward's development are fine. I'd like to see these smaller-scale things happen. I don't think they'd be anywhere near as devastating.

(6) Anonymous. I always have to have something like the last word. It is hard for me to be a facilitator because I am very opinionated. I darn-near croaked. But it gives you a lot to think about. Having attended the Alpetco meeting in 1977-1978 with huge numbers of people who almost filled the theatre out at the community school, I don't feel the numbers here tonight are representative of the feelings of the community as a whole. I really don't. I know the people who really, really have concerns should show it and should come out. But sometimes, in a "let George do it" atmosphere, those who are a little more active about having their say will come out. I think if this were put to a vote, you'd have something entirely different. Thank you.

(7) Greg Move. Some of the concern seems to be about the rate of growth; perhaps you could address the rate of growth question from the point in time when Dow/Shell or whatever group would make a decision to commit to Seward, in this case, what kind of activity would occur and over what period of time. What would the impact look like in a timeline?

Dick Deline. We are looking at a seven-volume final report and, I believe, infrastructure will be almost one full volume in itself. We will describe all of the things that will be necessary to develop these types of projects, by specific locations. You will have an opportunity to read it. We used local consultants in Alaska to help with these studies; Johnnie Johnson has been working with us. What we think the impact would be over a period of time, in terms of number of new homes that would be needed and these type of factors. We have reviewed this data with your people here in Seward, with state people in the Department of Labor, the Department of Education, and so forth. There will be an entire section in the report addressing all those questions as best we can answer them. And believe me, it's going to be a very major undertaking. It will be there, available for your consumption. We are in the writing phase of that right now. It is being put together right now. It is being put together for the final report at the current time.

(8) Jack Huff. How comparable is the project in magnitude to the TAPS in Valdez?

Jack Kruse. Well, Lee, I can't remember the exact numbers; I guess Valdez now has a population of a little over 3,000, and I think they started back in the early 1970s with about 1,000. But I am not sure of that. We looked at the historical figures, though, for what happened in Valdez and that region, and we used that historical information to try to project what would happen in Seward. Our best guess, and that is all it is, is a guess, would be that the population increase would perhaps be about 3,000. I believe your population here is currently about 2,000. So you could conceivably be more than doubling the population in this area during the operations phase. I mentioned earlier some numbers for the construction phase, and those could be considerably larger for a short term. I think the construction phase is on the order of a little over three years, maybe 44 months, and the second year would be the peak construction year.

Palmer Questions and Comments from Audience at Large

(1) Kathy Schultz. The question that I have to ask is, is the Dow or Shell Chemical Company under any federal indictment for any environmental violations?

Pete Lehman (Dow). I can't give precise records--because I don't know them completely. I think we have a debate going on with the EPA in the State of Michigan, not over emissions, but over the manner in which they are monitored. It is not saying that we are violating the emission standard, rather they have not agreed to the way that we monitor emissions.

(2) Merritt Long. One question I've had that has not been addressed so far was regarding the possibility of a plant in the Fairbanks area. I assume that there will be less transport of benzene if the main facility were located in the Fairbanks area to a port. But the product from a plant located in the Fairbanks area would be a big problem and a different problem from the other locations. And that hadn't been addressed.

Pete Lehman (Dow). The way we are studying that is that we would move ethyl benzene by tank car from Fairbanks to the tidewater port. The LPGs would come to tidewater by pipeline. The other solid products, such as urea and polyethelene, would have to come by hopper cars by the rail system to a tidewater port.

Kenai Questions and Comments from the Audience at Large

(1) Art Styts. I live in North Kenai. The question I have is how will we be able to get the answers that this technical committee is going to come up with? Is that going to come out on the 9th of September, or is that going to be filed away in some filing cabinet somewhere?

Fred Ali. I guess the easiest answer would be to say, yes, at some point it will be put in a file cabinet. That doesn't get me off the hook. The Institute of Social and Economic Research is on contract with the state for the conduct of this public involvement program. They will be compiling the final report that will summarize the results of these public meetings, provide some analysis of these public meetings; they will go into the public opinion survey that most of you know was conducted by the Institute. They will not individually answer each one of these questions; they will group the questions as areas of concern and note the frequency of questions asked of a particular nature. The state will also be adding some things to the report as a supplement that will treat various aspects of the project under consideration, including environmental considerations, infrastructure considerations, manpower considerations. This supplement is being prepared by the various representatives of state agencies. That whole report will be submitted to the Governor in September and, as

such, will be a public document and will be available for public review. Did I answer your question?

Art Styts (continued). Can you write the Governor's office and get a copy; will it be put in the public library; how do the people get it?

Fred Ali. That would be one route--writing the Governor--but I think a much simpler route would be that there will be copies on hand in our various offices through the state, and I think your idea of placing the report in the public library is an excellent one. It is my understanding that, as a matter of policy, most reports of this nature are placed in state public libraries.

(2) Patrick Gryse. I live in the city of Kenai and am going to formulate my question out of a little article in the June 1981 issue of Prevention Magazine by the Rodell Press. This is directed to the state. The Occupational Safety and Health Administration and other public and private research teams have found that workers at petrochemical plants seem to be twice as likely to develop fatal brain cancer as the average population. The cancer victims have been workers at Union Carbide, Dow Chemical, Texaco, Mobile, and Gulf Oil plants along the Gulf of Mexico. The toll of 25 deaths at one plant is double expected rates. Ten chemicals have been identified as possible culprets, with vinylchloride and diethyl-sulfate the most likely. The problem has touched off similar investigations all over the U.S. and at plants in Europe. What I want to know is what this state is going to do to protect the children of tomorrow when cancer shows up 20 years from now? I know that there are a lot of older people who have property and are going to make money off this, but they are not going to be here in 20 years. Has the state approached the Rodell Press to find out what these other research teams and groups have found out in relation to petrochemical development in the state?

Fred Ali. Let me start off by saying clearly that the state has recognized throughout this public involvement process that there is great concern within the population as a whole over the health effects of the industry. Sitting on the state's technical group, reviewing this project, is the state's medical epidemiologist, Dr. John Middaugh, from the state Department of Social Services. Dr. Middaugh has agreed to conduct, between now and September 9th, a health assessment of the industry, looking specifically at the chemicals that are under consideration for this project. Whether or not he has contacted the Rodell Press, I am not sure. He has been in contact with people throughout the country trying to gain as much information about the chemicals that are under consideration. His assessment will be part of our final report. I might also add that recently the state participated in a forum with the Dow/Shell group on health effects in Anchorage and in Fairbanks. We had a toxicologist from the National Institute of Occupational Safety and Health and Dr. Perry Gehring, who is with the Dow Chemical U.S. out of Midland, Michigan, and is also a toxicologist. Both men made presentations on the health effect in the industry as they saw them. That forum was recorded and transcribed,

and that is some of the basic information that Dr. Middaugh and others are going to be looking at for a health assessment. We are aware of concern over the health effects of the various chemicals under consideration. But I think it has been understood that we have to look at the specific chemicals that are under consideration. We have to look at the standards and essentially go from there.

(3) Gwenda Meyers. I'd like to direct my question to the Mayor. I was wondering if I am to understand the proposed plant is to be built right in Wildwood Village?

Mayor O'Reilly. Yes, ma'am.

Gwenda Meyers (continued). As an additional impact upon the city, what has the plan been to relocate the people who presently live there? There are quite a few people living in that area.

Mayor O'Reilly. I think there are 144 apartment units there, and they probably run about 80 percent occupancy at this point. The actual plant site would not be at what is called Wildwood Village. The actual plant site will be located more north of that.

Gwenda Meyers (continued). So it would remain?

Mayor O'Reilly. I would assume so, but it is in the hands of the Kenai Native Association as to what will happen to those apartment units.

Moderator. Am I correct, Dick, that we are talking about a two-square mile area?

Dick DeLine. That is true, Lee. Wildwood has 4,500 acres, and at the present time, we are looking at about 1,250. Our plan is not to use the exact property that the housing units are on today.

(4) Drew Spaulding. I am a board member of the United Cook Inlet Drift and Fisherman's Association. Would Dow/Shell be highly concerned with possible harm to the existing fisheries? And if so, how? And could there be any possible benefits to the existing fisheries by the development of Dow/Shell?

Moderator. Thank you. Lewis (York) do you want to take it then; we'll ask Dick to respond to the Dow/Shell commitment as it relates to the potential fisheries impact.

Dr. York. I will certainly address the question of possible pollution which might have an impact on the fisheries. A plant of this kind involves a very clean type of raw material, and the products would be clean materials relative to some of the broad ranges of petrochemicals that are made in the many, many plants scattered around the world. There is no particular pollutant that would be significant except some which might occur in spills within the plant itself. All of the spills and all of the rainfall within the plant will undoubtedly be

retained, processed, and purified before any water would be released. So the only possible problem that I see, in terms of fisheries, might be the traffic which would be perhaps one additional freighter a day, on the average, according to the rough numbers that we've put out on it. There could be a collision which can cause a problem from almost any source, such as the fuel that might get spilled into the inlet if there were a freighter collision somewhere in the area. That is the only real place where I see any pollution impacts upon the fisheries. In terms of good things, it all depends entirely upon what you are looking at. That is a matter of people, the socioeconomic type impact principally.

Bob Martin (DEC). I would add that if there is a significant discharge of cooling water at a temperature higher than the receiving water, the state has a standard for how much the receiving water temperature can be increased. That is a very, very low number, and I believe that outside of an established mixing zone, that would be necessary. It is something like one-half of one degree. I think in the Cook Inlet with the natural mixing and if we can get a deep water discharge, that won't be a problem. I'd like also to add, though, with regard to spills prevention and spill clean-up programs, the state currently has a fairly advanced pollution clean-up and abatement program already in place. In conjunction with the Coast Guard's capability, I think it has been demonstrated very adequately in the Valdez oil shipment terminal where they have a large number of spills, on the order of a pint or two pints, that the capability of responding to those spills is very good. Now as far as a major kind of a catastrophe--a tanker colliding with something, or a couple of tankers colliding with each other--that is a nightmare. And I think that the emphasis of the state's efforts and the Coast Guard's efforts are to put in some very advanced guidance systems, very advanced tanker safety requirements that would do everything humanly possible to preclude this kind of large-scale catastrophe from happening. The simple fact is that once they do happen, they are going to cause damage. You are not going to clean up everything that gets spilled. The second aspect of that, of course, is to make sure that you still have the capability to respond to any conceivable spill, if it does occur, as some of them on a smaller scale will.

Dick DeLine. I think the gentleman's question is a good one. And I think that we should show proper concern. Normally, when we build a plant like this in a new location where we don't have any experience, we run what is called a baseline study. Now what that really means is that prior to building, you go out and you study the terrestrial and aquatic life. And you try to find out whether there are some mammals or some aquatic life that is different than the experience that you have. Now you do this for two reasons: number one, you try to do that to protect yourself, so that five years from now, when the plant is in operation, you already know that maybe one shell fish has one part per million arsenic in it or whatever it is. But the other thing is that once we've run a baseline study, we try to run it about every five years to determine whether we are affecting the terrestrial and aquatic life. I don't think there is any guarantees that you aren't. I think

there is a need to establish the baseline like we would do. Normally, the baseline will cost us about a half-a-million dollars. But it is for two purposes: to be able to find out not only where we are at before we start up the plant, but also every five years to come back and monitor what effect we are having on it. And some of the time, we do have good effects, but we might also have a detrimental effect. Hopefully, we can catch it in time.

Drew Spaulding. One other part, if I might, and you touched on it earlier. Would Dow/Shell be willing to make attempts to regulate ship and sea-going vessel traffic so as not to interfere with the existing fishing industry? We are asking that we don't ahve shipping lanes out there where we fish perhaps two days a week for twelve hours a day. As it stands now, we don't have to worry about where we set our nets. Thank you.

Fred Ali. I expect that is going to be a Coast Guard and a state regulatory responsibility as much as it would be a Dow/Shell decision. I'd also just add that assuming the state exercises its responsibility with regard to workers' safety and health standards and all of the various permitting requirements, and baring catastrophic accidents, my hunch is that the secondary impacts would be both the most negative as well as the most positive. The community may expand two- or three-fold. The competition among recreational and commercial fishermen may increase. At the same time, if you have better dock facilities and cheaper power for freezing fish and so on, that presents a potential benefit. My hunch is that looking at the secondary effects, it is going to be just as important to the community as it will be to looking at some of the primary effects. And I think that is an issue for the community to take a really hard look at.

(5) Dennis Smith. I would like to direct my question to Dr. York. We have discussed water pollution and air pollution this evening. But one topic we haven't touched is noise pollution. When we have a two-square-mile plant with a possible 240 megawatt generator operating that plant, I would like to know about the noise pollution impact.

Dr. York. There will be noise within the plant, obviously. You can't run power plants, turbines, pumps, fans, all of the equipment that has to be included without it. We design all of these plants and build them, not for Dow but for everybody. And I would say our standard rule is that we look at the facility and design the plant such that the noise control will keep the noise level at the boundary of the plant property below 55 decibels. That is something below the traffic level in most of the town, even on Saturday night. Yes, sir.

(6) Tony Doyle. I live here in Kenai. And am I correct in believing that a 240 meg plant will produce the same emissions as a city of 200,000 people?

Dr. York. Depends on how you mean, "from the city." A 240 meg plant provides enough power to supply a city of 200,000 people.

Tony Doyle (continued). How much pollution would it put into the air?

Dr. York. Well, they are going to burn gas, I understand, which is a logical fuel to use here. Under those conditions, the primary pollutant that would be emitted would be nitrogen oxide. They would undoubtedly be required to put it into a stack such that the emissions would first meet federal and state standards. Then the mixing relationships with the atmosphere, in this area, would be examined and computer models would have to be run before they are even given a permit to build that plant. The impact upon you at the breathing level would be well under the standards that I mentioned earlier, and far less than one-fourth of the allowable limits that have been established to protect health and welfare, which in themselves have a safety factor of two-to-four in them. Thank you.

(7) Don Measner. You mentioned earlier in the presentation, fourteen tons of solid contaminated wastes. What do you plan on doing with that?

Dr. York. I don't remember the number of 14 tons. If you are talking about in the slide show, they said something about many tons. I've identified already that the solid wastes are primarily things that are already items that you are familiar with. Sanitary sewage sludges and general solid wastes that come out of an ordinary industrial facility: packing crates, papers; they have just as much paper as the state, I think, sometimes.

Don Measner (continued). What I was referring to is the contaminated waste that Dow Chemical has. Where do you ship that to? Is that shipped out of state or kept here in the state?

Dr. York. I don't remember mentioning any. Contaminated waste is something which would be a pollutant. The primary contiminated waste of any quantity might be the catalyst which would be used in the operation. This will be collected when they replace them, and they would be shipped out to the Lower 48 for reprocessing. They could then buy them back again at a pretty good price, I suspect. They would not be buried and disposed of here.

Moderator. Bob, I think you had made the comment in your presentation about amounts of solid waste; could you sort of elaborate what you were referring to?

Bob Martin. Yes, the figures I have so far are fairly preliminary. They show a total of 14-to-17 tons per day of not necessarily hazardous wastes, but total solid wastes. It is my understanding that any solid wastes that they generate that are of a substantial nature--any of the processing wastes, any of their sludges, that kind of thing--they will incenerate on their site and dispose of in facilities within their own control. You know I have been aware of the sensitive nature of sludge disposal here in the Kenai Peninsula, the difficulties with the Sterling landfill site, and difficulties with the septic disposal site and trying to find adequate locations. That is a subject that we

are going to look at very critically when the time comes to pass judgment on applications for solid waste disposal permits.

(8) Robert Akinson. I want to get back to noise. It will sound just about like Colliers, but you were saying it will be about four times the size of Colliers; is that what I heard? So I assume that it will make about four times as much noise.

Dr. York. Well, noise is one of those kinds of things that attenuates with distance and, therefore, you can put four times as many units spread over four times as much land and the actual impact on the fence line will be no different.

Robert Akinson (continued). Well, I live about four miles from Colliers, and it sounds like a jet taking off all the time. So I just want to tell people who are living in the Kenai area that you will have a Weiny bird over your house every day.

Dr. York. Well, let me put a number on a jet taking off. That is 125 decibels, and I said we'd be operating--if we design the plant--at 55 decibels at the fence line.

Robert Akinson (continued). Okay, it will be a jet at cruise then. Because it is a jet; if you don't believe me, take the Miller Loop off-ramp and come out to my house and walk in my garden. When it is cold, it is alright; they can run them at a higher speed because they don't overheat so badly. That is one of the advantages of building here in Alaska, I guess.

Also, what color is nitreous oxide? Clear?

Dr. York. We talk about nitrogen oxides; there are basically two chemicals, one of which is nitrogen--NO, the chemical term for it. NO_2 is brownish. But most of the combustion processes produce around 90 to 95 percent NO_2; therefore, the material coming out of the stack is not going to be highly visible. However, the NO does oxidize in the atmosphere with the ozone which is present in NO_2, so often you will find a condition where there is not very good mixing at some distance from the plant. A possibility for NO_2. I live in Denver; we have a fair amount of brown haze, some of which is NO_2, some of which is salt dust from the streets in the wintertime, and some of which is just plain particulate material.

Robert Akinson (continued). I would just say I don"t know how far you live from a major chemical world classed chemical plant, but I do know that it is definitely going to affect the community.

(9) Gene Durison. I am from Sterling. Last week the gentlemen from Dow/Shell, at the meeting that was held here, stated that there was solid waste that would be buried on the property. I am talking about the hazardous material, and he said that it would be at a large clay area that would be a clay-lined pit, I believe. Now has that been changed?

Dick DeLine. No, not a bit. But I never said hazardous. I think if you have a recording of what I said, it is true that I did indicate that we would bury it, and I would like to answer the other gentleman's question as well. He remembered right: it is in the vicinity of 14-to-17 tons per day. In Phase 1, it is 3-to-4 tons per day; it's primarily ash from the incinerator, which is nonhazardous, and it's primarily from your primary treating facility, which means rubber boots and gloves and whatever you get out of your incinerator--I mean out of your primary system down here. Why the quantity is large in Phase 2 is that we are dissolving salt--salt made by the solar system. In other words, it is really sea water that has been evaporated by the sun in Mexico, and when it has been brought up here to use and dissolve in a chlor-alkali plant, the mud that came from the sea has to be either returned to the sea or buried. That gives you an additional 10 or 12 tons per day, so you end up with, as Bob Martin said, about 14 or 17 tons. I never indicated that it was hazardous.

Gene Durison (continued). I just wanted to make sure, then, there will be no hazardous material.

Dick DeLine. There will be no hazardous material that will be taken off-site. Any hazardous material that is on-site will be rendered innocuous by one of two or three methods. Number one, if it can be incinerated, it will be incinerated. If it is aluminum floride, or something that is really a by-product, it might have to be neutralized. In other words, to change the PH. But we are not planning on any hazardous landfill. Period.

Gene Durison (continued). One question on the incinerated pollutants. Where does it go once you incinerate it? Isn't it in the atmosphere, or is it rendered innocuous?

Dick DeLine. Well again, I guess you probably could debate on that. If someone said, "Is one molecule going to escape?", I wouldn't want to argue with them on that. But I would say that 99 and 99/100ths will be destroyed. Now whether it is 99.999999, I am not sure. But what it tells you is that it primarily goes to carbon dioxide and water vapor. If it is incinerated at 2200 degrees Fahranheit and a retention time of a couple of seconds, the experience so far has been very, very good. There may be some solid waste left--ash from some of these materials when it is incinerated--but that will be just like wood ash almost.

(10) Patrick Rice. I have one further question. When you take nitrous oxide and you are producing clouds which are going to cover up the area from your condensation towers that are used in cooling, what happens to that nitreous oxide when it mixes with the water vapor and the clouds and drops on the earth? Does this create the acid rain effect to affect the salmon-producing spawning areas of this region, or am I incorrect in assuming that it would create nitric acid in the rainfall?

Dr. York. The nitrogen dioxide which is emitted or formed from some of the NO with further oxidation does dissolve, does make a weak acid. It also furnishes nitrates as a fertilizer. When I was in school, before you were born, I was taught that lightening was a very great advantage to us because it created nitrates to come down in the rain and give us some free fertilizer. We do have some problems that are uncertain and not yet documented. However, I am certain that the Rodale family is convinced of the operation, that the nitrogen oxides and the sulfur oxides, of which there will be none from this plant, will create some acid rain problems. There is a considerable controversy on that. My boss happens to be sitting on one of the national committees that is attempting to study this problem in some detail, and all they find is contradictions and lack of data. But you can get some acidity in the rain from nitrogen oxides. Usually, if there is very much present in the atmosphere, enough to create a significant change in the PH, it will come down in the first fifteen minutes of the rain storm. After that, it is all gone, so you have the normal rain, which is also slightly acid because of the carbon dioxide in the atmosphere. This would simply increase the acidity slightly. The debatable point is what the impact would be. In this area, you have quite a bit of acidity in some of the water because of the tanic acids from the things that run off from the muskeg. So you already have acid waters as a significant factor.

Patrick Rice (continued). So then, as a chemist, you know that when you reach a point of equilibrium like in an acid-base experiment, if you add one more drop to the experiment, you can cause the reaction to grow. If we are dealing with the tourist industry and the commercial fishing industry, both of which are dependent on King Salmon and various species of salmon in this area, since you have tanic acid already in the water, you could raise the acidity of the water so much that the salmon eggs might be destroyed. Look at the thing that is happening in Canada.

Dr. York. I have no fears about that kind of effect anywhere in Alaska from any of the plants that are contemplated and proposed here. You bring up the question of Canada; let's always deal with these things in the proper perspective. The Canadians are saying, and cannot prove, that what they are getting is some acid rain, which may, by their argument, be caused by about 25,000 megawatts of generation of electrical power which produces some sulpher dioxide, as well as nitrogen dioxide, in the midwestern part of the United States, plus some in Canada. That is quite a difference because nobody is talking about generating anything like that quantity anywhere in the State of Alaska, and as you are well aware, and quite proud of, I am quite sure, Alaska is a pretty big area. I do not anticipate any likelihood that there would be any significant or measurable increase in the acidity of the waters in Alaska from the nitrogen oxides that would come from a plant of this kind. I am not trying to defend Dow/Shell. I am simply putting it into perspective because I work in this area all of the time.

Patrick Rice (continued). I was just trying to put it into the perspective as a biologist trained at the University of Alaska ten years ago and working with the commercial fishing fleets all over the state, that I see all of these barren lakes in Canada that weren't barren ten years ago. I am not saying that this is related to Dow. I was just trying to ask you on a chemical level whether this is a possibility for this area.

Dr. York. I am giving you my personal opinion, because neither of us can probably prove anything else.

Bob Martin. I think, just to add there, Pat, we are going to take the question further than that at a state level. We are looking at acid rain; we are already monitoring through some stations that we have set up here on the Kenai what the existing situation is or isn't with regard to acid rain. It hasn't rained much since we set up the station, so we haven't got much data yet. We are not going to say, you know, we don't think it will happen and drop it. The study is going to get further review during the EIS process if we go that far and through any other permitting processes, and that review will be a public process and an open one.

(11) Roger Meeks. I think I want to make more of a statement than I do to ask a question. I have been in Kenai quite a long time. A lot of people in this room have been here longer than I have. A lot of them have been here a lot less than I have. I have seen this growth business that has been discussed here tonight, the fear of the doubling of the population and the fear of the pollution of the inlet. I have seen it happen about four times in the last 30 years. The first time when they built Wildwood, even as small as that project was. There were more people, because Kenai at that time was only 350 population, and this tripled the population. The people that lived here then didn't like the idea of Wildwood coming in and interrupting their lifestyle, naturally. Some of them moved out that didn't like it, and people that thought it would be pretty good or better than they had, they moved in. This happened again in the 60s when Swanson River was discovered. By around 1960, the Standard Refinery was started and people had the same old cry--it will double our population; it will start polluting our waters; we are going to not have any fishing--but they survived it. In 1966, they started the chemical plant, and the same thing happened as here tonight. We had public meetings. We had outcries. We had fear. The people that feared the pollution--it didn't come; it hasn't killed any fish. In fact, in 1979, there was more fish caught in this inlet, I think, than there was in any other fishing period since I have been here.

It happens every time there is a little boom. One person spoke tonight of crowding in the schools. What will we do for schools? It is simple; you just double shift until you get new schools built. There is always a solution, if you want a solution. If you don't want it, you can't see it. I think that we need the plant. The area needs it, and if we build it, we probably won't have any more fears over it than we have had in the past. Thank you.

Anonymous. Just one more question towards the state. How committed are we going to be when Dow/Shell submits their study September 9? Does that mean that our gas liquids are sold to Dow/Shell then if the Governor decides to within the 75-day period?

Fred Ali. No, at this point, there are no commitments other than the commitment to review the feasibility study, to make a determination within 75 days whether or not it is within the state's best interest to proceed with the project. There are a series of decision points beyond September 9th that we should all keep in mind, and I guess the first one I want to reiterate is that the 1/8th share that the state currently has to potentially sell to the Dow/Shell group is not sufficient in and of itself to fuel this industry. If this industry is going to go forward, there is a need for the sale of liquids from the other producers to the Dow/Shell group. And as Mr. DeLine mentioned earlier, the likelihood of that happening between now and September 9 is not so great. We have a series of negotiations that we have to follow.

Anonymous. If the governor says "yes," then does that pretty much mean that the plant is going to be built if Dow/Shell can get enough gas liquids to do it? Is that pretty much the final word on it or do you then start doing all of your studies?

Fred Ali. Beyond that point, there will be the development of the environmental impact statement, including a public as well as a government review process; there is the filing for permits, again including a public review process. Clearly, those permits will not be applied for and granted prior to September 9th, and the EIS won't even be started prior to that time.

Moderator. I must just add that in your packet is a speech delivered by Governor Hammond on September 9 of last year which lays out what the state was offering. The process that the state will follow is almost identical to the Alpecto case, and there is no assurance that the outcome wouldn't be exactly identical. That is, you pass all of the hurdles, you make the agreement, you do the EIS, and all of a sudden something happens, and the financing falls through and you are right back to where you started from.

APPENDIX B

Enumeration of Public Concerns, Comments, and Recommendations

Slow Down/Stop

1. Don't build a plant. (K 6, M-S 1, A 6, F 7, S 1).
2. Nine out of 16 people in this group oppose petrochemical development in Alaska. 2 are neutral. (F 1).
3. Construction of capital intensive petroleum projects will only expand Alaska's construction labor force and create an increased demand for more capital intensive projects. (F 1).
4. Concern with pollution impact - attitude that it is okay to assimulate waste in the Inlet to the saturation point. Alaska should be different, we should learn from the mistakes of others. Put the plant in Detroit. (K 1).
5. No more plants! Some Dow products are not allowed for sale overseas - they are too hazardous. (K 1, A 1).
6. I believe Dow's history of conflict with regulations speaks for itself - don't bring them up here. (A 1).
7. We don't want another Love Canal in Alaska. (A 1).
8. I believe in free enterprise and I strongly oppose petrochemical development in Alaska. (A 1).
9. I wouldn't want any relative working in a plant producing carcinogens. (A 1).
10. I'm totally against building a petro plant here. I lived where they had them and moved here to get away from them. (A 1).
11. I'm against large industrial complexes. (A 1).
12. No petrochemical development - share the wealth at local levels. (M-S 1).
13. Believe this state is unique and should take a different road, i.e., no petrochemical development in Alaska. (A 2).
14. Clean air and water for Alaska. Chemicals for Cleveland. (A 1).
15. Our most precious resources are our clean air and water and we shouldn't risk polluting them. (A 1).
16. No petrochemical development because of environmental reasons, health and safety and over population. (S 1).
17. If we let Dow in this State, we open a Pandora's box, more industries and more haze will follow. (A 1).
18. Who wants to watch the sun set over a petrochemical plant? I don't. (A 1).
19. Incredible eyesore in Anchorage. (A 1).
20. I object to the conversion of a non-industrial area into one of the heaviest industrial areas in the world. (A 1).
21. I have been squashed out of New Jersey by development. A land as beautiful as this one is has no need to be paved over. (A 1).

Slow Down/Stop (Continued)

22. Would be cheaper to ship it outside and better for all concerned. (K 2).

23. The needed quantity of petrochemicals do not justify the number of plants existing. (A 2).

24. I believe there is no strong need for the substance produced. (A 2).

25. Ship raw materials and process them closer to their market. (F 1, (K 2, A 1).

26. Go slow - consider all aspects. (F 1).

27. Why not wait until these questions are answered. (A 1).

28. We are asked to make decisions too soon, it should be after Dow publishes the study in Sept. (A 1).

29. Since the effects of chemical industries are unknown, lets wait to ascertain the effects and ramifications prior to allowing them in Alaska. (A 1).

30. Concerned that petrochemical development is happening too rapidly. (A 1).

31. Too many unknowns at present. Will we know in time to make sound decisions? (M-S 1, A 1).

32. Anchorage is too far from source and market plus negative aspects on environment. (A 1).

33. Concerned we have a clean environment, no dumping of hazardous materials and no State investment in supporting the chemical industry. (A 1).

34. I see no benefits worth the risk of having petrochemical development. (A 1).

35. I do not want Dow Chemical in Alaska. They are irresponsible. (A 1).

36. The petrochemical development will kill Alaska. (A 1).

37. As a lifelong Alaskan, I am totally opposed to petrochemical development in Alaska. I feel it's inappropriate economically, environmentally and aesthetically. (A 1).

38. Alaskans deride the "Outside" as a poisoned, spoiled land, yet they're eager to repeat the destruction here. (A 1).

39. I have lived in Houston, Texas and have seen what petro plants due to a city environmentally. I don't want one in Alaska. (A 1).

40. Build a plant at Tidewater. (F 1).

41. Petrochemical development and heavy industry are not compatible in the community's present and future policies and planning. (A 1).

Speed Up/Go Ahead

42. Like to see petrochemical development in Alaska. (F 5, A 4, K 2, M-S 2).

Speed Up/Go Ahead (Continued)

43. Feast and famine - I've seen it, industry is needed for economic stability. (P 1, A 1, F 1).

44. Based on a positive experience and past performance with industrial development as it relates to environmental, social and economic concerns, we recommend the site be selected. (A 1, V 1, K 1).

45. Alaska has a valuable resource nationally in the extraordinarily large reserve of gas liquids on the North Slope and it is incombent upon us to act positively to make this resource available for the benefit of Alaskans and the U.S. (A 2).

46. I support the wise and responsible use of Alaskan resources and I welcome petrochemical development to Alaska. (A 1).

47. I've lived my whole life in petro plants and I'm still here, grey hair and all. (A 1).

48. Want to see plants built here because we have benefited in the past from industry. (A 1).

49. I'd like to see petrochemical development in Alaska because it will create long term jobs when oil revenues start to decrease. (A 1).

50. Why didn't we start this 4 years ago. (A 1).

51. Alaska should be shared with lots of people. (A 1).

52. Concern that Dow-Shell may find the project "un"economical! (A 1).

53. We need industry and a lot of it to keep people busy and out of crime and "Off Dole". (A 1).

54. Building industry in this State builds by income. (K 2).

55. Favor development in the State, like this project would provide. (K 1).

56. Our population tripled once and we lived through it - so build the plant. (K 1).

57. Economy needs boosting. (K 1).

58. Concerned that the Governor may delay or avoid making a decision. (V 1).

59. Sell Dow-Shell the royalty gas. (F 1).

60. If Alaska petrochemicals are not developed we will become more dependent on unstable foreign sources. (A 1).

61. This whole meeting seems negative and if the whole country were this negative we wouldn't have the U.S. today. (A 1).

62. I think petrochemical development will develop a private sector and unless we have a private sector we won't have alternative lifestyles in 10 years. (A 1).

63. If society doesn't advance it regresses. If we don't take some chances we'll go back to the dark ages. (A 1).

64. I believe in free enterprise and am an environmentalist. Under present day technology a petrochemical plant can be built somewhere in Alaska to utilize our raw materials and to develop a sound economic base for all Alaskans. (A 1).

Get Best Balance

65. State exercise caution and extreme judgement in balancing the trade-off of economic benefits vs. social problems. (F 1), (M-S 1).

66. Quality of life is as important as economic growth. (A 1).

67. Putting more emphasis on economic gain than environmental and health concerns. (M-S 1, A 1).

68. The State of Alaska is more worried about making money as they always have in Lower 48, and has lost sight of trying to find a new way to improve the quality of life.

69. We need jobs to be happy, but not at the cost of people. I've lived in places where H_2o and air are not healthy. (M-S 1).

70. Concerned that long-term detriments may out weigh the short-term benefits. (F 1, K 1, A 1).

71. To lose lifestyle and gain environmental hazards... what is the return beyond money and an expanded economy. (F 1).

72. Risks are tremendous for almost no gain. (A 1).

73. Build a smaller plant. (K 2).

74. Are all the potential negative affects worth 900 permanent jobs? (F 1, A 1).

75. We think and feel uncertain. We must decide what we want Alaska to be... can we cover the town with haze and still see Mt. McKinley. (A 1).

76. Concerned the State will have the money to improve the quality of life in the entire State. (A 1).

77. Environmentalists will make the project uneconomical and the majority will suffer because of a minority. (M-S 1, A 1).

78. The impact of petrochemical development workers will be far less than the continued increase of municiple, state and federal workers. (A 1).

79. We should not penalize new industry with high taxes and the burden of social costs. We need stable employment and economy. (A 1).

80. Those concerned with the quality of life in Alaska should support petrochemical development. Social benefits will out weigh the social costs. (A 1).

81. We need to decide what is an acceptable pollution level. We can't have zero. (A 1).

82. The most critical issue is whether or not these valuable resources will be used is the most beneficial manner. (A 1).

83. Greed vs. need. (A 1).

84. State should consider the relative benefits to the people of the entire State. (A 1).

85. I resent a corporations interest in profit overriding my interest in health. (A 1).

Get Best Balance (Continued)

86. Is growth positive. (F 1).

87. A plant this large would necessitate additional exploration and development which otherwise wouldn't be pursued. (A 1).

Independent Evaluation

88. I do not feel that the current state administration has the expertise to make this judgement. I suggest they buy it some place. (A 1).

89. Lack of impartial expertise in the study process. (A 1).

90. Independent studies on: 1) Dow's safety record, 2) Dow's environmental impact on neighboring area, 3) health impacts. (F 2).

91. This is an economic feasibility study and should be done by those most affected by it - Dow. (A 1).

92. Object strongly to the State allowing Dow-Shell to head feasibility study. Like a fox guarding the chicken coop. By a favorable feasibility study, Dow assures itself of getting a foot in the door. (A 2).

93. Matching funds for independent or adversary group to counter the industry's publicity? (F 1).

94. Be sure to have a good data base. (F 1).

95. Look at other areas such as Edmonton and communities with similar population. Compare the population of Alberta to Alaska. (F 1).

96. Look at the development of the North Pole Refinery. How did it become the plant that it is? (F 1).

97. Questionable politics involved with funding sources and motives of feasibility study. (F 1).

98. Send an unbiased team to Houston to talk with the residents about their impressions of petrochemical development. (K 1).

99. Concern that a study should have been done on a plant in an area with an inversion layer similar to that in Anchorage. (A 1).

100. What is the state's criteria to consult "outside expertise" strong concern for indiviudals with experience with this industry involved in decision making. (A 1).

101. Comparison of environmental and economic influences of other 700 U.S. plants on the respective sites?

Public Input

102. Concerned that the people's voice will not be heeded. (A 1).

103. Concerned that Dow-Shell and the State of Alaska will not take this input into consideration - they will do as they please - they are going through the process to look good. (A 1, K 1).

104. If public opinions to be considered, this format will give invalid input from an active minority both por and con. (A 1).

Public Input (Continued)

105. Hope the public opinions voiced will be heard by the Governor more strongly than he heard the capitol move vote. (A 1).

106. Concern that there won't be a chance to voice our opinions again before the final decision in Sept. (A 1).

107. The entire state should have a voice in the decision.(A 1).

108. Be sure people in the immediate vicinity are consulted (vote). (F 2, S 1).

109. There should be more public hearings after the Dow-Shell study is complete, especially three assembly. (A 1).

110. Concerned that the review process after the "Sept." results are in, include a mechanism for continued input from the public and its impacted communities. (A 1).

111. Use input meaningfully as a major part of the decision making process. (F 1).

112. An ongoing citizens advisory group should be established. (A 1).

113. If there is a vote we need spending controls on the public information process (e.g., advertising) so that one side couldn't buy more - that for both sides the spending is equal. (A 1).

114. Concern that pro and anti petrochmical development camps not be used to polarize the issue. Does anti petrochemical development equal anti development? and vice versa. Dialogue will be seriously impaired if "us-them" camps are established. (A 1).

115. This is a political "snow job". The poll shows lots of support but little understanding of the petrochemical industry. (F 2).

Public Information

116. A debate between Dow and the Alaska Center for the Environment. (M-S 1).

117. Be honest and keep us informed. (V 1).

118. Public education about hazards when specifics are known before decision is reached. (F 1, A 1).

119. Alaska State Legislature had a recent teleconference on SB29. Make the information obtained available. (A 1).

120. Public access to the plant. (A 1).

121. Wish Dow-Shell would provide a list of all legal actions taken by the government against them (EPA and OSHA) and the outcome. (A 1).

122. I'm concerned that Dow-Shell is not informing the people about other benefits related to petrochemical development. (A 1).

Need More Regulations

123. Strict environmental standards to prevent further deterioration. (F 1, M-S 1).

124. Petro plants can be either clean or dirty. We need to insure that high quality standards are used. (A 1).

Need More Regulations (Continued)

125. The state doesn't have regulatory capabilities to prevent environmental and health damage - only to deal with it after the fact. (F 1).

126. The construction, technology and regulations are superior today and can help with pollutants as in the Hershey plant back East. (A 1).

127. If plant built, state should make tougher laws for violations, expecially concerning the environment. (A 1).

128. The state should have controls and should be at the beginning because it's unfair to business if the state comes in at the end. (M-S 1).

129. Legislation should be enacted in Alaska to place the burden of proof on Dow-Shell rather than on the victim for environmental damage or whatever. (A 1).

130. Employee health records and check-ups should be done and maintained by the State and paid for by Dow-Shell. (A 1).

131. City and State may have no guarantees that the regulations will be enforced. (A 1).

132. The state must be properly staffed to monitor and audit the petrochemical development in Alaska. We, the people, will monitor and audit. (A 1).

133. How to monitor and enforce environmental standards. (K 1, F 1).

134. State's ability to adequately regulate. (A 1).

135. Monitoring of Fire Island. (A 1).

136. A measure should be made so it would be easy to charge pollution requirements after plant completion. (A 1).

Encourage Different Industry

137. Petrochemical development represents a non-renewable resource and land path technology. Alaska development should emphasize soft path technology as defined by Dr. Amory -? Lovins? (A 1).

138. If there must be economic growth and development, then the state's interests would be better served by encouragement of industry that is more compatible with the traditional Alaskan lifestyle and natural environment and is labor intensive rather than capital intensive, and is conservation-oriented rather than consumption-oriented! (A 2).

139. I'd rather see Alaska depend upon renewable rather than finite resources like oil. (A 1).

140. We have alternatives for development compatible with the present way of life. (M-S 1, A 1, F 2).

141. It's not worth all the risks involved. Other options should be explores. Tourism instead. (A 1).

142. Have several small industries instead of one large industry with headquarters somewhere else. (F 1).

Encourage Different Industry (Continued)

143. Investigate other industries besides petrochemical development. (F 1).

144. If Anchorage wants a port, build a port, not a petrochemical plant to get a port. (A 1).

145. State's money better invested in a less hazardous, less capital intensive, more decentralized industry. (A 1).

146. Concerned for long-term State economy without development of a primary industry such as petrochemicals. (A 1).

State Too Closley Linked by Industry

147. Collusion between the State, the City and 9 companies makes me feel "had", hoodwinked and bamboozled. (A 1).

148. A deal has been cut. We must uncut it. (A 1).

149. The upcoming governor's and mayor's elections - what contributions from political action committees of Dow-Shell? People will be the losers and there is a hidden pay off higher up and privately. (A 1).

150. Collusion between the State government and a powerful corporation. (F 1).

151. How many former Alaskan politicians have been hired by Dow-Shell to do studies, etc? (A 1).

152. Lobbying influence of Dow both now and in the future. (A 1).

153. Concerned about the political influence exerted by Dow-Shell. Dow-Shell buying the best politicans money can buy. (A 1).

154. Political influence of Dow. (A 1).

DEC/ISER Study

155. I feel this is an exercise in futility - they will do it anyway. (K 1, A 1).

156. Idiocy of public participation on this scale. (A 1).

157. Would like to direct questions to the Dow-Shell people in person, I don't like this indirect method. (A 1).

158. There hasn't been enough public input. There is a need for formal public hearings, which is what I expected here tonight. (A 1).

159. Forum used in a superficial and non-resp. way. (A 1).

160. Want specifics NOT generalities in answers to the questions. (K 1).

161. Having only one meeting like this in Anchorage is inadequate. (A 1).

162. People are given the opportunity to say "no" or "yes" before they are asked "how", "where" or "when". (A 1).

163. Thought ISER was to first do public education but the survey was conducted before public education. (A 1).

DEC/ISER Study (Continued)

164. No one was properly informed for ISER's survey, more information is necessary for any kind of rational decision. (F 1).

165. Credibility of survey. (F 1).

166. Public opinion is being sought on a particular project rather than obtaining a general direction first. (A 1).

167. Question #7 on the questionnaire isn't objective because it assumes there are benefits.

168. Dr. Louis York is on the State's payroll yet he answers questions as if he were a Dow-Shell representative - fire him. (A 1).

169. Question impartiality of ISER, especially the resource panel. (A 1).

170. Questions from tonight's study groups along the answers should be printed and mailed to all persons attending tonight's meeting no later than July 10, 1981. Dow-Shell should cover expenses and two AKPIRG members should be involved in process. (A 1).

171. Concerned that many of the questions asked during this public hearing process will not be thoroughly answered publicly in print. (A 1).

172. No information on the "life" of the industry. (F 1).

173. Concern for the governor's selection process, tonight's meeting - it's not representative. (A 1).

174. Concerned that the participants in this public hearing who seem opposed to petrochemical development do not represent the entire community. (F 1).

175. Question whether group present is a typical representative community cross section. (A 1).

176. Supports this process - more judicious and meaningful. (A 1).

177. There has been more public input on this project than most others. There will be sufficient input when the process is finished. (A 1).

178. To State DEC - displeased with quality of information at Anchorage Sheraton meeting (health panel). It was evasive, avoided key issues. (A 1).

179. Inadequate basis for conclusion on public attitudes. Could this be an effect of Dow's influence? (A 1).

State Conditions for Petro.

180. If the State is to stop petrochemical development, they have to do it prior to the E.I.S. (A 1).

181. Technical data on Dow-Shell plan to be more precise. (F 1).

182. Be sure the technology is suitable to northern conditions. (F 1).

183. State should define the products allowed and then disallow production of known carcinogens. (A 1).

184. The State should look at placement so as to spread the economic impact throughout the State. Anchorage already has a healthy economy. (A 1).

State Conditions for Petro. (Continued)

185. Concerned that the State's inconsistent tax policy prohibits competition. (A 1).

186. All levels of government harass project to move elsewhere to another state. (M-S 1).

187. Concerned that development of petrochemical may not meet the state's socio-economic goals. (F 1).

188. Shift in emphasis - originally for employment, now capital intensive. (F 1).

189. Environmental quality is going to take 2nd seat to economics. (A 1, F 1).

190. Concerned that petrochemical development will only be economically feasible if there is an economic subsidy or if they cut corners on environmental quality. (A 1).

191. That politics NOT be involved in the choice of location. (S 1).

192. State should stay out of developing industry. (M-S 1).

193. It be up to the chemical company to decide on the best location. (S 1).

194. Have Dow-Shell employ local engineers to solve problems of construction and operations prior to implementation. (F 1).

195. Establish exact goals. (F 1).

196. Instead of a $2 million Alaskan image public relations promotion, State should promote an environmentally and financially sound petrochemical development (via existing laws). (A 1).

197. The plant is beneficial if the state will enforce proper regulations. (A 1).

198. Should be more emphasis on in-state use of natural gas. (F 1, A 1).

199. Recommend a methane plant. (F 1).

200. Encourage local availability of end products or else it's not worth the price. (F 1).

201. Governor Hammond's "no-growth" philosophy will negate the positive input. (K 1).

202. The administration's lack of encouragement for economic development. (M-S 1).

203. It's not fair for us to use petrochemical products and have others produce them. We should accept our responsibility. (A 3).

204. Exxon, Sohio and Arco should not be allowed to own an equity or interest in the venture. (A 1).

205. Alaska has been selected because of our naivity in dealing with multinational corps. (A 1).

206. Petrochemical development should pay fair market value for all the resources used. (A 1).

207. Has to be consistent with local costal zone management. (A 1).

State Conditions for Petro. (Continued)

208. Access to the plant should be available to state and local officials at all times. (A 1).

209. Appreciate concern for the environment. (K 2).

210. Recommend petrochemical plant be built if environmental standards equal or exceed those of trans-Alaska pipeline. (A 1).

211. The State is involved because petrochemical industry affects the whole State. (M-S 1).

212. If they have to have it they should put in where they've already distroyed everything. (M-S 1).

213. State enacts stronger super-fund bill, better than the federal super-fund. (A 1).

214. I resent that there seems to be a foregone conclusion that there will be petrochemical development in Alaska. This is based on the short evaluation period. (A 1).

215. Heritage of future generations is not being considered. (A 1).

216. Concerned that the State will spend 10 million on Environmental Statement and nothing on Economic Impact Statement. (A 1).

217. I think international concerns should be watched closely so as not to override Alaska's concerns. (A 1).

218. Stop conveying the inevitability of petrochemical development when it's still in a highly questionable stage. (F 1).

219. I think it's the State governments responsibility to expose all conflicts and trade-offs of the petrochemical development in Alaska. (A 1).

Local Conditions for Petro.

220. Borough election requested before any decision on the site is made. (F 2, K 1, M-S 1, A 2).

221. Public committment from the Borough to make both sides available - positive and negative. (F 1, A 1).

222. Local control. (A 1).

223. The State will end up paying for all of the infra-structure because local property taxes are being reduced. (A 1).

224. We shouldn't have to depend on Dow-Shell for municipal benefit such as sewage clean up of currently dumped wastes into Cook Inlet. (A 1).

225. What will Dow-Shell do for the community, NOT what we will do for Dow-Shell. (K 1).

226. We want orderly development. (M-S 1).

227. Development and control to be under Mat-Su Borough jurisdiction with only technical advice from the government. (M-S 1).

228. During the planning stage work with local groups. (V 1).

229. Performance standards should satisfy the local residents' concerns about water, air, etc. And these standards must be guaranteed by the industry. (F 2).

Local Conditions for Petro. (Continued)

230. Concern that all of the Borough's focus is on development of petrochemical. Does Borough have alternative plans? (F 1).

231. Fairbanks North Star Borough is actively promoting one industry before public impact. (F 1).

232. The mayor should solve the current atmospheric problems in Fairbanks (C_2O) before adding to the problems. (F 1).

233. Fairbanks North Star Borough not be used as a pawn. (F 1).

234. People in "power" (Borough Assembly and Chamber) may want something different from what the public wants. (F 1).

235. Concerned that the Borough hasn't selected a site and the reasons why. (F 1).

236. Don't make a site selection until after State approval of the project. (V 1).

Site

237. Relative benefits to the entire state of a causeway to Fire Island vs. a causeway to Pt. MacKenzie. (A 1).

238. Causeway construction. (A 1).

239. Plant should be in a community with already existing utilities and services to preclude the cost of building new utilities. (A 1).

240. We need petrochemical development but NOT at Fire Island. Try Kenai or Valdez if they want it. (A 1).

241. Fire Island seems so limited and has lots of problems associated with it already. What are the alternatives? (A 2).

242. If Fire Island was so great why didn't Dow-Shell suggest it at 1st. (A 1).

243. Make Fire Island a state prison. (A 1).

244. Presentations, i.e., slides and speakers, are stated in the context of this petrochemical development occuring in Alaska - the question is where. (A 1).

245. Don't build in population areas. (K 1, A 1, S 1).

246. No residential development of Pt. MacKenzie. (P 1).

247. If Fairbanks area is selected, please locate petrochemical development closer to the refinery. (F 2).

248. Locate the petrochemical development a farther distance from a community. (F 1).

249. Why not consider areas outside the Borough for petrochemical development. (F 1).

250. Concerned that for political reasons Delta is not being considered - Delta is outside the Borough. (F 1).

251. Fairbanks North Star Borough land not be "given" away for the site. (F 1).

Site (Continued)

252. Bonanza site not to impact forest production and research and other resources. (F 1).

253. Parks Highway is a poor site. It's either beautiful or permafrost or both. (F 1).

254. Seems less economical to locate the site 400 miles from the ocean when tidewater ports are available. (F 1).

255. Fairbanks North Star Borough needs to become competitive with other boroughs and their site selection. (F 1).

256. Bonanza Creek site is undeveloped wilderness. (F 1).

Dow-Shell Behavior

257. Dow-Shell should be commended for their openness in this process. (A 1).

258. I'd like to encourage Dow-Shell to answer questions to help prove that they are responsible citizens in our community. (A 1).

259. We would like to know the good products that Dow makes. There are many that are beneficial. (A 1).

260. Concerned about Dow's poor environmental record. (A 2).

261. Concerned about Dow's relationship with other communities, especially in the Bay area, where Dow couldn't meet environmental standards. Couldn't give assurances they could meet standards. (F 1, A 1).

262. Dow is a member of the filthy five. They were number one on the list. (A 1).

263. Looking at Dow-Shell's track record, they've always ignored state regulations. It does no good to pass regulations becuase they're not enforced. (A 1).

264. I'm concerned about the veracity of information produced by Dow - a company with one of the worst national environmental records for every year in the last decade. (A 3).

265. Lack of concern by heavy industry after initial approval of the plant. (K 1).

266. Concerned that not now BUT in the future more hazardous chemicals would be produced. Especially warfare chemicals. (F 1).

267. Concern that Dow-Shell will continue their "sue me" attitude in the operation of their plant. (A 1).

268. Dow's credibility -0- too aggressive in actions. (M-S 1).

269. Concern about Dow resisting government investigation of petrochemical products. (A 1).

270. I don't trust Dow-Shell's employees to carry out environmental and safety precautions. (A 1).

271. The safety record of the petrochemical producers. (F 2).

272. Company cover-ups. (A 1).

Dow-Shell Behavior (Continued)

273. Basic distrust of conglomerates. (K 1).

274. I'm concerned that Dow denied any truth to the study that charged that the petrochemical industry increased the rate of brain cancer by a rate of 2.5. (A 1).

275. Industrialists will steamroll us into something we will be sorry for. (M-S 1).

Waste

276. Alaska State Statutes and the Municipality of Anchorage do not provide for hazardous waste. We have a long way to go to put systems in place before we allow petrochemical byproducts in the environment. The present proposed legislation (SB 29) only provides for high level waste, so we would be relying on the Feds. (A 1).

277. Don't see how a petrochemical plant can be made environmentally sound when they produce a chemical waste product. (A 1).

278. There are no landfills in Alaska equipped to handle petrochemical waste. (A 1).

279. Hazardous waste landfills. (A 1).

280. Toxic waste. (F 2).

281. Help North Kenai and the rest of the Borough with septic waste, waste disposal. (K 1).

282. What proof of environmentally sound disposal procedures? There's a vagueness on Dow-Shell's part. (F 1).

283. I have a grave fear of chemical waste landfills and would regret seeing such disposal practices occur in Alaska. (A 1).

Air

284. Concern with the superficial explanation that unseen air emissions are not harmful. (A 1).

285. Concerned that the water vapor discharged into the air will adversely effect the airport. (A 1).

286. Will are be used to burn waste? That creates acid rain. The best way is to use bottled O_2. (A 2).

287. State should maintain STRICT enforcement of present (or agreed upon) air standards. (K 1).

288. Air pollution. (F 1, K 2).

289. Concerned with air pollution potential especially here in the Interior. (F 1).

290. Air quality improvement. (F 1).

291. Wind direction and stability. (F 1).

Air (Continued)

292. Recommend that consulting experts be very familiar with local meteorological conditions. (F 1).

293. Fairbanks weather comes from the West. (The direction of the proposed site). (F 1).

294. Air dispersion problem is tremendous. (F 1).

295. Address car idling. (F 1).

296. Added expense of bottled H_2O because of acid rain. (A 1).

297. I'm concerned with car exhaust and mass transportation increases associated with petrochemical development. (A 1).

298. Concerned about atmospheric pollution in the state and our lungs. (A 1).

Water

299. Change in water quality (fishing). (K 1, A 1).

300. Concerned about local availability of water - how would it affect water table here and affect on the local residents. (F 2, K 2).

301. Use of our fresh water. (A 1).

302. Should use salt water instead of fresh. (K 1).

303. Many Alaskans use untreated water on Tanana. (F 1).

304. Recycle the water back into the plant indefinitely. (K 1).

305. Warm water in the Tanana River. (F 1).

306. Concerned the level of sewage which is already rising and shows up in the topsoil. (A 1).

307. Dow evaluate ground warming as a cooling technique - waste heat utilization - imagination. (F 1).

308. Find some use for the waste heat. (F 1).

309. Ethel benzene - 2ppm will flavor fish and shellfish in Cook Inlet. (A 1).

310. Pollution of Cook Inlet due to shipping traffic. (K 1).

311. Fish have died in streams near other Dow Chemical plants. (A 1).

312. I'm concerned that in cleaning the sewage, the people aren't evaluating the net environmental effect on the municipality. (A 1).

Environmental Impact

313. Environmental impact. (A 1).

314. In Denver it's the people who cause the pollution, not the plants. (A 1).

315. Technology can help to keep the environment around plants clean. (A 1).

Environmental Impact (Continued)

316. Pollution on the East coast has been improved - it's much less now. (A 2).

317. Environmentalists helped make the pipeline the safest project in years. But the nature of petrochemical development makes a repeat performance unlikely. (A 1).

318. Environmentalists fought the pipeline and were proved wrong. I feel they will be proved wrong again. (A 1).

319. Wildlife. (F 1).

320. Visual impact. (A 1).

321. I've been told by a person who grew up in Midland, Michigan that it has fake trees because real ones won't grow there. (M-S 2).

322. I'm concerned that Dow's - garlon - is being sprayed along the ARR by the State . Garlon is related to dioxin. (A 1).

323. Suggest Dow-Shell help at the next clean-up. (K 1).

324. Concerned with the evacuation of town in the event of a spill, explosion, etc. (V 1).

Health

325. Concerned about health hazards. (V 1, F 2, K 1, A 3).

326. Safe level of contamination. (A 1).

327. Benzene already exists in large quantities in unleaded gas. (A 1).

328. Exposure to benzene. (F 1).

329. Benzene's detrimental potential and its likelihood in this area. (F 1).

330. Concerned with cancer, leukemia, birth defects. (A 2).

331. Read April 11 Wall St. Journal re: brain cancer at the Dow plants! Why play Russian roulette now? (A 1).

332. Products mentioned in Wall St. Journal article will not be manufactured here. (A 1).

333. I think we all believe in safety and health factors in development. (M-S 1).

334. Dow presentation on health considerations be given to other proposed sites. (M-S 1).

335. Obtain adequate information from all possible sources including: OSHA, Chemical Workers Union, Individual victims of toxic waste, other similar site operations. (F 1).

336. A NIOSH or OSHA comparison of industrial accident rates and safety rates for petrochemical industry for workers. (A 1).

337. I'm concerned that when carcinogens are detected it is too late - the damage is already done. And only one is not worth the price. (A 1).

Health (Continued)

338. Concerned for long-term health of employees and nearby community. (A 1).

339. I think that state levels need to be lower than EPA's maximum exposure levels of potential carcinogens. (A 1).

340. Long half life of molecules. (A 1).

Transportation

341. Port safety with 250 tankers yearly. (A 1).

342. Transportation related hazards. (F 3).

343. Traffic on the Parks Highway. (F 1).

344. Increased handling and transfers from plant to rail to tanker means an increased danger of spills. (F 1).

345. Concerned about transportation - pro and con. (F 1).

346. Design plant to minimize automobile use. (F 1).

347. Public transportation improvement. (F 1).

348. To reduce auto impact Dow-Shell operate rapit transit. (F 1).

349. Recommend increase commuter transit service to the site OR provide land for residential development near the site. (F 1).

350. Increase transit and parking facilities (parking structures, plug-ins and strategies to reduce cold weather impacts). (F 1).

351. Describe the deep water port facilities planned to accomodate petrochemical development. (K 1).

352. Airport safety. (A 1).

Resource Use

353. Alaska has been selected because we have the resources. (A 1).

354. We should recognize petroleum resources belong to all citizens of Alaska and that they are paying for infra-structure as they would through property taxes. (A 1).

355. Energy efficiency. (F 1).

356. Concern that this industry perpetrates inefficiencies, excessive wastes and over consumption. (A 1).

357. We can ship gas liquids outside for petrochemical development. (A 1).

358. All royalty natural gas and liquids be shipped outside directly. This will help assure economic success of gas line. (A 1).

359. Concerned that the State will lose money using instate rather than shipping outside. (A 1).

Resource Use (Continued)

360. Many of the finished products are proven toxic to living things - they are still produced and widely used. Shows they continue to produce them for economic need. (A 1).

361. Concerned that natural gas liquids will be burned if not used in petrochemical process. (A 1).

Employment

362. Assurances of maximum local hire. (K 1, F 1, M-S 3).

363. What is an "Alaskan" for employment purposes. Everyone Dow-Shell brings up will become an Alaskan. (A 1).

364. Employers and/or supervisors will want to employ workers they've worked well with before. (M-S 1).

365. If anyone has ambition, they can find a job somewhere until they find something better. (M-S 1).

366. I've lived here 22 years and have had trouble getting local employment and want to see more than just a bedroom community. (M-S 1).

367. We have to build industry to keep our children employed. (M-S 2).

368. Use 1 Alaskan for every outsider in employment. (M-S 1).

369. Positive aspects of permanent jobs. (K 1).

370. Indemnity clause for workers - in case the plant doesn't go through. (K 1).

371. Jobs are promised, but our unemployment rate stays the same (influx of workers?). (A 1).

372. Immediate decisions are not thought out. The State makes decisions in matters like this based on speculators suggestions, creating jobs for unskilled workers. (A 1).

373. Do not want to work in petrochemical development, nor for my children. (A 1).

374. Concern over large importation of outside workforce. (F 1, M-S 2).

375. Urged to use Alaskan labor and training programs for Alaskans. (F 1, A 1).

376. Definite plan for manpower training. (K 1).

377. We have educated students in high technology what do we expect them to do after graduation if not to go into the petrochemical industry? (A 1).

378. The petrochemical plant should be some place in Alaska to create private employment. (S 1, A 1).

379. Some outsiders who work in Alaska don't spend money here. (M-S 1).

Relationships to Other Industries

380. Concerned with Fire Island plant and related industry spawned by the first plant. (A 1).

381. The effects of secondary and tertiary development associated with the project as defined in the initial feasibility project. (A 1).

382. Site selection should not conflict with renewable resource production, i.e., timber, agriculture. (F 1).

383. Effect on the natural gas pipeline. (F 1).

384. Concerned that the slide show presented petrochemical development as competitive with the gas line - for financing - not true. (A 1).

385. Affect of fishing on industry, witness Japan. (A 1).

386. Petrochemical development conflicts with the tourist industry. I would like to see the tourist industry. (A 5).

387. Petrochemical development at Pt. MacKenzie precludes other natural resource development, i.e., coal, timber, livestock. (M-S 1).

388. Expansion of Fire Island fills up. (A 1).

389. Is this the first step toward the industrialization of Alaska. (A 1).

390. Concern that this project will open floodgates to other hazardous industries. (A 1).

Other Economic Considerations

391. Concern that petrochemical development will promote another "Boom or Bust" economy and will NOT promote a secure economy. (A 2).

392. I'm questioning the concept of "increased property values". (K 1).

393. I'm concerned that property taxes will increase as a result of petrochemical development. (A 1).

394. Concerned over increased land prices. (F 1).

395. Instability of the Fairbanks economy. (F 1).

Social Impact

396. Impact of increased population on community resources (schools, health facilities, roads, housing). (F 1, A 1, K 1).

397. The quality of life needs to be addressed adequately from various angles: water and air standards, socio-cultural conditions, toxic waste exposure. (F 1, A 2).

398. Concerned about the social climate and the lifestyle. (K 2, F 1).

399. Quality of life. (K 1, A 1).

400. Impact on local government services. (F 1, K 1).

401. There is not adequate space to accomodate the increase in people - (schools, houses, work, etc.). (A 1).

Social Impact (Continued)

402. Concerned about the economic costs to the community, i.e., utilities and services. The profits will all go to Dow and the community will be left with the bill. (A 1).

403. Concerned about the increased crime rate (as it was with TAPS) that petrochemical development will bring. (A 1).

404. Even though other locations may be preferable the impact on housing and schools will be less in the Anchorage area. (A 1).

405. What is so great about hugh population increaes? (A 1).

406. Build a more stable, larger community college. (K 1).

407. Funds to meet preliminary growth. (K 1).

408. The Kenai Peninsula is a fishing and hunting area - it cannot stand additional population pressure. We're already fighting over salmon, hunting and the Alaska lifestyle. (K 1).

409. Fearful that a large increase of poplation will change our present lifestyle. (K 3).

410. Make provisions for company housing by furnishing financing, fund utility systems, city fire trucks and sell excess power. (K 1).

411. No more out of state chains. (K 1).

412. Too much competition for local business. (K 1).

413. Present standard of living requires petrochemicals. Are we willing to change our standard of living? (M-S 1).

414. Psychological affects on people living here with petrochemical plant. (M-S 1).

415. Impact on local residents in the immediate site area. (F 1).

416. The possibility that the Fairbanks lifestyle would be changed drastically - a negative connotation. (F 1).

417. Crime rate! (F 1).

418. Concern that a plant in the Tanana Flats/Bonanza Creek will result in urban sprawl along the Parks Highway. (F 1).

419. Prospect of Fairbanks becoming a "company town". (F 1).

420. Residents chose a rural area - need to protect the rural lifestyle. (F 1).

APPENDIX C

Detailed Survey Results

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
1. Being Near Family									
Really Like	29%	45%	31%	35%	31%	36%	36%	48%	38%
Like	24	13	18	22	26	8	20	20	20
Doesn't Matter	24	25	27	25	23	29	16	15	21
Not Available, But Like	23	17	24	18	20	27	28	17	21
	100%	100%	100%	100%	100%	100%	100%	100%	100%
2. Being Near Friends									
Really Like	45%	56%	49%	45%	50%	46%	55%	38%	43%
Like	37	36	39	39	41	46	29	49	42
Doesn't Matter	14	8	10	13	6	4	12	7	10
Not Available, But Like	4	--	2	3	3	4	4	6	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%
3. Nearby Hunting & Fishing									
Really Like	43%	64%	49%	52%	45%	40%	57%	54%	48%
Like	23	28	32	27	33	36	21	28	27
Doesn't Matter	21	4	14	13	19	18	16	13	17
Not Available, But Like	11	4	--	7	3	6	4	4	7
	100%	100%	100%	100%	100%	100%	100%	100%	100%
4. Nearby Outdoor Recreation									
Really Like	53%	60%	49%	50%	45%	44%	55%	54%	52%
Like	36	32	35	32	42	47	27	29	34
Doesn't Matter	6	4	10	13	9	5	12	6	6
Not Available, But Like	5	4	4	5	4	4	6	11	6
	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
5. Being Part of a Small Community									
Really Like	36%	60%	51%	59%	49%	52%	55%	60%	49%
Like	28	28	39	33	38	30	27	29	29
Doesn't Matter	18	12	10	7	12	13	18	9	14
Not Available, But Like	18	--	--	1	1	5	--	2	8
	100%	100%	100%	100%	100%	100%	100%	100%	100%
6. Opportunity to have a Challenging or Exciting Job									
Really Like	48%	36%	10%	23%	34%	41%	33%	34%	40%
Like	34	34	31	19	32	32	18	27	30
Doesn't Matter	12	11	19	29	17	15	25	14	14
Not Available, But Like	6	19	35	29	17	12	24	25	16
	100%	100%	100%	100%	100%	100%	100%	100%	100%
7. Being Away From Urban Problems									
Really Like	28%	64%	47%	56%	58%	42%	65%	48%	41%
Like	32	26	43	30	25	31	23	29	30
Doesn't Matter	10	8	8	10	14	21	10	15	13
Not Available, But Like	30	2	2	4	3	6	2	8	16
	100%	100%	100%	100%	100%	100%	100%	100%	100%
8. Opportunity to Earn a High Income									
Really Like	47%	37%	13%	12%	46%	43%	16%	24%	35%
Like	34	22	30	22	28	29	12	26	29
Doesn't Matter	14	25	24	33	12	16	33	21	19
Not Available, But Like	5	16	33	33	14	12	39	29	17
	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
9. Long-Term Economic Opportunity									
Really Like	41%	26%	11%	21%	34%	29%	16%	30%	33%
Like	38	38	38	22	37	42	22	33	35
Doesn't Matter	14	20	13	20	12	17	31	22	18
Not Available, But Like	7	16	36	37	17	12	31	15	14
	100%	100%	100%	100%	100%	100%	100%	100%	100%
10. Having a Chance to be Independent, To Start Something New									
Really Like	53%	41%	26%	38%	42%	59%	47%	39%	48%
Like	34	35	32	37	35	26	25	29	31
Doesn't Matter	10	12	21	11	10	10	16	14	12
Not Available, But Like	3	12	21	14	13	5	12	18	9
	100%	100%	100%	100%	100%	100%	100%	100%	100%
11. Having Neighbors I Can Count One									
Really Like	50%	50%	52%	48%	52%	47%	65%	49%	50%
Like	31	38	39	36	38	42	25	38	35
Doesn't Matter	10	8	9	8	6	8	4	9	9
Not Available, But Like	9	4	--	8	4	3	6	4	6
	100%	100%	100%	100%	100%	100%	100%	100%	100%
12. Having a Chance to be Self-Reliant, to Live More of a Subsistence or Pioneer's Lifestyle									
Really Like	33%	39%	36%	36%	25%	32%	53%	45%	38%
Like	24	39	31	24	27	37	23	25	30
Doesn't Matter	28	22	28	31	38	22	22	18	24
Not Available, But Like	15	--	5	9	10	9	2	2	8
	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
1. Number of Jobs in Your Community Related to the Oil and Gas Industry									
Like Increase	68%	74%	85%	78%	77%	79%	69%	68%	70%
Necessary Evil	26	16	9	11	13	12	17	20	21
Don't Like Increase	6	10	6	11	10	9	14	12	9
	100%	100%	100%	100%	100%	100%	100%	100%	100%
2. Number of Jobs in Your Community Related to Tourism and Recreation									
Like Increase	83%	72%	89%	87%	83%	83%	67%	53%	72%
Necessary Evil	10	16	7	8	11	11	17	30	17
Don't Like Increase	7	12	4	5	6	6	16	7	11
	100%	100%	100%	100%	100%	100%	100%	100%	100%
3. Number of Jobs in Your Community Related to Logging									
Like Increase	66%	50%	83%	71%	55%	71%	81%	59%	65%
Necessary Evil	18	23	11	11	12	13	4	26	19
Don't Like Increase	16	27	6	18	33	16	15	15	16
	100%	100%	100%	100%	100%	100%	100%	100%	100%
4. Number of Jobs in Your Community Related to Fishing									
Like Increase	77%	78%	89%	80%	92%	77%	80%	84%	80%
Necessary Evil	10	10	2	8	1	6	6	6	8
Don't Like Increase	13	12	9	12	7	17	14	10	12
	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
5. Number of Jobs in Your Community Related to Agriculture									
Like Increase	93%	94%	90%	94%	93%	91%	90%	79%	88%
Necessary Evil	5	4	4	4	1	3	2	10	6
Don't Like Increase	2	2	6	2	6	6	8	11	6
	100%	100%	100%	100%	100%	100%	100%	100%	100%
6. Number of Jobs in Your Community Related to Government									
Like Increase	27%	14%	28%	23%	30%	22%	24%	49%	33%
Necessary Evil	35	48	44	42	45	42	37	33	36
Don't Like Increase	38	38	28	35	25	36	39	18	31
	100%	100%	100%	100%	100%	100%	100%	100%	100%
7. Number of Job Opportunities For You									
Like Increase	87%	85%	83%	82%	81%	89%	76%	86%	86%
Necessary Evil	4	6	6	8	5	5	4	8	6
Don't Like Increase	9	9	11	10	14	6	20	6	8
	100%	100%	100%	100%	100%	100%	100%	100%	100%
8. Number of People Living In Your Community									
Like Increase	20%	20%	40%	34%	43%	27%	33%	29%	25%
Necessary Evil	45	48	31	38	38	35	37	34	39
Don't Like Increase	35	32	24	28	19	38	30	37	36
	100%	100%	100%	100%	100%	100%	100%	100%	100%

	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
9. Number of Stores In Your Community									
Like Increase	51%	76%	72%	66%	88%	59%	72%	66%	60%
Necessary Evil	26	22	19	17	6	19	12	16	21
Don't Like Increase	23	2	9	17	6	22	16	18	19
	100%	100%	100%	100%	100%	100%	100%	100%	100%
10. Quality of Public Services Like Schools and Water Supplies									
Like Increase	90%	70%	90%	77%	85%	92%	70%	85%	86%
Necessary Evil	6	22	6	14	7	5	10	7	8
Don't Like Increase	4	8	4	9	8	3	20	8	6
	100%	100%	100%	100%	100%	100%	100%	100%	100%
11. Number of Cultural and Recreational Activities Available in Your Community									
Like Increase	90%	82%	100%	88%	89%	92%	84%	85%	88%
Necessary Evil	3	10	--	6	3	3	6	7	5
Don't Like Increase	7	8	--	6	8	5	10	8	7
	100%	100%	100%	100%	100%	100%	100%	100%	100%
12. The Amount of Money You Must Pay in Property Taxes									
Like Increase	1%	2%	2%	3%	1%	4%	2%	5%	3%
Necessary Evil	22	34	38	25	37	25	30	27	25
Don't Like Increase	77	64	60	72	62	71	68	68	72
	100%	100%	100%	100%	100%	100%	100%	100%	100%

		Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
13.	The Cost of Living in Your Community									
	Like Increase	--%	6%	--%	--%	--%	2%	2%	3%	1%
	Necessary Evil	17	22	20	23	22	27	24	29	23
	Don't Like Increase	83	72	80	77	78	71	74	68	76
		100%	100%	100%	100%	100%	100%	100%	100%	100%
14.	The Distance You Have To Go To Find Good Hunting and Fishing									
	Like Increase	2%	2%	2%	2%	3%	3%	2%	6%	4%
	Necessary Evil	10	15	11	13	20	19	12	15	13
	Don't Like Increase	88	83	87	85	77	78	86	79	83
		100%	100%	100%	100%	100%	100%	100%	100%	100%
15.	The Distance You Have To Go To Find Good Out-Door Recreation Opportunities									
	Like Increase	3%	14%	2%	3%	3%	6%	6%	8%	5%
	Necessary Evil	6	16	10	8	14	16	10	12	10
	Don't Like Increase	91	70	88	89	83	78	84	80	85
		100%	100%	100%	100%	100%	100%	100%	100%	100%
16.	The Amount of Air Pollution In Your Community									
	Like Increase	1%	--%	2%	--%	--%	--%	--%	1%	1%
	Necessary Evil	13	4	18	14	21	8	12	5	9
	Don't Like Increase	86	96	80	86	79	92	88	94	90
		100%	100%	100%	100%	100%	100%	100%	100%	100%

		Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
17.	The Amount of Water Pollution In Your Community									
	Like Increase	--%	--%	2%	--%	--%	1%	--%	3%	1%
	Necessary Evil	11	4	12	10	17	7	8	--	7
	Don't Like Increase	89	96	86	90	83	92	92	97	92
		100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
1. Number of Jobs in Your Community Related to the Oil and Gas Industry									
Decrease	15%	18%	8%	13%	22%	13%	6%	12%	14%
Stay About The Same	25	34	58	38	47	33	48	63	41
Increase Slowly	47	44	29	43	26	46	46	23	38
Increase Rapidly	12	4	5	6	4	8	--	2	6
Increase Very Rapidly	1	--	--	--	1	--	--	--	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%

With Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
1. Number of Jobs in Your Community Related to the Oil and Gas Industry									
Decrease	1	--	2	1	1	1	--	2	1
Stay About The Same	4	2	--	6	1	2	6	32	13
Increase Slowly	17	14	18	22	16	24	30	37	25
Increase Rapidly	62	61	58	57	63	59	56	26	49
Increase Very Rapidly	16	23	22	14	19	14	8	3	12
	100%	100%	100%	100%	100%	100%	100%	100%	100%

After Petro Description	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
1. Number of Jobs in Your Community Related to the Oil and Gas Industry									
Decrease	1	--	--	--	1	1	--	2	1
Stay About The Same	2	2	2	2	1	2	2	37	14
Increase Slowly	14	4	9	15	8	18	37	33	22
Increase Rapidly	45	64	32	43	42	40	35	19	35
Increase Very Rapidly	38	30	57	40	48	39	26	9	28
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
2. Number of Jobs in Your Community Related to Tourism and Recreation									
Decrease	5%	8%	2%	2%	4%	4%	--%	10%	6%
Stay About The Same	38	58	57	53	66	55	46	49	46
Increase Slowly	46	32	39	35	28	37	46	34	40
Increase Rapidly	10	2	2	7	2	4	8	7	7
Increase Very Rapidly	1	--	--	3	--	--	--	--	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%

With Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
2. Number of Jobs in Your Community Related to Tourism and Recreation									
Decrease	6%	2%	9%	6%	5%	2%	4%	--%	3%
Stay About The Same	16	20	11	30	21	31	38	32	25
Increase Slowly	35	47	40	40	42	48	30	48	41
Increase Rapidly	38	29	40	22	25	17	24	13	26
Increase Very Rapidly	5	2	--	2	7	2	4	7	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%

After Petro Description	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
2. Number of Jobs in Your Community Related to Tourism and Recreation									
Decrease	5%	8%	8%	8%	9%	3%	8%	3%	5%
Stay About The Same	14	16	15	25	18	24	18	30	21
Increase Slowly	40	32	40	38	43	48	25	46	42
Increase Rapidly	34	38	33	23	19	19	45	19	27
Increase Very Rapidly	6	6	4	6	11	6	4	2	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
3. Number of Jobs in Your Community Related To Logging									
Decrease	6%	6%	25%	6%	3%	2%	6%	15%	8%
Stay About The Same	74	86	67	74	88	78	77	58	70
Increase Slowly	19	8	6	19	9	18	15	21	19
Increase Rapidly	1	--	2	1	--	2	2	6	3
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
3. Number of Jobs in Your Community Related To Logging									
Decrease	5%	--%	7%	6%	4%	4%	6%	4%	5%
Stay About The Same	52	65	59	45	76	48	73	44	50
Increase Slowly	21	24	18	35	16	29	11	31	25
Increase Rapidly	18	11	16	13	1	17	6	19	17
Increase Very Rapidly	4	--	--	1	3	2	4	2	3
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
3. Number of Jobs in Your Community Related To Logging									
Decrease	6%	8%	12%	7%	10%	3%	6%	4%	6%
Stay About The Same	53	52	55	47	72	51	62	40	49
Increase Slowly	20	25	19	26	10	26	24	32	25
Increase Rapidly	16	11	12	18	7	15	6	24	17
Increase Very Rapidly	5	4	2	2	1	5	2	--	3
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
4. Number of Jobs in Your Community Related To Fishing									
Decrease	4%	2%	2%	3%	1%	3%	--%	7%	4%
Stay About The Same	64	68	69	74	62	89	55	66	68
Increase Slowly	28	24	25	19	33	8	41	26	25
Increase Rapidly	4	6	4	3	3	--	4	1	2
Increase Very Rapidly	--	--	--	1	1	--	--	--	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
4. Number of Jobs in Your Community Related To Fishing									
Decrease	23%	6%	18%	18%	22%	11%	10%	11%	16%
Stay About The Same	43	48	42	52	38	68	50	43	47
Increase Slowly	19	23	24	22	32	18	34	37	26
Increase Rapidly	13	21	16	8	4	3	6	9	10
Increase Very Rapidly	2	2	--	--	4	--	--	--	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
4. Number of Jobs in Your Community Related To Fishing									
Decrease	27%	14%	29%	23%	25%	9%	10%	10%	18%
Stay About The Same	39	43	43	49	39	70	49	51	48
Increase Slowly	23	31	22	19	27	12	33	30	25
Increase Rapidly	8	8	6	8	7	7	6	9	8
Increase Very Rapidly	3	4	--	1	2	2	2	--	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
5. Number of Jobs in Your Community Related To Agriculture									
Decrease	1%	2%	4%	8%	2%	1%	2%	2%	2%
Stay About The Same	61	74	88	41	86	44	71	79	63
Increase Slowly	33	24	6	44	10	46	25	19	31
Increase Rapidly	5	--	2	6	2	9	2	--	4
Increase Very Rapidly	--	--	--	1	--	--	--	--	--
	100%	100%	100%	100%	100%	100%	100%	100%	100%

With Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
5. Number of Jobs in Your Community Related To Agriculture									
Decrease	5%	6%	9%	11%	7%	2%	4%	4%	5%
Stay About The Same	40	51	54	25	70	21	62	68	46
Increase Slowly	35	29	26	47	18	50	32	26	35
Increase Rapidly	17	14	11	14	1	21	2	2	12
Increase Very Rapidly	3	--	--	3	4	6	--	--	2
	100%	100%	100%	100%	100%	100%	100%	100%	100%

After Petro Description	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
5. Number of Jobs in Your Community Related To Agriculture									
Decrease	9%	8%	4%	14%	13%	2%	4%	6%	7%
Stay About The Same	43	56	61	28	66	20	53	63	45
Increase Slowly	28	19	25	39	13	50	39	23	31
Increase Rapidly	16	15	10	17	7	23	2	8	14
Increase Very Rapidly	4	2	--	2	1	5	2	--	3
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
6. Number of Jobs in Your Community Related to Government									
Decrease	3%	2%	2%	3%	9%	4%	8%	5%	4%
Stay About The Same	48	66	76	45	62	55	64	58	54
Increase Slowly	38	28	22	39	26	37	26	29	34
Increase Rapidly	11	2	--	10	3	4	2	8	8
Increase Very Rapidly	--	2	--	3	--	--	--	--	--
	100%	100%	100%	100%	100%	100%	100%	100%	100%

With Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
6. Number of Jobs in Your Community Related to Government									
Decrease	1%	2%	--%	1%	2%	--%	--%	3%	2%
Stay About The Same	12	8	15	14	14	9	28	26	17
Increase Slowly	37	44	42	30	45	39	38	43	39
Increase Rapidly	37	38	41	44	29	42	30	25	33
Increase Very Rapidly	13	8	2	11	10	10	4	3	9
	100%	100%	100%	100%	100%	100%	100%	100%	100%

After Petro Description	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
6. Number of Jobs in Your Community Related to Government									
Decrease	1%	--%	--%	--%	1%	--%	2%	2%	1%
Stay About The Same	10	4	4	7	7	3	8	23	13
Increase Slowly	28	36	29	26	39	34	37	42	34
Increase Rapidly	41	42	53	41	42	46	45	31	39
Increase Very Rapidly	20	18	14	26	11	17	8	2	13
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
7. Number of Job Opportunities For You									
Decrease	5%	6%	9%	5%	14%	5%	10%	5%	5%
Stay About The Same	59	77	72	72	70	71	65	77	69
Increase Slowly	29	15	17	21	15	22	23	15	22
Increase Rapidly	6	2	2	1	1	2	2	3	4
Increase Very Rapidly	1	--	--	1	--	--	--	--	--
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
7. Number of Job Opportunities For You									
Decrease	2%	--%	2%	2%	1%	1%	--%	--%	1%
Stay About The Same	27	29	20	29	22	22	40	43	32
Increase Slowly	25	25	22	29	23	37	32	32	29
Increase Rapidly	34	29	45	34	43	29	22	22	29
Increase Very Rapidly	12	17	11	6	11	11	6	3	9
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
7. Number of Job Opportunities For You									
Decrease	1%	2%	2%	--%	1%	3%	--%	--%	1%
Stay About The Same	26	19	19	16	21	11	27	39	28
Increase Slowly	26	21	13	29	14	34	27	34	30
Increase Rapidly	26	46	38	39	36	36	38	24	28
Increase Very Rapidly	21	12	28	16	28	16	8	3	13
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
8. Number of People Living In Your Community									
Decrease	4%	13%	6%	2%	12%	6%	--%	14%	7%
Stay About The Same	18	31	34	27	49	22	28	40	28
Increase Slowly	61	52	54	57	37	63	60	43	55
Increase Rapidly	16	4	4	13	2	9	12	3	10
Increase Very Rapidly	1	--	2	1	--	--	--	--	--
	100%	100%	100%	100%	100%	100%	100%	100%	100%

With Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
8. Number of People Living In Your Community									
Decrease	2%	--%	4%	2%	--%	--%	--%	3%	2%
Stay About The Same	2	2	2	3	1	2	6	19	8
Increase Slowly	17	14	13	23	11	27	34	44	28
Increase Rapidly	48	61	53	53	51	49	38	34	43
Increase Very Rapidly	31	23	28	19	37	22	22	--	19
	100%	100%	100%	100%	100%	100%	100%	100%	100%

After Petro Description	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
8. Number of People Living In Your Community									
Decrease	2%	--%	--%	--%	--%	--%	--%	3%	2%
Stay About The Same	1	--	2	2	2	22	22	24	9
Increase Slowly	13	8	6	13	5	18	18	43	24
Increase Rapidly	39	46	33	40	37	49	55	22	35
Increase Very Rapidly	45	46	59	45	56	31	25	8	30
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
9. Number of Stores in Your Community									
Decrease	3%	8%	4%	7%	10%	7%	4%	6%	5%
Stay About The Same	27	36	61	45	60	41	53	63	44
Increase Slowly	61	56	33	41	29	51	41	28	46
Increase Rapidly	8	--	--	7	1	1	2	3	5
Increase Very Rapidly	1	--	2	--	--	--	--	--	--
	100%	100%	100%	100%	100%	100%	100%	100%	100%

With Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
9. Number of Stores in Your Community									
Decrease	1%	--%	2%	1%	--%	--%	--%	3%	1%
Stay About The Same	4	4	13	5	4	6	14	38	16
Increase Slowly	42	48	46	45	49	53	54	49	47
Increase Rapidly	39	40	35	40	36	31	26	10	28
Increase Very Rapidly	14	8	4	9	11	10	6	--	8
	100%	100%	100%	100%	100%	100%	100%	100%	100%

After Petro Description	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
9. Number of Stores in Your Community									
Decrease	1%	--%	2%	--%	1%	--%	--%	--%	--%
Stay About The Same	5	--	6	3	2	2	10	35	15
Increase Slowly	34	44	20	33	36	44	51	51	42
Increase Rapidly	42	48	53	44	44	40	33	11	31
Increase Very Rapidly	18	8	19	20	17	14	6	3	12
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
10. Quality of Public Services like schools and water supplies									
Decrease	3%	--%	2%	1%	2%	2%	2%	9%	5%
Stay About The Same	59	72	67	48	65	52	49	54	56
Increase Slowly	36	28	27	48	30	45	45	31	36
Increase Rapidly	2	--	--	2	3	1	4	6	3
Increase Very Rapidly	--	--	4	1	--	--	--	--	--
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
10. Quality of Public Services like schools and water supplies									
Decrease	12%	16%	6%	8%	8%	11%	4%	3%	8%
Stay About The Same	27	8	23	25	21	19	27	27	25
Increase Slowly	38	52	40	40	41	47	39	59	47
Increase Rapidly	19	22	23	24	23	18	25	11	17
Increase Very Rapidly	5	2	6	4	8	5	6	--	4
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
10. Quality of Public Services like schools and water supplies									
Decrease	20%	22%	17%	14%	13%	14%	6%	--%	11%
Stay About The Same	17	6	9	14	12	17	8	29	21
Increase Slowly	31	36	19	29	36	43	41	51	40
Increase Rapidly	22	30	38	32	31	17	37	17	21
Increase Very Rapidly	10	6	17	11	8	9	8	3	7
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
11. Number of Cultural and Recreational Activities Available in your Community									
Decrease	1%	4%	4%	1%	2%	3%	0%	5%	3%
Stay About The Same	40	46	63	52	53	57	54	65	52
Increase Slowly	53	50	31	44	42	40	46	27	42
Increase Rapidly	6	0	2	2	2	0	0	3	3
Increase Very Rapidly	0	0	0	1	1	0	0	0	0
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
11. Number of Cultural and Recreational Activities Available in your Community									
Decrease	3%	6%	4%	4%	2%	3%	2%	3%	3%
Stay About the Same	19	14	15	20	15	19	29	32	24
Increase Slowly	43	52	47	56	51	58	53	53	50
Increase Rapidly	29	28	23	20	24	19	12	10	20
Increase Very Rapidly	6	0	11	0	8	1	4	2	3
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
11. Number of Cultural and Recreational Activities Available in your Community									
Decrease	4%	10%	2%	2%	4%	5%	0%	3%	4%
Stay About the Same	19	4	16	9	9	19	19	36	23
Increase Slowly	48	60	47	56	53	51	61	45	49
Increase Rapidly	23	26	23	31	25	18	16	13	19
Increase Very Rapidly	6	0	12	2	9	7	4	3	5
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
12. The Amount of Money You Must Pay in Property Taxes									
Decrease	10%	8%	11%	3%	3%	16%	6%	4%	9%
Stay About the Same	45	49	49	42	54	45	37	57	48
Increase Slowly	39	41	38	45	41	34	53	31	37
Increase Rapidly	6	2	2	8	2	5	4	4	5
Increase Very Rapidly	0	0	0	2	0	0	0	4	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
12. The Amount of Money You Must Pay in Property Taxes									
Decrease	29%	12%	17%	20%	32%	28%	12%	14%	23%
Stay About the Same	17	21	19	20	28	30	18	35	25
Increase Slowly	27	39	40	35	23	26	28	29	28
Increase Rapidly	19	16	17	21	13	9	34	18	18
Increase Very Rapidly	8	12	7	4	4	7	8	4	6
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
12. The Amount of Money You Must Pay in Property Taxes									
Decrease	22%	8%	18%	18%	31%	23%	12%	9%	17%
Stay About the Same	25	26	16	15	22	30	16	23	27
Increase Slowly	21	26	35	36	28	30	23	50	32
Increase Rapidly	22	26	20	26	13	11	45	8	18
Increase Very Rapidly	10	14	11	5	6	6	4	0	6
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
13. The Cost of Living in Your Community									
Decrease	1%	2%	4%	0%	1%	1%	0%	0%	1%
Stay About the Same	25	38	43	26	38	21	24	29	26
Increase Slowly	58	58	51	62	52	69	68	52	58
Increase Rapidly	15	2	2	12	8	8	8	16	14
Increase Very Rapidly	1	0	0	0	1	1	0	3	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
13. The Cost of Living in Your Community									
Decrease	5%	4%	21%	5%	9%	5%	0%	5%	5%
Stay ABout the Same	8	18	19	14	10	16	4	14	11
Increase Slowly	36	44	36	49	36	39	64	43	41
Increase Rapidly	36	22	17	30	26	31	24	32	33
Increase Very Rapidly	15	12	7	2	19	9	8	6	10
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
13. The Cost of Living in Your Community									
Decrease	3%	2%	22%	4%	9%	3%	0%	3%	3%
Stay About the Same	7	12	16	14	11	10	2	23	13
Increase Slowly	34	38	31	40	32	47	49	37	38
Increase Rapidly	36	34	21	32	30	27	39	29	32
Increase Very Rapidly	20	14	10	10	18	13	10	8	14
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
14. The Distance You Have to Go to Find Good Hunting and Fishing									
Decrease	1%	6%	0%	5%	0%	5%	8%	3%	3%
Stay About the Same	58	66	83	61	85	57	53	69	62
Increase Slowly	28	24	15	22	15	37	23	22	26
Increase Rapidly	10	4	2	9	0	1	14	4	7
Increase Very Rapidly	3	0	0	3	0	0	2	2	2
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
14. The Distance You Have to Go to Find Good Hunting and Fishing									
Decrease	3%	10%	4%	5%	6%	6%	8%	8%	6%
Stay About the Same	27	30	44	35	52	33	32	51	36
Increase Slowly	22	26	17	19	25	28	14	30	25
Increase Rapidly	24	26	31	27	12	22	34	8	19
Increase Very Rapidly	24	8	4	14	5	11	12	3	14
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
14. The Distance You Have to Go to Find Good Hunting and Fishing									
Decrease	3%	4%	2%	5%	3%	1%	4%	8%	4%
Stay About the Same	22	20	37	32	44	29	31	50	34
Increase Slowly	25	36	25	19	23	36	10	28	27
Increase Rapidly	27	26	20	26	21	22	31	9	20
Increase Very Rapidly	23	14	16	18	9	12	24	5	15
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
15. The Distance You Have to Go to Find Good Outdoor Recreation Opportunities									
Decrease	2%	2%	4%	2%	0%	5%	0%	3%	3%
Stay About the Same	67	72	88	72	89	59	84	80	72
Increase Slowly	21	26	6	19	9	35	10	15	20
Increase Rapidly	8	0	2	5	2	1	6	2	4
Increase Very Rapidly	2	0	0	2	0	0	0	0	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
15. The Distance You Have to Go to Find Good Outdoor Recreation Opportunities									
Decrease	3%	8%	13%	5%	7%	4%	0%	5%	4%
Stay About the Same	38	42	50	46	58	37	64	60	47
Increase Slowly	24	28	11	24	23	32	12	27	26
Increase Rapidly	19	18	17	16	7	19	18	8	15
Increase Very Rapidly	16	4	9	9	5	8	6	0	8
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
15. The Distance You Have to Go to Find Good Outdoor Recreation Opportunities									
Decrease	4%	4%	6%	5%	4%	3%	2%	2%	3%
Stay About the Same	29	32	46	32	46	33	39	60	41
Increase Slowly	26	34	21	28	25	34	18	29	28
Increase Rapidly	23	18	15	22	17	22	22	6	17
Increase Very Rapidly	18	12	12	13	8	8	19	3	11
	100%	100%	100%	100%	100%	100%	100%	100%	100%

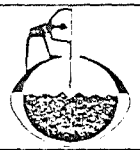
Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
16. The Amount of Air Pollution in Your Community									
Decrease	0%	4%	4%	0%	2%	4%	0%	2%	1%
Stay About the Same	48	74	81	71	79	49	74	76	60
Increase Slowly	43	22	15	26	17	47	22	21	34
Increase Rapidly	8	0	0	3	2	0	4	1	4
Increase Very Rapidly	1	0	0	0	0	0	0	0	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
16. The Amount of Air Pollution in Your Community									
Decrease	2%	2%	2%	1%	0%	1%	0%	4%	2%
Stay About the Same	13	25	18	27	20	18	38	43	26
Increase Slowly	38	43	48	38	42	36	32	35	37
Increase Rapidly	19	16	21	27	20	29	20	13	19
Increase Very Rapidly	28	14	11	7	18	16	10	5	16
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
16. The Amount of Air Pollution in Your Community									
Decrease	0%	0%	0%	1%	0%	1%	0%	3%	1%
Stay About the Same	8	18	11	19	18	13	33	43	22
Increase Slowly	29	46	49	49	47	46	30	47	39
Increase Rapidly	31	12	25	21	21	28	29	7	21
Increase Very Rapidly	32	24	15	10	14	12	8	0	17
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Without Petro	Anchorage	Kenai	Seward	Mat-Su	Valdez	Fairbanks	Remainder Kenai B.	Remainder State	Statewide
17. The Amount of Water Pollution in Your Community									
Decrease	1%	4%	2%	1%	2%	4%	0%	2%	2%
Stay About the Same	52	74	81	73	79	60	65	72	62
Increase Slowly	39	22	17	24	17	36	33	25	32
Increase Rapidly	7	0	0	2	2	0	2	1	3
Increase Very Rapidly	1	0	0	0	0	0	0	0	1
	100%	100%	100%	100%	100%	100%	100%	100%	100%
With Petro									
17. The Amount of Water Pollution in Your Community									
Decrease	4%	2%	2%	1%	1%	2%	0%	5%	3%
Stay About the Same	18	31	38	40	35	33	34	40	30
Increase Slowly	30	41	29	29	36	28	38	42	35
Increase Rapidly	24	20	20	24	13	25	18	10	19
Increase Very Rapidly	24	6	11	6	15	12	10	3	13
	100%	100%	100%	100%	100%	100%	100%	100%	100%
After Petro Description									
17. The Amount of Water Pollution in Your Community									
Decrease	1%	0%	0%	0%	0%	2%	0%	3%	1%
Stay About the Same	11	20	19	30	24	19	27	43	25
Increase Slowly	28	40	41	39	44	46	43	46	38
Increase Rapidly	31	22	17	23	18	21	20	8	21
Increase Very Rapidly	29	18	23	8	14	12	10	0	15
	100%	100%	100%	100%	100%	100%	100%	100%	100%

APPENDIX D

Questionnaire

Office use only



INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH
University of Alaska
Fairbanks, Alaska

STATE PETROCHEMICAL STUDY

SPRING 1981

1. Interviewer's ID Number _____ 2. Interviewer's Interview Number _____

3. Community _____ 4. Block (if applicable) _____

5. Line Number _____ 6. Phone Number _____

7. Mailing Address _____

8. Listing Description _____

_____

9. Letter Sent [1. YES] [5. NO]

10. Note Left [1. YES] [5. NO]

11. Call Record

DATE	DAY	TIME	WHAT HAPPENED	INTERVIEWER'S INITIALS
1st Call				
2nd Call				
3rd Call				
4th Call				

12. INTERVIEWER: BRIEFLY INTRODUCE YOURSELF AND PURPOSE OF SURVEY. ASK ANY AVAILABLE ADULT TO HELP YOU COMPLETE HOUSEHOLD LISTING.

	RELATIONSHIP OF EACH PERSON TO OLDEST PERSON	SEX	AGE	PERSON NUMBER	RESPONDENT "R"
PERSONS 18 YRS. OLD OR OLDER OR SPOUSE				1	
				2	
				3	
				4	
				5	
				6	
				7	
				8	

13. How many persons under 18 normally live here? [ ]

14. DETERMINE RESPONDENT TO BE INTERVIEWED →

IF THE NUMBER OF ADULTS IS:	INTERVIEW PERSON NO:
A	1
	2
	3
	4
	5
6 or more	1

TIME TO NEAREST MINUTE

SECTION A

GENERAL EXPECTATIONS

The State of Alaska is considering whether or not to encourage the growth of industries that use natural gas liquids to make chemical products. The State's decision will depend on whether the public supports the growth of petrochemical industries in Alaska and on whether it makes economic sense to locate petrochemical plants in the State. You have been randomly selected to be one of about 670 Alaskans who will represent the views of all Alaskans.

In this interview I will first ask you to describe how you think your community will change over the next ten years or so assuming that a petrochemical industry based on gas liquids does not develop in Alaska. Next, I will ask for your views assuming that a petrochemical industry does develop. It will then be my turn to give you more detailed information about what an Alaskan petrochemical plant may look like and what effects it may have. Afterwards, I will ask for your views a third, and last time.

A1a. Let's assume that a petrochemical industry based on gas liquids does not develop in Alaska. Using the categories on this card (HAND R CARD ONE) how would you expect the number of jobs in your community related to the oil and gas industry to change over the next ten years? (IF R SAYS THERE ARE NO SUCH JOBS NOW AND NONE ARE EXPECTED SAY: Ok, I'll write a zero to mean that this community characteristic doesn't apply in your community).

(RECORD R's ANSWER ON QUESTIONNAIRE AND ON SELF-ADMINISTERED FORM).

A1b. The most likely locations for petrochemical plants are Kenai, Seward, Fire Island in the Cook Inlet, Point MacKenzie across from Anchorage in the Matanuska-Susitna Borough and Valdez. Some development might occur in Fairbanks. A gas liquids pipeline would run from Prudhoe Bay to the Gulf of Alaska or the Cook Inlet.

Assuming no petrochemical development, you expected the number of jobs in your community related to the oil and gas industry would (R's PREVIOUS ANSWER). Lets now assume a petrochemical industry does develop (in your community/in your borough/in Alaska). What would your answer be now?

(RECORDS R's ANSWER ON QUESTIONNAIRE AND ON SELF-ADMINISTERED FORM).

A1c-p.

I am going to read a list of sixteen community characteristics like the one we just talked about -- the number of oil and gas-related jobs in your community. These two pages (HAND R SELF-ADMINISTERED FORM) show all the items. As you can see, I would like to know how you expect each community characteristic would change with and without petrochemical development. I will ask you to complete the third column later. As I read each item, please mark your two responses and tell me what they are so I can record them. To make this interview shorter, I am going to use the work petro to mean petrochemical development (in your community/in your borough/in Alaska).

How would you expect the number of jobs in your community related to tourism and recreation to change without petro? And with petro? (CONTINUE TO LIST, RECORDING R's ANSWERS. WHEN COMPLETED COMPARE FORMS TO MAKE SURE ANSWERS ARE THE SAME).

1. DECREASE
2. STAY ABOUT THE SAME
3. INCREASE SLOWLY
4. INCREASE RAPIDLY
5. INCREASE VERY RAPIDLY
8. DON'T KNOW
0. DOES NOT APPLY

	WITHOUT PETRO	WITH PETRO	AFTER PETRO DESCRIPTION
a. number of jobs in your community related to the OIL AND GAS INDUSTRY			
b. number of jobs in your community related to TOURISM AND RECREATION			
c. number of jobs in your community related to LOGGING			
d. number of jobs in your community related to FISHING			
e. number of jobs in your community related to AGRICULTURE			
f. number of jobs in your community related to GOVERNMENT			
g. number of JOB OPPORTUNITIES FOR YOU			
h. number of PEOPLE living in your community			
i. number of STORES in your community			
j. quality of PUBLIC SERVICES like schools and water supplies			
k. number of CULTURAL AND RECREATIONAL activities available in your community			
l. the amount of money you must pay in PROPERTY TAXES			
m. the COST OF LIVING in your community			
n. the distance you have to go to find good HUNTING AND FISHING			
o. the distance you have to go to find good OUTDOOR RECREATION opportunities			
p. the amount of AIR POLLUTION in your community			
q. the amount of WATER POLLUTION in your community			

A2. What other things may change in your community in the next ten years or so without petro?

_____

_____

(anything else?) _____

A3. What other things may change in your community in the next ten years with petro in Alaska?

_____

_____

(anything else?) _____

A4. Now I would like to find out how you feel about the types of community changes listed on the page I gave you. (HAND R CARD TWO). These are the response categories I would like you to choose from. Choose the first category if you want the community characteristic I mention to increase. Choose the second category if you think it is a necessary evil. That is, you do not want this characteristic to increase but that you think it will have to increase in order to make your community better. Please choose the third category if you especially do not want this community characteristic to increase.

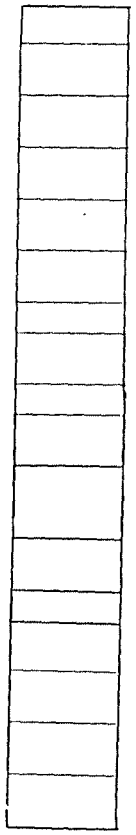
Which category best describes how you feel about increases in the number of jobs in your community related to the oil and gas industry? Please just give me the number of the response category you choose.

(CONTINUE WITH REMAINDER OF LIST)

A4b-p.

1. LIKE THIS TO INCREASE	2. INCREASE A NECESSARY EVIL	3. DON'T WANT THIS TO INCREASE

a. number of jobs in your community related to the OIL AND GAS INDUSTRY
b. number of jobs in your community related to TOURISM AND RECREATION
c. number of jobs in your community related to LOGGING
d. number of jobs in your community related to FISHING
e. number of jobs in your community related to AGRICULTURE
f. number of jobs in your community related to GOVERNMENT
g. number of JOB OPPORTUNITIES FOR YOU
h. number of PEOPLE living in your community
i. number of STORES in your community
j. quality of PUBLIC SERVICES like schools and water supplies
k. number of CULTURAL AND RECREATIONAL activities available in your community
l. the amount of money you must pay in PROPERTY TAXES
m. the COST OF LIVING in your community
n. the distance you have to go to find good HUNTING AND FISHING
o. the distance you have to go to find good OUTDOOR RECREATION opportunities
p. the amount of AIR POLLUTION in your community
q. the amount of WATER POLLUTION in your community



A5. Looking back over the past three years or so, would you say your community is now a better, a worse, or just as good a place for you to live?

1. BETTER	2. WORSE	3. JUST AS GOOD	8. DON'T KNOW

A6. Given what you expect to see change in your community over the next ten years assuming no petrochemical development in Alaska, would you say your community will be a better, a worse, or just as good a place for you to live as it is now?

1. BETTER	2. WORSE	3. JUST AS GOOD	8. DON'T KNOW

A7. Now, assuming a petrochemical industry did develop (in your community/ in your borough/in Alaska) in the next ten years, would you say your community would be a better, a worse, or just as good a place for you to live as it is now?

1. BETTER	2. WORSE	3. JUST AS GOOD	8. DON'T KNOW

A8. How much growth and development would you personally like to see in your community: a great deal, some, little, or none at all?

1. GREAT DEAL	2. SOME	3. LITTLE	4. NONE AT ALL

SECTION B

REVISED EXPECTATIONS

B1. Now I would like to talk more specifically about petrochemical development. Would you say you are very familiar with the petrochemical industry, somewhat familiar, just heard of the industry or never heard of the petrochemical industry?

1. VERY FAMILIAR
2. SOMEWHAT FAMILIAR
3. JUST HEARD OF IT
4. NEVER HEARD OF IT → Go to Q. B2

B1a. Have you ever lived in a place where there was a petrochemical plant nearby?

1. YES 5. NO 8. NOT SURE

B1b. Have you read any newspaper articles or heard news stories about the petrochemical study being conducted by the Dow and Shell Chemical Companies?

1. YES 5. NO 8. NOT SURE

B1c. Have you talked about petrochemical development with any of your friends and relatives?

1. YES 5. NO

B1d. Have you ever attended a meeting at which petrochemical development in Alaska was discussed?

1. YES 5. NO

B2. How many people do you think would work at a petrochemical plant (in your community/in your borough/in Alaska)? _____

B3. What products from a petrochemical plant based on gas liquids, if any, do you think would be available in Alaska? _____

B4. How much do you think the plant would cost to build? _____

B5. What kind of pollution, if any, do you think the plant would produce?

B6. If a chemical company makes a specific proposal for a petrochemical plant, the state will have to conduct detailed studies of the effects of the plant on the economy, the environment and on community life. What things do you think the state should pay particular attention to? _____

(anything else?)

TIME TO NEAREST MINUTE _____

INTERVIEWER: PROCEED WITH PETROCHEMICAL DESCRIPTION

B7. That finishes our description of what our experts believe is the most likely type of petrochemical plant. I have given you a lot of information to consider. Can I read any parts to you again? (RECORD PARAGRAPH NUMBERS OF THOSE REREAD) _____

B8. Is there anything I read that doesn't make sense to you or that you disagree with? What is that? _____

INTERVIEWER: IF YOU CANNOT HELP R BY REPEATING RELEVANT PARAGRAPHS AND NUMBERS, PLEASE EXPLAIN IN YOUR OWN WORDS:

Please don't feel uncomfortable if you don't understand, remember or agree with everything I read to you. I am not allowed to try to explain more than what I read to you. If I did that I might give you a wrong idea or I might say something different than what another interviewer might say. If you would like we can talk more about this after the interview.

TIME TO THE NEAREST MINUTE _____

B9. Are there any differences between what you expected a petrochemical development to be like and this description?

1. YES | 5. NO → GO TO Q. B10

B9a. What is different? _____

_____

_____

_____

(Anything else?) _____

_____

_____

B10. Now I would like you to complete the last column of the page you worked on before (MAKE SURE R HAS FORM). What number would you now choose for the number of jobs in your community related to the oil and gas industry? (CONTINUE WITH REMAINDER OF LIST, RECORDING ALL RESPONSES).

B11. What do you think would be the most important benefits of petrochemical development? _____

_____

_____

B12. What do you think would be the most important negative effects of petrochemical development? _____

_____

_____

B13. Based on what you know and what I have told you, would you say that, overall, petrochemical development in Alaska would make your community a better place for you to live, a worse place for you to live, or would it be just as good a place for you to live as it is now?

1. BETTER | 2. WORSE | 3. JUST AS GOOD | 8. DON'T KNOW

B14. If the state conducts a detailed study of the potential effects of a specific petrochemical plant, the study will address many topics. The state would like to know which of these topics deserve special attention. Which three topics listed on this card do you think deserve special attention (HAND R CARD THREE)?

	MENTIONED	NOT MENTIONED
a. employment		
b. transportation of chemicals		
c. air quality		
d. solid waste		
e. public health		
f. population		
g. public services		
h. water quality		

B15. Are there other topics we haven't mentioned that you think deserve special attention? (What are they?) _____

_____

B16. Should the state encourage petrochemical development in Alaska?

1. YES | 5. NO | 8. DON'T KNOW, DEPENDS

B17. If the Dow-Shell group decides that petrochemical development in Alaska makes sense, do you think the state should negotiate to sell the state royalty gas liquids to Dow-Shell?

1. YES | 5. NO | 8. DON'T KNOW, DEPENDS

B18. Most of the benefits of a petrochemical development in Alaska would occur in the communities near the plant's location. At the same time, the area's population would increase, requiring additional services like schools, electric power, water and sewer systems. The local government may not be able to finance all these services when they are first needed. Do you think the state should consider using state money to help provide these public services?

1. YES | 5. NO | 8. DON'T KNOW

SECTION C

BACKGROUND CHARACTERISTICS

C1. Now I would like to ask you a few questions about your own situation. How long have you lived in this community?

[ ] MONTHS [ ] YEARS [ ] ALL MY LIFE

C2. There are many things that people like about their community compared to other places they might live. I would like to read a list of items that you may or may not particularly like about your community. Please look at this card (HAND R CARD FOUR) and tell me the number of the category that best describes how you feel about each item. First, how do you feel about being near family in this community? (CONTINUE WITH LIST).

1. I REALLY LIKE THIS ABOUT MY COMMUNITY	2. I LIKE THIS ABOUT MY COMMUNITY	3. THIS DOESN'T MATTER TO ME	4. THIS ISN'T AVAILABLE IN MY COMMUNITY BUT I WOULD LIKE IT

a. being near family in this community	
b. being near friends	
c. nearby hunting and fishing	
d. nearby outdoor recreation opportunities	
e. being part of a small community	
f. the opportunity to have a challenging or exciting job	
g. being away from urban problems	
h. the opportunity to earn a high income	
i. long-term economic opportunity	
j. having a chance to be independent, to start something new	
k. having neighbors I can count on	
l. having a chance to be self-reliant, to live more of a subsistence or pioneer's lifestyle.	

C3. Would you be interested in working at a petrochemical plant if one were built in Alaska?

[1. YES] [5. NO] [8. NOT SURE, DEPENDS]

C4. What is the highest grade of school or year of college you have completed?

GRADES OF SCHOOL												COLLEGE				
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17 & OVER

C5. Are you registered to vote in Alaska?

[1. YES] [5. NO] → SKIP TO Q. C6

C5a. Did you vote in the Presidental election last November?

[1. YES] [5. NO] [8. CAN'T REMEMBER]

C5b. Did you vote in the last local elections held?

[1. YES] [5. NO] [8. CAN'T REMEMBER]

C6. Are you a member of a Native Regional Corporation?

[1. YES] [5. NO]

C7. Are you presently married?

1. YES | 5. NO → SKIP TO Q. C9

C8. Do you think (she/he) would be interested in working at a petrochemical plant if one were built in Alaska?

1. YES | 5. NO | 8. NOT SURE, DEPENDS

C9. In this interview we provided you with a lot of information. Do you think we should use this approach in other studies?

1. YES | 5. NO

C10. My supervisor will be verifying a few of the interviews that I do. Could you give me your telephone number (address if no phone)?

_____

_____

Thank you. These are all the questions I have. Do you have any concerns, comments or questions about this interview or petrochemical development that I can write down? _____

_____

_____

_____

_____

TIME TO NEAREST MINUTE _____

1970-1980 NET MIGRATION BY PLACE

CENSUS DIV	SIGN	PLACE SIZE	PLACES	1970 POP	BIRTH	DEATH	1970 % FEM	1970 % NAT	1970 % 15-35YRS	1980 POP	1980 % FEM	1980 % NAT	1980 % 15-35YRS	NET MIG
		2501-5000												
			BETHEL	2416	1017	219	50.3	76.7	18.2	3576	48.0	68.0	44.9	353
		#PLACES		1										
		TOTAL #PLACES		9										
	#PLACES			9										
	TOTAL #PLACES			21										
#PLACES				21										

what the state standards are. One thing we have to remember is that whatever industry comes into Alaska, be it the chemical industry or seafood processing industry, it must meet the standards that we set, and it is our job to provide them with the information on what those standards are. So he sees his role in that light.

I might just add that it is not all uncommon to find in private enterprise that companies compete with one another and proprietary information becomes absolutely vital in a competitive process. There are instances in which the state, for example, can have privileged information as part of exercising its responsibilities which is not made available to the public at large, but it is available to the state agency. This is certainly the case, for example, when oil companies are drilling test wells and trying to get information that might assist them in their oil and gas leasing. The state does have a record of the test results, but it can't be released for a specific period of time.

Martin Oaks (continued). Are the meetings recorded? Or transcribed? Will the record ever be made available to the public?

Pete Lehman. The working scenario is recorded. I don't know, once the study is over, and the final data is in. That is the final data that we are going to base our work on that will be a record to the State. You can read our progress reports too.

(35) Terry Deckler. I had posed this technical questions to Mr. Anderson (Dow), not publicly, but on a one-to-one basis, after the May 18th meeting on health hazards. It concerned the fact that I understand there are certain processes that are used to heat cooling water that use chromates. Chromates are supposed to be highly toxic, difficult to dispose of, and difficult to handle properly. I was told that, yes, indeed, chromates are used in some plants but that they were not going to be used in Alaska. Nor are they used in any of Dow's western regional plants. I then asked Mr. Anderson if he could tell me if they are used in any of Dow's plants. I was told I would get an answer, but I haven't; so I thought I would pose the question again.

Bill Anderson. Yes, we do use chromates, as I told you.

Terry Deckler (continued). My specific question was where do you use them?

Bill Anderson. I don't have that information at this time. We would use them, in principle, where it wouldn't hurt anything. In other words, where the water would be used for drinking. We wouldn't use them where they would be discharged in that case.

Terry Deckler (continued). Is it possible to get the information as to which Dow plants do use chromates?