

CAMBRIDGE WATER DEPARTMENT LABORATORY

File : C:\Program Files\Agilent\1200\1200\1200.D
Operator : MRS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 2010
Sample Name : QCS_MTRF
Method Name : WQS_5_Rev#2_01_001
7
1

Abundance
9500000
9000000
8500000

TIC: B0909.D\data.ms



3000000
2500000
2000000
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500000

Time--> 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00 26.00 28.00 30.00

Edward Dowling,

Laboratory Manager

Krystyna McInally,

Water Quality Supervisor

– Treatment

Richard Lagerholm,

Water Quality Supervisor

– Watershed

Laboratory Mission Statement

Provide professional laboratory services in support of the production of abundant, safe drinking water.

Employ state-of-the-art laboratory resources to monitor, troubleshoot, and predict trends in the water purification process from source to consumer tap.

Develop and validate test procedures in support of the water purification process as regulated by the USEPA and MADEP.

Act as a reference laboratory for drinking water testing as a regional resource.

Foster an environment of trust that stresses service and cooperation with all members of the water department.

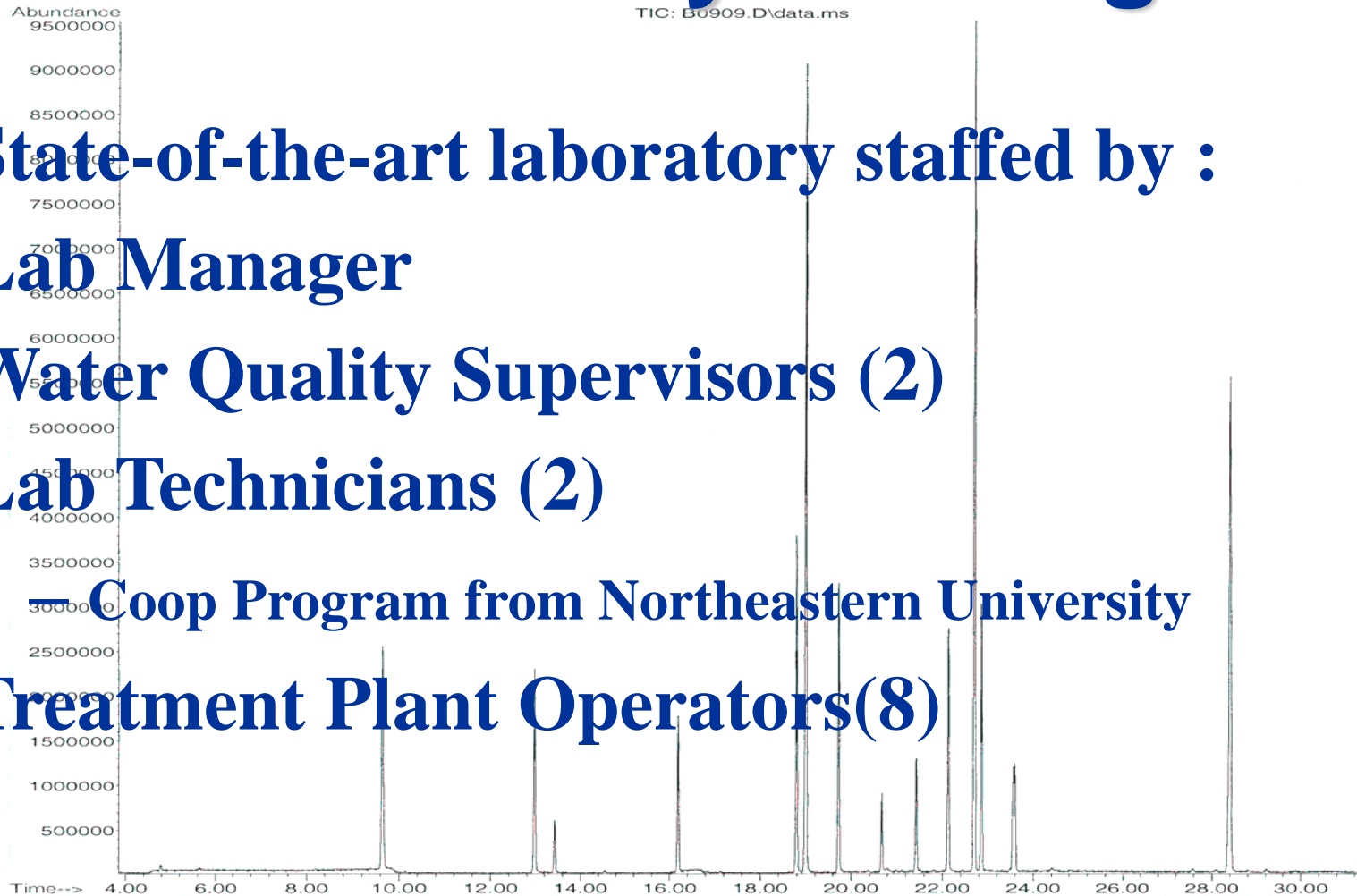
It all starts with the

Quality Assurance Program Plan

- A quality assurance plan evaluates the effectiveness of the laboratories procedures.
- Documentation of employee's qualifications, training and responsibilities.
- Documents who does the work
- Documents who checks the work.
- A quality feedback mechanism: If the work is out of specification, what steps are taken to correct it.
- Corrective action to solve quality problems to continuously improve performance.

File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 010
Sample Name: QCS
Misc Info : WSO
Vial Number: 1

Laboratory Staffing



State-of-the-art laboratory staffed by :

Lab Manager

Water Quality Supervisors (2)

Lab Technicians (2)

— Coop Program from Northeastern University

Treatment Plant Operators(8)

File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 2010
Sample Name: OCS MTBE
Misc Info : 5-3 Reg 2 20ul in 100ml
Vial Number: 1

To do the Job Right

We are a State Certified Lab meaning, we have:

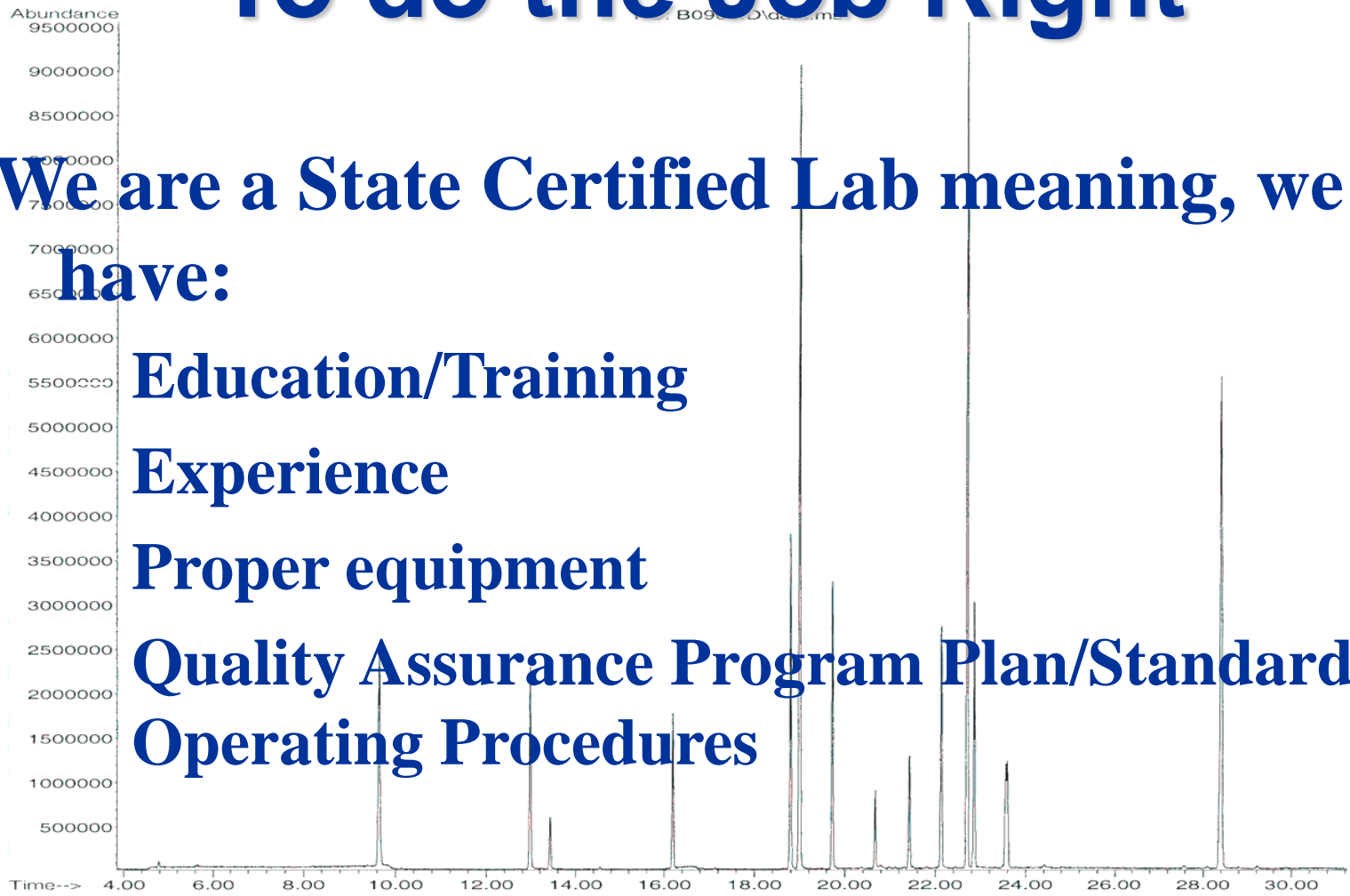
Education/Training

Experience

Proper equipment

Quality Assurance Program Plan/Standard

Operating Procedures



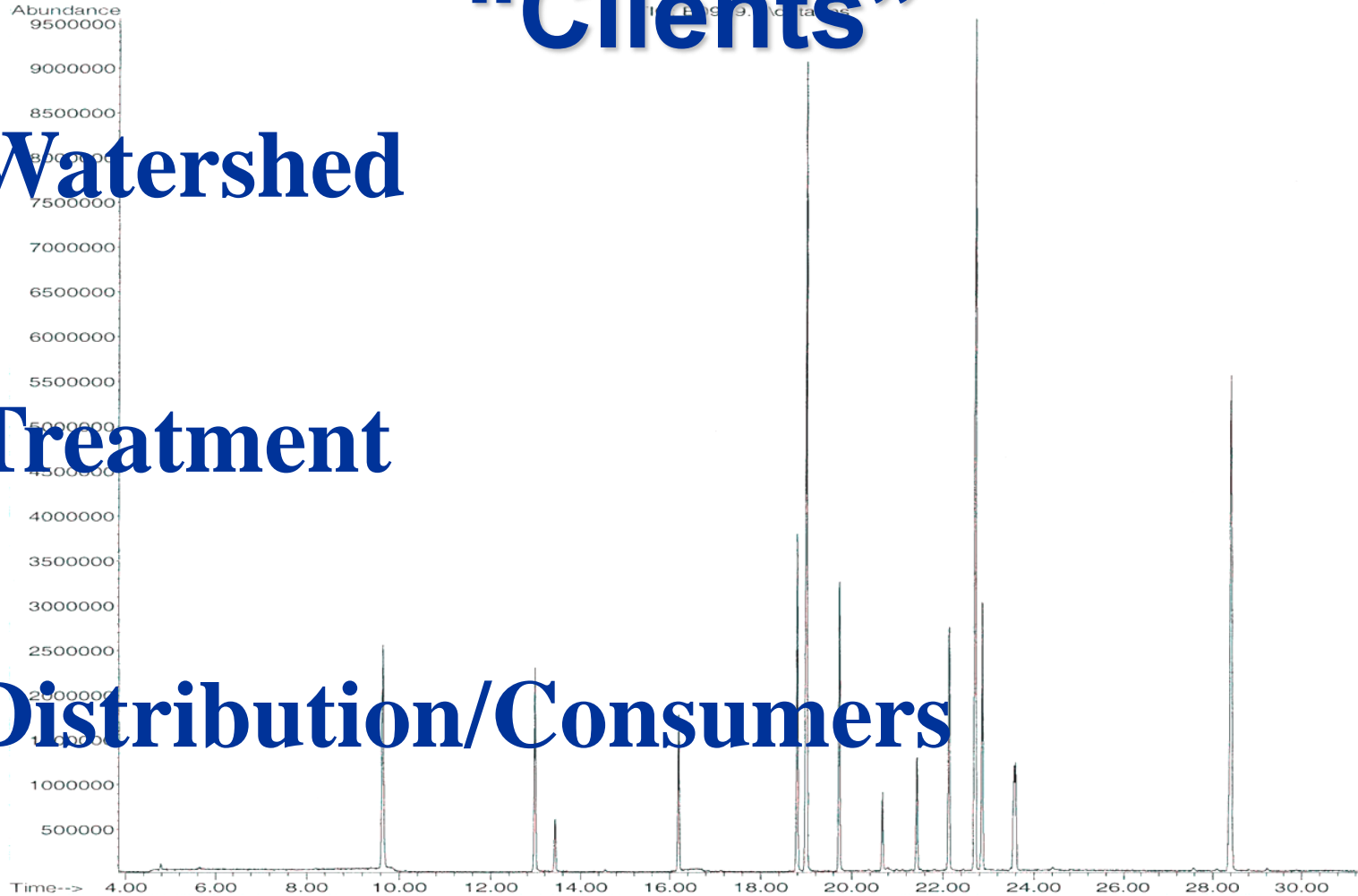
File :D:\1\DATA\11-3061t\B0099.F
Operator : MKS
Acquired : 14 Nov 2001 13:36
Instrument : HPLC
Sample Name: QCS MTBE
Misc Info : WS06-3 Reg #2 20ul in 100ml
Vial Number: 1

The Laboratories “Clients”

Watershed

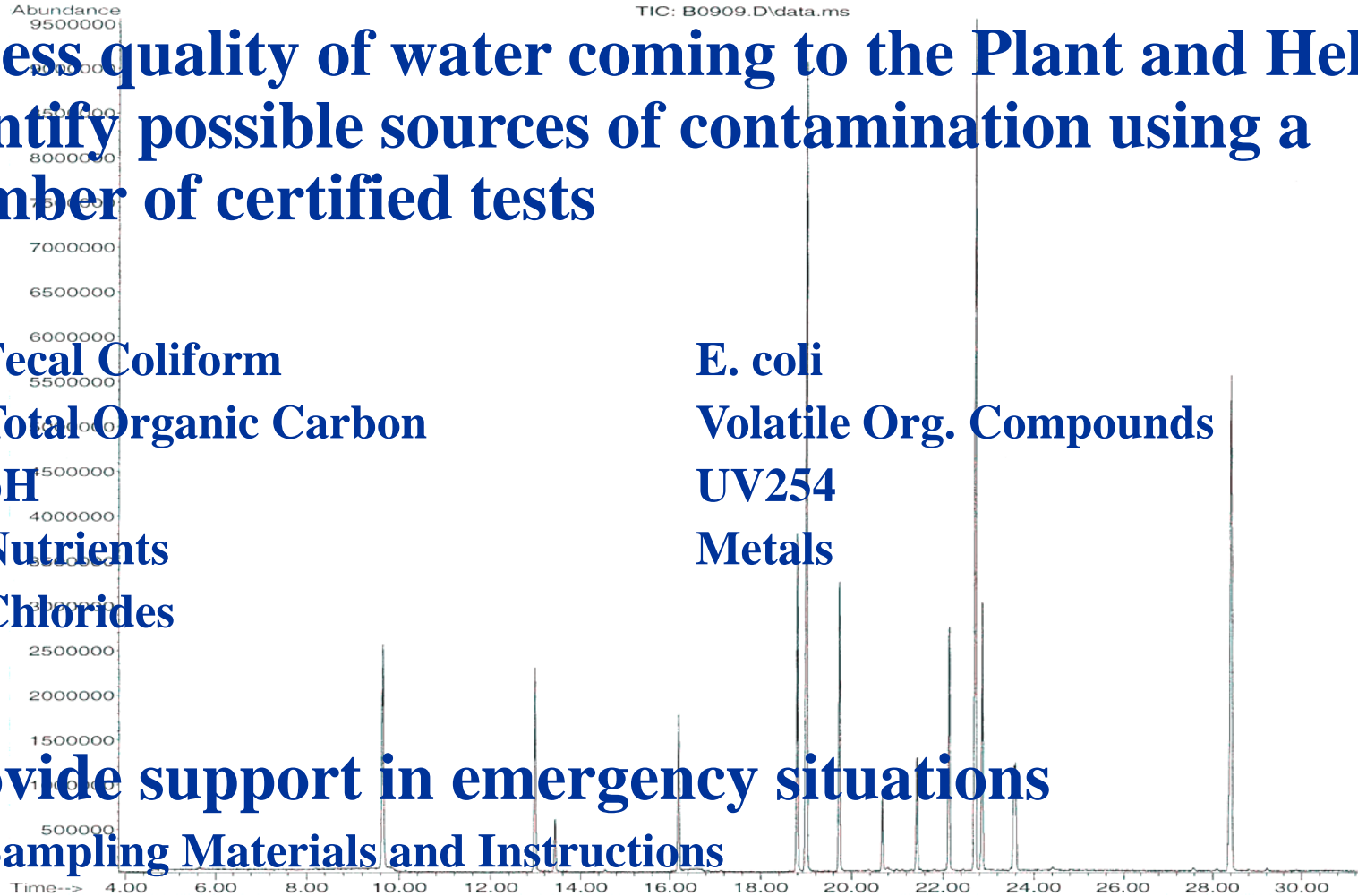
Treatment

Distribution/Consumers



Watershed Protection

File: B0909.D\data.ms
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Sample Name: QCS MTBE
Misc Info: WS06-3 Reg #2 20ul in 100ml
Vial Number: 1



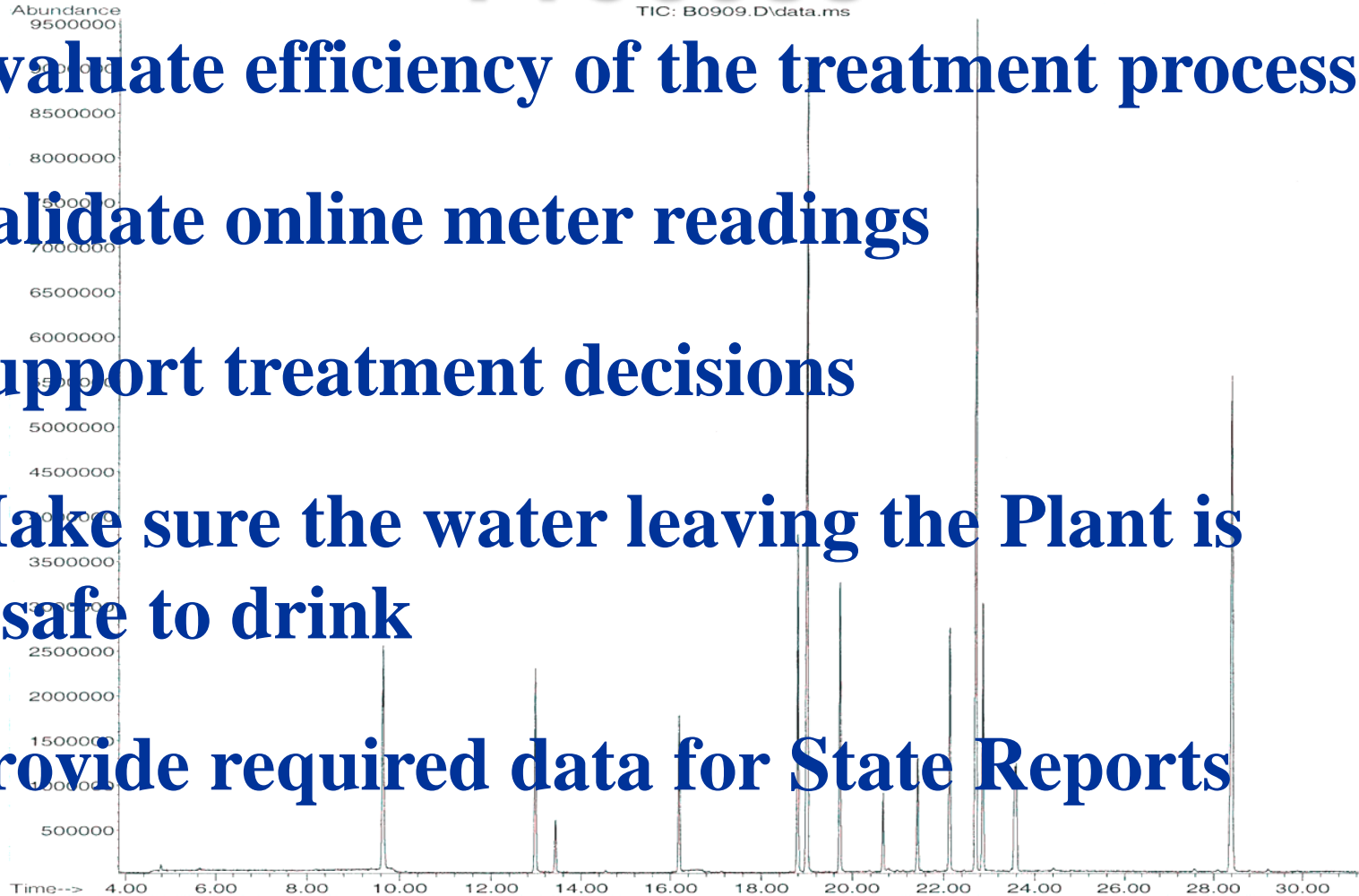
- Assess quality of water coming to the Plant and Help identify possible sources of contamination using a number of certified tests

- Provide support in emergency situations

Sampling Materials and Instructions
Fast Sample processing

The Water Purification Process

File : B0909.DAT (11.11.2006) 10.00.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 2010
Sample Name: QCS MTBE
Misc Info : WS06-3 Reg #2 2 u
Vial Number: 1



Evaluate efficiency of the treatment process

Validate online meter readings

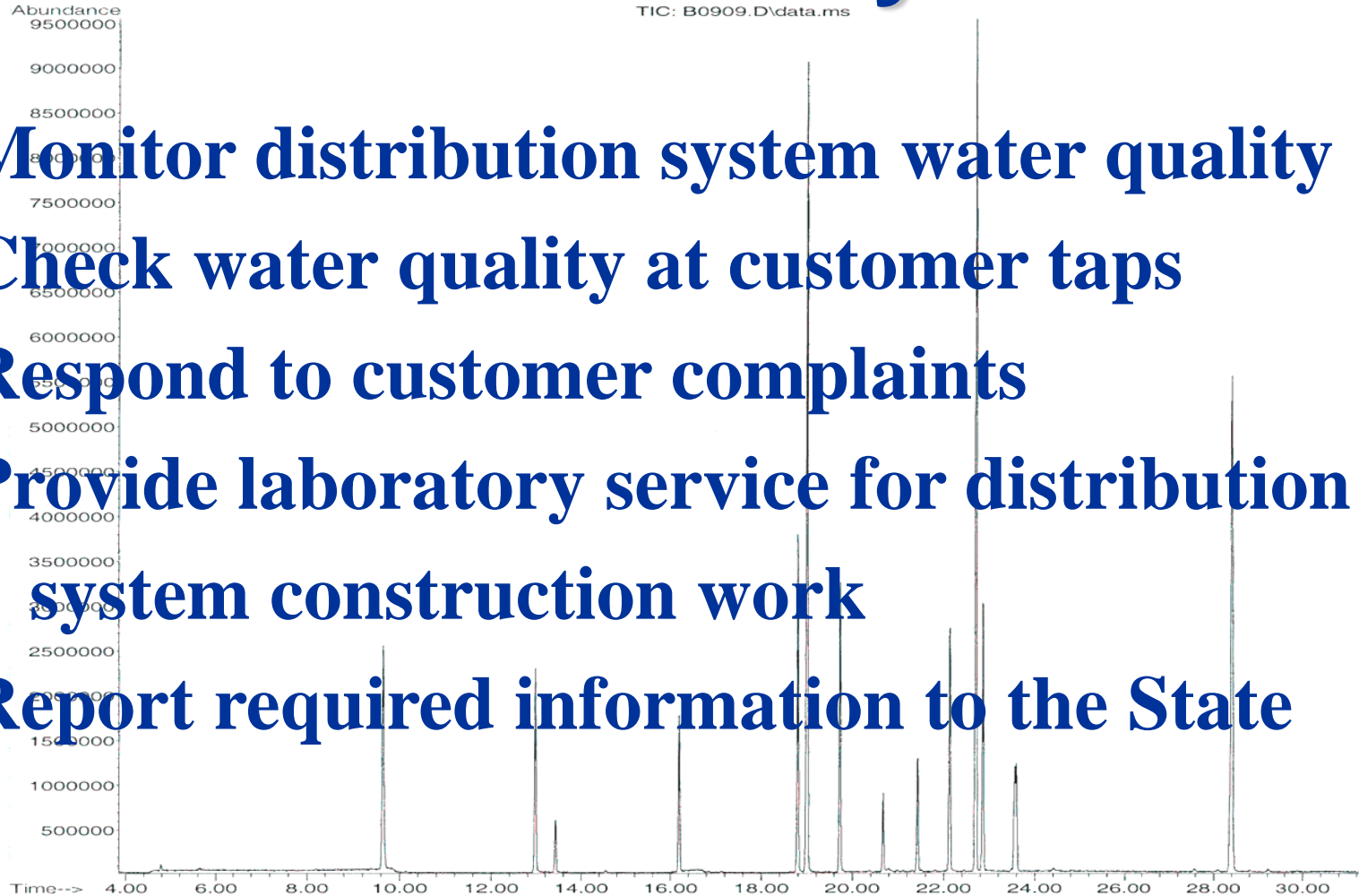
Support treatment decisions

Make sure the water leaving the Plant is safe to drink

Provide required data for State Reports

File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 2010
Sample Name : C.S.M. TR
Misc Info : W.C. # 1011
Vial Number : 1

Distribution System



Monitor distribution system water quality

Check water quality at customer taps

Respond to customer complaints

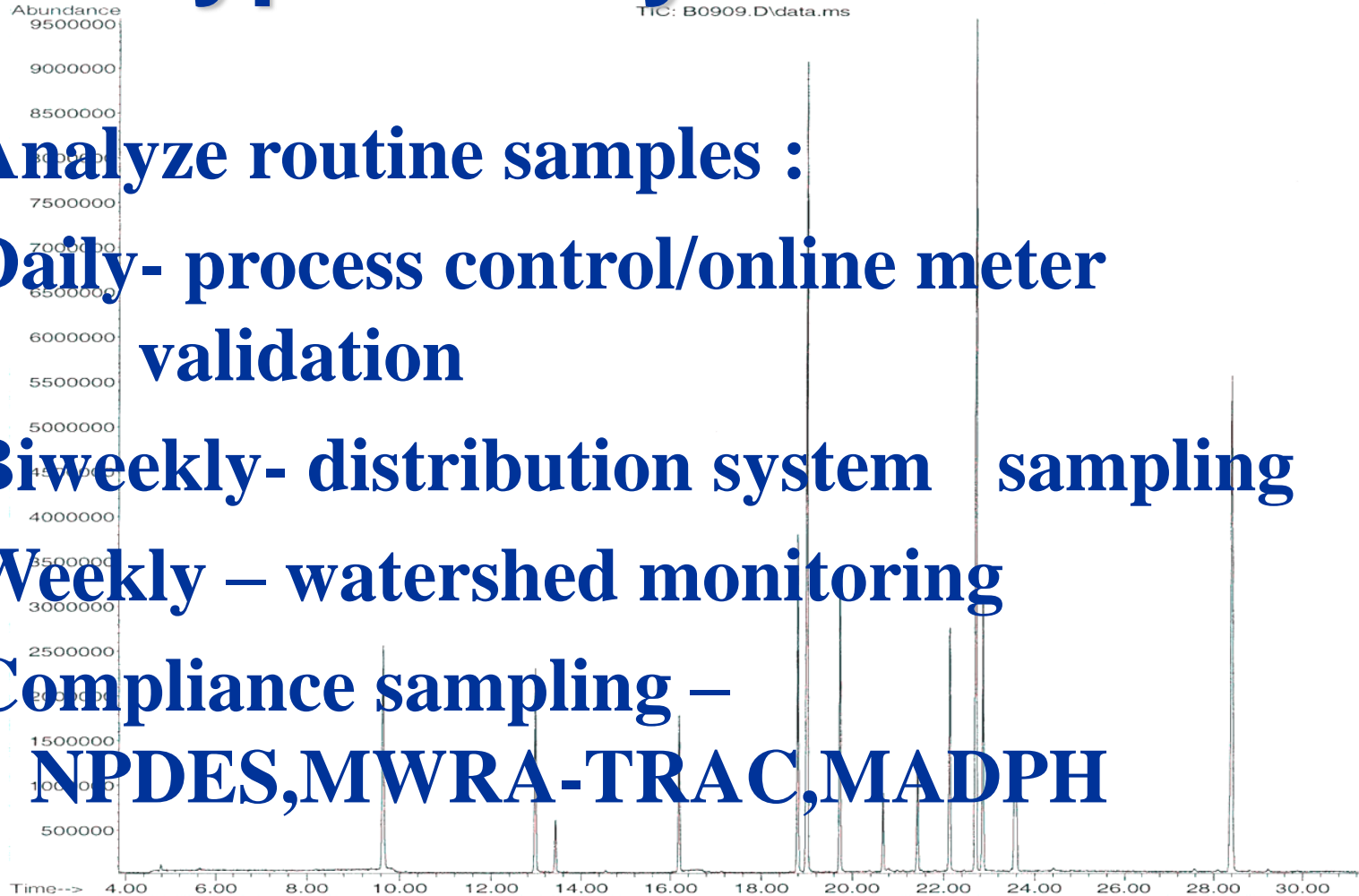
Provide laboratory service for distribution

system construction work

Report required information to the State

File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 010
Sample Name : C:\MTEF
Misc Info : S 3 P 2 2oul 11 10
Vial Number:

Typical day in the Lab



Analyze routine samples :

Daily- process control/online meter
validation

Biweekly- distribution system sampling

Weekly – watershed monitoring

Compliance sampling –

NPDES, MWRA-TRAC, MADPH

File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : Nov 2006 10:36 am using AcqMethod CW524.M
Instrument : HPLC 2010
Sample Name : QC 24
Misc Info : W500-Reg # (C) 11-11-11
Vial Number : 1

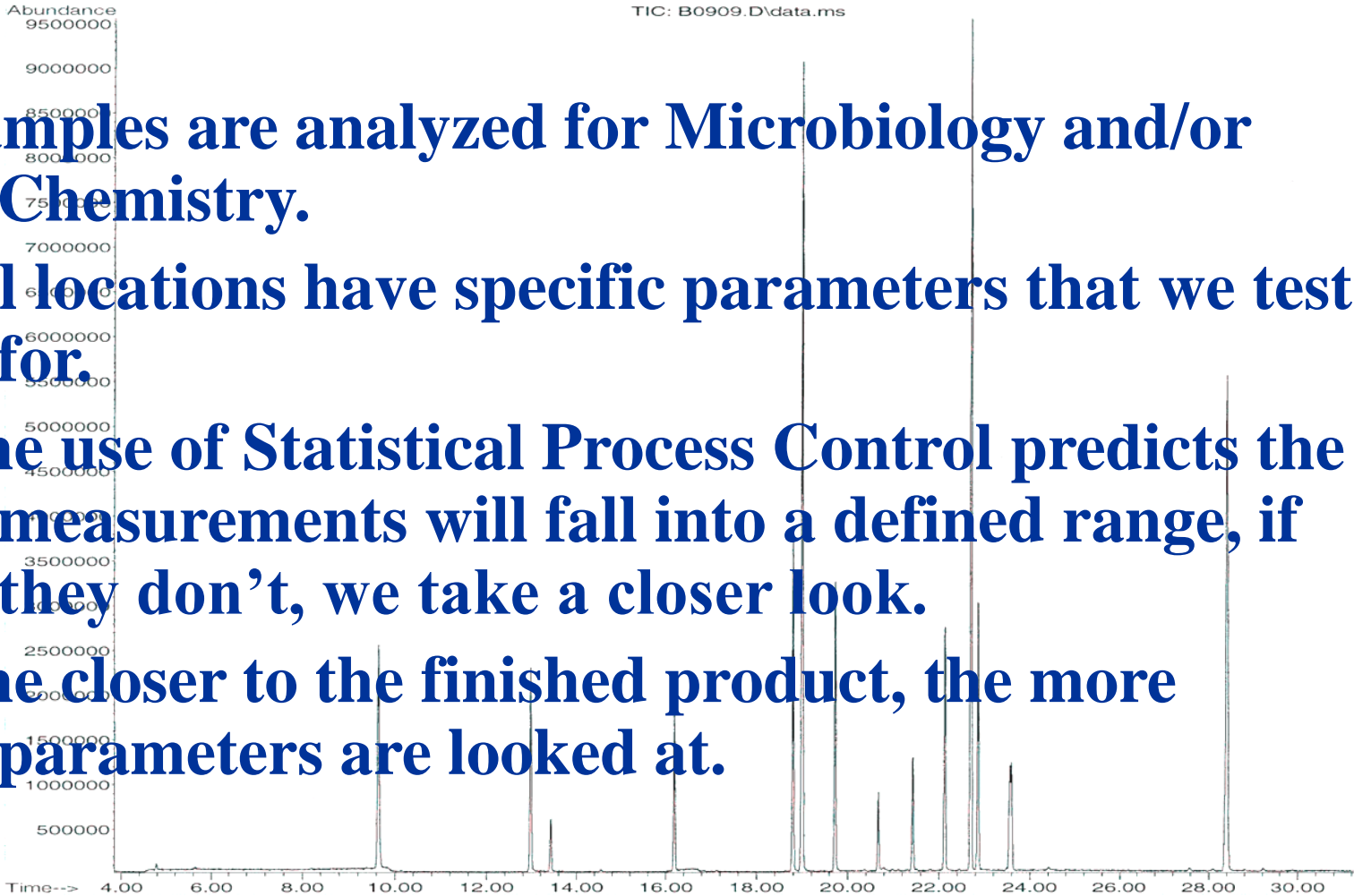
The Measurements

Samples are analyzed for Microbiology and/or Chemistry.

All locations have specific parameters that we test for.

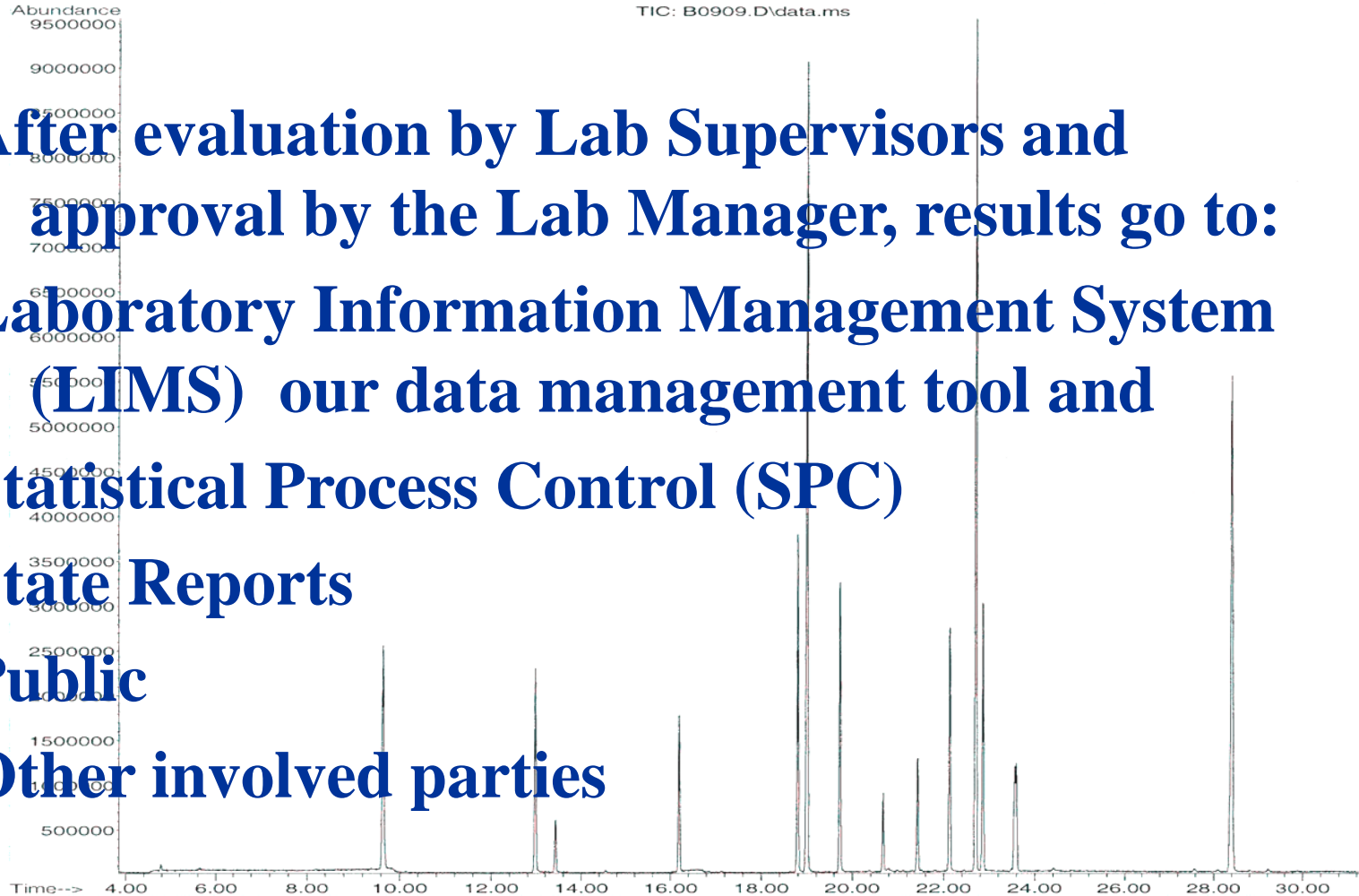
The use of Statistical Process Control predicts the measurements will fall into a defined range, if they don't, we take a closer look.

The closer to the finished product, the more parameters are looked at.



Turning Data Into Useable Information

```
File       : D:\1\DATA\1306pt\B0909.D
Operator   : MKS
Acquired   : 14 Nov 2006  1:36 am using AcqMethod CW524.M
Instrument  : HAL 2010
Sample Name: QCS MTBE
Misc Info  : WS06-3 Reg # 201111001
Vial Number: 1
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After evaluation by Lab Supervisors and approval by the Lab Manager, results go to: Laboratory Information Management System (LIMS) our data management tool and Statistical Process Control (SPC) State Reports Public Other involved parties

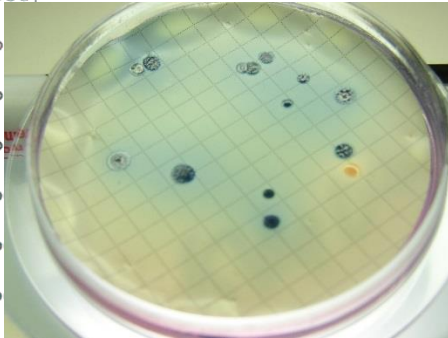
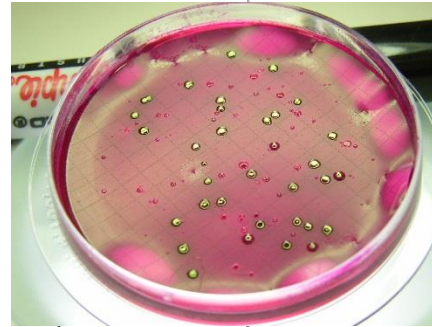
Microbiology Methodology

File : D:\1\DATA\11506\10506.ms
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Sample Name: QCS MTBF
Misc Info : WS06-3 Fig 2 2011 in 100ml
Vial Number: 1

Abundance TIC: B0909.D\data.ms

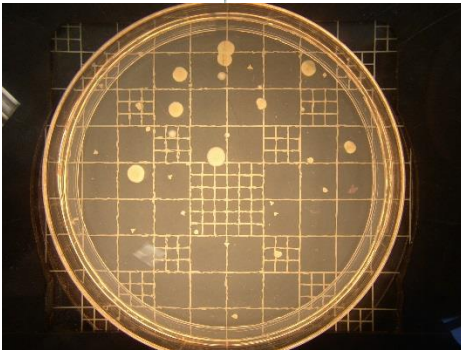
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Coliform – Membrane Filter



Fecal coliform – Membrane Filter

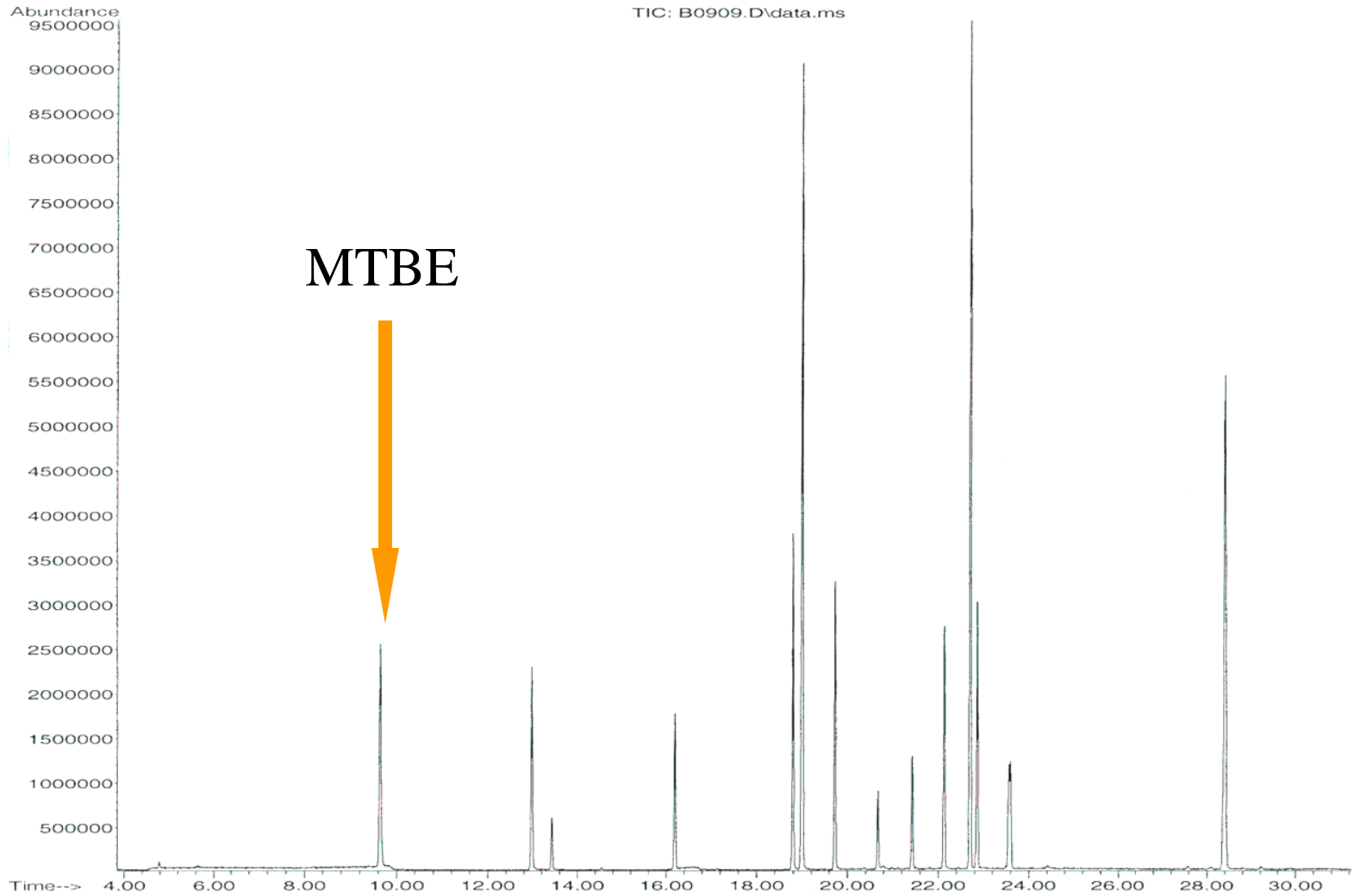
E-coli – Enzyme Substrate



Heterotrophic Plate Count – Pour Plate

10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00 26.00 28.00 30.00

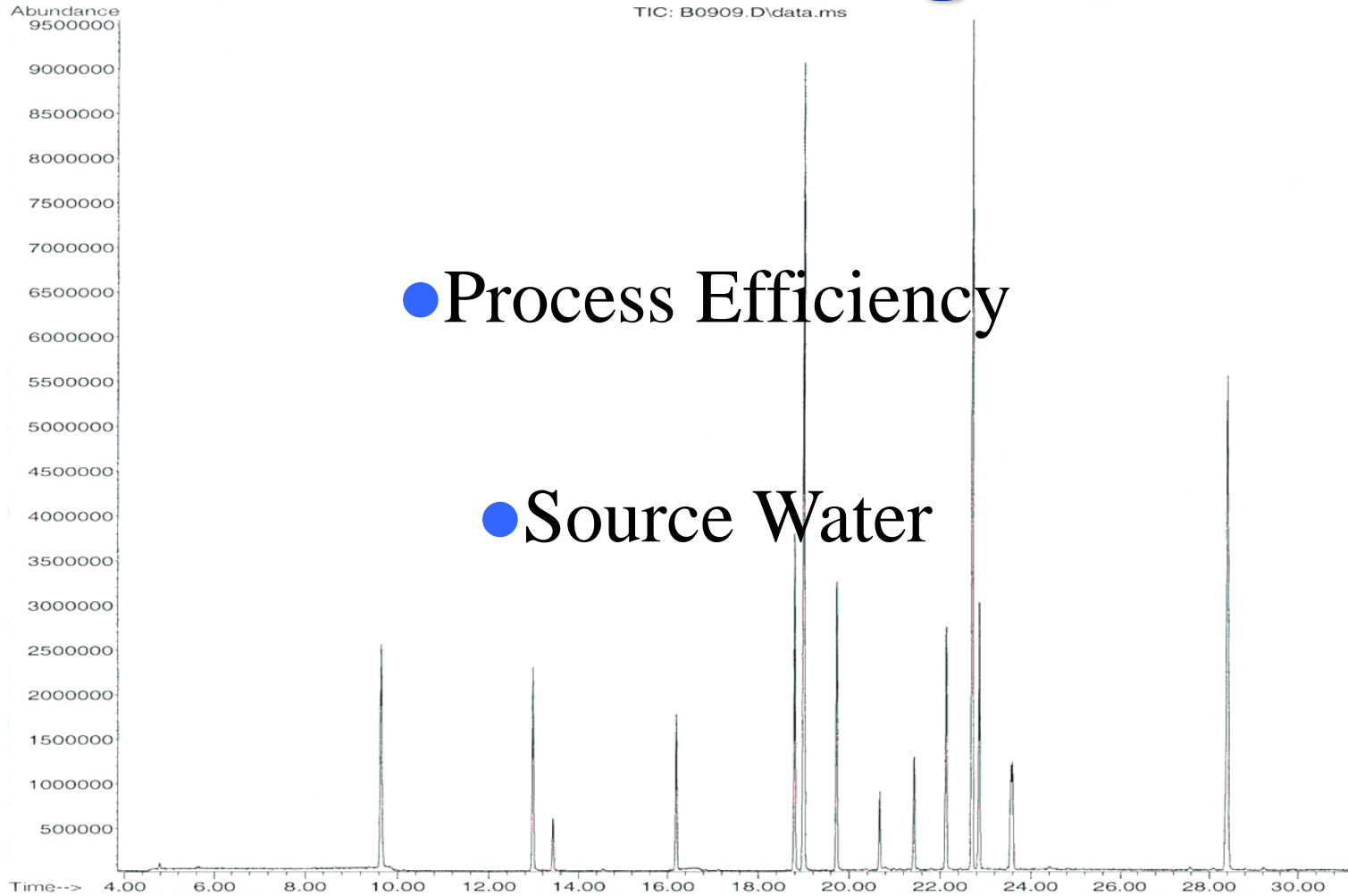
File :D:\1\DATA\111306pt\B0909.D
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Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HAL 2010
Sample Name: QCS MTBE
Misc Info : WS06-3 Reg #2 20ul in 100ml
Vial Number: 1



Sample for Lab Certification

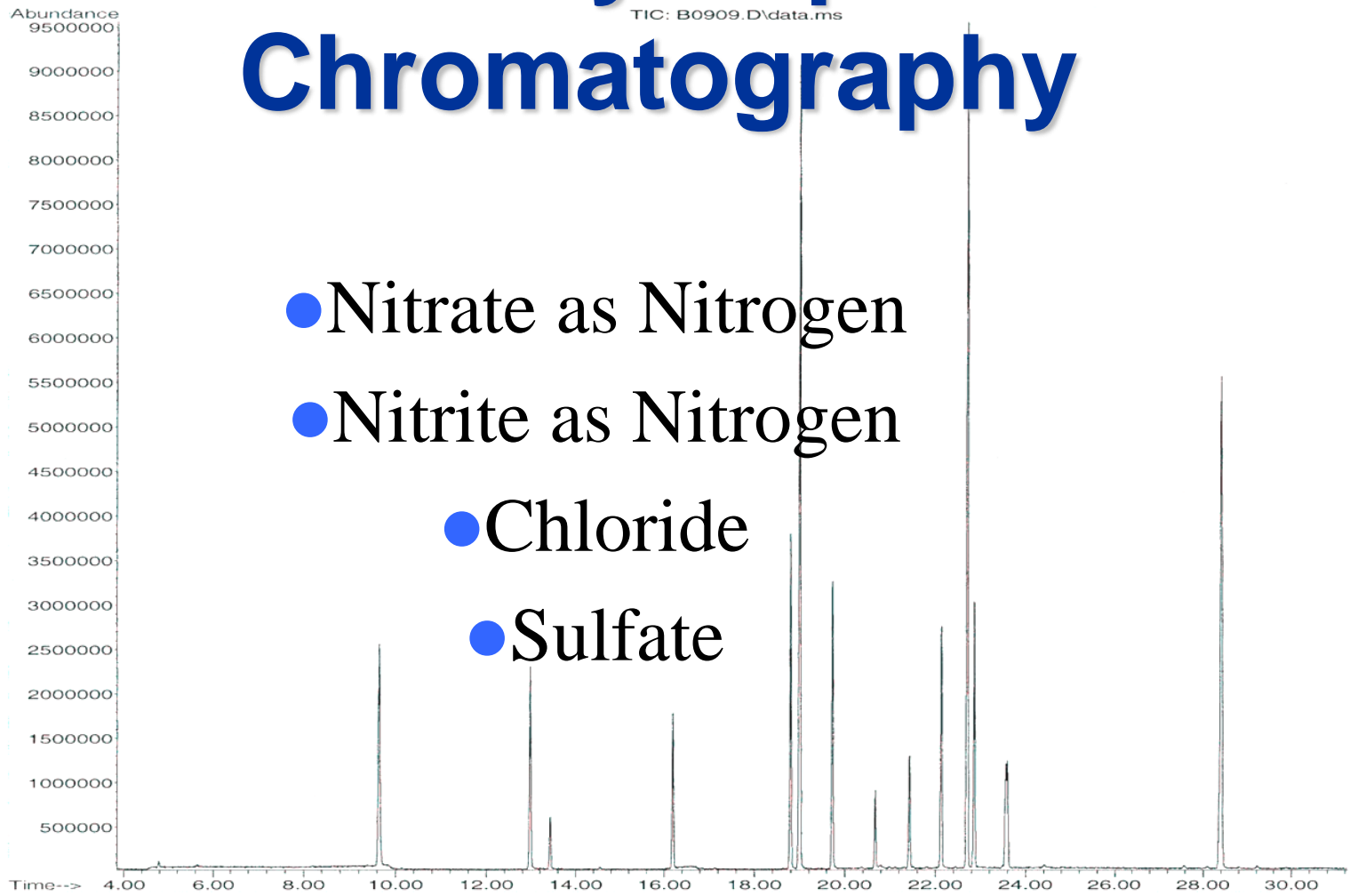
Total Organic Carbon Monitoring

File : D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod_CW524.M
Instrument : HAL 2010
Sample Name: QCS MTBE
Misc Info : WS06-3 Reg #2 In 1001
Vial Number: 1



File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:36 am using AcqMethod CW524.M
Instrument : HA 2010
Sample Name : T
Misc Info : S053 Reg # Sul n 1 01
Vial Number

Anions by Liquid Ion Chromatography



- Nitrate as Nitrogen
- Nitrite as Nitrogen
- Chloride
- Sulfate

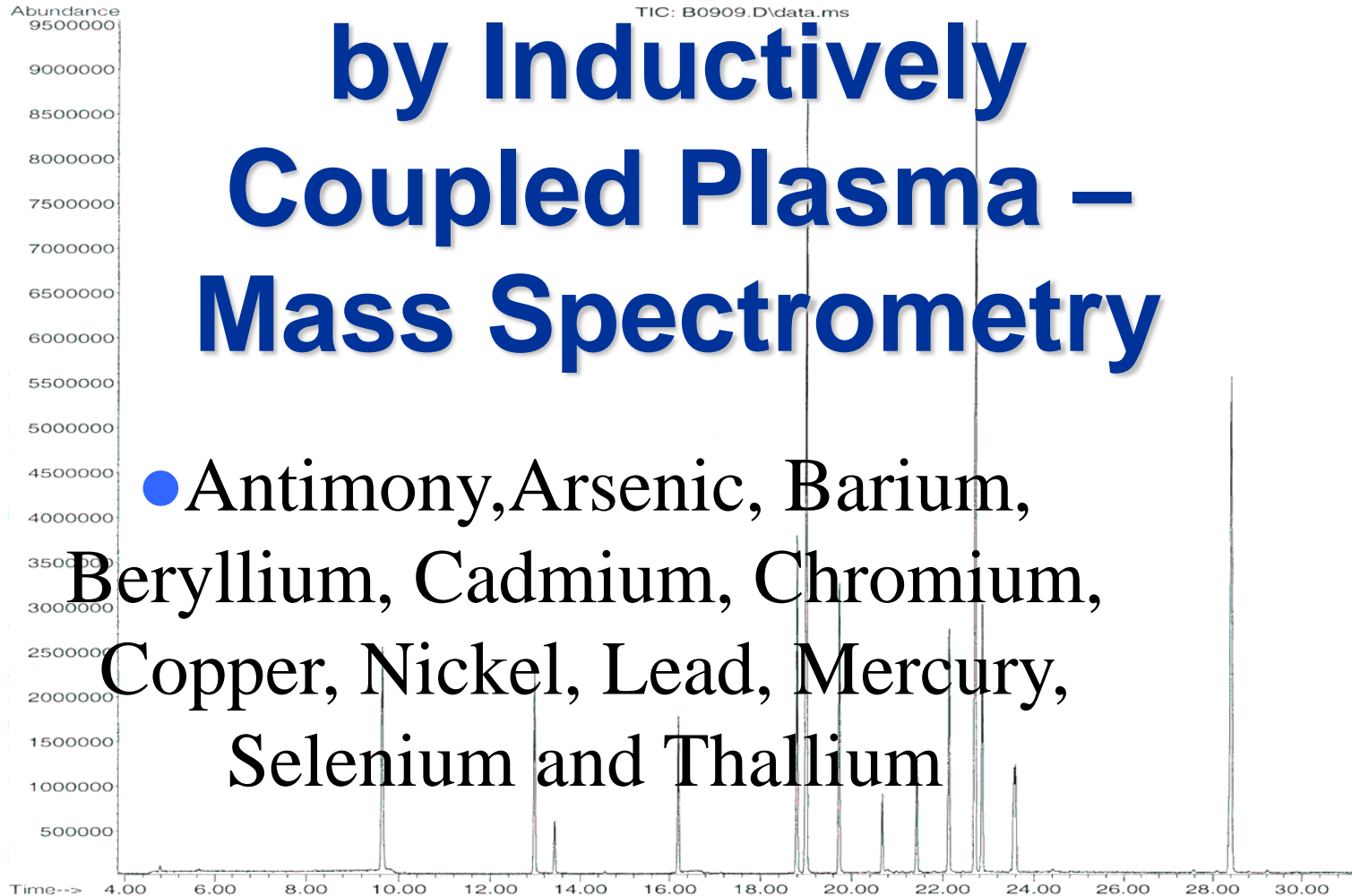
Trace Metals

File : D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:06 am using AcqMetho CW524.M
Instrument : HAL 2010
Sample Name: QCS MTBE
Misc Info : WS06-3 Reg #2 2
Vial Number: 1

Analysis

by Inductively Coupled Plasma – Mass Spectrometry

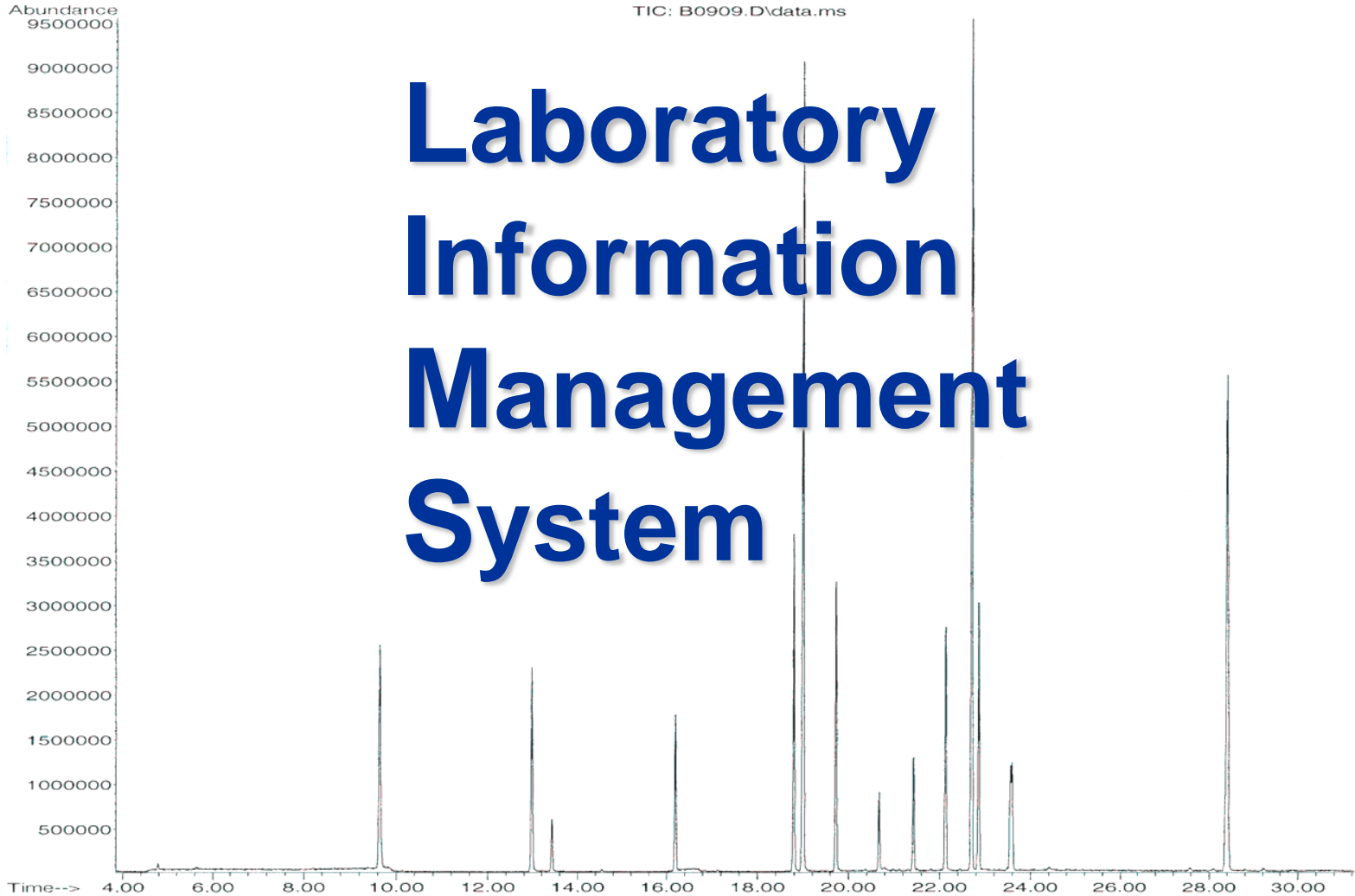
● Antimony, Arsenic, Barium,
Beryllium, Cadmium, Chromium,
Copper, Nickel, Lead, Mercury,
Selenium and Thallium



File :D:\1\DATA\111306pt\B0909.D
Operator : MKS
Acquired : 14 Nov 2006 1:00 am
Instrument : HAL 2010
Sample Name: QCS MTBE
Misc Info : WS06-3 Reg #2 20 in 1 Or
Vial Number: 1

LIMS

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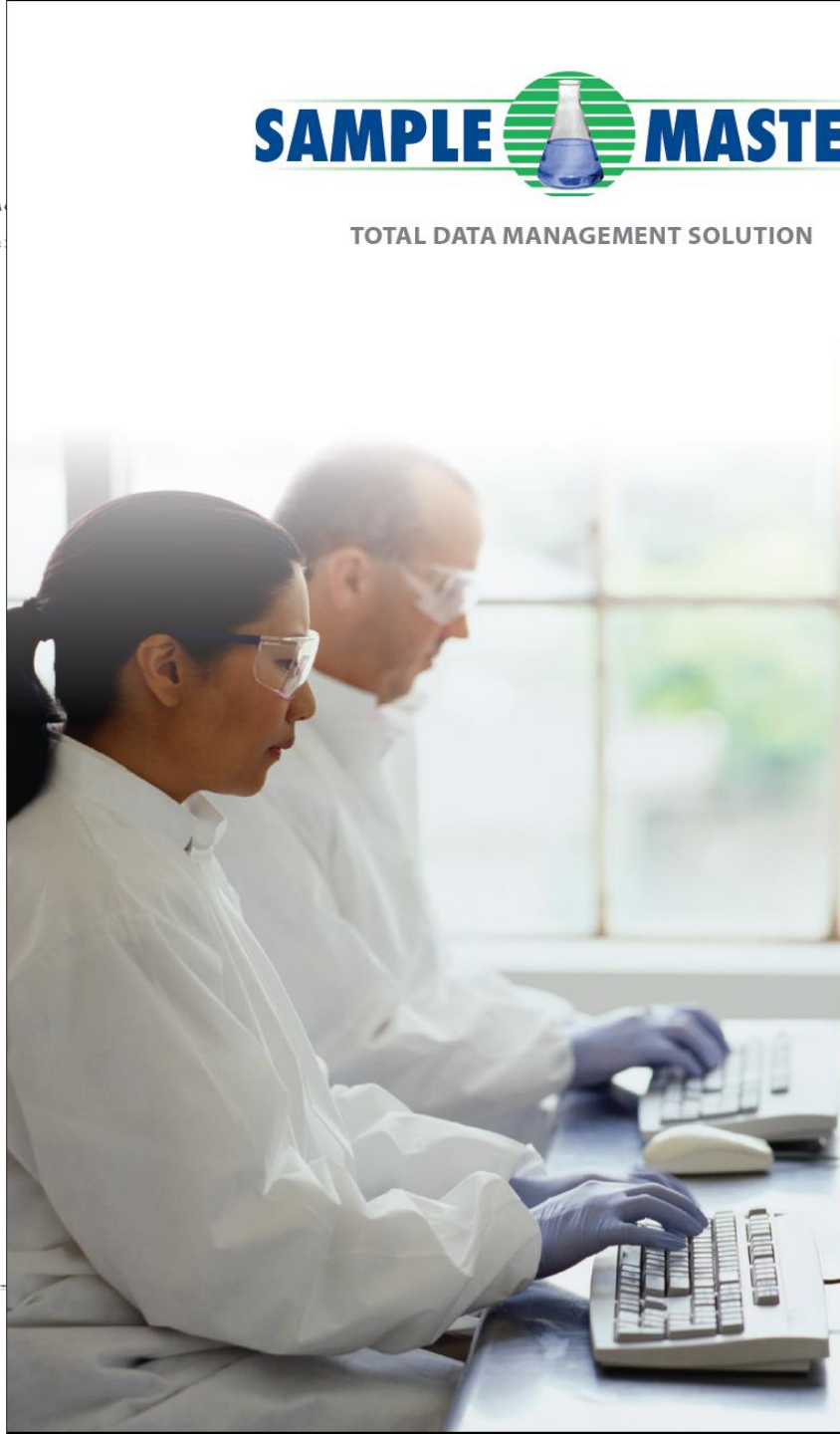


Laboratory Information Management System

File
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Sample Nam
Misc Info
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TOTAL DATA MANAGEMENT SOLUTION



SAMPLE MASTER® LIMS

Leveraging open architecture and comprehensive automation for laboratories of any size, Sample Master® accelerates accurate reporting, multiplies productivity, increases operational efficiency, and provides unparalleled data security.

ATLAB.COM



File
Operator
Acquired
Instrument
Sample Name
Misc Info
Vial Number

Abundance
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6500000
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Time--> 4.00

ABOUT SAMPLE MASTER®

Using the latest database technology, Sample Master® is Windows compatible, allowing seamless integration with Microsoft Office and other applications in a variety of network environments.

With the ease and familiarity of point-and-click computing, Sample Master® boasts feature-rich components such as an intuitive user interface, integrated calculations, automated email alerts, *Master Query* functionality, scheduling, and automated reporting. Users can easily modify screen captions to common terminology, run modifiable canned reports, as well as incorporate new screens, report forms, queries, menus, modules, and more.

Sample Master® is modular in design and affords laboratories unparalleled flexibility to choose hardware and software specific to their needs, as well as support expansion as operations grow. The investment can be rapidly implemented and is backed by outstanding customer service, comprehensive training programs, and timely, comprehensive technical support.

SAMPLE MASTER® FEATURES

Configurable System & Real-time Alerts
Dashboard & Web Portal
Barcoding & Audit Trail
Automated Fax & Email
Calculations & Limit Checking
Internal Chain of Custody
ELN & Instrument Integration
Flexible Reporting & Chemical Inventory
CRM & QA/QC
Scheduling & EDDs
Project & Resource Management
Regulatory Compliance

SAMPLE MASTER® MODULES

Invest in all or only those you need—as operations grow, the modular design allows for easy expansion!



SAMPLE TRACKING MODULE

This module allows users to quickly and efficiently automate functions such as log-in, generate barcode labels, create quotes, convert to orders, and create invoices that can be electronically exported to numerous accounting packages.

- Generate a series of reports, including Chain of Custody, login report, and sample conditions
- Scan supporting documentation or attach files to an order (PDF, Word, Excel, etc.)
- Create, maintain and email work lists



DATA ENTRY MODULE

Enter data, create QC Batches and Custom Reports, check the Audit Trail, run a Trend Analysis, run the GIS (Geographic Information System) function, set up Unit Conversions, and leverage the *Master Query* function to quickly mine data. Custom Reporting allows you to harness the power of the *Master Query* by defining the audit report criteria and creating an unlimited number of user-definable reports. Using historical data, create Trend Analysis charts by test, department, client, site, or a variety of criteria. Using the LIMS GIS function, users can plot sampling locations and test result values.



SAMPLE SCHEDULING MODULE

Automatically pre-log samples for routine collection. Samples can be automatically scheduled as daily, weekly, monthly, quarterly, semi-annually, annually, or by study. Coupled with a calendar printout and the ability to reschedule for holidays, this ensures that sampling events will not be missed. Sample collection kits can be prepared in advance, with routing sheets, labeled bottles, and email alerts for the field collection team.

CONTINUAL IMPROVEMENTS SYSTEM ENHANCEMENTS & UPGRADES

DETAILED ANALYSIS
REQUIREMENTS

LIMS
CONFIGURATION

MAINTENANCE
& SUPPORT

IMPLEMENTATION
& TRAINING

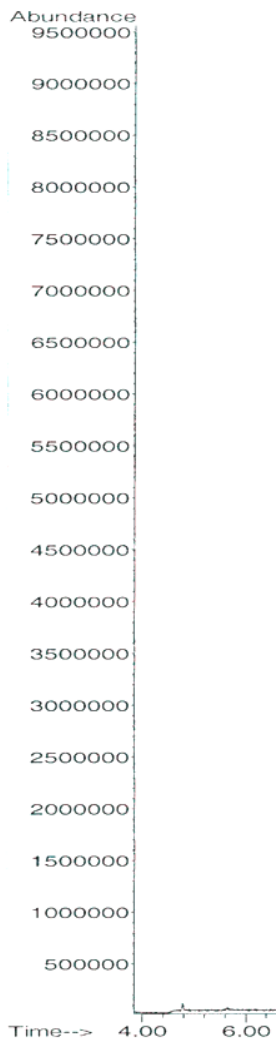
VERIFICATION
(QUALITY
ASSURANCE &
TESTING)

28.00 30.00

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File       : D:
Operator   : M
Acquired   : 1
Instrument :
Sample Name: Q
Misc Info  : W
Vial Number: 1

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QA/QC MODULE

The integrated QA/QC module allows users to graph results and create control charts. Users can configure tests to include QC, matrix spikes, blanks, duplicates, surrogates, matrix spike duplicates, and many others. Control limits may be entered manually or calculated from historical limits. You can easily select the data to plot using the *Master Query* such as test, sample number, method, site, analyst, etc.



ELECTRONIC DATA TRANSFER MODULE

Transfer data electronically from the instrument to the LIMS. Sample Master® will accept the instrument output files and parse data in the required input format. Using the LIMS Task Manager, Sample Master® will scan specific directories at user-definable times seeking files to import, or the exact data to be imported can be specified in the case of multiple runs or dilutions for a sample. Users can leverage the EDD (Electronic Data Deliverable) designer to quickly create EDDs.



CHEMICAL INVENTORY MODULE

Manage your chemical and reagent inventory effortlessly! This module allows you to track supplies and vendors and provides the ability to assign prices to supplies, track lot numbers, and assign expiration dates. By automating back office information, better purchasing decisions can be made and the laboratory will run more efficiently. The report dashboard will provide reports that can be automatically emailed to alert users of supplies that are approaching expiration date or supplies that are reaching critical limits so they can be re-ordered.



RESOURCE MANAGEMENT MODULE

Set up instrument calibration schedules and personnel certificate renewal alerts and you'll always be within regulatory compliance. If an instrument calibration is out-of-date or an employee has an expired training certificate, permission to perform a specific task will not be allowed. Manage instrument maintenance, calibration and repair records to ensure that all instruments are within control.



CUSTOMER RELATIONSHIP MANAGEMENT MODULE

Customer Relationship Management (CRM) is vital to laboratory success; this module offers an easy and affordable way to effectively support system deviations through an organized method of tracking, monitoring, and rapidly resolving potential problems. The CRM module will facilitate the execution of corrective and preventative actions to ensure regulatory compliance. Laboratories with a focus on CRM have improved laboratory processes, higher marks in customer satisfaction, trust, and loyalty, and have fostered long-term business relationships.



TIME TRACKING MODULE

The Time Tracking module is ideal for managing employees and tracking time expended on laboratory tasks and projects. Create standalone projects or multiple projects for a single client, and calculate billable hours through completion.



LIMS MAINTENANCE MODULE

The LIMS Maintenance module is comprised of the entire laboratory's static information that is configured and maintained by the database administrator. This is where the Sample Master® setup information and default settings are found. Information such as defaults, number format, QC batch ID, employees, permissions, tests, methods, limits, prices, departments, ID formats, reports, and many other settings are stored and updated. This module allows the administrator to easily configure the LIMS to conform to the workflows and business rules of the laboratory.



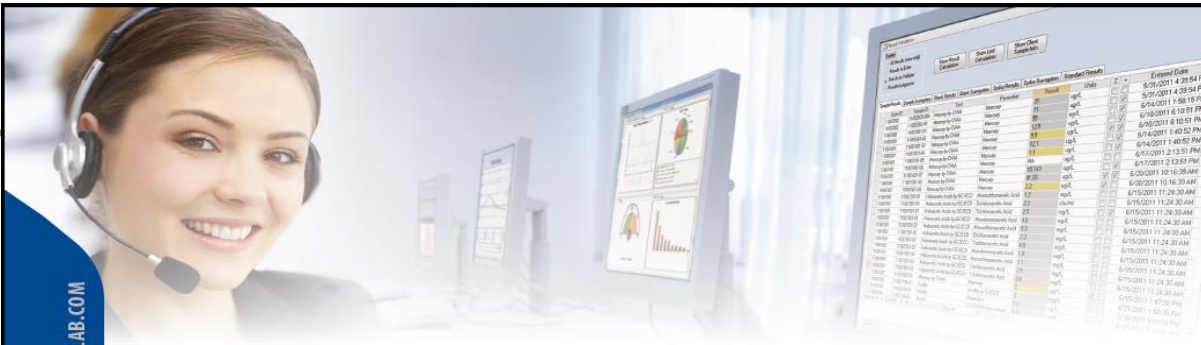
Result Point™ is a secure web portal that allows clients to access their data 24/7; view status and results, check limits, view or print reports in PDF, Excel, or other common file formats. Users can also remotely log in samples that will be shipped to the laboratory.

MINIMUM TECHNICAL SPECIFICATIONS

CLIENT REQUIREMENTS: Windows XP through Windows 7 or higher, Pentium 4 2.0 Ghz, 2 GB of RAM or higher, Microsoft Access 2010 (32-bit) runtime engine, Microsoft Access, Crystal, Excel, or any standard reporting tool that is desired.

SERVER REQUIREMENTS: Windows Server 2003 through 2008 R2 or higher, Pentium 4, 3.0 Ghz, 2 GB of RAM or higher, 1 GB of free hard drive space. Recommendations are general and will vary by installation. Microsoft SQL Server, SQL Express or Oracle as the database engine.

File : D
 Operator :
 Acquired :
 Instrument :
 Sample Name :
 Misc Info :
 Vial Number :



ACCELERATED TECHNOLOGY LABORATORIES, INC.
 496 HOLLY GROVE SCHOOL ROAD • WEST END, NC 27376 • PH: 800.565.LIMS (5467) OR OUTSIDE US: 910.673.8165 • FAX: 910.673.8166 • ATLAB.COM

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DEDICATED ACCOUNT MANAGER

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QUARTERLY TRAINING WEBINARS



About Accelerated Technology Laboratories

Founded in 1994, Accelerated Technology Laboratories, Inc. launched the first commercially-available Windows-based Laboratory Information Management System (LIMS) powered by database engines including Oracle and Microsoft SQL Server.

Today, Sample Master® is installed in hundreds of laboratories with thousands of users around the world. ATL software has provided software solutions for Fortune 500 companies and to a variety of industries including water & wastewater, analytical, energy (coal, electrical, nuclear), environmental, food & beverage, chemical, government,

Sample Master® is the easiest LIMS to use and deploy; unlike systems that require teams of programmers and years to implement, ATL clients are typically live within 3-6 months depending on the number of instruments to be integrated, users to be trained, and level of configuration required.

ATL provides superior pre- and post-sales support and dedicated training. All software is backed by a comprehensive world-class support plan, and customers with GOLD or PLATINUM plans benefit from a dedicated Account Manager, a live Support Engineer, extended support hours, and more.

In addition to on-site and web-based training, LIMS Boot Camp courses are held biannually to train end users

public health, industrial hygiene, biotechnology, forensics, clinical testing and manufacturing, and many others.

We hold a strong commitment to quality and invest heavily in research and development to provide our customers with the best available technology and tools. We hire experts — in the fields of chemistry, water & wastewater, microbiology, medical technology, laboratory management, validation, software development, computer science, engineering, and business — who hold various degrees ranging from A.S., B.S., M.S., and Ph.D.

one-on-one with certified instructors. ATL is also dedicated to keeping customers informed of industry news by publishing a quarterly newsletter.

Whether automating data management and reporting or replacing an existing system, ATL will work with you closely to develop and execute a sound implementation plan. We will install your data management software, train your database administrator and users on the features and functions of the system, and provide long-term comprehensive support on all levels.

Improve laboratory data management processes and increase productivity and profit with Sample Master® LIMS. To determine the most suitable solution for your laboratory, please contact an ATL representative today!

ATL is one of few independent LIMS firms that is ISO 9001:2008 certified. Quality is in our company DNA. We have attained Gold Certified Partner status in the Microsoft Partner Program and BioIT Alliance. ATL is also an Oracle Business Alliance Partner, and a Citrix Technology Partner. This proves our involvement and expertise in the technology marketplace.

Our alliances and certifications enable us to offer our customers superior software solutions to help them manage their laboratory business — today and into the future — with complete confidence and support at an affordable cost.

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Vial Number: 1



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