MINUTES OF THE MEETING
TAXATION COMMITTEE
MONTANA STATE SENATE

April 3, 1985

The sixty-third meeting of the Senate Taxation Committee was called to order at 8:05 am by Chairman Thomas E. Towe in Room 413-415 of the State Capitol.

ROLL CALL: All members of the committee were present at roll call except Senator Brown who arrived at 8:17 am.

CONSIDERATION OF HB 652: Representative Dean Switzer, House District 28, was recognized as chief sponsor of the bill. The bill would allow reclamation as a deduction when figuring net proceeds taxes on nonmetal mines. He said these deductions are currently allowed by the Department and currently do not affect these mines because they are not yet at the reclamation stage.

PROPONENTS

Mr. Gary Langley, executive director of the Montana Mining Association, listed the mines that would be affected. He said that existing revenue will not be affected. He said the bill is not opposed by the Department or by the counties in which the companies operate.

Mr. Earl Lovick, W. R. Grace and Co., said that the law requires that the land be reclaimed to existing or better use. He said the present law on the matter of the deduction is silent. He said this would avoid any controversy when the time comes to deduct reclamation costs.

OPPONENTS

None were heard.

Questions from the committee were called for.

Senator Towe asked Mr. John LaFaver, Director of the Department of Revenue, if these costs were currently allowed. Mr. LaFaver said, yes. Mr. Don Hoffman of the Department of Revenue clarified that they are allowed under Section 2, sub b or sub c. He said Section 1 covers extraction costs. He said that no reclamation is currently being done. Mr. LaFaver said the bill will not change how these mines are assessed.

Senator Lybeck inquired about the general health of mining. Mr. Langley said that some companies are looking here for new mines. He said that mining has been suffering because of the price of metals. He said most industry people are optomistic. He noted that the tax has been increased for every session of the last decade.

Senator Eck clarified that the reason no reclamation is taking place now is that it is not timely.

Senator Mazurek asked why subsection J was stricken. Representative Switzer said it couldn't get enough votes. Senator Towe said the problem was that expenses incurred outside the state were being claimed. Senator Mazurek noted that this would tie taxation to Montana operations.

Mr. LaFaver said that the Department had not been enthusiastic about the bill as it was introduced. He said the bill said that administrative costs couldn't exceed 5 percent. He noted that W. R. Grace is currently in litigation with the Department for a claim far less than that. He said to keep the bill revenue neutral the figure would be .5 to 1 percent. Senator Towe said that these costs are disallowed in all other net proceeds deductions.

In closing, Representative Switzer said there is a need for the bill in terms of the long range planning of the mines. He said that to make the language statutory would be clarifying.

MOTION: Senator Halligan moved that HB 652 be concurred in. The motion carried unanimously. Senator Halligan volunteered to carry the bill.

CONSIDERATION OF HB 636: Representative Hubert Abrams, House District 14, was recognized as chief sponsor of the bill. He said that the bill requests a reduction in oil severance tax for oil produced by tertiary recovery methods. He said that the tertiary methods are most expensive and that the initial capitalization costs are very high. The advantage of using them is that the life of the mine is extended. He said the state would realize more in the long run in terms of employment and taxes. He said the bill had been worked on by the oil companies, the governor's office, the counties involved and the local communities.

PROPONENTS

Mr. Tucker Hill, representing Project 85, an organization of 80 oil and gas operators said they were instrumental in the development of of the Cedar Creek Anticline which would be the area where the tertiary methods would be used. He presented the committee with Exhibit 1 which explains the project involved.

He said that local governments supported the bill without exception. He said the bill extends the life of the existing fields and will recover about 50 percent more oil from the ground.

Mr. Jerome Anderson, Shell Western, referred to page 18 of Exhibit 1. He said the reduction in severance would only effect the incremental production indicated on that chart. He said there is serious question about whether Shell will continue with the project if the tax break is not available. This bill he said is an essential part of the whole project. He said the bill is acceptable to everyone.

Mr. George Keys, manager of production administration for the Rocky Mountain Division of Shell Western submitted written testimony (Exhibit 2).

Representative Marge Hart, House District 23, said that she was speaking in behalf of Glendive Forward, a group of independent businessmen. She said they support HB 636 whole heartedly. She said there will be immediate benefit in the area and the whole state. She said it would help stabilize the employment base in the area.

Representative Dean Switzer, House District 28, said that he concurred with Representative Hart's testimony.

Mr. Mike Stevens, representing the Association of Oil, Gas and Coal Counties, said that the amoritization amendment is essential or the tax base could be reduced in Fallon County by 50 to 60 percent.

Mr. Jim Stanton, representing Progress Baker and Fallon County, submitted written testimony in support of the bill. Mr. Stanton, superintendent of schools in Baker, said that speaking for the Board of Trustees, they can handle the impacts of the bill (Exhibit 3).

Mr. Mike Micone, Western Environmental Trade Association, spoke as a proponent of the bill.

Ms. Mary Cramer, Exxon Co., USA, said that without markets the pipeline that Exxon is building from Montana to North Dakota would not go through. She said that would represent $50 million invested in Montana and substantial local hiring.

Mr. Dale Kenitzer, representing Progress Baker, read a letter into the record (Exhibit 4).

Mr. Darwin Vandegraff, Montana Petroleum Association, said that his full membership endorses the bill. He said it represented maximum production and conservation to use an existing well to its full extent.

Mr. William Duffield, Fallon County Commissioner, said that his county and Wibaux County are strongly in favor of the bill. He said they need amortization.

Senator Larry Tveit, Senate District 36, said that 70 percent of the available oil is still in the ground. He said it is expensive to recover and Shell Oil needs the incentive which will result in jobs and an economic boost for the state.

Speaking neither as a proponent or an opponent, Mr. John LaFaver, Director of the Department of Revenue said that there are two elements in the bill. First, he said the amortization is essential. He said that whether a tax break is needed is arguable. He said if the price of oil rises it would be a profitable venture even without a tax break. He said the committee should be certain that the break is provided at the appropriate level.

Senator Goodover, Senate District 20, rose in support of the bill in behalf of the Great Falls Chamber of Commerce.

Mr. Anderson rose again to rebut the testimony of Mr. LaFaver. He said that the amount of investment will be one-fourth a billion dollars up front. He said there is a substantial risk factor. He said that historically costs increase with an increased market and he would caution the committee to understand that.

OPPONENTS

None were heard.

Chairman Towe recognized Mr. James Oppedahl, the Governor's Office of Budget and Program Planning, to speak on the bill. Mr. Oppedahl said that he had prepared the fiscal note on the bill and had worked with Shell Oil and the involved counties for months. He noted to the committee that there are large gaps in geological knowledge and that potential recovery would be reservoir specific. He said there are four smaller projects in Montana at this time.

Mr. Oppedahl said that different states handle the incentive differently. He said that Louisiana allows exempt severance tax until the well begins to pay. He said that Mississippi reduces the tax from 6 to 3 percent. He said Kansas exempts it totally and that Wyoming drops the severance tax from 6 to 4 percent for a five year period.

He said the federal incentives must also be examined. He said that the windfall profits tax is very significant as it drops to 30 percent for all production, even secondary. He said depending on the price of oil no windfall profits tax would be a possibility.

Mr. Oppendahl in conclusion discussed the tables in Exhibit 5 with the committee.

Questions from the committee were called for.

Senator Hirsch asked Mr. Keys about the possibility of an absence of windfall profits tax. He said that the reduced federal windfall profits tax is calculated on the price of oil, and as the price goes down so does the tax. He said that windfall profits taxes will phase out in the 1990s. He said this bill is designed to prompt the operator to do the project. He said that there are any number of ways possible, but that this one tried to come up with something reasonable, and workable for all.

Senator Towe asked why the tax base in Fallon County would be so severely affected. Mr. Keys said that the more dollars spent the less paid in net proceeds.

Mr. Anderson added that there is a reduction in total production in the first years and that in Fallon County 100 percent of the recovery would be tertiary. Mr. Keys said the process is that wells are converted from production to the injection of the CO^2 and that flowing takes months. He said under current law all are allowable deductions on net proceeds.

Senator Towe clarified that the deductions are taken on a unit by unit basis and not overall through the company.

Mr. Stevens noted that in Fallon County 83 percent of the tax base is from net proceeds tax. He said any alteration of production has great impact on the county.

In response to a question by Senator Towe, Mr. Keys said that if the prices of oil increases all other figures would be different as well. He said the project would only be workable if oil prices were rising faster than inflation was increasing costs. Mr. Anderson said the whole thing was critically designed and that if the incentive was not provided the project would not go.

Senator Towe asked if the project would be more feasible later. Mr. Anderson responded that if it was not done now it could not be done as tertiary recovery would not work beyond a certain time in the life of the field.

Senator Neuman asked if the Cedar Creek project was essential to the Exxon pipeline. Ms. Cramer responded that this is key, but is not the only project necessary for the pipeline.

The committee discussed the nature of carbon dioxide and its importance to this project. Mr. Anderson said that a 50-year period of carbon dioxide supply is necessary for the project. Mr. Vandegraaf said he would supply the committee with a map of CO_2 deposits. Ms. Cramer said that according to a recent University of Wyoming study there are no substantial deposits of carbon dioxide in Montana.

Senator Towe asked if the provisions of the bill could be negated when oil prices reached $30 per barrel. Mr. Vandergraaf said that would be okay if costs were also frozen at the current level. Senator Towe suggested that it could be indexed and tie the price of oil to the inflation rate.

Mr. Oppedahl supplied the commitee with a copy of the Wyoming bill on the same subject (Exhibit 6).

Representative Abrams closed saying that the bottom line is 2.5 percent of something or 5 percent of nothing.

Chairman Towe adjourned the meeting at 9:57 am.

Thomas E. Towe

Chairman, Thomas E. Towe

ROLL CALL

SENATE TAXATION COMMITTEE

49th Legislative Session -- 1985

Date April 3, 1985

Location -- Room 413-415

Name	Present	Absent	Excused
Senator Brown	8:17		
Senator Eck	✓		
Senator Goodover	✓		
Senator Hager	✓		
Senator Halligan	✓		
Senator Hirsch	✓		
Senator Lybeck	✓		
Senator Mazurek	✓		
Senator McCallum	✓		
Senator Neuman	✓		
Senator Severson	✓		
Senator Towe	✓		

DATE April 3, 1985

COMMITTEE ON Taxation

VISITORS' REGISTER

NAME	REPRESENTING	BILL #	Check One: Support	Oppose
[illegible]	Shell Pipeline E&P	HB636	✓	
George Kemp	Shell Western E&P	HB636	✓	
Jack Doyle	Shell Western E&P	"	✓	
Tucker Hibbard	Project 85	HB636	✓	
Mary A Langley	MT. Mining Assn	HB652	✓	
Wm. J. McGAIL	W. R. GRACE & Co.	HB652	✓	
Earl J Loendorf	W. R. Grace & Co	HB652	✓	
D. VANDEGRIFT	MT Petroleum Assn - WRTA	HB636	✓	
Mike Micone		HB652 HB636	✓ ✓	
William Doffield	Fallon County	HB636	✓	
Mike Stephens	MT Oil Gas & Oil Co.	HB636	+	
Rep Marge Hart	Dist #23	HB636	✓	
Del Kemitzer	progress Bakr & 2 others Co.	HB636	✓	
Mary Cramer	Exxon Co., USA	HB636	✓	
Rep Dean Switzer	HD #28	HB636	✓	
Jim Stanton	Supt. District #12	HB636	✓	
Sen. Tony Trail	Dist 11 Fairview	HB636	✓	

(Please leave prepared statement with Secretary)

ROLL CALL

SENATE TAXATION COMMITTEE

49th Legislative Session -- 1985

Date April 3, 1985

Location -- Room 413-415

Name	Present	Absent	Excused
Senator Brown	8:17		
Senator Eck	✓		
Senator Goodover	✓		
Senator Hager	✓		
Senator Halligan	✓		
Senator Hirsch	✓		
Senator Lybeck	✓		
Senator Mazurek	✓		
Senator McCallum	✓		
Senator Neuman	✓		
Senator Severson	✓		
Senator Towe	✓		

NAME George Keys BILL NO. HB 636

ADDRESS Houston, Tx. DATE 4/3/85

WHOM DO YOU REPRESENT Shell Western E&P

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments:

NAME Jerome Anderson BILL NO. HB 636

ADDRESS Billings Mt. DATE 4/3/85

WHOM DO YOU REPRESENT Shell Western E+P.

SUPPORT ✓ OPPOSE _____ AMEND _____

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments:

BACKGROUND INFORMATION:

INCREASING MONTANA'S OIL PRODUCTION
BY
ENCOURAGING ENHANCED RECOVERY PROJECTS

POTENTIAL IMPACTS
OF PROPOSED CARBON DIOXIDE PROJECT
IN EASTERN MONTANA'S CEDAR CREEK ANTICLINE

Exhibit 1 -- HB 636
April 3, 1985

February 4, 1985

XAK850321

CONTENTS

		Page
A.	GENERAL INFORMATION	1
	What is enhanced oil recovery?	2
	Objective of Discussion	5
	Current Energy Situation in Montana	6
	Current CO_2 Activity in Other States	7
	Potential for CO_2 Flooding in Montana	8
	Oil Recovery Potential by CO_2 in Montana	11
	Barriers to CO_2 Projects	12
	Proposal	13
B.	PROPOSED CEDAR CREEK ANTICLINE PROJECT	14
	Overall Potential Impacts of Proposed Cedar Creek Anticline Project	15
	Map of Cedar Creek Anticline	16
	Status and Schedule	17
	Chart of Estimated Production	18
	Chart of Estimated State Revenue	19
C.	ESTIMATED COUNTY IMPACTS	20
	Table of Estimated Effect on County Net Proceeds Taxes	21
D.	BACKGROUND	22
	Fact Sheet - Shell Western E&P Inc.	23
	News Release - Shell Western Officials Reveal Potential for Major Investment in Eastern Montana	25

Shell Western E&P Inc.
A Subsidiary of Shell Oil Company

P.O. Box 576
Houston, TX 77001

NOTICE:

The information contained in this report is based on preliminary estimates made in May 1984. It is important that the reader understand that these estimates may be revised in the future as more data is acquired. Actual results may vary substantially from these preliminary estimates.

GENERAL INFORMATION

American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005
202-682-8128

response

R-294 September 28, 1984

Q. What is enhanced oil recovery? If it can increase U.S. energy supplies, why aren't the oil companies doing more of it?

A. Enhanced recovery techniques involve the use of various fluids, chemicals, heat or combinations of these to get more of the oil from underground reservoirs than conventional methods permit. The technology is well-developed for some of the more commonly used methods, such as injection of water or gas into a petroleum reservoir to push the oil out. (This is often referred to as secondary recovery methods -- the term "enhanced recovery" includes secondary and more advanced recovery methods.)

The feasibility of enhanced recovery methods depends on the cost of the equipment and supplies required, the market price of oil and other economic factors, including government tax policies. Obviously, no one can afford to produce oil if costs exceed what can be earned from selling the oil.

U.S. oil companies are investing billions of dollars in research and in application of enhanced recovery techniques. The domestic petroleum industry will spend an estimated $38 billion on enhanced recovery during the 1980s. Currently, there are close to 400 enhanced oil recovery projects in the United States, accounting for an estimated 5 to 6 percent of total U.S. crude oil production.

In addition to the petroleum industry, the federal government, universities and leading research institutions are seeking better recovery methods. With continued research, technological advances and adequate investments of time, manpower and money, enhanced recovery methods can increase future U.S. oil output significantly.

Background

Crude oil is not found in large underground lakes or pools. Rather, a petroleum reservoir consists of a porous rock formation within which tiny droplets of oil are trapped, frequently in association with water and natural gas. When a well is drilled into such a formation, natural pressures within the reservoir are often strong enough to send the oil and gas up the well bore to the surface, at least for a short time. Relying on natural pressures is called primary recovery. Later, various pumping

systems may be used to keep the petroleum flowing. These conventional methods recover, on average, about one-third of the oil in the reservoir.

Enhanced Production

Without enhanced recovery, the rest would be left in the ground. The National Petroleum Council, an advisory committee to the U.S. Department of Energy, estimates that from the beginning of the domestic petroleum industry in 1859 through 1982, drillers discovered 481 billion barrels of oil in the United States. Some 130 billion of those barrels were produced through 1982, with an additional 28 billion barrels of proved oil reserves believed to be producible in time under current technological and economic conditions. With improved methods, much of the remaining 323 billion barrels of oil may be recoverable to meet America's future energy requirements.

A recent National Petroleum Council study estimated that in the next 30 years[1] currently producing fields in the United States will produce about 28 billion barrels of oil of which about 3.5 billion barrels will be produced through currently implemented enhanced recovery projects. Assuming a constant crude oil price of $30 a barrel (in 1983 dollars) throughout the next 30 years and a minimum discounted cash flow rate of return of 10 percent, the study estimated that some 11 billion barrels could be added to the domestic crude oil supply by successfully applying existing enhanced oil recovery methods to currently producing fields.

The study also estimated that, with significant technological advances and favorable economic conditions, enhanced recovery methods may increase the nation's recoverable oil an additional 27.5 billion barrels -- 90 percent over the base economic case cited above. And the study added that future increases in oil prices could provide additional incentives for investment in enhanced oil recovery projects and lead to even more complete oil recovery.

A recent survey by the Oil & Gas Journal counted 373 enhanced recovery projects in the United States, with a total productive capacity of 461,000 barrels a day, plus 73 other projects scheduled to begin operating before 1984 ends.[2] The projects are in 19 states, with a few projects also located in offshore fields in the Gulf of Mexico and off California.

1/ Enhanced Oil Recovery, National Petroleum Council, June 1984.

2/ "EOR Set to Make Significant Contribution," Oil & Gas Journal, April 2, 1984, pp. 83-105.

Enhanced Recovery Methods

Many new enhanced recovery techniques are being tested and studied across the nation. The methods generally recognized as the most promising use either chemicals, heat or fluids, including natural gas, propane, liquid hydrocarbons, carbon dioxide or nitrogen. Other techniques are still in the experimental or developmental stages. Because petroleum reservoirs vary widely in their characteristics, a method that appears feasible in laboratory tests could be appropriate for one field and unsuccessful in another. Steam injection accounts for more than three-fourths of the enhanced oil recovery production in this country. The largest such project produces 95,000 barrels of oil a day from California's Kern River Field.

One of the fastest-growing recovery techniques involves the injection of carbon dioxide under pressure to move trapped oil toward production wells. Most of the carbon dioxide comes from naturally occurring underground sources in Colorado and New Mexico. Oil companies have invested more than $1.5 billion to build two pipelines to carry carbon dioxide from the Rocky Mountain area to declining fields in western Texas. Plans have been announced to build a $250 million carbon dioxide pipeline from central Mississippi to fields in the southern part of that state.

Waterflooding and other improved recovery projects now under way or planned on Alaska's North Slope will require an additional investment of $3 billion. In addition to the 9.6 billion barrels originally estimated to be economically recoverable, there may be another 11 billion barrels, some of which can be produced through improved recovery methods.

The U.S. Department of Energy has co-sponsored a number of research and demonstration projects since the mid-1970s. In August 1984, the department announced that it will offer research grants in 1985 for the development of advanced or novel concepts for enhanced oil recovery.

Public Affairs Group, API (sc)
R-294
September 28, 1984 (F)
ISSN: 0276-6043

OBJECTIVE OF DISCUSSION

- The State of Montana and the oil industry are confronting a crisis in energy production and revenue.
- It is important that we work together as partners to minimize the effects of this crisis.

CURRENT ENERGY SITUATION IN MONTANA

- Montana's energy production is declining, and revenue generated from that production also is declining.
  - In 1968, the peak year for oil production in the state, 48.5 million barrels were extracted from Montana reservoirs.
  - In 1983, oil production was 29.2 million barrels.
  - 50% of Montana's production comes from stripper wells (classified as 10 or less barrels per day).
  - The average oil production rate for all Montana wells in 1982 was 19.2 barrels per day.
  - Therefore, it can be said that most wells in the state are in advanced stages of depletion by conventional primary and secondary methods.
- If enhanced recovery methods are not implemented soon, many oil fields will be abandoned with 50-70% of the original oil in place left unrecovered.
  - After fields are abandoned, it will be much more difficult to restore fields to production at a later date.
  - In fact, it may not be economically feasible, particularly if the individual wells are abandoned.
- Instituting enhanced oil recovery projects soon will prevent revenue and employment loss to the state later.

CURRENT CO_2 ACTIVITY IN OTHER STATES

- CO_2 pilot projects have been underway since the early 1970's.
  - These projects have provided sound technical understanding of the process and have produced encouraging results on a small scale.
  - But industry needs the experience of developing many commercial scale projects before the CO_2 process becomes a routine field operation.
- Currently, there are only a limited number of commercial projects in progress.
  - Commitment for these projects was made four years ago in a much different economic environment.
  - Many other projects would be developed if improved economic conditions prevailed.

POTENTIAL FOR CO_2 FLOODING IN MONTANA

- The National Petroleum Council, a federal advisory committee to the Secretary of Energy, composed of qualified representatives from academia, industry and the federal government, recently published a comprehensive enhanced oil recovery study.
  - This study estimated that 14.5 billion barrels of oil could be recovered nationwide using enhanced recovery techniques*.
  - 5.5 billion barrels of oil, or 38% of the total, could be recovered using CO_2 flooding.
  - It is expected that as much as 100 million barrels could be recovered here in Montana in the Cedar Creek Anticline area alone.
- Of the three major enhanced oil recovery methods (thermal, chemical and CO_2 miscible), only CO_2 miscible flooding has the potential for significant reserve additions from Montana's carbonate reservoirs.

* assuming $30/barrel oil

- Montana's Cedar Creek Anticline and other oil reservoirs are particularly well suited for CO_2 flooding because:
  - Reservoirs contain light oils (25° API or higher).
  - Reservoirs are deep enough to achieve miscibility pressure (generally greater than 5000 feet).
  - Reservoirs have been successfully water-flooded.

WHAT CAN CO_2 FLOOD PROJECTS DO FOR MONTANA?

- Generally, the CO_2 process represents a new opportunity to increase oil production from existing fields and allows Montana to continue as a major area of energy activity and development for another 30 to 50 years.

- The oil and gas industry currently employs about 8,000 people in Montana. CO_2 flooding will help sustain the employment level by adding up to 50 years to the normal producing life of oil fields. In addition, a significant increase in employment will be generated during the installation and construction phase of these projects.

EXPECTED OIL RECOVERY USING CO_2 FLOODING IN MONTANA

- CO_2 flooding could recover large amounts of oil left in the reservoir after waterflooding.
  - In the Cedar Creek Anticline, the expected oil recovery is:

Primary Production	17%
Secondary Recovery	13%
Tertiary Recovery	10%
	40% oil in place.

  - In the Cedar Creek Anticline alone, CO_2 flooding could recover up to an additional 100 million barrels of oil that would not be produced by primary or secondary recovery methods.

BARRIERS TO CO_2 PROJECT DEVELOPMENT

- Currently, the oil industry views CO_2 projects as economically marginal, high-risk ventures, from a financial and technical point of view.

- These projects are very expensive, and require large expenditures on the front-end.

  - Operating expenses are far greater than for waterflood projects.

    .. CO_2 is 50 times as expensive as water on a reservoir barrel basis.

    .. Injection profile correction work, corrosion and scale treatment, as well as general repair costs will be far greater.

  - Therefore, payout time on a CO_2 project is generally greater than 10 years, about twice as long as a good waterflood project.

- In terms of technical risk, CO_2 flooding is an emerging technology.

  - In order to develop and streamline the field operations, it is important to start a number of different projects soon.

  - The more we do, the more cost efficient we become.

- Finally, the crude oil price decline has seriously affected the economic feasibility of these very expensive projects. At the beginning of the year, the price was about $27, and there is fear it will go even lower, thus making economically marginal projects unattractive.

PROPOSAL

- Many elements now are in place for tertiary recovery projects in Montana (including use of CO_2).

  - We have the CO_2 technology.
  - We have depleting oil fields which are amenable to CO_2 floods.

- We need a CO_2 source and a major pipeline distribution system. We also need enough economic incentive to encourage development of major projects such as the proposed Cedar Creek Anticline CO_2 project, so that routine prediction and operating techniques for this new industry can be applied by major oil companies and independent operators here in Montana.

- The state can help itself in assuring continuing energy supply and revenue by providing tax incentives now to encourage industry to make the substantial, front-end investments that are needed.

- The best encouragement the industry could get to begin these projects would be a tax incentive in the form of a reduced severance tax on oil produced by tertiary recovery methods to 2.5% instead of 5% which will be the effective rate beginning April 1985.

PROPOSED

CEDAR CREEK ANTICLINE

PROJECT

POTENTIAL IMPACTS OF PROPOSED CEDAR CREEK ANTICLINE PROJECT:*

- Specifically, CO_2 flooding would extend the producing life of Cedar Creek Anticline reservoirs by about 50 years and result in a peak incremental production of about 10,000 barrels per day.

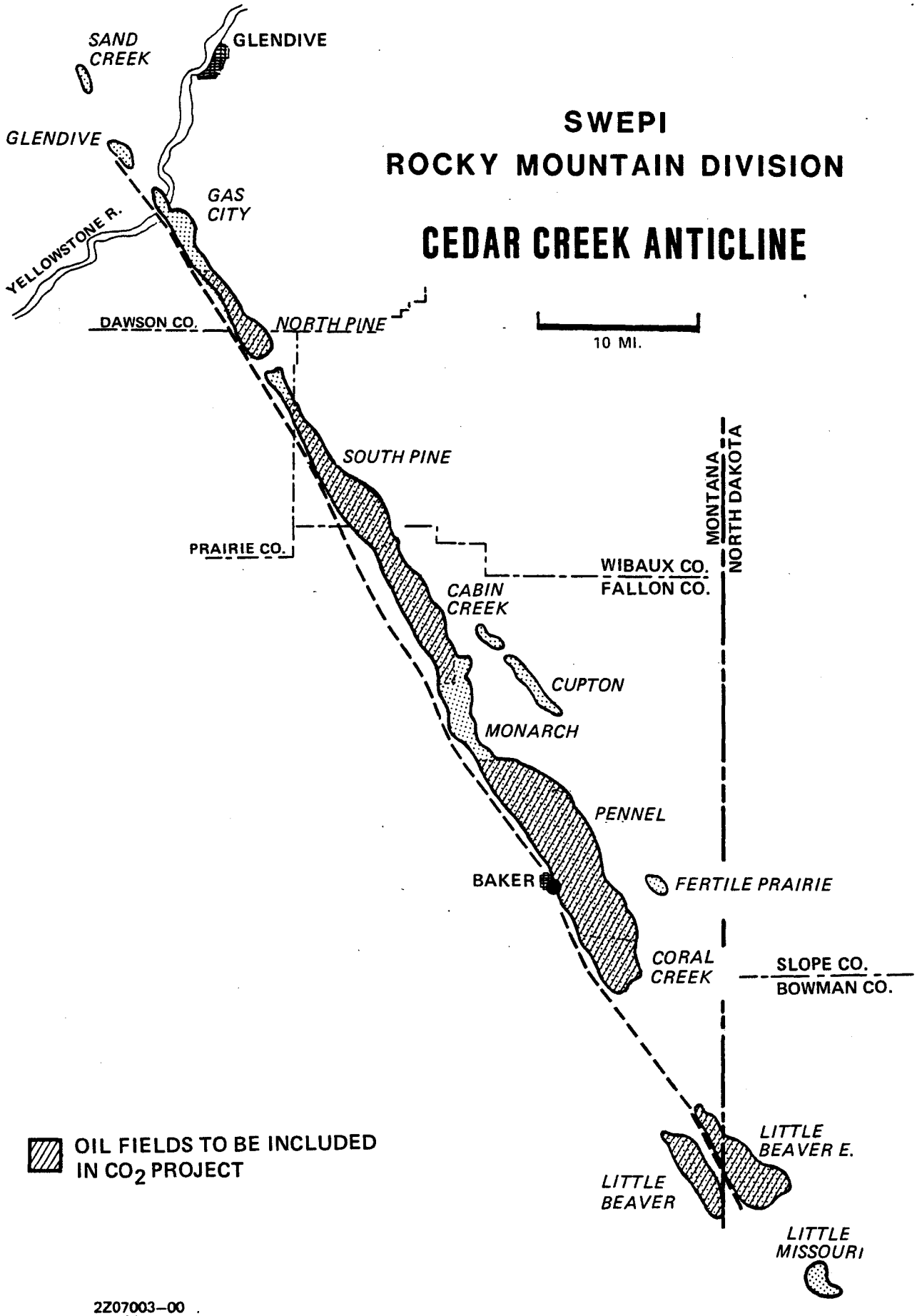
- Capital investment by industry for this project alone would be about $225 million. Operating expenses over the life of the project are estimated to be an additional $1.1 billion, including more than $500 million for purchased CO_2.

- The State of Montana would receive about $60 million additional severance tax income from CO_2 incremental production (based on 2.5% incremental oil severance tax rate).

- An estimated $135 million in additional net proceeds taxes would be paid to eastern Montana counties from CO_2 projects in the Cedar Creek Anticline (based on current mill levies).

* Based on 1984 dollars and crude price of $27.94

Note: This information is based on preliminary estimates made in May 1984. It is important that the reader understand that these estimates may be revised in the future as more data is acquired. Actual results may vary substantially from these preliminary estimates.



2Z07003–00
3/84
REV. 1/85

CEDAR CREEK ANTICLINE
CO_2 PROJECT PLANNING

STATUS AND SCHEDULE

PRELIMINARY PROJECT EVALUATION

Preliminary evaluation of the feasibility of using carbon dioxide to increase oil production at the Cedar Creek Anticline was completed in 1984.

PILOT OPERATIONS

A pilot test to provide on-site research and analysis of the feasibility of carbon dioxide flooding in the Anticline was conducted by Shell Western E&P Inc. in its South Pine Unit in Wibaux County. Pilot operations involving three wells began in February 1984. Carbon dioxide was injected during August-October 1984. Shell Western then began waterflooding to produce all of the oil released in the reservoir by the carbon dioxide. Completion of pilot operations is expected in February 1985.

PILOT EVALUATION

Completion of engineering research and evaluation of data acquired during pilot operations is expected to be completed by about May 1985. This evaluation will help Shell Western to determine whether its preliminary project evaluation is valid from an engineering standpoint. It will provide data that can be used make more accurate predictions about oil recovery using the carbon dioxide injection process.

CARBON DIOXIDE SOURCE REVIEW

Shell Western E&P plans to have completed its evaluation of potential sources for carbon dioxide by about July 1985.

PROJECT DECISION

Shell Western expects to have all of the information it needs to make a final decision about whether to go ahead with the full scale carbon dioxide project in Montana sometime in the second half of 1985.

FULL SCALE DESIGN

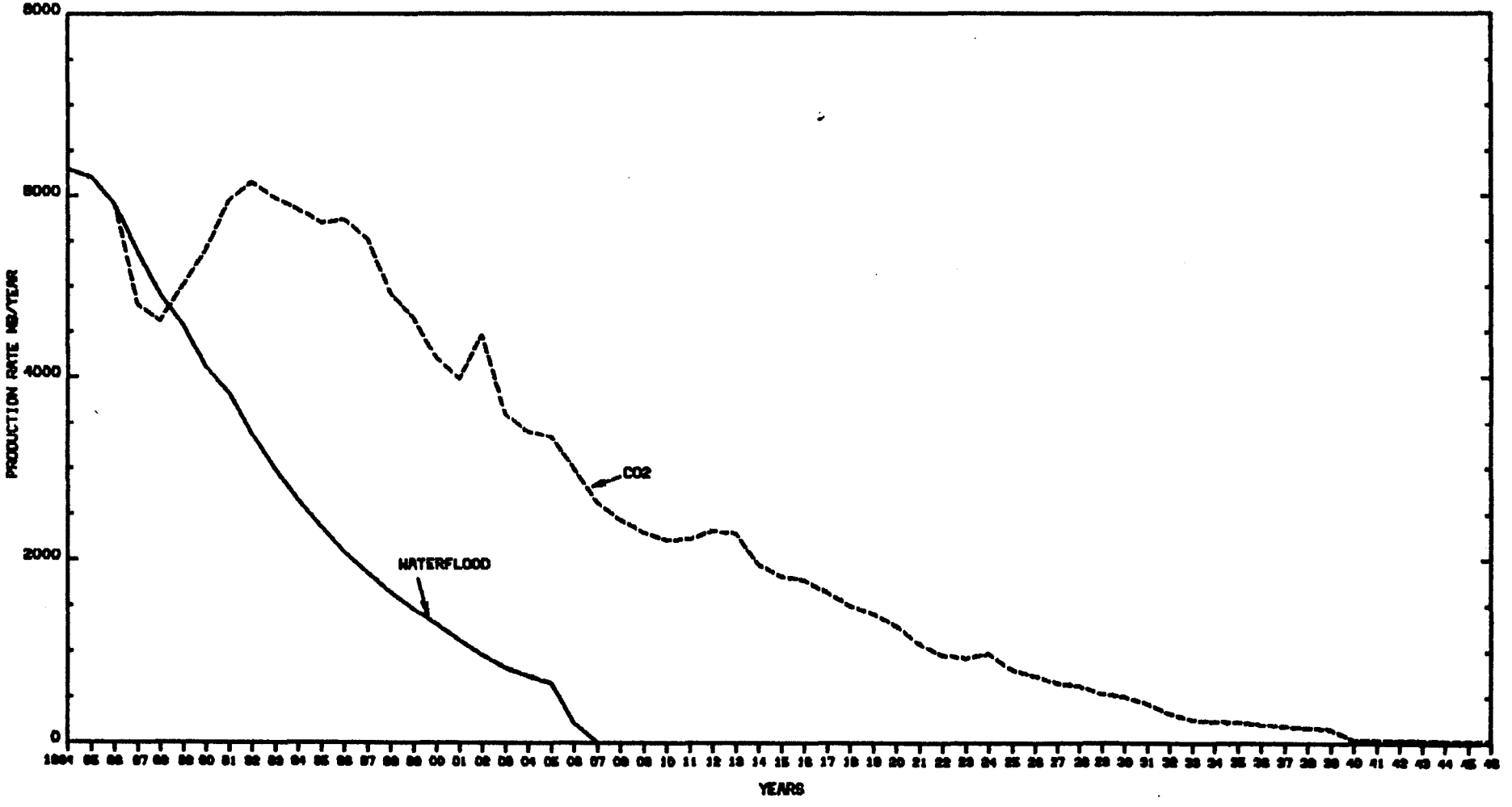
Design of the full scale project is underway, but is not expected to be completed until about August 1986. There will still be a great deal of work to be done after a decision is made to go ahead with the full scale project.

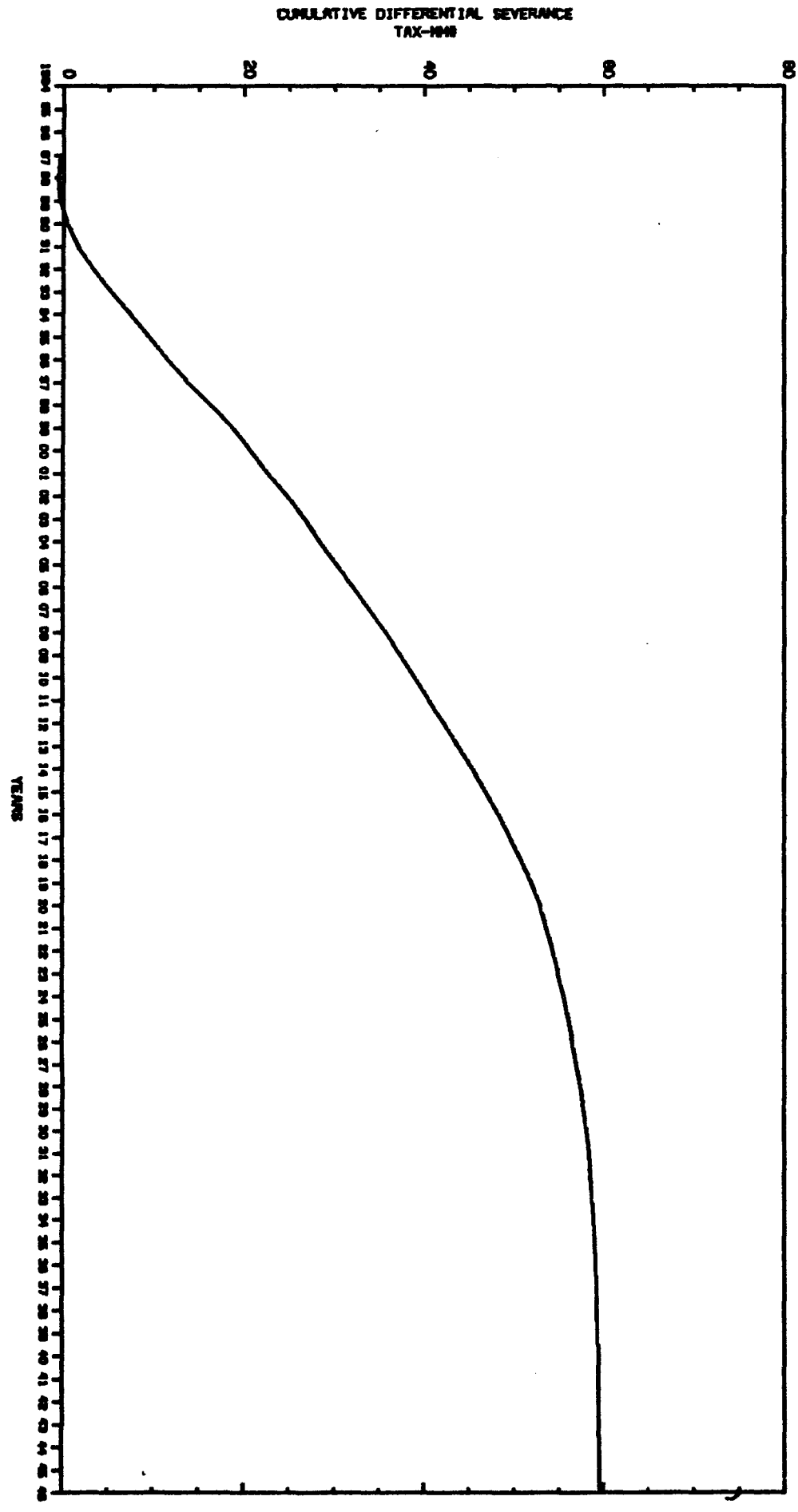
PROJECT START-UP

Construction would be expected to begin about July 1987 under current plans.

SHELL WESTERN E&P INC.
"C.A.D."
FC822

MONTANA CEDAR CREEK ANTICLINE
TOTAL GROSS PRODUCTION





MONTANA CEDAR CREEK ANTICLINE
STATE REVENUE FROM SEVERANCE TAX

ESTIMATED

COUNTY

IMPACTS

EFFECT OF CCA-CO2 FLOOD ON COUNTY NET PROCEEDS TAXES
(ASSUMING 10-YEAR AMORTIZATION OF CO2 COST
AND CURRENT MILL LEVIES REMAIN CONSTANT)

	CHANGE IN NET PROCEEDS TAXES (Millions of Dollars)				
COUNTY CURRENT MILL LEVY	FALLON 87	WIBAUX 109	PRAIRIE 167	DAWSON 270	TOTAL
1984	-	-	-	-	-
1985	-	-	-	-	-
1986	-	-	-	-	-
1987	(1.3)	(0.5)	(0.081)	(0.121)	(2.0)
1988	(1.0)	(0.4)	(0.020)	(0.102)	(1.5)
1989	(1.0)	(0.3)	-	(0.055)	(1.4)
1990	(0.7)	(0.2)	-	(0.018)	(0.9)
1991	+0.2	0.4	-	(0.021)	+0.6
1992	0.8	0.7	0.031	+0.113	1.6
1993	1.9	1.1	0.020	.062	3.1
1994	2.0	1.2	0.015	.031	3.2
1995	2.2	0.9	-	-	3.1
1996	1.9	0.7	-	-	2.6
1997	1.9	0.7	0.032	0.074	2.7
1998	2.4	0.9	0.091	0.212	3.6
1999	2.9	1.5	0.044	0.102	4.5
2000	2.9	1.4	0.007	0.015	4.3
2001	2.7	0.7	0.001	0.002	3.4

Note: This information is based on preliminary estimates made in May 1984. It is important that the reader understand that these estimates may be revised in the future as more data is acquired. Actual results may vary substantially from these preliminary estimates.

BACKGROUND

FACT SHEET

SHELL WESTERN E&P INC.
a subsidiary of Shell Oil Company

CEDAR CREEK ANTICLINE OPERATIONS
MONTANA

- 1983 ECONOMIC IMPACT:

. State severance taxes:		$ 9.2 million
. County taxes:		
- Dawson	$ 946,000	
- Fallon	9,134,000	
- Prairie	202,000	
- Wibaux	2,606,000	12.9 million
. Royalties:		
- State	$ 1,500,000	
- Montanans	7,000,000	8.5 million
. Purchases from Montana suppliers:		30.9 million
. Payroll (62 employees):		2.0 million
		$ 63.5 million

- TOTAL CAPITAL INVESTMENT: More than $200 million
- WELLS OPERATING: 655
- 1983 PRODUCTION:
  - . Oil: 7.6 million barrels, 26% of Montana total
  - . Natural Gas: 1.3 billion cubic feet, 2% of Montana total

Shell Western E&P has production offices in Glendive and Baker and a warehouse in Glendive. Oil and gas wells are located on the Cedar Creek Anticline in the counties of Dawson, Fallon, Prairie and Wibaux. Headquarters for Shell Western are located in Houston, Texas.

XAK850312

For Release IMMEDIATELY

Shell Western E&P Inc.
200 N. Dairy Ashford
Houston, TX 77079

Press Line: (713) 870-2023

News Release

Contact: Jack Pyle

SHELL WESTERN OFFICIALS REVEAL POTENTIAL FOR MAJOR INVESTMENT IN EASTERN MONTANA

GLENDIVE (November 15, 1984) -- Officials of Shell Western E&P Inc., a subsidiary of Shell Oil Company, today told community leaders from four counties about a study being done by the company that could lead to new investments in the area over a period of 50 years.

While cautioning that a final decision on the project could be more than a year away, George W. Keys, Shell Western division production administration manager from Houston, described the company's pilot program currently underway to test the feasibility of using carbon dioxide injection to increase oil production from existing wells.

"Our pilot program began early this year and will continue through early 1985," Keys told people from the four counties where the company produces oil and gas: Dawson, Fallon, Prairie and Wibaux. If successful, development of the full-scale project would probably create about 50-60 new oil industry jobs in Shell Western and in oil industry service companies, Keys reported.

"But there is much more work to do and many questions to be answered before we will know for sure if the investment can be economically justified," Keys said.

He told the group that Shell Western wanted people in the area to have a better understanding of the company's growth potential, as well as the variables involved in the company's decisions about the future.

"The project appears risky from an investment standpoint," Keys said. "Both total costs and total additional revenue appear to be at about the same level. That means we see marginal return on our investment, unless we are able to substantially reduce costs of the project."

But Keys emphasized that the project was worth evaluating and that Shell Western and its partners would spend about $7 million during the pilot program to evaluate the idea.

"Several things need to break our way to make the project a reality", Keys said. First we need to know that it is technically feasible at the Cedar Creek Anticline oil fields. Our pilot program will provide the answers about that. Also, we need to find a large supply of carbon dioxide that can be delivered to eastern Montana at reasonable cost.

"Finally, we need to be reasonably certain of a favorable overall economic climate, including a fair tax structure incorporating tax incentives if possible."

Keys said that the federal government already reduces taxes on the additional oil produced by this more expensive production technique. Several states also have reduced taxes on this type of production. Louisiana, Mississippi and Kansas have reduced state severance taxes on oil produced using carbon dioxide and other tertiary production methods, according to Keys. He said that Shell Western management people have discussed the possibility of a similar tax reduction in Montana with Governor Ted Schwinden and members of his staff.

Also on the program was C. R. Reiter, Shell Western division operations manager from Houston, who reviewed the history of Cedar Creek Anticline production. He told the group the company has invested more than $200 million to produce oil and gas at the Cedar Creek Anticline since Shell first came to Montana.

Reiter said the company's economic impact in Montana totaled more than $60 million annually. That includes about $13 million in county taxes to the four-county area, $9 million in state severance taxes, nearly $9 million in oil and gas royalties, and more than $30 million spent on purchases from Montana suppliers. Shell Western employs 62 people in Baker/Glendive area with an annual payroll of about $2 million.

Perry G. Ganus, Shell Western production superintendent from Houston, described standard oil production methods and the use of water injection to increase production from old oil fields, which is the process now used by Shell Western people in this area.

# # #

New Fizz for Old Fields

Shell Enters The CO_2 Business

Carbon dioxide, the gas we exhale when we breathe, the gas that for years has been used to carbonate soft drinks and to make dry ice, has now become the lifeblood of declining oilfields. And Shell Western E&P Inc. (Shell Western), a subsidiary of Shell Oil Company, is investing in new technology using CO_2 to produce a lot of oil that was once thought unrecoverable.

The rewards of using CO_2 as an enhanced oil recovery agent can be significant. In West Texas and New Mexico alone, the potential oil recovery with CO_2 is at least three billion barrels of oil, oil that cannot economically be produced with any other known technology. Nationwide, it is estimated that at current oil prices, CO_2 has the potential to produce in excess of 5.4 billion additional barrels. With higher oil prices, using CO_2 could recover about 10 billion barrels.

For years, the dominant enhanced recovery method used in old oil fields has been waterflooding. As these waterfloods grow older, injected water moves less oil through the reservoirs. Unless these fields are converted to CO_2 injection, they eventually would become uneconomical and would be shut down, even though up to one half of the oil originally in place might remain.

To get some of that remaining oil, Shell Western and others have been working for years on various enhanced recovery techniques using CO_2. In the early 1960s, scientists at Shell's Bellaire Research Center in Houston began studying various qualities of CO_2 that would make it a good recovery mechanism for oil. They examined the way CO_2 mixes with crude oil under different conditions and the physics of CO_2 movement of oil. From these studies, Shell scientists developed mathematical models which allowed them to predict results from pilot and full-scale CO_2 injection projects.

Shell scientists found that unlike water, CO_2 completely mixes with oil, allowing it to act like a solvent to overcome forces that trap oil in tiny rock pores. Injecting CO_2 into waterflooded formations can displace enough water to contact, mix with and mobilize the trapped oil once thought unrecoverable.

From 1974 until 1978, Shell Western conducted the industy's first successful tertiary oil recovery pilot program using CO_2. The test, at the Little Creek Field in Mississippi, encouraged Shell Western to purchase significant interests in two similarly depleted fields nearby — the Mallalieu and McComb fields. Full-scale CO_2 flooding has been scheduled at Little Creek field by 1986.

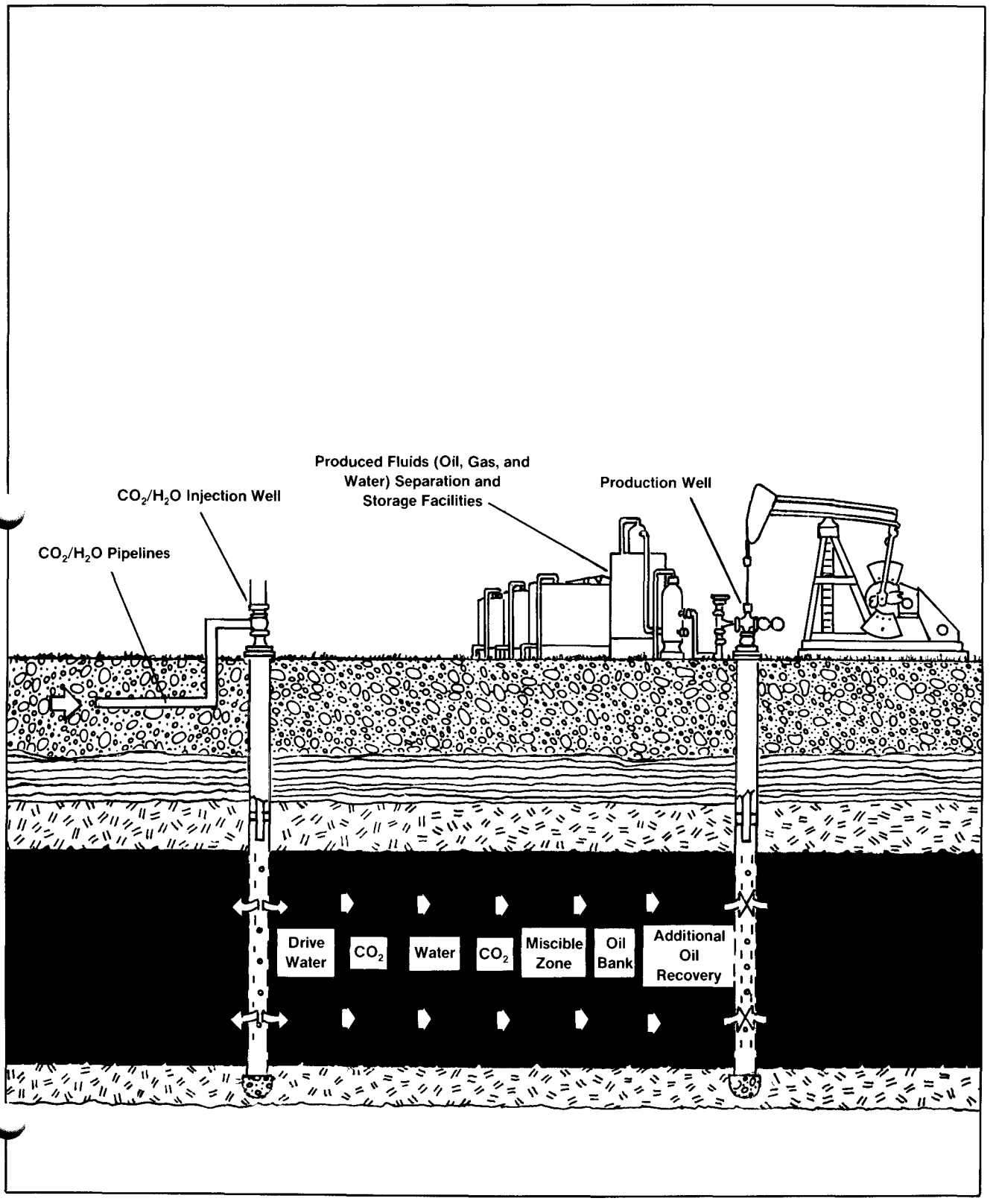
At Shell Western's North Cross Unit in the West Texas Crossett Field, continuous CO_2 flooding has been underway for 11 years. Poor water injectivity made this field unsuitable for waterflooding, so CO_2 was used immediately after primary recovery declined. The results of CO_2 flooding in this field have been excellent. Oil production remains high and continued injection of CO_2 is expected to exceed 100 percent of the initial hydrocarbon pore volume and to recover 47 percent of the original oil in place.

The largest of Shell Western's CO_2 projects, however, is located at the Denver Unit of the Wasson Field in West Texas. A pilot project, conducted in the field in the late 70s, indicated CO_2 flooding was economically feasible. This pilot, which cost about $9 million, was conducted on a one-acre site and took about three and a half years to complete.

The pilot was unique in that the evaluation was based on direct underground measurements, through logging and pressure coring, of the ability of CO_2 to move oil through the formation, rather than measuring how much oil was actually produced at the surface. Also, this new technique provided a much quicker evaluation of CO_2 oil recovery potential.

Full scale injection of CO_2 into the Denver Unit began in 1984.

Water injection and CO_2 injection will be used intermittently to recover the greatest amounts of trapped oil (right).


Produced Fluids (Oil, Gas, and Water) Separation and Storage Facilities
Production Well
CO_2/H_2O Injection Well
CO_2/H_2O Pipelines
Drive Water
CO_2
Water
CO_2
Miscible Zone
Oil Bank
Additional Oil Recovery

Source Field

Once Shell Western recognized the potential of using CO_2 in enhanced recovery operations at the Denver Unit, a search was conducted to locate a large source of naturally occurring CO_2 capable of supplying the 1.2 trillion cubic feet required for the Denver Unit project. Such a source was discovered in the McElmo Dome and Doe Canyon fields near the Four Corners area of Colorado.

The Mississippian Leadville formation, lying at depths of 6,600 to 9,150 feet, contains estimated recoverable reserves of more than ten trillion cubic feet. These reserves are capable of supplying not only the carbon dioxide needed for Shell Western's Denver Unit project, but many other CO_2 projects as well. Peak CO_2 production from these fields is expected to exceed one billion cubic feet per day with a production life of over 25 years.

McElmo Dome alone is a giant field, 25 miles long and 15 miles wide, containing over 200,000 productive surface acres. It is one of the largest natural accumulations of pure CO_2 in the United States, with a gas composition of 98% CO_2.

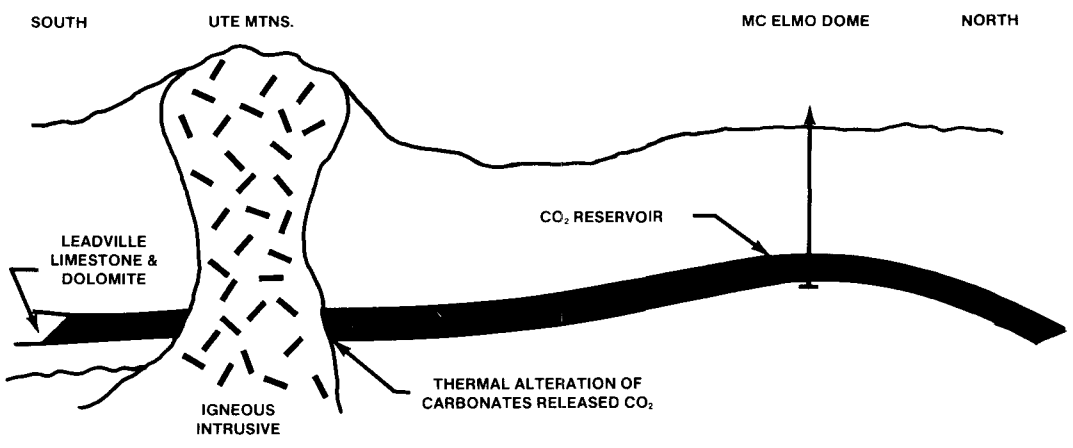
The same geological activity that formed the nearby Sleeping Ute Mountain Range was responsible for the formation of the CO_2 reserves at both McElmo Dome and Doe Canyon. Water filled the carbonate rock deposited there millions of years ago. Then volcanic activity deep within the earth produced high pressure and temperatures which penetrated the water-filled formations and altered the carbonate rock to create natural CO_2.

In order to produce the CO_2 in the McElmo Dome field in the most efficient manner, a Field-Wide Unit was formed. Engineering studies showed that CO_2 recovery could be maximized by a development plan that located wells in the central portion of the field in widely-spaced clusters. This differs from a conventional or non-unitized operation in which wells are drilled at regularly-spaced intervals throughout the field.

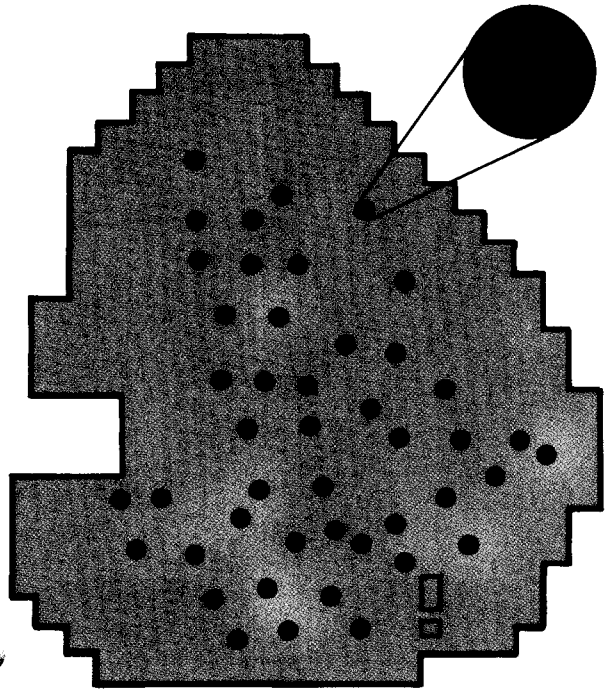
The formation of this unit also allowed flexibility in the placement of wells and production facilities. This was especially important because of the rugged terrain, the numerous archaeological sites and valuable crop land within the McElmo Dome area.

Several types of production facilities are necessary

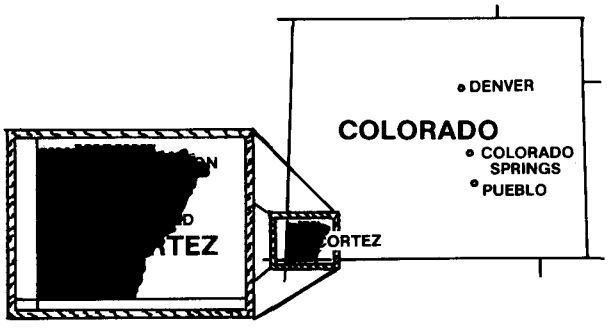
ORIGIN AND ACCUMULATION OF CO_2 MC ELMO DOME

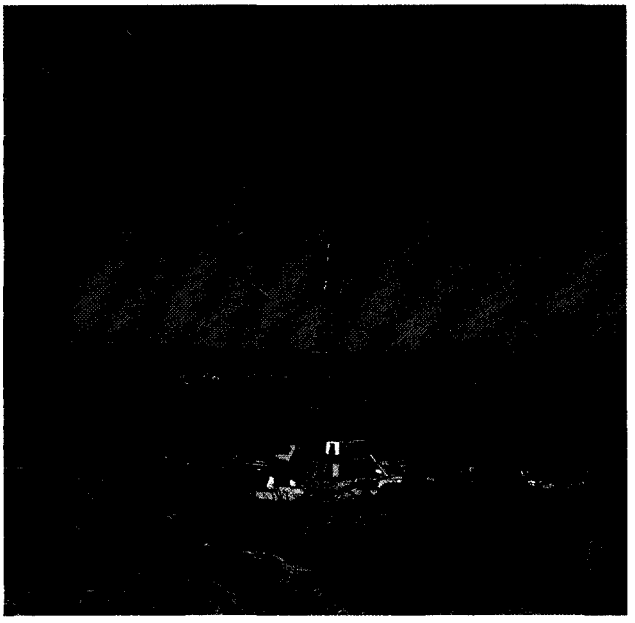


The volcanic activity that created CO_2 in the McElmo Dome also created the Sleeping Ute Mountain Range.



A typical well cluster for this unit consists of widely spaced groupings of up to four closely spaced wells.





Forty one development wells in the McElmo Dome Field were drilled prior to startup. Others are drilled as the need for increased production arises.

The Yellow Jacket central facility processes 210 million cubic feet of CO_2 per day prior to delivery to the Cortez Pipeline.

to produce and process the natural CO_2 at the source fields. These include well cluster facilities, where free water is separated from the CO_2 as it comes up from the formation and where individual well production rates are measured; a wet gas pipeline gathering system, which transmits the CO_2 to central facilities for further processing and central processing facilities, where the CO_2 is dehydrated and compressed to a pressure of 2000 pounds per square inch for delivery to CO_2 market areas.

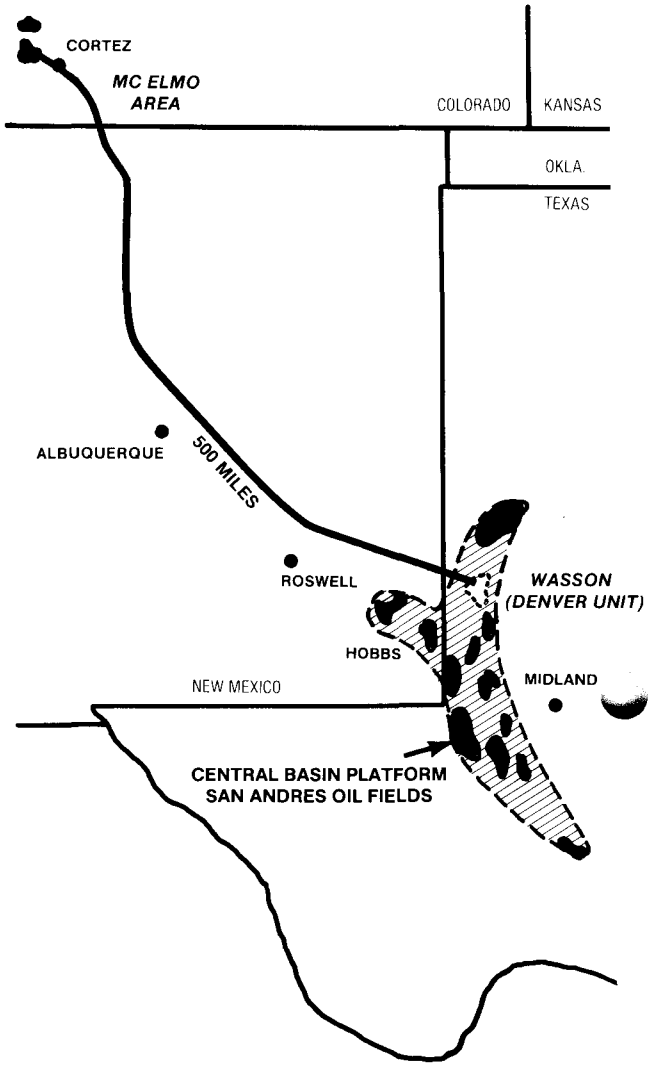
Shell Western has a 44 percent interest in the McElmo Dome source field. Mobil Oil Corporation has 43 percent and various others own the remaining 13 percent. Shell Western has an 88 percent working interest in Doe Canyon field.

Cortez Pipeline

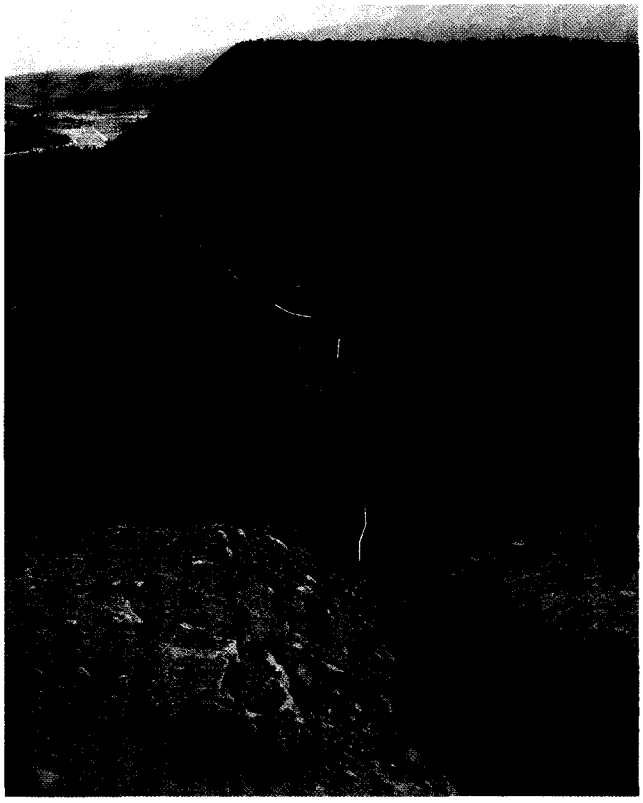
In order to deliver the carbon dioxide to major market areas, Shell Western and its partners, Mobil and Continental Resources, formed Cortez Pipeline Company and built a 500-mile, 30-inch pipeline through southwest Colorado and New Mexico to West Texas. To date, it is the largest capacity and longest CO_2 pipeline in the world.

The carbon dioxide will be transported at pressures up to 2000 pounds per square inch. The pipeline was designed initially to carry 650 million cubic feet per day of CO_2, and with the addition of three pump stations along the route, it has the capability to transport over one billion cubic feet per day. Shell Pipe Line Corporation supervised construction of the line and operates the line for Cortez Pipeline Company.

The selected route provides easy accessibility to the pipeline for the operators of oilfields in New Mexico and West Texas which are well suited to CO_2 flooding. This large capacity pipeline also provides an economy of scale which permits very favorable transportation charges.



The pipeline crosses desert terrain, Indian lands, mountains, and five rivers before reaching its destination in West Texas (above).



Pipeline construction crews laid pipe up the wall of Cherry Creek Canyon in La Plata County, Colorado, at about a 40 degree angle. This was the steepest incline along the route, rising 800 feet from canyon floor to mesa top (left).

Archaeological Considerations

The lands around the McElmo Dome and Doe Canyon fields contain many valuable archaeological locations. Among these cultural resources are ruins and artifacts left by the Anasazi Indians, or the "Ancient Ones." These early Americans, who inhabited the area from about 450 A.D. until 1300 A.D., are best known as the builders of the cliff dwellings at what is now Mesa Verde National Park. Before moving down to the cliffs near the end of the 12th century, they farmed the mesa tops and lived in pithouses there. Why they abandoned the mesa tops is unknown. What is known is that they left in their wake a treasure of cultural antiquity — thousands of archaeological sites, clusters of pithouses containing vivid evidence of their society and lifestyle.

At the time Shell Western began to plan development of the source fields, almost 90 percent of the area had not been surveyed for these sites. On acreage that had been surveyed, more than 1,300 sites had been identified. A major undertaking would be necessary to locate and study all the possible locations.

Because of the constraints of time and money, a complete inventory was not practical. To overcome this, Shell Western and its consultants, working with the Bureau of Land Management and the University of Colorado, developed a predictive model based on the known sites where the Anasazi lived and farmed. This data was keyed into a computer along with pertinent geographical factors, such as proximity to streams and direction known sites generally face. With this information, and the topography of the entire lease holding, the computer was able to predict what areas might contain undiscovered sites. This allowed Shell Western to plan field development activities that would avoid all known and probable sites. Critical to this effort was the use of as many existing roads as possible, thereby limiting access by unauthorized "pot-hunters."

According to the BLM, this was the first time a predictive model had been used successfully for archaeological planning purposes.

It also provided the academic community and government agencies with a valuable tool for future archaeological research.

The area is filled with a wealth of ruins and artifacts left by the Anasazi Indians.

In addition, once construction began, Shell Western contract archaeologists monitored all activities, making sure that no previously identified cultural resource was inadvertently damaged and that previously undetected archaeological sites or relics uncovered by construction activity were properly evaluated for their historical value.

The same attention given to possible sensitive areas in the source field carried over to routing of the pipeline. One significant step was to locate the route along existing right-of-way corridors — such as other pipelines, roads, and electrical transmission lines — to minimize new disturbance. About 90 percent of the total 500 miles parallels existing rights-of-way.

Denver Unit

The Wasson field, which covers almost 100 square miles, originally contained more than four billion barrels of oil. The Shell Western-operated Denver Unit was formed in November 1964 for the purpose of waterflooding the southern half of the Wasson Field. The Denver Unit represents about half of the Wasson Field in terms of oil originally in place, or two billion barrels.

Primary production through use of natural reservoir pressure accounted for 354 million barrels. Waterflooding will produce another 526 million barrels, leaving about 1.3 billion barrels in the ground in the Denver Unit.

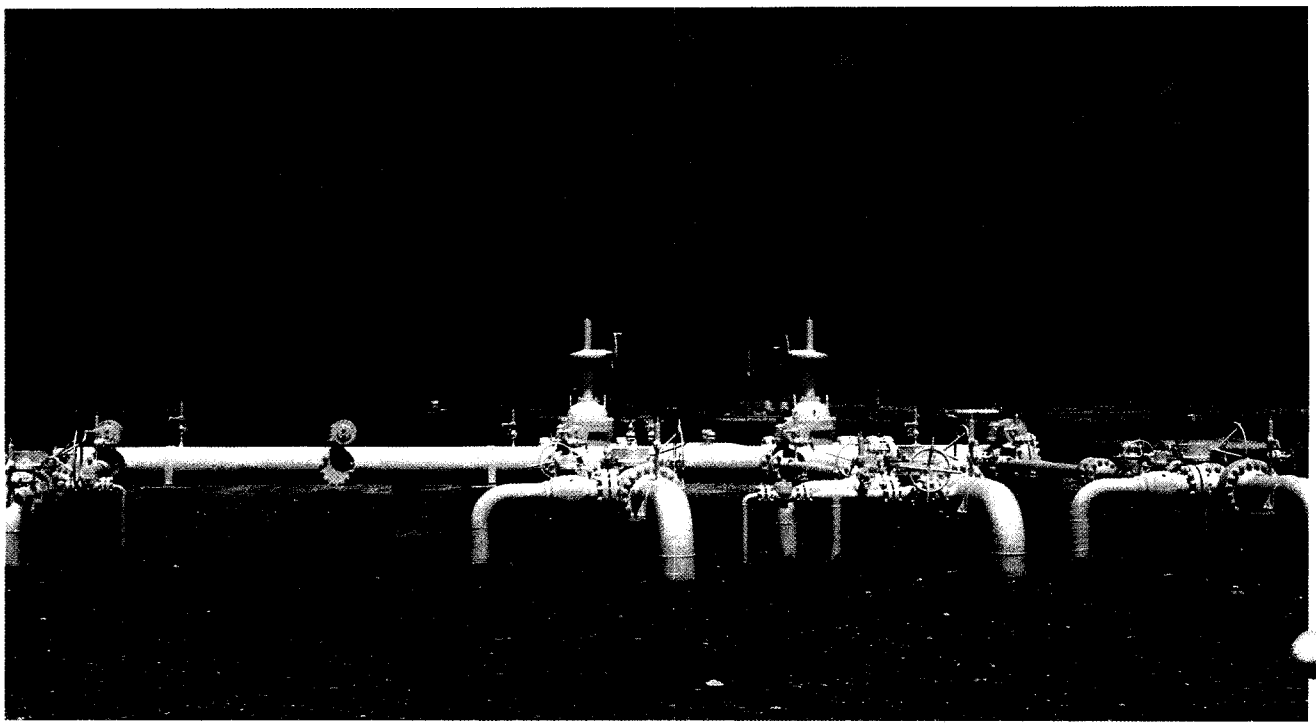
At its peak in 1975, the Unit produced 151,000 barrels of oil per day. With the decline of the waterflood, production has dropped to 60,000 barrels per day and continues to decline. Without CO_2 injection, the field would have been abandoned by the mid-1990s.

Injection of CO_2 will increase Denver Unit recovery by 280 million barrels of oil. This will bring the ultimate recovery to about 1.2 billion barrels, or 53 percent of the oil originally in place. Also, CO_2 injection will extend the productive life of the field by about 30 years.

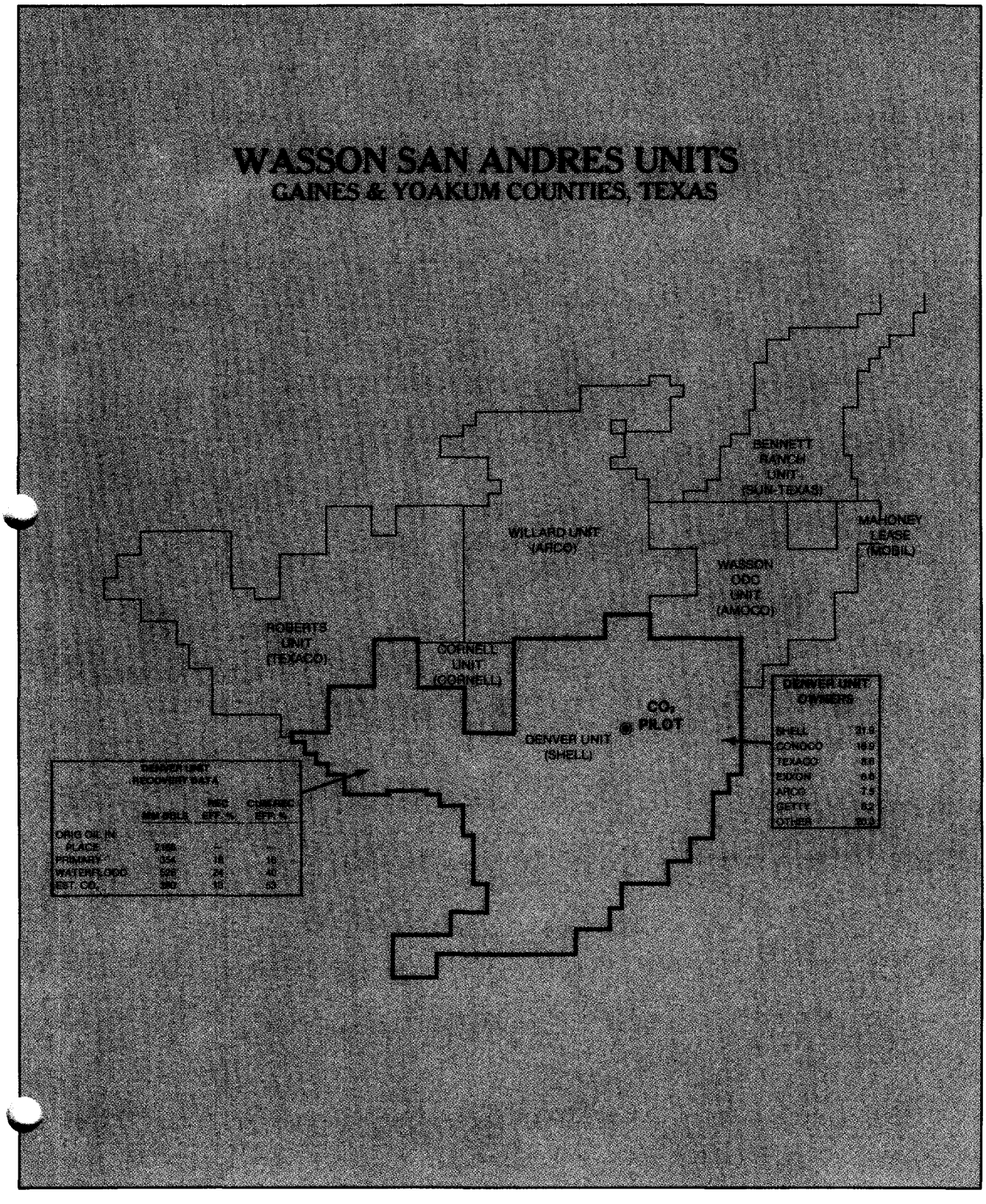
The initial CO_2 injection rate is 330 million cubic feet per day. Peak injection is expected to reach as much as 500 million cubic feet per day as CO_2 produced with the oil is recovered and becomes available for reinjection.

One of the major facilities built at the Denver Unit in conjunction with this project is the CO_2 recovery plant. This plant receives CO_2-rich gas, separates the CO_2 and hydrocarbon gases, removes the hydrogen sulfide associated with production from this field and returns the CO_2 to the Unit for reinjection. Although 1.2 trillion cubic feet of CO_2 from the Colorado source fields will be used, a like amount will be recovered and reinjected, for a total CO_2 injection volume of 2.4 trillion cubic feet.

Over the life of the project, 280 wells will be utilized for CO_2 injection. After completion of CO_2 injection, 20 years of additional water injection will be required to recover fully all the oil mobilized by the CO_2.



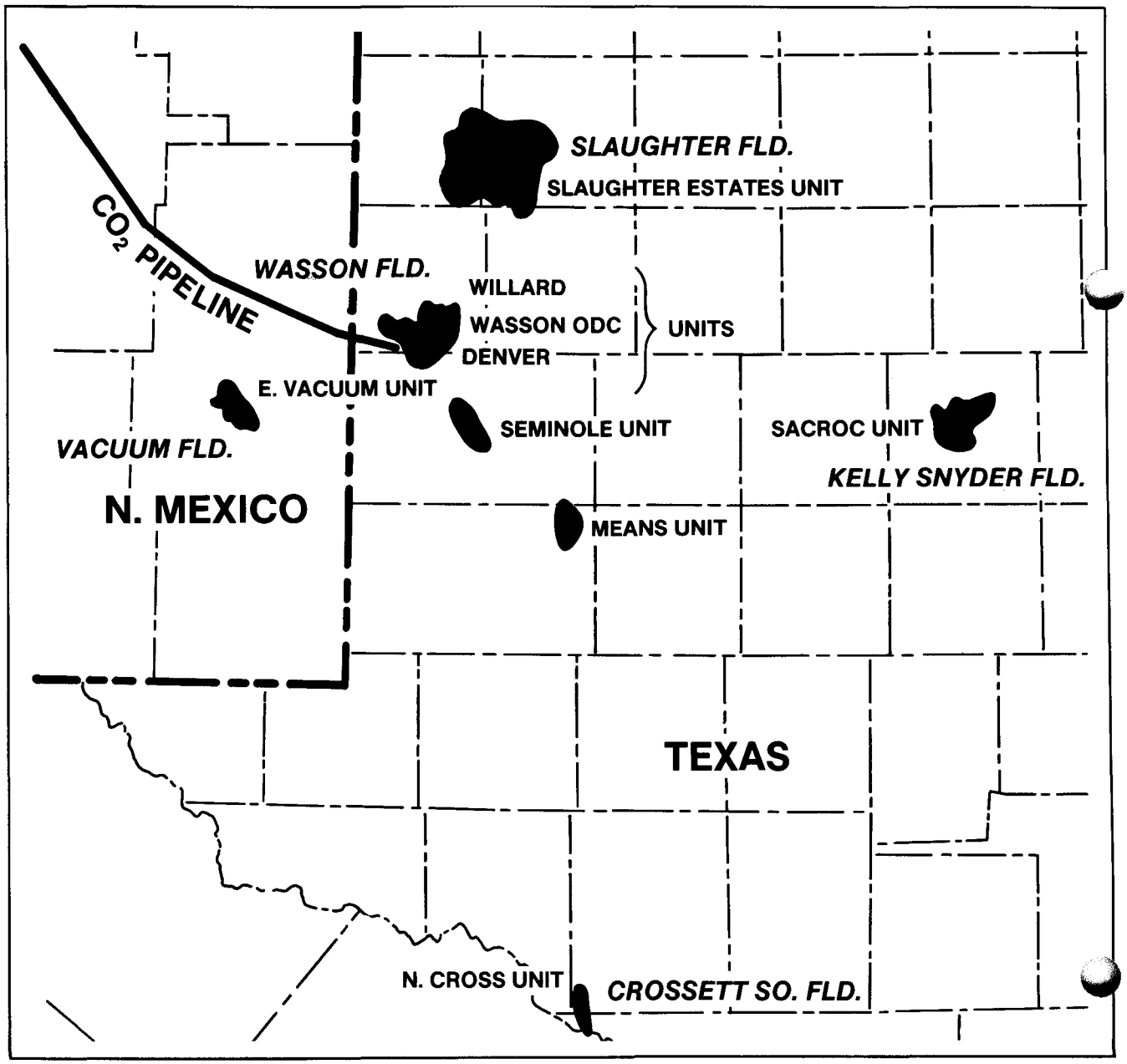
The main manifold distributes CO_2 to injection manifolds located throughout the unit.


WASSON SAN ANDRES UNITS
GAINES & YOAKUM COUNTIES, TEXAS
BENNETT RANCH UNIT (SUN-TEXAS)
MAHONEY LEASE (MOBIL)
WILLARD UNIT (ARCO)
WASSON ODC UNIT (AMOCO)
ROBERTS UNIT (TEXACO)
CORNELL UNIT (CORNELL)
DENVER UNIT (SHELL)
CO2 PILOT
DENVER UNIT OWNERS
SHELL 31.9
CONOCO 16.9
TEXACO 8.8
EXXON 6.6
ARCO 7.5
GETTY 6.2
OTHER 20.1
DENVER UNIT RECOVERY DATA
MM BBLS
REC EFF %
CUM REC EFF %
ORIG OIL IN PLACE 2,666 -- --
PRIMARY 434 16 16
WATERFLOOD 626 24 40
EST. CO2 880 33 73

Other CO_2 Projects In The Permian Basin

In addition to the Denver Unit, Shell Western has identified 21 fields which it operates as having CO_2 flood potential. Plans are progressing to begin CO_2 flooding in some of these fields in 1986.

Also, many other large San Andres reservoirs which are located in the Permian Basin are being slated for CO_2 injection over the next decade. In addition to projects already in progress (Chevron's SACROC, Shell's North Cross Unit and Denver Unit, Amerada Hess' Seminole Unit and Exxon's Mean's Unit), several fields are to begin injection projects prior to 1986. Amoco's Slaughter Estates Unit and the Wasson ODC Unit, Arco's Willard Unit and Phillip's East Vacuum Unit are just a few of the fields already committed to CO_2 flooding.



Conclusion

Sleeping Ute Mountain is a local landmark which was responsible in part for the formation of CO_2 from carbonate rock when it was created by volcanic activity millions of years ago.

The cost of projects such as these is substantial. In preparing the CO_2 flood for startup at the Denver Unit, Shell Western and its partners invested about $900 million.

This included $200 million for development of the major carbon dioxide source fields, $480 million for the construction of the 500-mile pipeline to West Texas and $220 million for wells, facilities and a gas treating plant for CO_2 injection at the Denver Unit. Over the life of the project, total investment, in terms of current dollars, will be about double the startup costs.

Injection of CO_2 is only one of several enhanced recovery methods being developed for increasing domestic oil production and the Denver Unit is only one of many similar projects to follow.

Producing more oil from fields like the Denver Unit can help give our country the time it needs to develop alternate ways of producing energy. But that development takes more innovation, more research and more commitment, so that Shell Western and other companies can continue to provide this energy source so vital to our nation.


SHELL WESTERN E&P INC.
CO2
MID CONTINENT DIVISION

TESTIMONY OF G. W. KEYS
SENATE TAX COMMITTEE
April 3, 1985

I am George W. Keys, manager of production administration for the Rocky Mountain Division of Shell Western E&P Inc. I have worked for Shell Oil Company and its subsidiaries for 28 years in various assignments related to operations, engineering, research and economics. I am here today to speak in favor of House Bill 636, a proposal to encourage increased oil production in Montana by tertiary production methods.

Montana's oil industry is important to the state's economic well being. Montana ranks thirteenth in production among the oil and gas producing states. In 1983, oil and gas produced in Montana provided more than $44 million in revenue to the state from severance taxes and more than $100 million in royalty income to mineral owners. County Net Proceeds taxes were more than $75 million in 1982. More than 8,000 Montanans are employed in the oil and gas industry.

However, Montana's oil and gas production is declining, and the income generated by that oil and gas also is declining. In 1968, the peak year for production in the state, 48.5 million barrels of oil were produced. In 1983, oil production had dropped to 29.3 million barrels. It will continue to decline because few new oil fields are being discovered.

In our own oil fields at the Cedar Creek Anticline in eastern Montana, we expect oil production to decline about 50 percent in the next ten years. These oil fields represent about 25 percent of Montana's total oil production. My company currently represents about $60 million in economic impact annually in state severance taxes, local county Net Proceeds and property taxes, royalties, payrolls and purchases from Montana suppliers. Unless action is taken to increase oil production, that impact of about $60 million will be reduced by half by the mid-1990s.

The State of Montana and the oil industry face a crisis in energy production and revenue. However, we can work together as partners to minimize the effects of this crisis.

The oil industry is capable of producing more oil from existing fields through relatively new tertiary production methods. For the most part, these methods are experimental and very costly compared to more normal production methods. They require big investments at the beginning of the project and have much longer payout times than other production methods.

The federal government has recognized these factors by providing tax reductions on oil produced by tertiary methods. Several states also have passed laws in recent years to provide tax incentives to increase oil production and continue oil industry investment.

Exhibit 2 -- HB 636
April 3, 1985

XA0850492

Montana can do the same by passing H.B. 636. The bill provides that additional oil produced by these more expensive methods (that is, the amount of oil beyond that which is produced by secondary recovery processes) would be taxed at a rate of 2 1/2 percent over the life of the project, or one-half the currently legislated rate (effective April 1985). The amount of oil that would have been recovered under secondary recovery processes would continue to be taxed at the currently legislated severance tax rate. It also mitigates negative impacts on Net Proceeds taxes at the county level from the large startup costs in the first few years of a project. It does this by the amortization of the cost of purchased carbon dioxide (CO_2) over 10 years.

CEDAR CREEK ANTICLINE PROJECT DESCRIPTION

We anticipate producing about 300 million barrels of oil in the Cedar Creek Anticline in eastern Montana using primary production and waterflood methods currently in use. We anticipate that flooding the oil fields with carbon dioxide will recover up to another 100 million barrels of oil. This is oil that would otherwise be left underground and could not be produced under current production methods.

Preliminary evaluation of the feasibility of using carbon dioxide to increase oil production at the Cedar Creek Anticline was completed in 1984. A pilot test to provide on-site research and analysis of carbon dioxide flooding in the Anticline was conducted by Shell Western in its South Pine Unit in Wibaux County. Pilot operations involving three wells began in February 1984. Carbon dioxide was injected during August-October 1984. Shell Western then began waterflooding to produce all of the oil generated in the reservoir by the carbon dioxide. Completion of pilot operations is expected in the next few weeks.

Engineering research and evaluation of data acquired during pilot operations is expected to be completed by about May 1985. This evaluation will help Shell Western to determine whether the project is technically feasible. It will provide data that can be used to make more accurate predictions about oil recovery using the carbon dioxide injection process.

Shell Western E&P plans to have completed its evaluation of potential sources for carbon dioxide by mid-year. Two major sources are being considered at this time. Although the exact cost is still unknown, we know that it will be very expensive.

Shell Western expects to have all of the information it needs to make a final decision about whether to go ahead with the full-scale carbon dioxide project in Montana sometime in the second half of 1985.

ECONOMICS

From a financial and technical standpoint, the oil industry views carbon dioxide projects as high-risk, economically marginal ventures. They are very expensive, requiring huge front-end expenditures. Operating expenses are significantly greater than for waterflood projects. Payout time is about 10 years or more -- about twice waterflood project payout. And CO_2 is still an emerging technology.

We've made our preliminary projections of the Cedar Creek Anticline project's economics based on the best knowledge we had at the time. These are based on constant 1984 dollars, with no inflation included and constant oil prices.

Under current conditions with reasonable projections of the key factors necessary for a successful project, we believe the project is only marginal. We have to be very optimistic about one or more of these factors and the future economic environment for the project to be economically justified compared to other investment opportunities by the company.

The key factors are total oil recovered, carbon dioxide source and cost, price of oil, and tax level. I mentioned that we expect total oil recovery to be up to as much as 100 million barrels. It could be more or less. We do have some flexibility on this factor, but a large minimum oil reserve is necessary.

I've mentioned that carbon dioxide is still an unknown as far as the source and the cost. Future oil price also is a major unknown, but we must plan for a real growth in the price of oil to make the project economical. That is, the price of oil must increase faster than the inflation rate. Oil has been declining rapidly in price in recent months and is now about $25 per barrel. This is certainly going to have a negative influence on our management's decision about this project.

Tax treatment is the other main factor that will affect our decision on the project. The federal government's reduction in windfall profits tax on tertiary oil production is significant. But this benefit is diminished under current oil price trends. Other states have provided severance tax reductions to increase oil production. Louisiana, Mississippi and Kansas have tax incentives laws in effect, and the Wyoming legislature passed a bill in this year's session. Montana needs this tax legislation to make the Cedar Creek Anticline project economically viable and to encourage other tertiary projects in the state.

CURRENT PLANNING STATUS

On a project of the size and scope of the Cedar Creek Anticline, much advance planning and work must be completed even before the project is ultimately approved by the company's board of directors. We cannot wait until the very last minute to plan and make preparations. We have been doing everything we can to facilitate the project, hoping that it does go forward. This includes discussions with companies having the ability to provide CO_2 for the project. It is important that you understand we must do this work now to meet our construction schedule, even though we do not yet know for sure that we actually will go ahead with the CO_2 project. As stated previously, a final decision will be made in the last half of 1985.

The Exxon pipeline from Wyoming is one of the potential sources of CO_2 for the project. We've held discussions with Exxon and are continuing to talk to them about furnishing CO_2. We also are continuing our discussions with representatives from the ANR coal gasification project in North Dakota, the other major potential CO_2 supplier.

Exxon has been making plans for its CO_2 pipeline and also is proceeding with the necessary prerequisites to line installation. This does not mean it is a certainty the pipeline will be built. To meet our timing, as well as the timing of other potential CO_2 buyers, Exxon has had to take a number of preliminary actions. Some of these have been publicized, and many of you probably have heard of them. It should not be assumed from the preliminary work of Exxon and SWEPI that these projects are definitely committed. Such an assumption would be wrong; they are not yet approved projects with corporate investment money budgeted.

There also have been questions about other potential CO_2 projects in the state. To our knowledge, the Cedar Creek Anticline project is by far the largest and certainly the most advanced in terms of planning of the potential projects. We do not believe that other projects would be any more amenable to CO_2 flooding or potentially better or more profitable than ours. Thus the incentive provided by this legislation would encourage other major investments in these projects just as it will for ours.

CONCLUSIONS

H.B. 636 is designed to provide economic incentive to the oil industry to produce more oil in Montana. It also will prevent significant adverse effects on state or local revenues.

The benefit of this bill to the oil industry depends on results. The amount of the benefit depends on the amount of additional oil produced. Other incentives could be designed to give more benefit up front, and frankly, these would be more desirable from industry's standpoint.

But this bill has been designed so that both the state and the oil industry will share in the revenues from additional production. Also, state and local governments will not have significant adverse impacts.

Let me repeat that this project is risky. We need all of the encouragement we can get to help reduce the investment risk of the project. We need the tax incentive provided in this bill.

While some inflation in oil prices is probable, the costs of this type of project (particularly the carbon dioxide costs) also will inflate, thus reducing much of the benefit of a normal oil price increase. Some oil price increase above the inflation rate is necessary to make the projects viable.

The time for a decision is now. Our Cedar Creek Anticline project must be started soon if it is to be done. We cannot do the project later because of technical and economic reasons.

Government and industry can work together on this project for the good of all. A reduction in the severance tax on this additional oil production could result in many benefits for Montanans if the project becomes a reality:

- Specifically, CO_2 flooding would extend the producing life of Cedar Creek Anticline reservoirs by about 50 years and result in a peak incremental production of about 10,000 barrels per day.

- Capital investment by industry for this project alone would be about $225 million. Operating expenses over the life of the project are estimated to be an additional $1.1 billion, including more than $500 million for purchased CO_2.*

- The State of Montana would receive about $60 million additional severance tax income from CO_2 incremental production (based on 2.5% incremental oil severance tax rate).*

- An estimated $135 million in additional net proceeds taxes and property taxes would be paid to eastern Montana counties from CO_2 projects in the Cedar Creek Anticline (based on current mill levies).*

Your favorable decision on this bill will bring Shell Western one step closer to making the decision that will result in significant new investments in eastern Montana within a few years to increase oil production.

Thank you for considering our viewpoints.

* Based on 1984 dollars and crude price of $27.94

PROGRESS BAKER & FALLON COUNTY

for enhancement for economic growth

P.O. BOX 679 • BAKER, MONTANA 59313 • (406) 778-3344

Senate Taxation Committee
Tom Towe, Chairman

Progress Baker and Fallon County, representing over 500 members, believe that passage of House Bill 636 - Tertiary Oil Reduction, is essential to our economic survival of the Cedar Creek Anticline and all people associated with it.

Passage of this bill will allow for over $1 Billion to be placed in the economy of Eastern Montana and the State. It will also lengthen the life of oil production to over 50 years rather than the predicted 15 years.

The feasibility studies being conducted by Shell Oil indicate it is necessary to have the reduction to 2.5% Severance tax before the CO2 project can be implemented. If this Bill does not pass, it could mean Shell Oil will not go ahead with the project.

According to a spoksman for Exxon Oil (a possible supplier for CO2), a decision by Shell Oil not to implement the project could be a contributing factor to stop the construction of a pipeline carrying the chemical from Wyoming through Montana. This pipeline plans to employ over 900 people.

House Bill 636 has an amortization amendment, added by the House, addressing the payments of taxes to the counties of Montana where we would not suffer extreme hardships. If HB 636 passes, this time schedule of payments will keep eastern Montana from being thrown into a financial crisis. We feel our economy cannot stand any further financial setbacks. The Oil companies are our largest employers.

Passage of HB 636 as amended by the House is imparative.

Therefore, we ask that you consider a recommendation for a "Do Pass" in the Senate of a 2.5% Severance Tax.

Exhibit 3 -- HB 636
April 3, 1985

Baker Chamber of Commerce
Building a Better Baker

Through . . .
● BUSINESS
● INDUSTRY
● AGRICULTURE

BAKER, MONTANA 59313

Senate Taxation Committee
Tom Towe, Chairman

The Baker Chamber of Commerce would like to go on record as being a proponent for House Bill 636.

We believe passage of this bill is imparative to the economy and well being of eastern Montana. The employment and incomes generated from Shell Oil's implementation of the CO2 injection method of tertiary recovery, will help to boost the economy of the State of Montana.

Shell Oil has proposed that the CO2 injection process will enhance Montana's economy in excess of $1 Billion. This is a figure we take seriously.

We want the CO2 to be introduced to Montana and we believe the incentive in the reduction of the Severance Tax expressed in House Bill 636, is the key that will encourage an extension to this industry.

Therefore, we urge you to consider a recommendation to the Senate to Pass HB 636 in the written form as the House Passed it recently.

Sincerely,

Dale Boggs

Dale Boggs, President
Alice Anderson, Secretary

Exhibit 4 -- HB 636
April 3, 1985

TABLE 1
TAXABLE VALUE IN FALLON COUNTY DUE TO SHELL

Year	Waterflood (millions)	CO2: 1 year (millions)	CO2: 10 year (millions)
1984	84.7		
1985	78.1	CO2 Injection begins in 1987	
1986	71.0		
1987	64.3	45.0	45.0
1988	58.1	14.9	50.6
1989	51.2	8.5	39.9
1990	44.7	10.8	37.2
1991	38.8	21.8	41.4
1992	35.6	30.0	44.8
1993	32.1	44.9	53.6
1994	28.4	47.2	51.1
1995	24.2	51.1	49.6
1996	20.9	48.5	43.0
Average from 1987 to 1996:			
	39.83	32.27	45.62

TABLE 2
TAXABLE VALUE OF FALLON COUNTY

Year	Waterflood (millions)	CO2: 1 Year (millions)	CO2: 10 Year (millions)
1984	115.7 (actual)		
1985	109.1	CO2 Injection begins in 1987	
1986	102.0		
1987	95.3	76.0	76.0
1988	89.1	45.9	81.6
1989	82.2	39.5	70.9
1990	75.7	41.8	68.2
1991	69.8	52.8	72.4
1992	66.6	61.0	75.8
1993	63.1	75.9	84.6
1994	59.4	78.2	82.1
1995	55.2	82.1	80.6
1996	51.9	79.5	74.0
1987-1996 Average			
	70.83	63.27	76.62

TABLE 3
MILL LEVY IN FALLON COUNTY

Year	Waterflood (millions)	CO2: 1 year (millions)	CO2: 10 year (millions)
1984	85.8		
1985	91.0	CO2 Injection begins in 1987	
1986	97.3		
1987	104.1	130.6	130.6
1988	111.4	216.2	121.6
1989	120.7	251.3	140.0
1990	131.1	237.4	145.5
1991	142.2	188.0	137.1
1992	149.0	162.7	130.9
1993	157.3	130.8	117.3
1994	167.1	126.9	120.9
1995	179.8	120.9	123.1
1996	191.2	124.8	134.1
Average from 1987 to 1996:			
	145.39	168.96	130.11

Exhibit 5 -- HB 636
April 3, 1985

TABLE 4
COLLECTIONS FOR STATEWIDE LEVIES
BASED ON TOTAL TAXABLE VALUE OF FALLON COUNTY
(University Levy and School Foundation Program)

Year	Waterflood (millions)	CO2: 1 year (millions)	CO2: 10 year (millions)
1984	$5.900		
1985	5.564		
1986	5.202		
1987	4.860	3.876	3.876
1988	4.544	2.341	4.162
1989	4.192	2.015	3.616
1990	3.861	2.132	3.478
1991	3.560	2.693	3.692
1992	3.397	3.111	3.866
1993	3.218	3.871	4.315
1994	3.029	3.988	4.187
1995	2.815	4.187	4.111
1996	2.647	4.055	3.774
Total from 1987 to 1996:			
	36.12	32.27	39.08

TABLE 5
STATE OIL SEVERANCE TAX COLLECTIONS
UNDER VARIOUS TAX RATES

YEAR	H2O ONLY AT 5%	H2O+CO2 AT 5%	CO2 INCREMENT AT 2.5%	H2O ONLY PLUS AT 5%+2.5%
1984	8.7	8.7		
1985	8.6	8.6		
1986	8.2	8.2		
1987	7.5	6.7		
1988	6.8	6.4		
1989	6.3	7.0	.3	6.6
1990	5.7	7.5	.9	6.6
1991	5.3	8.3	1.5	6.8
1992	4.7	8.5	1.9	6.6
1993	4.1	8.3	2.1	6.2
1994	3.7	8.1	2.2	5.9
1995	3.3	7.9	2.3	5.6
1996	2.9	8.0	2.5	5.4
TOTAL	36.0	63.6	13.7	49.7

Wyoming State Legislature

213 Capitol Building / Cheyenne, Wyoming 82002 / Telephone 307/777-7881

Legislative Service Office
Ralph E. Thomas
Director

March 12, 1985

Mr. Jim Oppedahl
Office of Budget and Planning
State Capitol
Helena, Montana 59620

Dear Jim:

In response to our conversation last month, enclosed is a copy of the bill that passed relating to the taxation of tertiary production. To "fit it in" to Wyoming's statutes, enclosed is a book we prepare which relates to the taxation of all minerals. The statutes are contained in the appendix beginning on Page 40.

All other bills we discussed died, were killed or were vetoed. If you have any questions or if we can be of further service, please advise.

Sincerely,

C. James Orr
Assistant Director

CJO/mc
Enc.

Note: No charge for the book.

Exhibit 6 -- HB 636
April 3, 1985

(ORIGINAL SIGNED BY
PRESIDENT AND SPEAKER)
SIGNED BY GOVERNOR
DATE: 3-4-85
CHAPTER NO: 210

ORIGINAL HOUSE
BILL NO. 0341

ENROLLED ACT NO. 122, HOUSE OF REPRESENTATIVES

FORTY-EIGHTH LEGISLATURE OF THE STATE OF WYOMING
1985 GENERAL SESSION

AN ACT to amend W.S. 39-6-301(a) by creating a new paragraph (vi) and renumbering (v) as (vii) and 39-6-302 by creating a new paragraph (k) relating to excise taxes on tertiary production; defining tertiary production; reducing the excise taxes imposed on such production; and providing for an effective date.

Be It Enacted by the Legislature of the State of Wyoming:

Section 1. W.S. 39-6-301(a) by creating a new paragraph (vi) and renumbering (v) as (vii) and 39-6-302 by creating a new paragraph (k) are amended to read:

39-6-301. Definitions.

(a) As used in this article:

(vi) "Tertiary production" means the crude oil recovered from a petroleum reservoir by means of a tertiary enhanced recovery project to which one (1) or more tertiary enhanced recovery techniques meeting the certification requirements of the Wyoming oil and gas conservation commission or the United States government are being applied;

(vii) "This article" means W.S. 39-6-301 through 39-6-306.

39-6-302. Excise taxes on extraction of minerals.

(k) Tertiary production resulting from projects certified by the Wyoming oil and gas conservation commission after July 1, 1985 and before July 1, 1990, is exempt from two percent (2%) of the excise tax imposed by W.S. 39-6-302(b) for a period of five (5) years from date of first tertiary production.

ORIGINAL HOUSE
BILL NO. 0341

ENROLLED ACT NO. 122, HOUSE OF REPRESENTATIVES

FORTY-EIGHTH LEGISLATURE OF THE STATE OF WYOMING
1985 GENERAL SESSION

Section 2. This act is effective July 1, 1985.

(END)

Speaker of the House

President of the Senate

Governor

TIME APPROVED: _____

DATE APPROVED: _____

(ORIGINAL SIGNED BY PRESIDENT AND SPEAKER)

SIGNED BY GOVERNOR

DATE: 3-4-85

CHAPTER NO: 210

STANDING COMMITTEE REPORT

April 3, 1985

MR. PRESIDENT

We, your committee on Taxation

having had under consideration House Bill No. 652

third reading copy (blue color)

(Senator Halligan)

ALLOWING RECLAMATION AND ADMINISTRATIVE COSTS DEDUCTED FROM NET PROCEEDS.

Respectfully report as follows: That House Bill No. 652

BE CONCURRED IN

~~DO PASS~~

~~DO NOT PASS~~

Senator Thomas E. Towe, Chairman.