

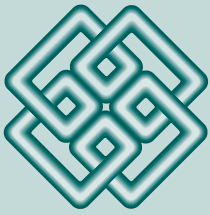
**PETROLEUM
TECHNOLOGY
ALLIANCE
CANADA**

PTAC

● creating value through

innovation

Facilitating Innovation, Technology Transfer,
and Collaborative Research and Development
in the Upstream Oil and Gas Industry



2002

Technology Transfer Value Creation Achievements Growth

Key Accomplishments

Record Participation in PTAC Workshops, Forums, Conferences and Technology Information Sessions

Co-hosted World's Largest Unconventional Gas and Coalbed Methane Conference with the Canadian Society for Unconventional Gas

Co-hosted Climate Change and Greenhouse Gas Technology Conference and Tradeshow with Climate Change Central

Launched Natural Resources Canada Industrial Energy Audit Incentive

Proposed Extension to PTAC's Mandate to Facilitate Sustainable, Eco-efficient and Economical Greenhouse Gas Technologies for the Hydrocarbon Energy Industry

Facilitated the Launch of 32 R&D Projects

Message from the Board of Directors

2002 was another busy year for PTAC characterized by several new initiatives and the financial challenge created by the termination of our natural gas technology transfer contract with Gas Technology Inc. (GTI). GTI's re-organization reduced their commitment to technology transfer in Canada and resulted in the closure of GTI E&P Services Canada and the premature termination of their contract with PTAC.

PTAC facilitated the launch of an additional 32 projects valued at \$18M, bringing the total number of projects launched since inception in 1996 to 157 projects valued at \$96.3M. Also, projects launched in prior years received \$21M in additional funding in 2002.

PTAC, in conjunction with the Canadian Society for Unconventional Gas (CSUG), hosted the world's largest Unconventional Gas and Coalbed Methane Conference and Tradeshow in October 2002. PTAC has also entered into an agreement with CSUG to provide ongoing services as their secretariat.

PTAC, in conjunction with Climate Change Central, hosted the Climate Change and Greenhouse Gas Technology Conference and Tradeshow in May.

In conjunction with Natural Resources Canada (NRCan), PTAC launched the Industrial Energy Audit Incentive for the upstream oil and gas industry in Western Canada.

PTAC hosted two Wireless, Telecommunications and e-Business forums in 2002. We also launched the Wireless City Pilot Project and a Producer Telecommunications Working Group late in 2002.

In October, PTAC proposed and received unanimous support in principle from members to extend our mandate to facilitate sustainable, eco-efficient and greenhouse gas-reducing technologies for the hydrocarbon energy industry. PTAC will provide technology transfer facilitation and access to technical material in this area through this new mandate.

PTAC is the leading organization that facilitates the development and transfer of petroleum technology in Canada. We facilitated 32 Technology Information Sessions and eight workshops and forums in 2002. We are frequently approached by members and industry to facilitate new initiatives and events.

PTAC's contact data base has continued to grow to over 7000 technical contacts from industry, government and academia. Our web site has expanded with considerable new content and a search engine. PTAC continues to seek feedback on the services we provide to create value through innovation for our members.

On behalf of the Board, we would like to express our appreciation to PTAC volunteers and staff for their outstanding contributions to our success.

Eric Lloyd
President of PTAC

Rich Kerr
Chairman of PTAC

BP Canada Energy Company
Burlington Resources Canada Energy Ltd.
ChevronTexaco
ConocoPhillips Canada
Deer Creek Energy Limited
Devon Energy Corporation
Dominion Exploration Canada Ltd.
EnCana Corporation
Enerplus Group
Husky Energy Inc.
Imperial Oil Limited
MGV Energy Inc.
NCE Petrofund Corp.
Nexen Inc.
Penn West Petroleum Ltd.
Petro-Canada Resources
Petroverra Resources Limited
Pointwest Energy Inc.
PrimeWest Energy Inc.
Shell Canada Resources Ltd.
Suncor Inc. - Resources Group
Talisman Energy Inc.
Trident Exploration Corporation

Arcis Parsons E&C Ltd.
Adams Pearson Associates Inc.
ADOIL Inc.
Advanced Geotechnology Inc.
Air Liquide Canada Inc.
Alberta Collision Avoidance
AMEC Earth & Environmental Ltd.
C.FSU
Alfa Laval - Process Technology
Oilfield Market Unit
Alpine Environmental Ltd.
Amtech Aeronautical Limited
Aqueolic
ARC Inc.
Arkril Enterprises
Ashton Jenkins Mann Petroleum Consultants
BJ Services Company Canada
Boreal Laser Inc.
Brenntag Siinnes Logistics

Brine-Add Fluids Ltd.
Burnet, Duckworth & Palmer - Energy Business Unit
Cambian
Can-K Artificial Lift Systems Inc.
Canwell Enviro-Industries Ltd.
CENDEC div. of TCenet Inc.
Centre for Passive Sampling of Maxxam Analytics
Chinook Engineering
Clearstone Engineering Ltd.
Computer Modelling Group Ltd.
Daily Oil Bulletin
Deep Blue Associates Inc.
Digital Oilfield Inc.
Eadie Group
Earth Canada Corp.
ElectroBusiness.com
Emergent Technologies

Energy Technology Group
Envirodrive Inc.
Envirosystems International Inc.
Envirotech Engineering
ESG International Ltd.
Extreme Telematics Corp.
G-Chem Environmental Ltd.
Gowling Lafleur Henderson LLP (Intellectual Property Development)
HotButton Solutions Inc.
Inno-centre Alberta
InSoil Canada Ltd.
John Zink Canada
Keystone Environmental Ltd.
Know2Act Corporation
Komex International Ltd.
KPMG High Technology Practice Group

Kudu Industries
Lightyear Technologies Inc.
Luscar Ltd. - Specialty Products Division
M2M Data Corporation
Maclead Dixon (Technology Enterprise Group)
Mastronic
Matibu Engineering and Software Ltd.
Matricon Inc.
Matrix Solutions Inc.
Mercury Electric Corporation
Meridian Environmental Inc.
Microlynx Systems Ltd.
Millennium EMS Solutions Ltd.
MJ Blair Corporation
Morrow Environmental Consultants Inc.

164
Members
As of March 31, 2003

Outlook for 2003 **Outlook**

PTAC expects 2003 to be another year of change with a significant shift in our focus to sustainable, eco-efficient and greenhouse gas-reducing technologies for the hydrocarbon energy industry. PTAC has secured substantial funding from Western Economic Diversification Canada for this mandate extension for the period January 1, 2003 to December 31, 2005. PTAC is optimistic that we will also secure funding from industry, the Alberta government and others for this climate change-related initiative. PTAC will continue to facilitate CAPP's Environmental Research Advisory Council (ERAC) process, as we have since 2000. We expect to host a number of information sessions, forums, workshops and technical meetings covering air, soil, water and ecological issues.

PTAC will continue to deliver the NRCan Industrial Energy Audit Incentive to the upstream oil and gas industry. We anticipate that the number of approved audit incentive applications will grow from the current number of 14 to the 100 targeted for funding under the two year program. PTAC plans to facilitate events to present audits results later in 2003.

PTAC will continue to support the Alberta Energy Research Institute (AERI) and their Core University Research in Sustainable Energy (COURSE) program by hosting events on completed research as well as future research needs and proposals.

PTAC also looks forward to the Fifth Annual Unconventional Gas and Coalbed Methane Conference slated for October 2003 in Calgary. This conference is a joint effort between PTAC and CSUG to communicate and facilitate technology development with the goal of increased commercialization of unconventional gas technologies.

PTAC will continue to advocate for an oil and gas technology development incentive mechanism, particularly for GHG and climate change-related technology pilot projects.

PTAC plans to continue hosting Wireless, Telecommunication and e-Business events. We will also continue with the Wireless City initiative and the Producer Telecommunication Working Group.

PTAC will be conducting an R&D challenges study for AERI. The purpose of this project is to provide the technology and related framework to significantly increase the recoverable conventional oil and gas and unconventional gas reserves and production in Alberta above that currently anticipated by 2008.

We have set a goal to facilitate the launch of 30 new projects with a value of \$10 million in 2003. We are striving for a significant financial surplus to build our cash reserves to 50% of our annual operating budget. PTAC will continue to operate in an open and collaborative fashion to provide focus on issues which are relevant and of value to our members and the upstream petroleum industry.

PTAC Plans to Initiate Project to Facilitate Sustainable, Eco-efficient, and Greenhouse Gas-reducing Technologies

PTAC plans to expand its mandate to facilitate increased adoption of sustainable, eco-efficient, and greenhouse gas (GHG) reducing technologies for the hydrocarbon industry. Government and industry are providing support and funding for this new initiative. PTAC is in the final stages of obtaining all the funding required to operate this project for three years. PTAC plans to facilitate the following project objectives:

- recognition and understanding of key sustainable development and eco-efficiency issues that lend themselves to technology based solutions, in particular GHG emission sources
- identification of technology based solutions, including GHG-reducing technologies, to address key issues
- development of new technologies that address key issues, including GHG-reducing technologies
- transfer into practice economical and eco-efficient technology based solutions (new and existing)
- verification of actual GHG emission reductions

This project will leverage resources acquired during the past two years from the CTTA program that was funded by the Gas Technology Institute.

PTAC

mye-Energy Inc.
National Silicates –
Drilling Fluids Group
Newalta
New Paradigm
Engineering Ltd.
New Paradigm Gas
Processing Ltd.
Newpark Environmental
Norwest Corporation
Norwest Labs
Object Reservoir, Inc.
OctaneWave Software Inc.
Omega Oil Company
Omnicon Consultants Inc.
Pandell Technology Corporation
Pason Systems Inc.
Petrol-Geotech
P.K. Services International
Proeco Enviroservices Ltd.

Prolift, a division of CEF
Technologies Ltd.
Promore Engineering Inc.
ProTechnics
Pursuit Dynamics plc
Q/Max Solutions Inc.
Questor Technology Inc.
Quorum Business
Solutions Inc.
Rejuvenation Resources Ltd.
RightsMarket Inc.
Rigstar Communications Inc.
Roud Enterprises Ltd.
SAIC Canada
Schlumberger of Canada
Sierra Systems
Soltrus Inc.
The Moorhead Group LLC
The Petroleum Place, Inc.
Total Combustion Inc.

Trican Well Service Ltd.
Unotec – Unique Oilfield
Technology Services
URS
VECO Canada Ltd. –
Alliance Group
VericalBuilder
Vikor Energy Inc.
Weatherford Canada
Partnership
Wellspring Production Services
Wood Group ESP (Canada) Ltd.
XERGY Processing Inc.
zed.i solutions –
Marketing and Sales Dept.

Individuals
Birmie, David
Boreta, John
Carleton, Mike
Hoopfer, Dwayne
Maier, Len
McBane, Duncan
McCann, Tom
Penhale, Bill
Putt, Ken
Radke, Gerald
Schesnuik, Chester
Stephens, Mark
Todd, Murray
Towson, D.E.
Watchorn, James

Research Providers
Alberta Research
Council
Alberta Sulphur
Research Ltd.
Gas Technology Institute
Natural Resources
Canada (CANMET)
Petroleum Technology
Research Centre
(PTRC)
Saskatchewan Research
Council
TIPM Laboratory

Learning Institutions
SAIT
University of Alberta
University of Calgary
University of Regina,

Government
AERI Alberta Energy
Research Institute
Canada Customs and
Revenue Agency
Province of British Columbia
Saskatchewan Energy and
Mines

Funding Supporter:
Canadian Business
Networks Coalition

Financials

Auditor's Report

We have audited the financial statements of PTAC Petroleum Technology Alliance Canada for the year ended December 31, 2002 and have reported thereon without reservation under date of March 22, 2003. The accompanying summarized balance sheet and summarized statements of revenues, expenses and surplus have been prepared from the audited financial statements.

In common with many not-for-profit organizations, PTAC derives revenue from events and other sources, the completeness of which is not susceptible to satisfactory audit verification. Accordingly, our verification of these revenues was limited to the amounts recorded in PTAC's records and we were not able to determine whether any adjustments might be necessary to revenue, excess of revenue over expenditures, assets and surplus.

In our opinion, the accompanying summarized balance sheet and statements of revenues, expenses and surplus fairly summarize the information as to the financial position of PTAC Petroleum Technology Alliance Canada and the results of its operations contained in the audited financial statements.

Hamilton & Rosenthal
Chartered Accountants
Calgary, Alberta
March 22, 2003

Summarized Balance Sheet As at December 31, 2002, with comparative figures for 2001.

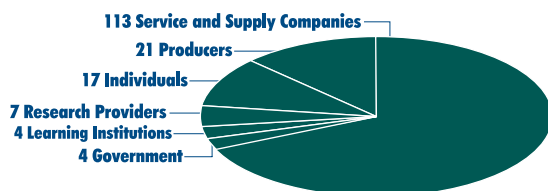
Assets	2002	2001
Cash	\$ 37,926	\$ 22,777
Marketable securities	283,037	148,816
Accounts receivable	154,789	45,087
Prepaid expenses	1,814	951
Due from CTTA Program	–	39,406
	477,566	257,037
Capital assets	53,146	47,393
	\$530,712	\$304,430
Liabilities and Surplus		
Accounts payable, accrued liabilities	\$ 80,781	\$ 38,832
Deferred revenue	159,280	141,070
Funding advances	28,843	–
GST payable	6,683	21,708
Due to CTTA Program	65,486	–
	341,073	201,610
Net Assets		
Invested in capital assets	53,146	47,393
Unrestricted	136,493	55,427
	189,639	102,820
	\$530,712	\$304,430

Summarized Statement of Revenue and Expenses Expenses and Surplus for the year ended December 31, 2002, with comparative figures for 2001.

Revenue	2002	2001
Membership	\$360,640	\$355,492
Events and Others	323,090	232,568
CAPP	50,000	50,000
Natural Resources Canada (NRCAN)	48,533	–
Alberta Research Council	44,000	–
In-kind revenue	14,261	91,420
Interest	3,527	2,618
	\$844,051	\$732,098
Expenses		
Operating	\$757,232	\$628,841
Excess of revenue/expenditures	86,819	103,257
Surplus beginning of year	102,820	(437)
Surplus, end of year	\$189,639	\$102,820

The complete audited financial statements of PTAC for the year ended December 31, 2002 are available from PTAC offices upon request.

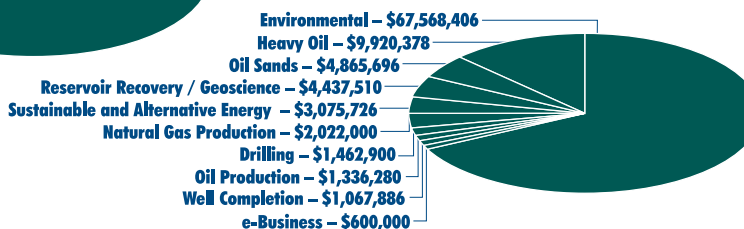
Membership by Category



At year-end 2002 PTAC had 166 members, distributed as shown in the above graph. PTAC members produce approximately 70% of Canadian conventional oil and gas. Visit www.ptac.org/members1.html for more information on PTAC members.

Project Expenditure by Technical Area since Inception

PTAC has facilitated the launch of 157 projects valued at \$96.3M since inception in 1996. PTAC facilitated the launch of 32 projects valued at \$18M in 2002. Also, projects launched in prior years received \$21M in additional funding in 2002.



Board of Directors

As of March 31, 2003

Rich Kerr, Chairman, PTAC
Chief Engineer, Nexen Inc.

Eric Lloyd, President, PTAC
Petroleum Technology
Alliance Canada

Denis Gaudet, Director
Technology Transfer,
PTAC Petroleum Technology
Alliance Canada

Alan Archibald
President, Pointwest Energy Inc.

Dan Baillie
VP Operations,
ConocoPhillips Canada

Wayne Finger
VP Engineering and Production,
Schlumberger of Canada

Lorraine Goobie
Manager – Resources Safety and
Environment, Shell Canada Limited

Bob Hill
President, Canadian Energy
Pipeline Association (CEPA)

Eddy Isaacs
Managing Director, Alberta Energy
Research Institute (AERI)

Mike McAllister
Senior V.P. Oil Sands,
EnCana Corporation

Brian Moreland
VP Engineering and Production,
Burlington Resources Canada

Phillip Murray
VP Energy, Alberta Research
Council (ARC)

Bruce Peachey
President,
New Paradigm Engineering Ltd.

Ken Putt
President, K.W. Putt Consulting Inc.

Laurie Schramm
President and CEO, Saskatchewan
Research Council (SRC)

Glen Sheppard
Manager, Operations Services
and Regulatory Affairs,
Husky Energy Inc.

Earle Shirley
Chief Operating Officer, Alberta
Energy and Utilities Board (EUB)

Mike Singleton
Director, Technology Planning and
Integration, Suncor Energy Inc.

Derril Stephenson
President, Vikor Energy Inc.

Bruce Stewart
Director, Western Research Centre,
Natural Resources Canada
(CANMET)

Bill Svrcak
Professor, Department of Chemical
and Petroleum Engineering,
University of Calgary

Murray Todd
President, Todd Resources

Don Towson
Industrial Technology Advisor,
National Research Council's
Industrial Research Assistance
Program (IRAP) – Hosted at
Petroleum Services Association
of Canada (PSAC)

Dean Wall
Team Leader, Waste Management,
AMEC Earth & Environmental Ltd.

PTAC facilitated the launch of 32 projects valued at \$18M during 2002.

Projects Launched

R&D Projects Launched in 2002

Drilling

- Foamy Oil Flow Modeling Including Non Equilibrium and Mobility Effects*

e-Business

- Talisman Wellcore Trusted Communications Pilot

Environmental

- Reclamation and Management of Crested Wheatgrass Invaded Sites in Southern Alberta
- Native Vegetation/Wetland Inventory and GIS Mapping: Parkland Natural
- Framework Foundation and Guidance for Tier 2 Site Specific Development of Soil/Contact Cleanup Standards for PHC Contaminated Areas
- Determination of Environmentally Acceptable Endpoints for Residual Unrefined Petroleum Hydrocarbons – Phase 3
- Recovery of Caribou Ranges in Alberta, Boreal and West Central
- University of Alberta Protective Clothing Research
- Controlled Human Exposure Studies to H₂S Investigation of Neurobehavioural Potential API
- Catalytic Solutions for the Mitigation of Hydrocarbon GHG Emissions*
- Laboratory Testing of Novel Sealant for Field Trial Implementation*
- Extraction of Carbon Dioxide as Gas Hydrate from Flue Gases*

- Economic Feasibility of Horizontal CO₂ EOR Projects in Alberta

- West Pembina Eco-efficiency Audit

- Supercritical Fluid Extraction

Heavy Oil

- Fundamental Study of the Roles of Fines in Upgrading*
- Identification and Assessment of Low Pressure SAGD Wellbore Architecture Alternatives
- 2002 PTRC R&D Program

Natural Gas Production

- Development of Models to Predict Significant Stress Corrosion Cracking of Pipeline Steels in Near Neutral pH Environments*
- Molecular Dynamics Simulation of Stress Corrosion Cracking*
- Injection/Falloff Testing for Low Permeability Reservoirs - Perm PT

Oil Production and Transportation

- Exploration and Wear Corrosion Synergism and Development of Guidelines for Materials Selection and Design*
- Water in Crude Oil Emulsion/ Study of the Stability of Micron Sized Water Droplets in a Continuous Oil Phase by Molecular Modelling*
- Multi-Component Oil Well Tester (MCOT) Method for Oil Well Testing

Oil Sands

- Effect of Gas Pressure Induced Dilation on Permeability Change of Oil Sand and Surface Heave*

Reservoir Recovery / Geoscience

- Understanding Impact Generated Hydrocarbon Reservoirs*
- Controlled Gas Phase Combustion within Porous Media*
- Geostatistical Characterization of Naturally Fractured Reservoirs*

Sustainable and Alternative Energy

- Detection of Island Conditions for Distributed Generators*
- Application of Electron Microscopy Techniques in Solid Oxide Fuel Cell (SOFC) Research*
- Fuel Cell for Conversion of Hydrogen Sulfide*

Well Completion, Stimulation and Workover

- A Mechanistic Study on Foamed Gel Technology*

* Launched in conjunction with Core University Research in Sustainable Energy (COURSE)

For further information, please refer to the 2002 newsletters or to the project index on PTAC's web site at www.ptac.org/projects1.html

Technical Areas

PTAC's technical committees help to: identify opportunities for research and technology development; raise awareness of existing R&D; find solutions including soliciting proposals and launching new projects; and inform appropriate industry people of new R&D proposals.

PTAC requires participation from senior technical people to identify important issues that require technology transfer or R&D. To obtain more information, please contact PTAC.

PTAC now has 20 Technical Areas and over 7000 contacts in:

- Coalbed Methane / Unconventional Gas
- Drilling
- e-Business
- Sustainable, Eco-efficient and GHG-reducing Technologies
- Energy Emissions Auditing
- Environmental
- Fundamental Research
- Health and Safety
- Heavy Oil
- Inactive Well Management / Abandonment
- Innovation
- Instrumentation / Measurement
- Natural Gas Production, Processing and Transportation
- Oil Production and Transportation
- Oil Sands
- Pipelines
- R&D Funding
- Reservoir Recovery / Geoscience
- Telecommunications
- Well Completion, Stimulation and Workover

● creating value through innovation

PTAC's Value to the Upstream Oil and Gas Industry

PTAC offers a variety of services to its members and the upstream oil and gas industry.

PTAC continues to seek feedback on the services provided to create value through innovation for members.

Forums, Workshops and Conferences

A total of over 1400 participants attended ten forums, workshops and conferences hosted by PTAC in 2002. This includes the Fourth Annual Unconventional Gas and Coalbed Methane Conference co-sponsored with the Canadian Society for Unconventional Gas and the Climate Change and Greenhouse Gas Technology Conference co-sponsored with Climate Change Central.

PTAC forums focus on specific needs or technical areas. Information is shared on new technologies, case studies, and the objectives and results of current research. The following five forums were held in 2002: Environmental Research and Technology Development; Frontier Drilling Waste Management; Wireless, Telecommunications and e-Business Technology (2); and Air Issues.

PTAC conducts workshops to provide opportunities for people to clearly define R&D issues, to identify potential solutions and to select the best approach to move forward. Potential suppliers of R&D have the opportunity to hear firsthand about such issues and to contribute their expertise and ideas for solutions. PTAC hosts the workshops and provides the necessary facilitation, administra-

tive support and coordination to launch projects. When required, PTAC widely distributes Request for Proposals (RFPs) with Expressions of Interest for each priority issue from workshops. Once those who will consider supporting the R&D have been identified, proposals are then solicited from potential suppliers. PTAC brings together the interested organizations in a structured way that leads to new R&D, while protecting proprietary interests. In 2002, PTAC sponsored three workshops: Wireless City Initiative; Artificial Lift for SAGD Wells/Gas Over Bitumen; and Value Creation through Innovation and R&D.

Technology Information Sessions

PTAC facilitates Technology Information Sessions for members to: solicit interest, feedback, participation or potential funding for new R&D projects; find industry partners to complete proposed R&D or technology development (such as field test or pilot sites) or to report on field test or pilot results; provide information on technology-related services; and market new technology to the Canadian oil and gas industry. PTAC facilitated 32 Technology Information Sessions attended by over 1550 participants in 2002.

Ongoing R&D Projects

R&D projects facilitated by PTAC are listed on PTAC's web site at www.ptac.org. This list contains the project title, name of organization performing the project, contact information and a link to the member's email and/or web site if available.

PTAC Knowledge Centre

The PTAC Knowledge Centre (formerly the Technology Centre for Natural Gas) is being expanded to include materials for the project to facilitate sustainable, eco-efficient, and GHG-reducing technologies. The growing collection consists of research program reports, books, journals, and conference proceedings, in electronic or hard copy. The Knowledge Centre is open to the public.



PTAC

Facilitating Innovation, Technology Transfer,
and Collaborative Research and Development
in the Upstream Oil and Gas Industry

Contact Us

For further information, please contact PTAC

PTAC Petroleum Technology Alliance Canada
Suite 750, Hanover Place, 101 - 6th Ave. S.W.
Calgary, Alberta T2P 3P4
fax: (403) 920-0054
www.ptac.org info@ptac.org

Eric Lloyd
President
phone: (403) 218-7701
elloyd@ptac.org

Denis Gaudet
Director,
Technology Transfer
phone: (403) 218-7710
dgaudet@ptac.org

Arlene Merling
Manager, Operations
phone: (403) 218-7702
amerling@ptac.org

Brenda Belland
Information Specialist,
Knowledge Centre
phone: (403) 218-7712
bbelland@ptac.org

Lorie Frei
Administrative Assistant
phone: (403) 218-7700
lfrei@ptac.org

Kerri Markle
Technology Transfer Coordinator
phone: (403) 218-7711
kmarkle@ptac.org

Tannis Such
Environment,
Health & Safety Coordinator
phone: (403) 218-7703
tsuch@ptac.org

Heather Traub
Technical Event Coordinator
phone: (403) 218-7704
htraub@ptac.org