1999/2000 Annual Report

Petroleum Technology Research Centre

Creating Solutions For The Petroleum Industry

1999/2000 Highlights

1. 20 new research projects launched
2. Administrative framework established
3. Business and marketing plans developed
4. Completion of PTRC building
5. Strategic studies undertaken
6. Logo, website developed
7. Strong committee structure established
8. Weyburn Monitoring Project launched
9. Five NRCan professorships filled
10. Incubation fund established
11. Engineering software acquired
12. PTRC award system established
13. Operating agreement for PTRC building
14. CFI equipment on order

Message From The Chairman

The 1999-2000 fiscal year for the Petroleum Technology Research Centre was one in which great progress was achieved towards our goal of creating a world class petroleum technology facility. The Board of Directors was delighted to be able to attract Roland Moberg, P.Eng. as the first General Manager of the PTRC. Roland brings a very unique combination of skills: knowledge of the petroleum industry gained in a successful career in holding executive positions , experience in research projects and a strong appreciation for the importance of research to the petroleum industry and a personal commitment to contribute to research development in Canada.

The PTRC has already sponsored many projects. This activity will accelerate when we move into our new state-of-the-art building mid-summer 2000.

Key challenges for PTRC will be to assist the University of Regina and the Petroleum Division of the Saskatchewan Research Council to retain and recruit researchers to conduct approved projects. The PTRC is a unique partnership amongst the Federal Government, Government of Saskatchewan, the Saskatchewan Research Council and the University of Regina. We are looking forward to using this model to develop a highly recognized research institution that will make significant contributions to the petroleum industry and to the economies of Saskatchewan and Canada. I would like to express my personal thanks to the Board, the Management and Technical Advisory Committees for their excellent support during the past year.

Frank Proto

Message from the General Manager

Fiscal year 1999/2000 was a year of starting to build strong, productive and lasting relationships among all the individuals involved with the PTRC; from the Board of Directors to the individual researchers from SRC and U of R. This process of learning about the strengths and unique skill sets of each other will accelerate with the move into the new building.

Research is about people pursuing their ideas with perseverance and conviction while always looking for ways to effectively serve their clients.

Many of the building blocks have been put in place for the creation of a vibrant petroleum technology research centre such as the research protocol that outlines the criteria and process for approving new research projects, the business and marketing plans as well as effective committees with strong industry participation.

Over 20 new research projects have been launched in the last year.

In particular, the IEA Weyburn CO2 monitoring project has brought together researchers from both Europe, Canada and the US to do research into cost effective technologies for long term sequestration of CO2. This research project will bring together international sponsors from both public and industry and will include all the sciences related to geological storage of CO2. This $35 million four year research project is expected to lay the groundwork for protocols for geologic storage world wide.

The following long term key goals have been established for PTRC:

1.A high impact portfolio of research projects
2. A high quality research organization
3. A flourishing and productive working environment
4. A customer oriented organization
5. One-stop shop for Saskatchewan petroleum intelligence
6. An effective and efficient administrative platform

The business environment for petroleum research is continuing to change rapidly. This will demand an organization that is in tune with the needs of the customers and is prepared to deliver high quality services in a timely and cost competitive manner. The trend is towards more collaborative research which again will require new skills.

The recent restructuring of PRI and CFER under the Alberta Research Council is expected to create a formidable petroleum research organization. PTRC must learn to keep pace with that organization. Accordingly, PTRC must develop the organizational capability to incorporate best practices in research as quickly as possible.

A major challenge for PTRC to overcome is its physical location in Regina while most of its clients are located in Calgary. We are examining the option of having marketing representation for PTRC in Calgary.

PTRC represents a significant opportunity for both SRC and U of R to work collaboratively in the full range of research from basic to applied while accessing and sharing in the best equipment.

It is our intent to apply mid next year for additional equipment grants from the Canadian Foundation for Innovation.The remaining equipment allocation for PTRC of $1 million could potentially be leveraged for a total of $5million.

The most important challenge for PTRC in the next few years is to increase the amount of industry funding it receives. A target of $1 million has been set for our next fiscal year. This is a major challenge given the short term focus of the industry.

We are very thankful to Geoscout, Accumap and Merak who donated engineering software to our researchers.

A critical component of the plan for PTRC is to fill the Chair in petroleum at U of R in the next year. This will provide the necessary guidance and mentoring for our young petroleum professors.

In closing, I would like to express my thanks to all those that so willingly have lent a hand in helping us to grow this new petroleum research centre.

Major Research Areas for PTRC

Enhanced oil recovery:
Gas/solvent injection
Thermal SAGD
Chemical flooding
Production/Development:
Improved surface treating equipment/process
Expert system applications
Sand/slop oil production / handling/cleaning
Non-diluent heavy oil pipelining
Environmental:
Treatment/disposal of produced fluids/solids
Remediation technologies

Key Researchers At The Petroleum Technology Research Centre

Koorosh Asghari, PhD Assistant Professor, Petroleum Systems Engineering, University of Regina

Eddie S. N. Chung, Bsc, Sr. Research Chemist
Process Development Branch, Saskatchewan Research Council

Mingzhe Dong, PhD, Research Engineer, Gas/Chemical EOR,Petroleum Branch, Saskatchewan Research Council

Norman Freitag, PhD, Peng, Senior Research Engineer, In-situ combustion,Petroleum Branch, Saskatchewan Research Council

Yongan (Peter) Gu, PhD, Assistant Professor
Petroleum Systems Engineering, University of Regina

Gordon G.H. Huang, PhD, Peng, Associate Professor, Environmental Engineering, University of Regina

Sam S. Huang, PhD, Manager, Gas/Chemical EOR
Petroleum Branch, Saskatchewan Research Council

Cindy Jackson, Bsc, Associate Research Scientist
Process Development Branch, Saskatchewan Research Council

Keith Hutchence, Msc, Sr. Research Scientist, Gas/Chemical EOR, Petroleum Branch, Saskatchewan Research Council

Brian Kristoff, BSME, Peng, Manager,
Horizontal Wells / Thermal EOR, Petroleum Branch,
Saskatchewan Research Council

Ernie Pappas, BSME, Peng, Director Petroleum Branch,
Saskatchewan Research Council

Harald Liebe, MSc, Peng, Research Engineer, Horizontal Wells / Thermal EOR,Petroleum Branch, Saskatchewan Research Council

Gay Renouf, Bsc, Associate Research Scientist
Petroleum Branch, Saskatchewan Research Council

Hairuo Qing, Phd, Assistant Professor
Department of Geology, University of Regina

D.W. (Doug) Soveran, BSc, Peng,
Manager, Value Added ProcessingProcess Development Branch, Saskatchewan Research Council

R.J. (Jerry) Scoular, BSc, Peng, Senior Research Engineer
Petroleum Branch, Saskatchewan Research Council

Gang (Gary) Zhao, PhD, Assistant Professor, Petroleum Systems Engineering, University of Regina

Bela Verkoczy, PhD, Senior Research Scientist
Petroleum Branch, Saskatchewan Research Council

1999-2000 Key Research Results

Using Ionic Liquids to Upgrade Heavy Oils

Heavy oil was significantly upgraded in a low temperature, ionic liquid mixture. A technique to separate the converted hydrocarbons from the mixture (without deactivating the ionic liquids) was also devised and tested.

Heavy Oil Upgrading Using Supercritical Water/Catalyst Technology

Reaction conditions that resulted in the maximum quality improvement were identified in a series of batch reaction tests. Continuous unit testing is required for further development of the technology.

Variable Frequency Microwave In Various Oil Field Applications

One week of testing at a microwave supplier's site was done to test the application of microwaves to emulsion breaking and heavy oil upgrading. In both situations, better results were obtained at non-standard frequencies.

Artificial Intelligence System Development for Oil-Water Separation Processes

Discussions are in progress with a potential oil treater manufacturer to join the project - one of the requirements for PTRC project support. Project work is expected to begin in the 3rd quarter of 2000.

Emulsions/Chemical Enhanced Recovery for Heavy Oil

Samples have been collected from the field. Tests are at a mature stage and exhibiting promising results in one reservoir. The other reservoirs are under optimization and progressing well. A proposal has been suggested to two industry participants for a field test. An interim report is proposed for August and a final report due in September.

Methane Pressure Cycling Process with Horizontal Wells for Heavy Oil Reservoirs

The injection of produced gas, followed by water to re-pressure a reservoir, can restore solution gas drive production. Repetition of the pressure cycle can significantly increase production from thin and wormholed heavy oil reservoirs.

Alkaline/Surfactant/Polymer (ASP) Flood Potential of Southwest Saskatchewan Medium Oil Reservoirs

The potential of ASP flooding in southwest Saskatchewan medium oil reservoirs has been analyzed based on the screening criteria suggested in the literature. About 49% of the pools in the area qualify for ASP flooding. For a medium oil from the area, several surafactants were tested and very low oil/water interfacial tension (~ 0.1 dyne/cm) was obtained. Investigation of the interaction between the ASP system and the crude oil and formation water is in progress by measuring oil/water interfacial tension and conducting coreflood tests.

Horizontal Well Technology

This 5-year research program has developed methods/technologies for dealing with a number of challenges involved with the use of horizontal wells in the recovery of heavy oils such as applications in active bottomwater reservoirs, in thin and thick heavy oil reservoirs, sand accumulation, transport and cleanout in horizontal wellbores as well as multiphase flow in the horizontal wellbores.

Results

Discussion

Key Challenges For 2000-2001

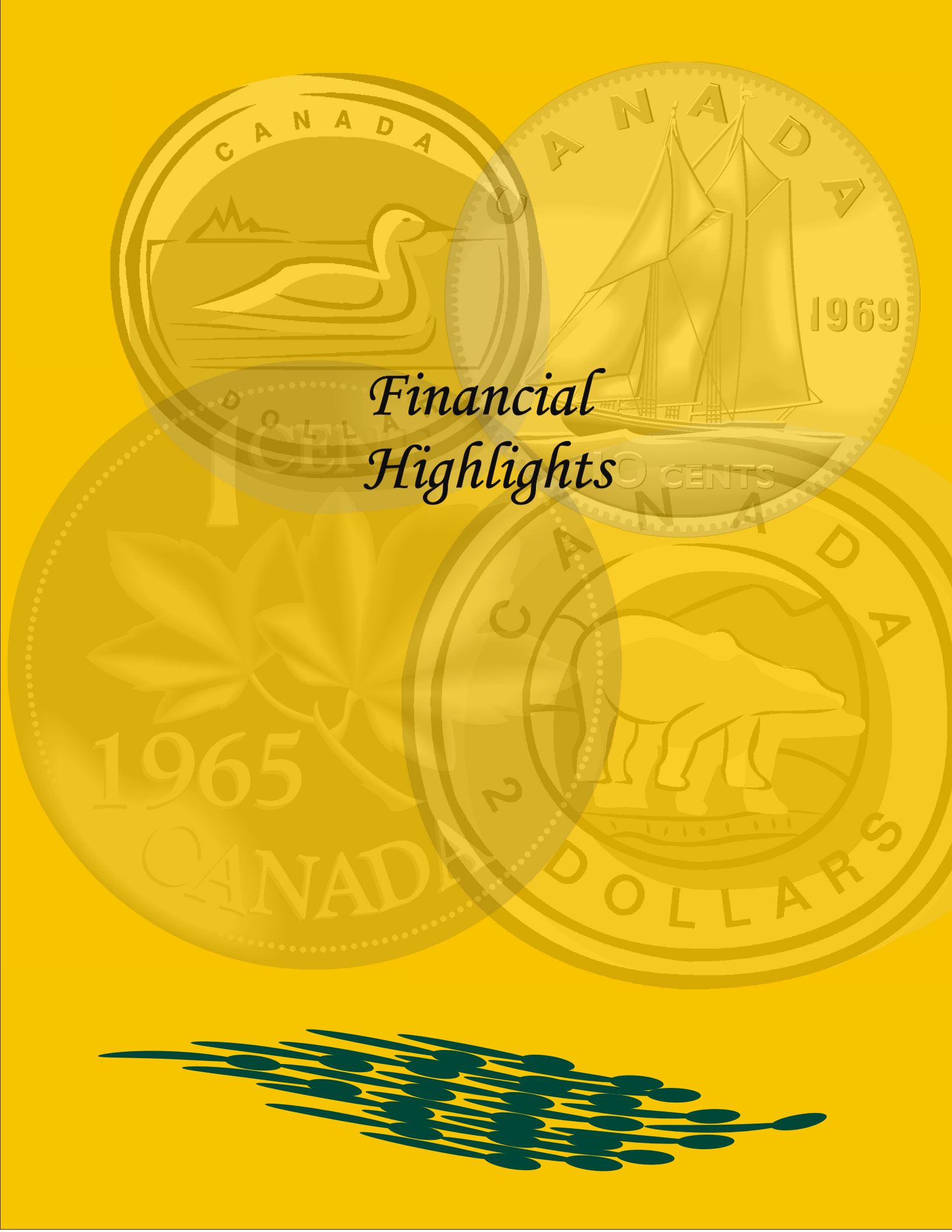
- Increase industry funding to $1 million
- Mount a strong marketing campaign
- Create synergy between SRC and U of R researchers
- Establish key research areas
- Develop a high impact research portfolio
  - Develop a flourishing and productive working environment
  - Develop a custom oriented organization
  - Provide a one-stop shop for Saskatchewan petroleum intelligence
  - Launch the Weyburn Co2 monitoring project
- Execute the collaborative Vapex research project for maximum learnings
- Submit a comprehensive application to CFI
- Fill the Wascana endowed research chair
- Make effective use of incubation fund
- Develop a plan for small companies

Sponsored Projects

Emulsions/Chemical Enhanced Recovery for Heavy Oil	To develop a low cost and effective emulsion enhanced oil recovery technology that is applicable to the majority of heavy oil reservoirs	$70 000	II	Data from research is being compiled and the final report is being prepared
Artificial Intelligence System Development for Oil-Water Separation Processes	To develop an intelligent control system that will improve control of the oil-water separation process to produce on – spec oil	$25 000	II	Discussions are continuing for participation in the project, a test site may be provided for the software
Alkaline/Surfactant/Polymer Flooding	To study the technical feasibility of alkaline / surfactant / polymer flooding in southwest Sask. medium oil reservoirs.	$30 000	I	Screening of Saskatchewan's southwest reservoirs is complete. Project is about 60% complete.
Prospects for Enhanced Oil Recovery by Air Injection in the Saskatchewan Portion of the Williston Basin	To determine if air injection is a feasible oil recovery process in south eastern Sk. and determine CO2 generated in – situ by oxygen injection can economically compete with pipelined CO2 for enhance oil recovery	$10 000	I	On hold temporarily.
Methane Pressure Cycling	To develop an enhanced oil recovery process using immiscible gas injection in several pressure cycles and infill horizontal wells.	$70 000	I	The final report has been prepared and distributed to the participants
Horizontal Well Project	The development and application of horizontal well technology for the exploitation of Canada's heavy oil resources.	$60 000	I	Client presentation of the final report will take place in August 2000.
Variable Frequency Microwave – Oil and Water Separation and Crude Oil Upgrading	To determine if any microwave frequency can emulsify heavy slop oils, or be used to upgrade heavy oil.	$10 000	I	New completion date is expected to be July 2000
IEA Weyburn CO2 Monitoring Project	To establish the degree of security with which greenhouse gases, particularly carbon dioxide, can be sequestered in subterranean formations during large scale, commercial, enhanced oil recovery operations	$80 000	II	Project will be officially launched on July 13, 2000
Heavy Oil Upgrading Using Supercritical Water/Catalyst Technology	The process is capable of reducing heavy oil's viscosity to meet pipeline specifications and improving the density while producing little gas and minimal coke.	$30 000	II	Final report has been distributed to the participants
Using Ionic Liquids to Upgrade Heavy Oil	Develop or identify an upgrading technology suitable for small scale upgrading applications	$35 000	II	Have identified that changing the liquid from an acid to a base will cause the hydrocarbon and ionic liquids to separate. Final report has been issued.

Type of Project

I	**Breakthrough projects** are about creating new opportunities in the market place or new general knowledge. By their nature they are novel, exploratory, high risk and longer term. Often these projects will be 100 percent funded by the PTRC.
II	**Incremental projects** are evolutionary projects that are about improving process and production technologies that are already in use. These projects are typically cost shared with partners on at least a 50/50 basis.
III	**Service projects** are funded 100 percent by clients and take advantage of established PTRC expertise. Such work supports the organization's infrastructure by providing cash flow, but does not extend the PTRC's intellectual property base or know how.



Financial Highlights

Management discussion and analysis

Financial statements:

An analysis of the balance sheet shows, that at the end of fiscal year 1999/2000 PTRC had total current assets of $1,805,445 and current liabilities of $260,150. A restricted fund of $1,400,000 has been set up to cover a $400,000 commitment to SOCO for the new building and $1,000,000 for new capital equipment purchases. This equipment fund will be leveraged as high as $5,000,000 through an application to the Canadian Foundation for Innovation next year.

Statement of operations and members' equity shows that Saskatchewan Energy and Mines contributed a total of $300,000 with $50,000 being dedicated to help offset costs for launching the IEA Weyburn CO2 Monitoring Project. The contribution from NRCan was $829,000 and the interest income was $125,717. Industry funding that flowed directly through PTRC was $250,000. Other industry funding was paid directly to SRC.

General and administration costs totaled $536,920 with one-time costs for relocation expenses for general manager of $51,618 and start-up costs paid to SRC of $103,978. $80,770 was spent on incubation projects and $733,248 was spent on innovation projects for a total research cost of $814,018.

A payment of $1,600,000 was made to the University of Regina as part of the "Agreement for the acquisition of equipment" between PTRC and U of R.

Measures of success:

The success of the PTRC will be gauged annually through an assessment of the effects of its activities in the following six areas:

1. Program Reach – The reach of the PTRC into the petroleum industry and research community is important. Success in achieving expected reach would be measured by setting annual targets for such indicators as number of paying clients and research collaborators.
2. External Revenue-The long-term viability of the PTRC will depend on the ability of the organization to attract funding for its work beyond NRCan and SEM. Annual targets will be set for external funding for research carried out by SRC and U of R and for research coordinated by PTRC and carried out by other research institutions.
3. Impact of Completed Projects- Objectives will be set to measure the technical, economic, and environmental impact of completed PTRC projects.
4. Client satisfaction – Client satisfaction with PTRC projects will be determined annually.
5. PTRC Recognition and Credibility – Recognition and credibility of work sponsored by the PTRC will be measured by setting objectives for publications, invited presentations, awards, testimonials, licenses, patent royalties and NSERC industrial funds.
6. Learning Culture – Objectives will be set to determine the continuous improvement in the expertise, capability and skills of the researchers involved in PTRC – related projects.

The reporting against the above measures of success will start in the next fiscal year.

AUDITORS' REPORT

To the Members of Petroleum Technology Research Centre Inc.

We have audited the balance sheet of Petroleum Technology Research Centre Inc. as at March 31, 2000 and the statements of operations, members' equity and cash flow for the year then ended. These financial statements are the responsibility of the Centre's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the centre as at March 31, 2000 and the results of its operations and changes in its cash flow for the year then ended in accordance with generally accepted accounting principles.

REGINA, Saskatchewan
June 12, 2000

Mintz & Wallace
Chartered Accountants

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC.

BALANCE SHEET
AS AT MARCH 31, 2000

Statement A

	Capital Fund	Operating Fund	2000 Total	1999 Total
ASSETS				
CURRENT ASSETS				
Cash	$ -	$ 39,665	$ 39,665	$ -
Accounts receivable	-	668,071	668,071	3,037,475
Due to/from other funds	311,915	(311,915)	-	
Temporary investments	1,088,085	-	1,088,085	-
Prepaid expenses	-	503	503	-
	1,400,000	396,324	1,796,324	3,037,475
CAPITAL ASSETS Note 2	-	9,121	9,121	-
	$ 1,400,000	$ 405,445	$ 1,805,445	$ 3,037,475
LIABILITIES AND MEMBERS' EQUITY				
CURRENT LIABILITIES				
Accounts payable	$ -	$ 260,150	$ 260,150	$ 383,091
CONTINGENT LIABILITY Note 3				
MEMBERS' EQUITY (DEFICIT)				
Unrestricted Statement C	-	145,295	145,295	(8,483)
Restricted fund Statement C	1,400,000	-	1,400,000	2,662,867
	1,400,000	145,295	1,545,295	2,654,384
	$ 1,400,000	$ 405,445	$ 1,805,445	$ 3,037,475

Approved on behalf of the Members'

_____ Director

_____ Director

See accompanying notes

Mintz & Wallace, Chartered Accountants

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC.

STATEMENT OF OPERATIONS
FOR THE YEAR ENDED MARCH 31, 2000

Statement B

	Capital Fund	Operating Fund	2000 Total	1999 Total
GRANTS				
- Saskatchewan Energy & Mines	$ -	$ 250,000	$ 250,000	$ 40,000
- Saskatchewan Energy & Mines IEA Weyburn Co2	-	50,000	50,000	-
- Natural Resources Canada	-	829,000	829,000	334,608
- SECD337,133	-	337,133	2,662,867	
INTEREST INCOME	-	125,717	125,717	-
INDUSTRY FUNDING	-	250,000	250,000	-
	337,133	1,504,717	1,841,850	3,037,475
EXPENSES				
Advertising and promotion	-	14,670	14,670	-
Amortization	-	1,610	1,610	-
Bank charges and interest	-	314	314	-
Board meeting	-	14,529	14,529	3,444
Conferences	-	10,171	10,171	-
Consulting fees	-	85,142	85,142	42,003
Dues and subscriptions	-	4,794	4,794	-
Executive search	-	546	546	60,962
Insurance	-	4,500	4,500	-
Legal and accounting	-	28,735	28,735	16,682
Miscellaneous	-	31,796	31,796	-
Office	-	2,199	2,199	-
Relocation expenses	-	51,618	51,618	-
Research building & equipment	1,600,000	-	1,600,000	-
Salaries and benefits	-	135,506	135,506	-
Start-up costs (SRC)	-	103,978	103,978	-
Supplies	-	46,813	46,813	-
RESEARCH COSTS Statement E				
Incubation projects	-	80,770	80,770	-
Innovation projects	-	733,248	733,248	260,000
	1,600,000	1,350,939	2,950,939	383,091
EXCESS REVENUE (EXPENDITURES)	(1,262,867)	153,778	(1,109,089)	2,654,384

See accompanying notes

Mintz & Wallace, Chartered Accountants

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC.

STATEMENT OF MEMBERS' EQUITY
FOR THE YEAR ENDED MARCH 31, 2000

Statement C

	Capital Fund	Operating Fund	2000 Total	1999 Total
MEMBERS' EQUITY (DEFICIT) beginning	$ 2,662,867	$ (8,483)	$ 2,654,384	$ -
EXCESS REVENUE (EXPENDITURES)	(1,262,867)	153,778	(1,109,089)	2,654,384
MEMBERS' EQUITY (DEFICIT) -ending	$ 1,400,000	$ 145,295	$ 1,545,295	$ 2,654,384

STATEMENT OF CASH FLOW
FOR THE YEAR ENDED MARCH 31, 2000

Statement D

	2000	1999
OPERATING ACTIVITIES		
Excess of revenues over expenses	$ 153,778	$ 2,654,384
Item not affecting cash:		
- amortization	1,610	-
	155,388	2,654,384
Net change in non-cash working capital items:	1,157,875	(2,654,384)
Net cash from operating activities	1,313,263	-
INVESTING ACTIVITIES		
Capital fund-proceeds from province	337,133	-
Capital expenditure building and equipment	(1,600,000)	-
Purchase of capital assets	(10,731)	-
Net cash used for investing activities	(1,273,598)	-
INCREASE IN CASH	39,665	-
CASH beginning	-	-
CASH ending	$ 39,665	$ -

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC.

STATEMENT OF PROJECTS AND EXPENDITURES FOR THE YEAR ENDED MARCH 31, 2000

Statement E

	Funds Allocated	Unexpended Expenditures	Funds
INNOVATION PROJECTS 1999			
Greenhouse Gas	$ 260,000	$ 260,000	$ -
INNOVATION PROJECTS 2000			
Greenhouse Gas	13,210	13,210	-
Fine Solids	55,200	23,200	32,000
Oleo Membrane	25,200	16,489	8,711
Heavy Oil Water	52,500	52,500	-
Heavy Oil Emulsions	92,790	92,790	-
Al Water/Oil	55,360	34,360	21,000
Polymer Flooding	41,250	41,250	-
Air/Oxygen Injection	13,750	3,750	10,000
Environment Scoping	10,000	10,000	-
Virtual Reservoir	15,238	15,238	-
Methane Pressure	105,580	105,580	-
Horizontal Wells	123,170	123,170	-
Ionic Liquids Upgrade	50,000	50,000	-
IEA Weyburn Co2	80,000	45,379	34,621
	733,248	626,916	106,332
INCUBATION PROJECTS			
Gel Sand Control	10,800	9,180	1,620
Laser-Assisted Remediation	9,860	9,860	-
Laser-Activated Polymer	9,860	9,860	-
Non-Intrusive Methods	7,650	7,650	-
Variable Frequency 1004	25,200	25,200	-
Leaking O & G Remediation	17,400	14,790	2,610
	80,770	76,540	4,230
Total	$ 1,074,018	$ 963,456	$ 110,562

Mintz & Wallace, Chartered Accountants

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC.

NOTES TO THE FINANCIAL STATEMENTS
MARCH 31, 2000

1. SIGNIFICANT ACCOUNTING POLICIES

Measurement uncertainty

The preparation of financial statements in accordance with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenses during the reported period. These estimates are reviewed periodically, and, as adjustments become necessary, they are reported in earnings in the period in which they become known.

Uncertainty due to the year 2000 issue

The Year 2000 Issue arises because many computerized systems use two digits rather than four to identify a year. Date-sensitive systems may recognize the year 2000 as 1900 or some other date, resulting in errors when information using year 2000 dates is processed. In addition, similar problems may arise in some systems which use certain dates in 1999 to represent something other than a date.

Although the change in date has occurred, it is not possible to conclude that all aspects of the Year 2000 Issue that may affect the company, including those related to suppliers, or other third parties, have been fully resolved.

Fund accounting

The accounts of the Centre are maintained in accordance with the principles of fund accounting. For financial reporting purposes, accounts with similar characteristics have been combined into the follow major funding groups:

- Operating Fund

  The operating fund reflects the primary operations of the Centre including revenues received from Sask. Energy & Mines, the federal government Dept of Natural Resources Canada and Industry to fund its operations and research projects. Expenses are for the daily operation of the Centre.

- Capital Fund

  The capital fund reflects the commitment of the Provincial Government to assist in funding a Petroleum Research Building on the campus of the University of Regina. These funds are restricted to be used to construct a building ($ 400,000) and equipment ($ 2,600,000).

PETROLEUM TECHNOLOGY RESEARCH CENTRE INC.

NOTES TO THE FINANCIAL STATEMENTS
MARCH 31, 2000

Capital Assets

The capital assets are stated at cost and are amortized using the declining balance method at the rates indicated in Note 2. Half a year's amortization is taken in the year of acquisition.

CAPITAL ASSETS

	2000			1999	
	Cost	Accumulated Amortization	Net Book Value	Net Book Value	Rates
Computers	$ 10,730	$ 1,609	$ 9,121	$ -	30%

3. CONTINGENT LIABILITY

A reserve fund of $ 100,000 has been set up to cover termination costs for the General Manager. This fund will only be used if funding from the Federal and Provincial Governments end in 2003.

ECONOMIC DEPENDENCE

The Centre has received funding commitments from the Department of Natural Resources Canada and Saskatchewan Energy & Mines for the years 1999 through 2003 for its operating and research projects:

Funding	2000 - 2001	- $ 1,150,000
	2001 - 2002	- $ 1,150,000
	2002 - 2003	- $ 1,150,000

The Research Centre will be seeking additional funding for its research projects from the Petroleum Industry.

Board of Directors

Person	Position	Organiztion
Frank Proto	Chairman of the Board	Petroleum Technology Research Centre
Ted Renner	President	Kiora Resources
Roger Thomas	President	Wascana Energy
David Tuer	President	PanCanadian Petroleum
Dee Parkinson-Marcoux	President	Ensyn Energy Corp.
John Zahary	President	Petrovera Resources Ltd.
David Barnard	President	University of Regina
Nigel Howard	President	Saskatchewan Opportunities Corp.
Jim Hutchinson	President	Saskatchewan Research Council
Carl Henneberg	President	Blacksmith Resources
Mike Monea	President	Flatland Exploration Ltd.
Bob Mitchell	Vice-President	Talisman Energy Inc.
Ray Clayton	Deputy Minister	Saskatchewan Energy & Mines
Ric Cameron	Acting Assistant Deputy Minister	Natural Resources Canada

Management Committee

Person	Position	Organiztion
Bruce Stewart	Director CANMET Western Research Centre	Natural Resources Canada
Malcolm Wilson	Director - Energy Development Branch	Saskatchewan Energy & Mines
Ernie Pappas	Director - Petroleum Branch	Saskatchewan Research Council
Amit Chakma	VP Research	University of Regina
Austin Beggs	Marketing Manager	Saskatchewan Opportunities Corporation
Roland Moberg	General Manager	Petroleum Technology Research Centre

Technical Advisory Committee

Person	Organization
Bill Thornton	Petrovera Resources
Bill Brown	Passage Energy
Ken Brown	PanCanadian
Brian Watt	Husky Oil
Rich Kerr	Wascana Energy
Ernie Pappas	SRC
Amit Chakma	U of R
Bruce Stewart	NRCan
Malcolm Wilson	SEM
Roland Moberg	PTRC

APPENDIX

Research Funding Secured by U of R Professors in support of PTRC related activities

Major Infrastructure Grants

Professors Chakma, Huang, Islam and Tontiwachwuthikul have been awarded a major infrastructure grant for the development of a Sustainable Heavy Oil Research Facility at the PTRC building. This research facility will consist of four major laboratories, namely Innovation Laboratory, CO_2 Utilization Laboratory, Production Laboratory and the Explosion Proof Specialized Laboratory. The total cost for this facility is $ 2,547,485. Canada Foundation for Innovation (CFI) will provide a total of $ 952,719.00, the remainder coming from the capital component of the PTRC initial grant received from the Western Economic Partnership Agreement.
The funds will be used to provide for fixed research infrastructure such as fume hoods, work benches, student work area, research display and instruction area and for research equipment such as Laser interferometer, computer image processor, PVT device, gasometer, high pressure and temperature solubility chamber, TGA/DSC system, scaled physical model etc.

Canada Foundation for Innovation also awarded another major grant in support of the Institute for Computational Discovery to a number of University of Regina professors led by Chris Shaw. One major component of this infrastructure is the Virtual Reservoir Lab, which will be situated at the PTRC building. The total value of this grant is $ 1,324,233.

Equipment Grants

The following equipment grants were awarded by NSERC and/or CFI to the University of Regina Professors, which will enhance the research capability of the PTRC.

Liquid Chromatograph with Mass Selective Detector, awarded by NSERC in 2000 to Professors Tontiwachwuthikul, Chakma and Huang. The total market value of $ 200,000. NSERC provided $ 99,056 with the remaining component as in-kind donation from the supplier.

Calorimeter , awarded by NSERC to Professors Chakma and Tontiwachwuthikul in 1999. The total market value of this equipment is $ 150,000. NSERC has provided $ 98,000.

Scanning Electron Microscope, awarded to Professors Idem, Gu and Veawab by CFI in 2000. The total value of this equipment is $ 127,718. CFI grant is $ 50,449. Saskatchewan Economic and Cooperative Development

High Pressure Fluid Flow System, awarded to Professor Gu by NSERC. Total value $ 33,457.00 (1999).

Microscopes for Petrographic Study of Core Samples and Thin Sections, awarded to Professor Qing. Total value $ 36,278 (1999).

Research Grants

Professors Tontiwachwuthikul, Chakma, Huang and Islam were awarded an Environmental Technology NSERC Strategic Grant to study "*Simultaneous separation of SO_2 and CO_2 from industrial flue gases*". This four year project (1999-2003) has a total value of $ 363,500.

Professors Chen, Tontiwachwuthikul and Benedicenti were awarded an Information technology NSERC Strategic Grant for the study of "*Ontology of software engineering for Pipeline Network Operations*". The total value of this award is $ 265,000 for a 3 year period (1999-2002).

APPENDIX

Professor Tontiwachwuthikul was awarded a four year research grant by NSERC for the study of "*High efficiency gas treating systems for CO2 capture and separation*". The annual value of the grant is $34,800 for the 2000-2004 period.

Professor Gu was awarded a four year research grants by NSERC in support of his research project titled, " Effects of Capillary Force, Wettability and Interfacial Phenomena on Fluid Flow in Porous Media". The annual value of this grant is $ 23,200 for the 2000-2004 period.

Professor Huang was awarded a four year research grant by NSERC for his research project titled, "Modelling of Uncertainities and risks in petroleum waste management system". The annual value of the project is $ 26,000 (2000-2004).

Professor Qing was awarded a four year research grant by NSERC in support of his research project on "diagenesis and geochemistry of carbonate rocks". The annual value of this project is $ 23,100 (2000-2004).

Professor Chakma was awrded a four year research grant by NSERC for the study of "Novel Gas Treating Processes and Enhanced Recovery of Heavy Oil". The annual value of the grant is: $29,610 (1999-2003).

Work on another Information technology Strategic Grants awarded by NSERC to Professors Chakma, Huang, Chen, Tontiwachwuthikul and Cercone for the 1997-2000 period continued. This project deals with the Development of Integrated Information and Decision Support System for Petroleum Waste Management. The total value of this project is $ 258,000. The 1997-2000 component is worth $ 88,000.

Total Leveraged Funding for 1999-2000.

Capital:

Sustainable Heavy Oil Recovery Facility:	$ 952,719.00
Institute for Computational Discovery:	$ 441,411.00 (1/3 of the total)
LC with Mass Selective Detector:	$ 200,000.00
Calorimeter	$ 150,000.00
Scanning Electron Microscope	$ 127,718.00
High Pressure Fluid Flow System	$ 33,457.00
Microscope for Petrographic Study	$ 36,278.00
Sub-Total	$ 1,941,583.

APPENDIX

Operating:

Environmental Strategic Grant (Paitoon et al.)	$	88,000.00
Information Technology Strategic Grant (Chen et al.)	$	86,000.00
Information Technology Strategic Grant (Chakma et al.)	$	88,000.00
Research Grant – Tontiwacwuthikul	$	34,800.00
Research Grant – Gu	$	23,200.00
Research Grant – Huang	$	26,000.00
Research Grant – Qing	$	23,100.00
Research Grant – Chakma	$	29,610.00
Sub-Total	$	398,710.00
TOTAL	**$**	**2,340,293.00**

Petroleum Technology
Research Center
6 Research Drive
Regina, Saskatchewan,
Canada S4S 7J9
Telephone: (306) 787-8290
Fax: (306) 787-8811
Internet: www.ptrc.ca