

APTECH Engineering (Alberta) Ltd.

Overview of APTECH'S Capabilities, Services, and Partial Client List

When you need straight answers on the root cause of failures, condition and life assessment, and reliability improvement for structures, components, and materials, APTECH delivers. Simply put, *we solve problems*.

Some of your toughest engineering decisions involve determining if your existing equipment or system is suitable for continued service. In determining the trade-offs of such fitness-for-service decisions, you cannot afford anything less than our timely and cost-effective analysis.

Worldwide competition is forcing many industries to take a hard look at how to minimize capital, operations, and maintenance costs of facilities while maintaining safety, reliability, and productivity.

The use of advanced assessment, control, and management technologies is required to determine the best solutions. APTECH provides value-added services to industry by using advanced technology and world-class expertise to solve problems and gain a competitive edge.

At APTECH, our people are our greatest strength. Our expertise in metallurgy, structural analysis, stress analysis, fracture mechanics, welding, corrosion, heat transfer, nondestructive examination, safety, risk analysis, reliability centered maintenance, and financial risk/economic analysis ensures that your decisions are based on the most reliable evaluations available.

APTECH maintains a complete in-house metallurgical and mechanical test laboratory, extensive computer capabilities, and the resources to perform specialized testing. Hundreds of clients throughout the United States and abroad have utilized APTECH's services since our inception in 1979. We have performed thousands of projects encompassing evaluation of systems and equipment in a wide range of industries, including:

- Nuclear and fossil fuel utilities
- Oil and gas, pipelines
- Chemical and petrochemical
- Offshore structures
- Pulp and paper
- Mining
- Claims and litigation support
- Architecture and construction
- Transportation
- Maritime
- Electronics
- Aerospace and defense

APTECH is applied technology. Discover how our experience and technological expertise can simplify your toughest engineering decisions and improve your long-term profitability.



ATCO Electric Ltd. (Alberta Power Limited)

- Evaluation of Sheerness 1 and 2 Main Steam and Hot Reheat Piping Systems
- Evaluate Hard Facing Welding Electrodes
- Failure Analysis of Reheater Tube Sample
- Generation Condition Assessment and Cost Forecasting
- Main Steam and Hot Reheat Walkdowns at Battle River Units 3 and 4
- Main Steam Stud Failure Investigation
- MCR Variation Impact Study for Sheerness Units 1 and 2
- Phase 1 Evaluation of Battle River Units 3, 4, and 5 Main Steam and Hot Reheat Piping Systems
- Root Cause Determination of Unit 5 Main Steam Lead Flange Stud Failure
- Third Party Review of Proposed Turbine Retrofit at Sheerness Generating Station
- TubeAlert Survey at Sheerness 2

Acuren (Canspec Group)

- Dissimilar Metal Weld Life Assessment
- TubeAlert at Edmonton Power's Clover Bar Plant, Genesee 1 and 2 and TransAlta's Sundance Unit 6 Reheater

Cosyn Technology

- Finite Element Analysis of Material Elbows

Duncan & Craig

- Expert Witness for Turbine Failure

EPCOR Generation (Edmonton Power Generation, Inc.)

- Clover Bar Unit 1 Outage Support
- Cost of Cycling Estimates for Clover Bar Plant
- Genesee Remaining Life Calculations
- Inspection and Analyses of Extending Periods Between Planned Outages
- Phases I and II Life Assessment for Clover Bar Unit 1
- Plant Assessment
- Study of Unit Rating at Genesee
- TubeAlert Survey at Clover Bar Units 1 and 2 and Genesee Station, Units 1 and 2

Framatome ANP Canada

- Technical Review of Feeder Pipe Aging Management Program

Husky Oil

- Fitness-for-Service Analysis of Inlet Separator and DEA Flash Drum at Husky Oil, Ram River Gas Plant

- Fitness-for-Service Analysis of the Brazeau Separator
- Technical Support for Brazeau Separator for Ram River Gas Plant

Nova Chemicals/Alberta Power (ATCO)

- Review of Water Treatment Specification at the Joffre Cogen Plant

Ontario Hydro Corporation

- BALIFE Analysis of Type IV Steam Piping Weldment

PetroCanada

- Bolting Training Sessions
- Inspection and FFS of H₂S Absorber Vessel (E415)

Sask Power Company

- Oxide and Weld Examination Poplar River Unit 2
- Superheater Tube Condition Assessment
- TubeAlert Survey of Poplar River 1 and 2

SNC Lavalin, Inc.

- Assessment of Three Turbine Generators and Ancillary Equipment
- Manitoba Hydro-Selkirk Fuel Conversion Project

Suncor, Inc.

- Boiler Circulation Study and Tube Bank Stress Analysis
- Closeout Piping Audit in Upgrading
- Design Review, Engineering Analysis, and Remaining Life Study of the 790 psig, 425 psig, and 50 psig Steam Lines
- Design Review of Boiler NO_x Modifications
- Emissions Management Studies for Three Existing Foster Wheeler Boilers, Suncor Plant Site, Tar Island, Alberta
- Level II Life Assessment of Vessels 8C-1, 8C-2, and 8C-3 in the Amine Unit
- Life Asset Study Upgrading/Utilities Facilities Suncor Plant Site - Tar Island, Alberta
- Phase 1 Life Management for Suncor's Foster Wheeler Boilers and Critical Auxiliary Equipment
- Probability of Total Power Blackout to Upgrading
- Process Piping Inspection Audit
- Reliability Evaluation of a Pair of 18Mn-5Cr Generator Retaining Rings
- Reliability and Maintainability Analyses of New Water Treatment Plant
- Reliability and Maintainability Analyses of Plant 37
- Reliability and Maintainability Analyses of Suncor's Millennium Project
- Remaining Life Estimates of Motors 6KM-2A and 6KM-2B

- Remaining Life Evaluation for Three Boilers, Suncor Plant Site, Tar Island, Alberta
- Review Report on NO_x Abatement
- Superheater and Other Main Component Useful Life Review of Boilers 31F.01 and 31F.03 at Tar Island Plant Site
- Top-Down Reliability and Maintainability Analyses of Millennium Project
- Welding Repair Analysis for 5C9 Coker Fractionator During On-Line Service
- Weld Repair Issues on Vessel 5C-9

Synchrude Canada, Ltd.

- Condition Assessment of Three Tubes
- Failure Analysis and Condition Assessment of Secondary Superheater Tube from Boiler 31-F-202
- Failure Analysis and Examination of Steam Generator Tubes
- Failure Analysis of Steam Generator Tubes
- Metallurgical Evaluation of Waterwall Tube Samples and Corrosion
- Outage Support at Fort McMurray
- Oxide Training
- Phase I of TubeMod
- Reference Materials for TubeAlert System
- Secondary Superheater Section TubeMod Analyses
- Steam Generating Tube
- Superheater Tube Failure
- TubeAlert Survey at Fort McMurray
- TubeAlert System Hardware and Training

TransAlta Utilities Corporation

- EDTA Corrosion Tests
- Evaluation of High Pressure Economizer Tubing from Sarnia
- Evaluation of Main Steam Piping at Wabamun Unit 2
- Evaluation of Sundance Unit 5 Feedwater Valve Indication
- Evaluation of Sundance Unit 6 Main Steam Snubbers
- Evaluation of Wabamun Unit 4 Steam Drum Boat Sample and Waterwall Tubing
- Failure Analysis of Boiler 801 High Pressure Economizer Tube
- Fitness-for-Service Evaluation of the Wabamun Steam Drum Unit 4
- Fitness-for-Service of Steam Drum Downcomer Nozzle at Sundance Unit 1
- Hanger Bolt Failure at Wabamun Unit 3
- High Energy Piping Evaluations, Wabamun Generating Station, Unit 3
- High Energy Piping Life Management at Wabamun Plant, Unit 1
- High Energy Piping Strategic Management Plan-Implementation Program

- Keephills Unit 1 Main Steam and Hot Reheat Phase III Evaluation
- Keephills Unit 1 Main Steam and Hot Reheat Piping System Evaluations
- Keephills Unit 2 Cold Reheat Piping Transient Evaluation
- Keephills Unit 2 Main Steam and Hot Reheat Piping System Evaluations, Phases II and III
- Keephills Unit 2 Phase IV Main Steam and Hot Reheat Evaluation
- Keephills Unit 2 Reheater TubeAlert
- Keephills Unit 2 TubeAlert
- Life Assurance Study for Sundance Unit 5 Main Steam and Hot Reheat Piping Systems
- Life Management of Sundance Generating Plant, Unit 6, Main Steam and Hot Reheat Piping Systems
- Main Steam and Hot Reheat Piping System Phase II/III Evaluation at Sundance Unit 3
- Metallurgical Evaluation of Sundance Unit 1 Steam Drum
- Metallurgical/Root Cause Evaluation of the Sundance 4 Main Steam Turbine Terminal Point Cracking
- Nondestructive Examination of Wabamun Unit 4 Waterwalls
- Phase III Evaluation of Main Steam Piping at Wabamun Unit 1
- Phase III High Energy Piping Evaluation at Sundance Units 1 and 4
- Piping Support Modifications for Wabamun Unit 4 Main Steam and Hot Reheat Piping Systems
- Reexamination of Keephills Unit 1
- Site Visit to Wabamun
- Sundance Unit 1 Follow-Up TubeAlert Examination
- Sundance Unit 1 Main Steam and Hot Reheat Piping System Evaluations
- Sundance Unit 2 Main Steam and Hot Reheat Phases II and III Evaluations
- Sundance Unit 2 Main Steam Line High Pressure Loop Rotated Flange Evaluation
- Sundance Unit 2 Main Steam Line Support Requirements for Hydrotest
- Sundance Unit 2 Steam Line Support Requirements for Hydrotest
- Sundance Units 2 and 3 TubeAlert Survey
- Sundance Unit 4 Main Steam and Hot Reheat Piping System Evaluations, Phases II and III
- Sundance Unit 4 Main Steam, Hot Reheat, and Cold Reheat Piping System Evaluations
- Sundance Unit 4 Reheater TubeAlert Survey
- Sundance Unit 5 Cold and Hot Walkdowns Main Steam, Hot Reheat, and Cold Reheat Piping Systems
- Sundance Unit 5 Main Steam Hydrotest Supports
- Sundance Unit 6 Main Steam and Hot Reheat Phase III Evaluation



- Sundance Unit 6 Main Steam, Hot Reheat, and Cold Reheat Piping Evaluations
- Supply Steam Flow Controllers
- Technical Support on Sundance Uprate Dispute
- TubeAlert of Superheater and Reheater at Keephills Unit 2
- TubeAlert Surveys at Keephills 1 and 2, Sundance Units 1, 2, 3 and 4, and Wabamun Unit 4
- TubeAlert Survey of Superheater and Reheater Sections at Sundance Unit 6 and Keephills Unit 2

- TubeMod Project for Sundance Unit 1 Reheater
- Wabamun Unit 1 Waterwall Examination
- Wabamun Unit 2 High Energy Piping Life Management Program, Phase II
- Wabamun Unit 2 TubeAlert Survey
- Wabamun Unit 2 Waterwall Tube Failure Analysis
- Water Induction at Keephills Unit 2

WC Wood Company

- Evaluation of Mounting Stud Failures

CANADIAN BRANCH OF OPERATIONS

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