


# APTECH Engineering Services, Inc. Petrochemical Group

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**Providing Innovative & Cost-Effective Solutions  
for Total Asset Integrity Management**

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**APTECH is a world leader in providing asset management solutions for your facility and equipment. Let APTECH show you how our SMART<sup>®</sup> Technology can help your Assets perform Safely, Reliably, and Cost Effectively**

**APTECH is Applied Technology**  
[www.aptechtexas.com](http://www.aptechtexas.com)

# APTECH ENGINEERING

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APTECH Engineering Services, Inc. is a full service engineering consulting company specializing in the life management of infrastructure, facilities and equipment. APTECH currently has 50 full-time employees and approximately 80 part-time employees engaged in projects around the world and spanning the following industries:

- ◆ Fossil Power
- ◆ Nuclear Power
- ◆ Petroleum and Chemical Industry
- ◆ Litigation and Insurance Support
- ◆ General Industry

APTECH's 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.

## STAFF

APTECH's strength is in its employees, who are experts in their respective fields. Staff expertise covers operational testing, maintenance optimization, and performance optimization, as well as the classical disciplines of structural design, metallurgy, stress analysis, fracture mechanics, fatigue, welding, corrosion, thermodynamics, heat transfer, materials selection and fabrication, and NDE.

## CODES AND STANDARDS

APTECH staff are active participants on industry committees, responsible for developing industry codes and standards. These committees include: API, ASME, NRC, MPC, WRC, EPRI, NPRA and NACE.

## SOFTWARE TOOLS

APTECH has extensive computer facilities with a complete library of technical and economic codes for performing analyses. These tools have been specially developed in house, or others are commercially available programs that APTECH uses for specific projects. Programs include: PREFIS, Fitness for Service, Faceup, TFDGEN, RUL SW, LFRAC, Balife, RDMIP, Pipeline Integrity Management Programs.

## METALLURGICAL LABORATORY

APTECH has a fully equipped metallurgical laboratory utilizing scanning electron microscopes, electron microscope analyzers, routine metallurgical laboratory equipment, and advanced analytical equipment. APTECH has pioneered many techniques in surface metallography and has an extensive database covering numerous types of materials.



## Asset Integrity Management

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The APTECH Petrochemical Group, a division of APTECH, is located in Houston, Texas and provides a direct focus on **Asset Integrity Management** solutions to the process industries.

The goal of asset management is to effectively manage corporate assets in order to gain maximum value/profitability/returns while safeguarding personnel, the community, and the environment. A true **Asset Integrity Management** program incorporates design, maintenance, inspection, process, operations, and management concepts, since all these disciplines impact the integrity of infrastructure and equipment.

In the future, best practice facilities will have comprehensive, fully integrated systems and culture directed at gaining greater lifetime effectiveness, value, safety, availability, profitability and return from production and manufacturing assets. APTECH provides specialists and engineering support in all areas of **Asset Integrity Management**, including design, process safety, mechanical integrity, inspection and maintenance, operational and process support, corrosion, metallurgy, and risk analysis.



**APTECH's SMART Technology can help your Assets perform  
Safely, Reliably, and Cost Effectively**

## Scope of Services

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The APTECH Petrochemical Group provides asset integrity management services to the following industries:

- ◆ Offshore and Shipping
- ◆ Pipelines
- ◆ Chemical and Petrochemical
- ◆ Refineries and Gas Processing
- ◆ LNG and LPG

APTECH provides asset and life management support to infrastructure, facility, and equipment through conception, design, construction, commissioning, operations, and de-commissioning phases of a project or facility.

The APTECH Petrochemical Group offers the following key services:

- ◆ Asset Integrity Management Services
- ◆ Process Safety Management
- ◆ Mechanical Integrity Services
- ◆ Risk Analysis and Risk Based Inspection
- ◆ Metallurgy and Corrosion Studies
- ◆ Inspection (Advanced Technologies)
- ◆ Maintenance Strategies (Predictive, Preventative, RAM modeling)
- ◆ Design, Operational and Process Support
- ◆ Pipeline Integrity Management
- ◆ IT/Software Tools
- ◆ Business and Financial Modeling
- ◆ Training, Audits, Litigation Support

### Asset Integrity Management Services

- ◆ Program Development
- ◆ Management and Implementation
- ◆ Audits, Reviews
- ◆ Financial Modeling
- ◆ Benchmarking
- ◆ Software Tools
- ◆ Training

### Process Safety Management

- ◆ Written Procedures
- ◆ Audits and Reviews
- ◆ PHA and HAZOP Studies
- ◆ Development of MOC Programs
- ◆ HSE
- ◆ Training

### **Mechanical Integrity**

- ◆ Inspection Procedures and Planning
- ◆ Advanced NDE
- ◆ Risk Based Inspection
- ◆ Software Tools
- ◆ Evergreening
- ◆ Circuitization, TML Optimization
- ◆ Fitness for Service

### **Risk Analysis and Risk Based Inspection**

- ◆ Software Tools (RDMIP, API, Tischuk)
- ◆ Methodology Development
- ◆ Full Implementation
- ◆ Reviews, Audits, QA
- ◆ Benchmarking and Evergreening
- ◆ Training

### **Inspection (Advanced Technologies)**

- ◆ Fire Damage Assessments
- ◆ Metallurgy and field replication
- ◆ AUT, AUBT, TOFD
- ◆ INCOTEST
- ◆ Eddy Current and RFT
- ◆ Digital RT

### **Design and Operational Support**

- ◆ Plant and Facility Design
- ◆ New Design and Upgrade Optimization
- ◆ Life Extension Cost Optimization
- ◆ Front End Engineering Design Studies
- ◆ Safety, Pressure Relief System Design
- ◆ Turnaround Planning and Scheduling

### **Maintenance Strategies**

- ◆ Business Risk Forecasting and Quantification
- ◆ Spare Parts Analysis
- ◆ RAM Data Development and Mining
- ◆ Life Cycle Forecasting
- ◆ RAM and Life Cycle Cost Forecast Training
- ◆ Life Extension Investment Risk Analysis
- ◆ Reliability Centered Maintenance (RCM) Program Development and Implementation

### **Pipeline Integrity Management**

- ◆ Pipeline Design and Risk Analysis
- ◆ Rehabilitation Support
- ◆ Integrity Assessments
- ◆ Due Diligence Studies
- ◆ Direct Assessment
- ◆ Corrosion Studies, Metallurgical Support
- ◆ Training

### **Other Engineering Support**

- ◆ Stress and Thermal Analysis
- ◆ Finite Element Modeling
- ◆ Litigation Support



## Benefits

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Around the globe our projects have raised the performance of our client's assets so their facilities are performing at optimal capacity. This is achieved by offering unparalleled *engineering service*, using industry best practices driven by the latest technologies and innovative strategies.

Benefits of APTECH's comprehensive Asset Integrity Management program include:

- ◆ Maximizing reliability, availability, and maintainability of equipment
- ◆ Improving safety and reducing risk
- ◆ Enhancing plant performance and profit
- ◆ Reduction in maintenance and inspection costs
- ◆ Improving personnel safety and performance
- ◆ Optimizing sparing
- ◆ Compliance with corporate and industry regulation and legislation

APTECH can help your organization, plant, or facility achieve these benefits and goals. Let APTECH show you how our life management techniques can reduce your failure and downtime risks, while simultaneously lowering your maintenance and operating costs.

## For More Information, Please Contact Our Houston Office.

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### **Aptech Engineering Services, Inc.**

Houston Office:

16100 Cairnway Drive, Suite 310, Houston, TX 77084

Toll Free: 800.568.3201 Fax: 832.593.0551

E-mail: [info@aptechtexas.com](mailto:info@aptechtexas.com)

Website: [www.aptechtexas.com](http://www.aptechtexas.com)



### **Aptech Engineering (Alberta) Ltd.**

139, 11215 Jasper Avenue

Edmonton, Alberta, CANADA, T5L 0L5

Phone: 780.669.2869 Fax: 780.669.2509

Info Email: [aptechalberta@aptechtexas.com](mailto:aptechalberta@aptechtexas.com)

### **Corporate Headquarters**

601 West California Avenue, Sunnyvale, CA 94088-4831

Phone: 408.745.7000 Fax: 408.734.0445