Laboratory Privatization

and Consolidation

October 1998

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GLOSSARY

List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ALMA	Analytical Laboratory Managers Association
ASL	Analytical Services Lab
AQL	Air Quality Lab
A&I	Department of Administration and Information
CDC	Centers for Disease Control
CLIA-88	Clinical Laboratory Improvement Amendments of 1988
CSG	Council of State Governments
DCI	Division of Criminal Investigation
DCLS	Virginia's Division of Consolidated Laboratory Services
DFS	Department of Family Services
DEQ	Department of Environmental Quality
DOC	Department of Corrections
DOH	Department of Health
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
GC	Gas Chromatograph
GCMS	Gas Chromatograph / Mass Spectrometer
HIV	Human Immuno Deficiency Virus
HPLC-MS	High Performance Liquid Chromatograph - Mass Spectrometer
HVAC	Heating Ventilation / Air Conditioning
ICP	Inductively-Coupled Plasma Spectrometer
JAC	Joint Appropriations Committee

LSD	Lysergic Acid Diethylamide
NPDES	National Pollutant Discharge Elimination System
NSF	National Science Foundation
PCR	Polymerase Chain Reaction
PHL	Public Health Lab
PSC	Public Service Commission
SDWA	Safe Drinking Water Act
STD	Sexually-Transmitted Disease
SWCAP	Statewide Cost Allocation Plan
TMDL	Total Maximum Daily Load
UPS	Uninterruptible Power Supply
USDA	United States Department of Agriculture
UW	University of Wyoming
WDA	Wyoming Department of Agriculture
WSVL	Wyoming State Veterinary Lab
WQL	Water Quality Lab

EXECUTIVE SUMMARY

Laboratory Privatization and Consolidation

The Legislature has created a network of laboratories spread throughout state government. It established some labs in statute, and has allowed others to exist under the discretionary powers given to agency or division directors. These labs, and the agencies that house them, include:

- Public Health Lab (PHL), Department of Health
- Water and Air Quality Labs (DEQ labs), Department of Environmental Quality
- Analytical Services Lab (ASL), Department of Agriculture
- Crime Lab, Office of the Attorney General
- Wyoming State Veterinary Lab (WSVL), University of Wyoming

In FY97, reported and estimated budgets for the five state labs totaled $3.1 million (see Figure 1 on page 7). Of that amount, the General Fund accounted for $2.6 million or 86 percent, federal

funds contributed nearly 3 percent, and other sources, primarily fees, contributed almost 12 percent. Approximately 62 FTEs worked in the labs in FY97. Among the five labs, salaries for employees absorbed approximately 67 to 87 percent of total budgeted expenditures. More detailed statistics about the labs are located on page 7.

Labs Serve a Variety of Purposes and Customers

The labs provide analytical data for a range of purposes. For example, the PHL performs sexually transmitted disease (STD) testing to monitor disease trends within the state's population. ASL tests raw and finished dairy, and DEQ labs test water samples to fulfill regulatory obligations. The Crime Lab tests evidence to assist law enforcement agencies in prosecuting criminals, and the PHL runs drug screens to monitor the behavior of persons on probation.

Some labs, such as DEQ, primarily generate data for programs in their home agencies, while others, such as WSVL, do service testing to generate data for outside customers. The ASL provides analytical services for some programs within the Department of Agriculture, as well as for outside entities that would otherwise need to use private labs.

State lab customers include state agencies, private citizens and businesses, private physicians and veterinarians, hospitals and private laboratories, criminal justice agencies and non-profit organizations. Some of the labs provide significant portions of their analytical services at no charge to towns, counties, and other local government subdivisions.

Lab Consolidation

In 1993, the Legislature appropriated $6.3 million to construct an addition to the ASL/WSVL facility in Laramie. This addition was to house the DEQ and PHL labs, which would move from their fifth floor Hathaway Building locations in Cheyenne. There appear to have been some expectations that, by building a facility large enough to accommodate the four labs, Wyoming government would be consolidating them. It was clear to us, however, that this project was designed as a co-location of separate labs, rather than as an integration of lab operations in one facility. During the 1998 Session, the Legislature de-appropriated the funds for the Laramie lab facility (which by then totaled more than $8.9 million), and requested this study.

To illustrate the differences between lab co-location and consolidation, we present a description of the Virginia state lab, which operates most extensively under a consolidated model. Virginia has combined its environmental, public health, and agriculture labs into one consolidated lab within its general services department. The lab is funded through a combination of internal service funding (fee-for-service) and the state's general fund. Its primary "customers," the agriculture and environmental quality departments, may "buy" their lab services from any lab, public or private. In order to maintain cross-functionality, the lab is not organized along customer lines. Instead, the lab is set up in groups according to logical functions, with similar types of tests using similar types of equipment located together.

The Virginia labs were co-located over 20 years ago when a new lab facility was built. However, real consolidation did not occur until 1992, when the state hired a director specifically charged with taking that direction. The director related problems that resulted because one of the affected agencies attempted to dominate the initial consolidation effort, and because the lab staff tended to respond primarily to their original home agencies. He also noted that although several states have looked at his state's consolidation model, none have adopted it, and at least one state has reversed its consolidation efforts.

Privatization Considerations

Determining which, if any, government services to privatize involves many philosophical and value-based judgments. Also, decisions made in one state may not transfer to others. Therefore, we did not identify a model for privatizing state lab services. Instead, we chose to center our research on the process a state can use to make these determinations.

There are two approaches commonly referred to as privatization. First is the concept of **outsourcing**, whereby government contracts or coordinates with either private sector providers or other governmental entities to deliver goods or services. Implicit in this approach is that government continues to pay for these services, and that government generally retains responsibility for them.

Alternatively, policymakers may decide to stop providing a service so the private sector can assume the function. Such a move is called **service shedding**. In this case, government divests itself of the responsibility for performing a public function, and no longer funds the services.

Our review of literature recounting states' experiences with privatization revealed agreement on several factors that affect the success or failure of privatization. First, it is important to define the problem that privatization is expected to solve. Second, a state should establish formal decisionmaking procedures to evaluate candidates for privatization. Third, decisionmakers need accurate cost data, both on in-house costs and on the costs of contracting. Fourth, privatization needs to be properly monitored to ensure the ongoing quality of services.

We found many commonalties in how states make these decisions, and we merged them into nine principles, located on page 16. Wyoming policymakers may choose to use others in considering whether or not to privatize services. Nevertheless, these principles provide a context for understanding how complex making such decisions, and evaluating the results, can be.

What Lab Services Should the State Provide?

In the last decade, planning how to accommodate state lab operations has led to several studies and reports. On pages 9 through 12, we have summarized several of them. These analyses, however, appear to have considered facility needs or privatization options in isolation. There has been little analysis of the services provided by the state's labs, and whether changes in either those services or the way they are provided might be warranted.

A principle that guides this review is that it is important for legislators first to decide what services they want state labs to provide. There is no one definitive solution to consolidation and privatization issues regarding state laboratories in Wyoming. In this report, we identify selected lab services that could be privatized or consolidated, but decisions regarding the provision of lab services are first and foremost of a policy nature.

The potential capital expenditure for a new or renovated laboratory facility could be substantial. Therefore, the Legislature may wish to consider how lab services are provided before it makes decisions with respect to capital expenditures for these facilities. While decisions about lab services can be made separately, we recommend the Legislature comprehensively review the options. Any individual decision may resolve specific issues, but may or may not have cross-cutting significance.

A Comprehensive Decision Making Process is Needed

In light of the cross-cutting nature of state laboratory services, we recommend that a legislative committee comprehensively review these options. The goal of the committee would be to decide first which lab services are appropriately delivered by the state, which ones could be outsourced, and which ones are no longer important or desirable. Having made those decisions, the committee could sponsor legislation for the Legislature to consider. At that point, the Legislature could determine what configuration of facilities is most workable.

Report Serves As a "Roadmap" for Decision Making About Lab Services

The information in the following chapters can assist legislators in making both philosophical and practical decisions about state labs:

- Chapter 1 provides insight into consolidation and privatization. We identify privatization principles and an example of consolidation to aid legislators in clarifying what lab services should be provided by the state.
- Chapters 2 through 6 examine each lab and apply the privatization principles we synthesized to lab services, in order to identify privatization considerations within the labs.
- Chapters 7 through 9 provide practical options for providing these services. The privatization and consolidation options in these chapters are examples of ways to restructure lab services. They are not the only alternatives, nor are they mutually exclusive choices. Rather, they are case scenarios to consider.

CHAPTER 2: Public Health Lab

Located on the fifth floor of the Hathaway Building in Cheyenne, the Public Health Lab (PHL) provides a range of testing primarily to support the mission of the Department of Health. The PHL consists of two sections: microbiology and chemistry. We grouped the testing in the

microbiology section into two categories: reference and investigative testing; and surveillance and service testing. Most of the testing done in the chemistry section is for enforcement or monitoring purposes.

We reviewed groups of PHL tests for possible privatization or consolidation options. The PHL currently outsources tests when they are infrequent or require expensive, specialized technology. In total, the PHL coordinates with, or outsources tests to, 11 different laboratories, including two other Wyoming state labs.

After determining which tests were generally routine and if other labs in Wyoming would likely be able to perform the them, we conducted a survey to determine costs for privatizing groups of tests. However, our lab consultant cautioned that privatizing laboratory problem solving and method development is more difficult than privatizing standardized, routine procedures. Therefore, we chose not to further analyze investigative and reference tests for privatization.

Surveillance and service tests may be better suited for privatization than investigative tests, partly because they are routine. Our survey of Wyoming clinical labs found limited interest in conducting surveillance and service tests, and our analysis indicates privatizing these tests would generally be more expensive. For a more detailed analysis, see page 23.

We found that even fewer clinical labs in Wyoming are interested in conducting the chemistry section's toxicology testing for enforcement or monitoring purposes. In addition, we estimate that if the PHL privatized all toxicology testing, costs would likely be more than 50 percent higher. Nevertheless, we also found there may be benefits from limited privatization or the expanded use of on-site test kits in specific cases.

Analysis of two categories of testing (surveillance and service testing, and testing for enforcement) is located on pages 24 and 27, respectively. We endeavored to apply standardized criteria to each group of PHL tests. However, there are inherent judgments, including the very choice of criteria, in such an effort. Therefore, when assessing these tests, policymakers may wish to apply their own criteria, or to weigh the criteria differently.

Decision Points

Do policymakers wish to continue all lab testing currently performed by the PHL? If not, should specific tests be outsourced, or shed, to another state lab or private lab?

CHAPTER 3: Department of Environmental Quality Labs

The Department of Environmental Quality (DEQ) operates two laboratories on the fifth floor of the Hathaway Building in Cheyenne. The labs include a Water Quality Lab (WQL) and an Air Quality Lab (AQL). The labs help fulfill the analytical needs of the DEQ. The labs perform a mixture of regulatory and investigative work.

We reviewed current lab activities to determine if there were lab services appropriate for consolidation or privatization. The AQL does not duplicate services with any other state lab we reviewed. However, we found duplicative microbiological water capabilities among the WQL, the PHL, and ASL. We also found chemical water testing duplication between WQL and ASL. For options related to state-level water testing, see pages 71 through 74.

To review privatization options for DEQ lab testing, we applied the privatization criteria from Chapter 1 to DEQ's lab services. We found that it may be less expensive for the state to outsource a point-source water testing program. However, the privatization criteria caution against outsourcing regulatory testing. We also found that maintaining investigative testing in the WQL would likely negate any savings from outsourcing the point-source program. An offset would occur because the lab would still need to be staffed and equipped at a certain level to perform investigative work. For more details about outsourcing DEQ water testing, please see page 33.

Our analysis indicates it may be more expensive to outsource ambient air testing, since this testing did not require DEQ to make a large investment in equipment. However, less than half of the laboratory staff's time is spent on ambient air testing. More laboratory time is spent working on investigative testing, but much of this equipment is aging. For a more detailed discussion of outsourcing DEQ air testing, see page 34.

Decision Points

Given the regulatory nature of DEQ's work, do policymakers want to outsource routine testing? Do policymakers wish to maintain in-house investigative testing? In water testing, are the costs of maintaining staff and equipment for a limited number of samples worthwhile? In air testing, do policymakers want to invest in new equipment to maintain in-house investigative capabilities, or should this work be outsourced?

CHAPTER 4: Analytical Services Laboratory

Located in Laramie, Analytical Services Laboratory (ASL) is part of the Wyoming Department of Agriculture (WDA). ASL has a microbiology lab and a chemistry lab with sections dedicated to organic and inorganic work. Some of ASL's analytical programs, such as meat, dairy, livestock feeds, fertilizers, and pesticides, relate to regulatory programs carried out by WDA. However, in FY97, WDA submitted only 32 percent of samples received by ASL. For a discussion about ASL's customers, see page 39.

Statutes authorize ASL to serve customers outside of WDA, such as other state agencies, municipalities, federal government agencies, and private businesses or individuals. Statutes also authorize ASL to charge fees to customers other than cities, counties, and state regulatory agencies. Consequently, testing done by ASL is a mixture of non-fee-service work for government entities, fee-for-service work for private customers, and regulatory testing done for WDA.

The work ASL does for customers outside of WDA can be considered service testing because WDA has no regulatory or enforcement authority, and no need for the test results. In general, water testing does not relate to WDA's regulatory programs, yet it accounted for about two-thirds of samples and tests done by ASL. For discussions about service testing and service testing of water, see pages 43 through 46.

Currently, ASL is providing a financial benefit to some municipalities and not others. Although ASL does not charge municipalities for its services, only some of them use ASL. We found that 70 percent of samples submitted by municipalities were from those concentrated in southeastern Wyoming. For a discussion about ASL's service testing for municipalities, see page 44.

Decision Points

After applying privatization criteria developed by other states, we determined that the main policy issue is service shedding. Should ASL continue to provide services to the general public? In particular, should ASL's capacity be increased in order to provide water testing to all municipalities statewide, or should ASL shed the water testing it currently does? Additional options about privatization and consolidation of water testing are discussed in Chapter 8.

CHAPTER 5: DCI Crime Lab

The Crime Lab is a section of the Division of Criminal Investigation (DCI) within the Office of the Attorney General. It primarily provides forensic analyses to local law enforcement authorities, either police or sheriffs' departments. The lab also provides forensic services to public defenders, state and federal agencies, county coroners, and DCI itself.

The DCI Crime Laboratory is a full-service forensic laboratory that provides examinations by court-certified personnel in four functional areas: chemistry, biology or serology, fingerprints and questioned documents, and firearms and toolmarks. For more information on the labs functional units, see pages 48-49. Providing expert court testimony is also a primary Crime Lab service.

The only testing the Crime Lab routinely outsources is chemical toxicology (primarily drugs) in blood and urine, which it sends to the PHL chemistry section. The distinction between the testing done for drugs by these two labs is that the Crime Lab identifies drugs only in solid dosage samples, whereas the PHL identifies drugs in blood and urine.

A consideration of the privatization criteria presented in Chapter 1 brings forth several issues with respect to Crime Lab services. For example, control of the analytical process is as critical as the result for the Crime Lab. Further, the lab's results play a significant role in law enforcement, which is considered a core government responsibility. Finally, the lab's work requires examiners to exercise high levels of judgment and discretion. These considerations generally work against privatization. Nonetheless, lab officials noted that private labs could satisfactorily meet these quality control requirements.

However, lab officials and local law enforcement authorities maintain that using private labs would be costly, especially for expert testimony. There are no private forensic laboratories in Wyoming, and we did not formally survey out-of-state labs to definitely determine private sector charges for these services.

Expenditures of state resources to renovate the lab facility and federal funds to equip it have made the Crime Lab one of the best equipped forensic labs in the region, in the opinion of lab officials. To privatize now may mean dismantling this investment. Further, it appears that the state would not have the same level of federal support available to it if it chose to privatize these services rather than develop its own capabilities.

Decision Points

Do policymakers want to maintain the state's ability to provide forensic lab services for local law enforcement authorities, or do they want to contract for these services with out-of-state private labs?

Chapter 6: Veterinary Laboratory

The Wyoming State Veterinary Laboratory (WSVL) is a full-service diagnostic and research laboratory located in Laramie. It operates as a unit of the Department of Veterinary Science within the College of Agriculture at the University of Wyoming. WSVL performs a mix of diagnostic testing, research work, and consultation. Certain WSVL tests are official government-regulated tests, and the lab also does wildlife-related testing and research.

We found that WSVL's current mix of cases and range of services goes beyond those areas clearly identified in statute. Statute directs the lab to serve "the livestock industry" and to "assist licensed veterinarians." Legislators may not be aware that a significant portion of WSVL's work is related to wildlife, companion animals, and public health. The WSVL director noted that these areas have been an inherent part of the lab' understood mission for years. While not wishing to criticize WSVL for providing these services, we point out that the lab's current operations are not fully reflected in the authorizing statute.

Since it strives to be a full-service laboratory, the WSVL outsources only those tests for which there is limited demand and that require technical expertise too expensive to develop. The WSVL also collaborates with the PHL in testing for diseases such as rabies and plague.

Applying the privatization principles produced mixed results. However, it is clear that the lack of in-state private sector alternatives would be a major obstacle to privatizing WSVL services. Even though some tests are routine and may appear to be candidates for privatization, given the lack of private sector capacity in Wyoming, opportunities for privatizing did not emerge.

Decision Points

Since privatization options are limited for WSVL, the Legislature may wish to consider whether it approves of maintaining the full range of services currently provided by WSVL. Do

policymakers support the expansive testing taken on by the WSVL? If so, would there be benefit to clarifying statutory language as to the lab's purpose?

CHAPTER 7: Options for Laboratory Equipment

We found none of the labs were sharing equipment with each other, and that each lab tends to dedicate or semi-dedicate instruments. There are good reasons for dedicated use: typically, scientific limitations or cost inefficiencies related to the time involved in recalibrating an instrument. However, experts we consulted reported that in certain circumstances, some equipment can be shared. They added it is particularly useful to look at sharing the most expensive equipment since that is where cost efficiencies could be the greatest.

Nevertheless, labs have been purchasing equipment individually. At least $1.3 million in equipment has been purchased by the labs since FY91, and 54 percent of this was supported by the General Fund. See Figure 6 on page 62 for a breakdown of expenditures on equipment by agency.

In order to analyze equipment owned by all five labs, we assembled an inventory of lab equipment with a purchase price of $3,000 or more. We determined that the five labs have 226 instruments that were purchased over the last three decades. These instruments combined had purchase prices totaling $4.2 million.

The age and condition of equipment vary considerably from one lab to another. However, all equipment combined has a median age of eight years, which is beyond the age of five to seven years experts believe is optimal. We concluded that the labs' equipment is generally in good condition, but is old. For a description of the inventory and median age by agency, see pages 59 and 60.

For the Legislature, making funding decisions about equipment for individual labs is difficult. Currently, there is no method to prioritize equipment needs across labs, or to explore opportunities for sharing the most expensive pieces of equipment. The state does not have a depreciation reserve to fund the replacement of lab equipment, like it does for vehicles. Consequently, each lab seeks funding individually, from sources such as federal grants or appropriations from the General Fund. We asked each of the labs to identify additional equipment needs, and based on their estimates, we calculate a total of $1.8 million in lab equipment needs. For further detail, see discussion on pages 63 and 64.

Decision Points

Do policymakers want to devote resources to managing lab equipment from a statewide perspective? Should the labs continue to make purchasing decisions in isolation from one another, or with input from the other labs?

CHAPTER 8: Options for Water Testing

During our review of state lab operations, we found that several state-level labs perform the same or similar water testing. There are duplicative microbiology capabilities in the PHL, DEQ, and ASL, and we also found overlapping chemistry capabilities in DEQ and ASL. Duplication exists because responsibilities for water quality at the state level have not been clearly articulated. As a result, testing of water has been split among several state labs. Consequently, the state may be maintaining a larger than necessary investment in equipment, staff, and space to perform water tests.

The state may be able to decrease lab costs if water testing is combined or reduced. We found the total costs associated with water testing are relatively low, but there may still be savings in equipment, staffing, and facility costs by consolidating or privatizing water testing. For a discussion of the inefficiencies in equipment, staffing, and space, see pages 68 and 69.

Policymakers may find advantages to maintaining the current water testing intact. However, if this duplication of capacity is undesirable, they may wish to clarify responsibilities for state-level water testing. Several options are available. If privatizing state-level water testing services is desired, policymakers have options of outsourcing the work and continuing to fund the provision of these services, or they could shed some water testing altogether. See pages 72 and 73 for a discussion of privatization options.

If policymakers want to consolidate this testing at one state level location, we believe the facility occupied by ASL appears most suited to housing water testing. However, if testing were consolidated in this facility, it does not necessarily have to be provided under the auspices of ASL. Discussion is located on pages 73 and 74.

Decision Points

Do policymakers believe maintaining capability for water testing at the state level is important? If privatization is desired, which testing should be outsourced, and which testing should be shed as a state responsibility? If policymakers wish to combine water testing at one location in the state, to what extent should consolidation occur?

CHAPTER 9: Options for Toxicology Testing

We identified two issues with the toxicology testing performed in the PHL. First, we found the turnaround time for the drug and alcohol testing performed by the PHL is quite high. According to program officials, delays in obtaining lab results have had a detrimental impact on the behavior modification programs of the agencies served. In addition, the enforcement purposes advanced by the toxicology testing within the PHL may not be congruent with the overall mission of the Department of Health.

In order to address these issues and consider opportunities for privatization and consolidation, we identified three general options should the Legislature wish to review this toxicology testing. They include maintenance of the status quo, reorganization of the function under the DCI, and privatization of some, or all, of the toxicology testing conducted by the PHL. Along with the impact on timeliness and mission, each option has additional consequences such as cost and the

likely impact on facilities and equipment purchases. The discussion on pages 78 through 80 highlights some of these associated factors.

Decision Points

In light of lengthy turnaround times, increasing caseloads, possible incongruent mission, equipment needs, and facility considerations, the Legislature may wish to evaluate the state's approach to toxicology testing. Assuming the state wishes to continue providing toxicology testing services, how does the Legislature wish to direct the provision of these services?

INTRODUCTION

Scope and Methodology

A. Scope

W.S. 28-8-107(b) authorizes the Legislative Service Office to conduct program evaluations, performance audits, and analyses of policy alternatives. Generally, the purpose of such research is to provide a base of knowledge from which policymakers can make informed decisions.

In January 1998, the Joint Appropriations Committee (JAC) requested that the Management Audit Committee evaluate opportunities for privatization and/or consolidation in five state labs. The Management Audit Committee accepted the topic, and directed staff to review the following state labs:

- Public Health Lab (PHL), located within the Department of Health
- Air and Water Quality Labs (AQL and WQL), located within the Department of Environmental Quality
- Analytical Services Lab (ASL), located within the Department of Agriculture
- Crime Lab, of the Division of Criminal Investigation (DCI), located within the Attorney General's Office
- Wyoming State Veterinary Lab (WSVL), located within the University of Wyoming.

The JAC requested a review of only these five labs. Therefore, we did not review other labs operating within state government, such as the Department of Transportation's Materials Lab or the Game and Fish Department's wildlife labs. Furthermore, we did not conduct a program evaluation of each lab, nor did we formally gauge the level of satisfaction of the customers each lab serves. Rather, we limited our scope to issues involving consolidation and privatization opportunities, as had been requested by JAC. Our research centered around the following questions:

- What types and amounts of work are being processed at each lab? What trends are projected?
- What are the costs of operating the state's labs as they are currently configured? What fees are generated by each lab?

- Are the labs currently referring certain kinds of work to one another?
- How much testing is currently outsourced at each lab and for what reasons?
- Do the labs use similar testing methods and equipment? Could some lab functions and facilities be more readily combined than others?
- What opportunities would consolidation create for savings in operations costs as well as personnel costs?
- To what extent do the labs provide services that are also available from the private sector?
- To what extent is privatization likely to offer reduced cost or improved quality? Are there special circumstances surrounding an agency's need for lab facilities, such that privatization might be unwise?

Throughout this evaluation, we raise policy questions and provide alternatives for policymakers, but we do not make recommendations as to the most appropriate way to provide laboratory services.

B. Methodology

This evaluation was conducted according to statutory requirements and professional standards and methods for governmental audits. The research was conducted from May to August 1998.

In order to compile basic information about the five labs, we reviewed relevant statutes, annual reports, budget documents, agency strategic plans, other internal documents, and federal regulations. We reviewed several reports that have been written about the state's laboratories over the past decade.

We toured each lab, as well as a private clinical laboratory and a college laboratory. We interviewed lab managers and staff, officials from each lab's agency, facility management officials from the Department of Administration and Information (A&I), and selected lab customers.

We reviewed each lab's mission and the testing each lab provides. We compiled an inventory of each lab's equipment and pending equipment needs, and identified workflow and mechanical needs in each lab facility. We reviewed current cooperative and collaborative arrangements between the labs, and determined the amount of testing each lab currently outsources.

We reviewed professional literature and studies from other states regarding general privatization criteria. We applied these criteria to lab services to offer policy considerations for privatization. We also selected examples of routine tests for which there appeared to be a private sector in Wyoming, and mailed surveys to private sector clinical and environmental labs within the state. For logistical reasons, we did not attempt to survey the private sector outside of Wyoming. For the tests surveyed, we prepared estimates of the cost of providing the testing in-house, and compared the results to survey responses.

Finally, we engaged the services of a technical consultant with extensive private sector lab expertise; conducted in-depth interviews with the director of the nation's most extensively consolidated state lab; and consulted with a scientist at a premier lab design firm.

C. Acknowledgments

The Legislative Service Office expresses appreciation to those who assisted in this research, especially to the Department of Health, the Department of Environmental Quality, the Department of Agriculture, the Attorney General's Office, the University of Wyoming, and the Department of Administration and Information. We also thank the many other individuals who contributed their expertise.

CHAPTER 1

Background

The Legislature has created a network of laboratories spread throughout state government. It established some labs in statute, and has allowed others to exist under the discretionary powers given to agency or division directors. Further, the Legislature has made continuing budget appropriations to support them. These labs, and the agencies that house them, include:

- Public Health Lab (PHL), Department of Health
- Water and Air Quality Labs (DEQ labs), Department of Environmental Quality
- Analytical Services Lab (ASL), Department of Agriculture
- Crime Lab, Office of the Attorney General
- Wyoming State Veterinary Lab (WSVL), University of Wyoming

This chapter begins with an aggregate presentation of these five labs: the kinds of work they do, their customers, and their budgets. Next, the chapter summarizes previous studies and reports that have focused or touched upon the labs. Also included in this chapter are sections discussing how another state has implemented lab consolidation, and how other states have gone about privatizing various government functions.

Labs Serve a Variety of Purposes and Customers

The labs range in their missions from protecting public health to assisting in the prosecution of crimes. The uses of their analytical services range from gathering aggregate information for human disease surveillance to diagnosing the disease of a single animal. Some labs primarily generate data for programs in their home agencies to use, and others primarily generate data for outside customers.

Along with state agencies, state lab customers include private citizens and businesses, private physicians and veterinarians, hospitals and private laboratories, criminal justice agencies and non-profit organizations. Three of the labs, PHL, ASL, and the Crime Lab, provide significant

portions of their analytical services at no charge to towns, counties and other local government subdivisions. The DEQ labs exclusively serve their home agency, while WSVL primarily serves private customers.

The labs test a wide variety of substances, or matrices. On a volume basis, human throat swabs, blood, water, and urine are the matrices most tested by these labs. Three of the labs conduct significant portions of their testing on water. Water testing ranges from almost all by the DEQ Water Quality Lab, to approximately 64 percent by ASL, and 16 percent by PHL (in FY97). These samples are either drinking or waste water samples. The PHL and the WSVL primarily process human or animal biological samples, respectively. Most of the Crime Lab analyses involve solid dosage drug samples and latent fingerprints on all types of evidence.

Laboratory Funding and Expenditures. In FY97, reported and estimated budgets for the five state labs totaled $3.1 million (see Figure 1). Of that amount, the General Fund accounted for $2.6 million or 86 percent, federal funds contributed nearly three percent, and other sources, primarily fees, contributed almost 12 percent. ASL and WSVL are the only labs that charge fees for their tests.

Budgeted costs (estimated and reported) for maintaining state laboratories in FY97 ranged from approximately $152,000 for the two DEQ labs, to $915,000 for the WSVL within the University of Wyoming (UW). These expenditures included salary, supplies, and equipment in the labs, and appear to be representative of the several years of data we gathered. Among the five labs, salaries for employees absorbed approximately 67 to 87 percent of total budgeted expenditures.

The total number of persons working in the labs remained fairly constant over the ten-year period ending in 1997. The size of the laboratory staffs range from 3.3 in the DEQ labs to 17 in the PHL. Since 1997, two labs, PHL and the Crime Lab, have each increased their staffs by one person.

Figure 1: Selected FY97 Lab Data

	Total Budget	General Funds	Fee Income	Total Samples	Total Tests	FTEs
PHL	$813,826	$813,826	NA	65,279	309,219[a]	17
ASL	$541,659	$541,659	$25,480	6,383[b]	39,482[c]	10.8
DEQ	$152,453[d]	$60,981	NA	3,225	4,488	3.3
Crime Lab	$695,440	$695,440	NA	20,562[e]	31,898[f]	15
WSVL	$914,715	$572,200	$333,899	11,616[g]	110,068	16.3
Total	**$3,118,093**	**$2,684,106**	**$359,379**			**62.4**

[a] LSO estimate.

[b] Includes samples for quality control and quality assurance purposes for ASL.

[c] Includes tests for quality control and quality assurance purposes for ASL.

[d] LSO estimate. Equipment purchases are averaged over a 10-year period.

[e] The Crime Lab tracks items of evidence, not samples.

[f] The Crime Lab's total tests are only those done on evidence from FY97 cases. Additional tests were done on evidence from previous years' cases.

[g] The WSVL tracks accessions, or cases, not samples.

Source: LSO compilation of data provided by the five laboratories.

Quality Assurance/Quality Control. Quality assurance and quality control are important aspects of the labs' operations. Lab officials estimated that the time spent implementing quality control and assurance measures ranges from less than 2 percent to 20 percent of lab time. Such measures typically consist of external audit samples or proficiencies provided by professional associations or federal agencies. Labs must correctly analyze these samples to check the quality control and assurance of their work. To maintain quality control, some labs are also required to run a percentage of additional tests and analyze samples from certain matrices within a set period of time.

Non-testing Lab Work. Lab managers and analysts also provide a variety of non-testing services. These services range from providing court testimony to inspecting other laboratories, and from repairing field testing machinery to processing crime scenes.

Analysts from two laboratories, the Crime Lab and PHL, routinely provide court testimony. In 1997, Crime Lab analysts made 50 court appearances and analysts from the PHL chemistry section attended court 75 times. The actual number of court appearances for analysts from these labs is considerably less than the subpoenas received, and analysts spend time in consultation with prosecutors and defense attorneys whether or not they are called to testify. Analysts from the other labs infrequently provide testimony.

All laboratories provide consultation and explanations of their results, often over the telephone. Lab officials generally estimated that ten percent of lab personnel time was spent providing consultation and explanation of results. Further, in several of the labs, managers and some staff have responsibilities within their agencies that extend outside the laboratory. For example, the PHL director is statutorily required to certify local public health laboratories in the state, and an ASL supervisor certifies dairy plants in the state to test raw milk.

In addition, analysts from the Crime Lab and the PHL chemistry section provide formal training to law enforcement personnel throughout the state on crime scene processing and breath alcohol

machine operation, respectively. The WSVL director makes multiple presentations throughout the year to provide continuing education for veterinarians and producers across the state.

Previous Studies of These State Labs

Planning how to accommodate state lab operations has led to several studies over the years. We obtained copies of reports issued since 1989, although persons we interviewed for this study mentioned even earlier reports. The following is a summary of these reports.

1989 State Laboratory Feasibility Study. This study encapsulated a planning process for a new facility in Cheyenne to accommodate the PHL and DEQ labs. Planning participants included representatives from those agencies, the agency that preceded the current Department of Administration and Information (A&I), and architectural firms. The impetus for the plan was the premise that the current facilities on the fifth floor of the Hathaway Building were unsafe and inadequate for laboratory functions. Although the report's authors noted that it represented only a starting point for the design process, they recommended constructing a 42,140 square foot facility to house these two labs, at an estimated cost of $6 million.

1990 Reports. In 1990, the Legislature passed legislation requiring agencies operating laboratories to submit reports to the Joint Appropriations Committee (JAC). These reports were to include the types of tests performed and their costs to the state, the costs of privatizing those tests based upon private labs' prices, and any practical, legal or financial impediments to privatizing the tests.

All of the labs reviewed in this report were required to report in 1990. The lab responses varied considerably in thoroughness, but they concluded that privatization would be more costly than keeping all the testing within the state labs. However, in making that determination, only the PHL included capital equipment costs and capital facilities overhead in its cost estimates.

1991 Reports. Early in 1991, the Governor's Office presented the JAC with a preliminary document entitled "State Laboratory Consolidation, Facilities Assessment and Recommendations." This report expanded the list of state lab needs. Along with relocating the PHL and DEQ labs, it recommended improvements at the Laramie facility housing the WSVL and ASL. Although the report did not favor laboratory consolidation, it said that sharing the same facilities offered benefits.

Executive branch officials and affected agency personnel reworked this report and again offered it to the Legislature in November of 1991. This time, the report recommended a consolidation of the PHL and the DEQ labs into an addition to the Laramie facility that houses the ASL and WSVL. The report also recommended adding an uninterruptible power supply (UPS) and making the additions necessary to house the WDA Seed Lab and meet the WSVL's need for additional space.

Consolidation of the labs in this facility, according to the report, would likely result in benefits from sharing maintenance, purchasing supplies jointly, and sharing the use of conference rooms and storage areas. The authors expected no reduction in laboratory staff, but possible future

reductions in support staff. They also believed that it might be possible to avoid some future new equipment purchases and staff increases through cooperative efforts among the labs. The report presented a discussion of the considerations the authors believed precluded privatization of the labs' work.

Legislative Response. The second 1991 report apparently prompted legislative action. In 1993, the Legislature approved an appropriation of $6.3 million to A&I to fund an addition of approximately 26,000 square feet to the Laramie facility and to obtain a UPS for it. The addition was to house the PHL and DEQ labs, and this appears to have been commonly considered a move towards lab consolidation. It was clear to us, however, that this project was designed as a co-location of separate labs, rather than an integration of lab operations in one facility. Legislators added to the appropriation for the Laramie facility over the years until it totaled more than $8.9 million in 1997.

A planning team made up of representatives from the labs, their agencies, and UW formed to plan the facility. This group established a preliminary occupancy date of the fall of 1997. In 1995, the State Building Commission, acting on behalf of the agencies involved, established a memorandum of understanding with UW, which owns the site, outlining how the proposed facility would be funded and maintained. Through UW, which provided construction management, the Commission also hired a project architect.

During the planning process, differing opinions arose about the Hathaway Building's adequacy to house the labs, and whether modifications could alleviate the existing problems. Ultimately, executive branch officials made facility and operational changes that made the existing labs safer. Reportedly, out of concerns about escalating cost estimates and at the advice of A&I facility management officials, the State Building Commission made the decision to cease planning for the Laramie facility and directed the agencies to look for alternatives to moving the Hathaway Building labs. During the 1998 Session, the Legislature de-appropriated the funds for the Laramie laboratory facility and requested this study.

1996 Reports. Two reports came out in 1996 that included some or all of the labs. One, "A Study of Unfair Competition Between State Government and Private Sector Entities," was in response to 1995 legislation that set up a committee to review competition by all state agencies and institutions of higher education with the private sector. The committee asked agencies to complete a questionnaire, which essentially repeated the 1990 legislative request of the labs. Only PHL and ASL also responded to this questionnaire. The report identified "analytical labs" as a government function recommended for review of whether they should be privatized, eliminated, retained, or modified.

Although not adopted by the Legislature, this report proposed legislation creating a commission to consider requests to privatize state services, and creating a privatization plan review process. The committee's intent was that the state develop a framework to determine what services should be eliminated or privatized.

Another report recommendation was that state agencies should develop total cost allocation processes. This would allow a true comparison of specific services with private sector providers. None of the labs we reviewed had such systems in place.

Laramie Facility Report. A second report was released in 1996, although probably not widely circulated. This report was prepared by a nationally prominent firm that specializes in laboratory design. The architect A&I hired to design the proposed lab facilities in Laramie consulted with this firm. The consultant gathered information on sample processing, equipment, and personnel, and interviewed laboratory managers. Its major conclusions follow:

- The PHL and DEQ labs need to move to a more current, dedicated-use facility.
- The overlaps in service among labs proposed to share the Laramie site are not clear.
- Most of the instrumentation used by the labs is very old.
- It would be prudent to investigate combining the waste water testing done by the DEQ Water Quality Lab and that done by ASL.
- The water testing done by PHL and ASL should also be reviewed with respect to how they might be combined.

The consultant noted that the size of the proposed Laramie facility was appropriate, adding that "if decisions were made to merge lab services, the space vacated may still be put to good use." It was not clear to us that lab or agency officials acted on any of these recommendations, or that they considered them during the planning for the Laramie facility.

Taken together, these reports show considerable and consistent state effort in analyzing state laboratory facility needs and whether some services could be privatized. But to this point, the analyses appear to have been done in isolation. There has been little analysis of the actual provision of lab services, and whether changes might be warranted that would affect capital facilities decisions.

Lab Consolidation

There appear to have been some expectations that, by building a facility large enough to accommodate four labs, Wyoming government would be consolidating them. As noted, we viewed the proposed facility funded by the 1993 legislative appropriation as a move toward co-location rather than consolidation.

To illustrate the differences between these approaches, we looked for an example of a consolidated lab. Lab professionals told us that Virginia is the state that operates most extensively under a consolidated model. The director of that lab willingly shared details about his state’s approach to providing lab services. He also noted that although several states have looked at his state's consolidation model, none have adopted it, and at least one state has reversed its consolidation efforts.

Virginia has combined its environmental, public health, and agriculture labs into one consolidated lab as the Division of Consolidated Laboratory Services (DCLS) within its general services department, with the lab director designated as a department deputy. The lab has a staff

of more than 200, including wage employees and supervisors. DCLS serves state agencies, as well as several counties, cities, and the federal government.

Virginia Lab Funding. The lab is funded through a combination of internal service funding (fee-for-service) and the general fund. Its primary "customers," the agriculture and environmental quality departments, may "buy" their lab services from any lab, public or private. This requires DCLS to work closely with the agencies to ensure that it meets their needs. Virginia initially set up this arrangement by transferring funds from the DCLS budget back into the agencies that used its services. State agency customers fully pay for their lab services, meaning DCLS must include all overhead costs in its charges to agencies.

The general fund continues to support health services. The DCLS director noted a need to maintain a mix of general fund flexibility with agency-specific funds to meet emergency needs. In addition, the state has made a policy decision to fund most drinking water tests for all public water systems as a health measure.

DCLS is set up in groups according to logical functions. Similar types of tests using similar types of equipment are located together. In order to maintain cross-functionality, the lab is not organized along customer lines, according to the director. The lab also has a separate panel of scientific experts that work with the agency customers to develop new test methodologies, evaluate test effectiveness, design pilot projects, and provide consultation.

In the opinion of the DCLS director, consolidation's most significant benefit was a decrease in the turnaround time for results. He attributes this to a combination of the lab's improved customer service efforts and the agencies being more judicious in the number of samples they submit. A benefit resulting from the internal service funding arrangement has been that DCLS is able to place its equipment on an amortization schedule, and regularly replace it without requesting legislative appropriations. The director also claims that consolidation enabled the lab to reduce staffing and cut down on expensive equipment spread throughout the agencies.

Consolidation Takes Effort. The Virginia labs were co-located over 20 years ago when a new lab facility was built. However, real consolidation did not occur until 1992, when the state hired a director specifically charged with taking that direction. The director related problems that resulted because one of the affected agencies attempted to dominate the initial consolidation effort, and because the lab staff tended to respond primarily to their original home agencies. Because of this, he stressed the need to have a lab director with a broad understanding of the programmatic needs for various lab services. Maintaining customer relations is also important. He noted that consolidation led to changes in the programs of agencies using the lab. To address agency concerns, the lab set up formal channels through which the programs can regularly communicate their needs.

The Virginia experience indicates that consolidation may not necessarily arise from co-location alone. A number of circumstances, in addition to co-location, were present in Virginia that facilitated consolidation: an existing facility adequate for all lab functions, an identified problem with existing lab services (timeliness of results), and clear administrative direction.

Wyoming's attempt at consolidation through co-location did not so clearly include these elements. Although funds were appropriated to build the facility, no entity was charged with integrating lab functions. The appropriation was understood as addressing a facility problem, but no specific objectives were identified for improving lab services through consolidation. There may have been an understanding that integration of lab functions would occur, but no organizational plans or directives were put in place.

Privatization Considerations

To learn about privatization possibilities with respect to the state's labs, we reviewed a large body of literature about privatization. We found that for years, all levels of government have been experimenting with the privatization of services, with varying degrees of success. Privatization proponents believe privatizing government services results in cost savings, improved timeliness, and better customer service. On the other hand, opponents believe that private gain and public good do not always correspond, and that privatization does not necessarily equate to cost savings.

Determining which, if any, government services to privatize involves many philosophical and value-based judgments. Also, decisions made in one state may not transfer to others. Therefore, we did not identify a model for privatizing state lab services. Instead, we chose to center our research on the process a state can use to make these determinations.

There are two approaches commonly referred to as privatization. First is the concept of **outsourcing**, whereby government contracts or coordinates with either private sector providers or other governmental entities to deliver goods or services. Implicit in this approach is that government continues to pay for the provision of these services, and that it generally retains responsibility for them.

Alternatively, policymakers may decide to stop providing a service so the private sector can assume the function. Such a move is called **service shedding**. In this case, government divests itself of the responsibility for performing a public function, and no longer funds the provision of the services.

Keys to Successful Privatization Efforts. The Council of State Governments (CSG) in its "Review of Privatization in State Government" notes that privatization has a better chance to succeed where there is political leadership and support. Also, CSG encourages policymakers to know what they want to accomplish through privatization, and to develop realistic and measurable goals to that effect. Finally, CSG states that privatization does not necessarily mean that a state can delegate its authority or responsibility. Policymakers may still be ultimately accountable for privatized services.

Other literature recounting states' experiences with privatization tends to agree on several factors that affect the success or failure of privatization. First, it is important to define the problem that privatization is expected to solve. Second, a state should establish formal decisionmaking procedures to evaluate candidates for privatization. For example, several states have set up boards which do a pre-privatization analysis before making the decisions. Third, decisionmakers

need accurate cost data, both on in-house costs and on the costs of contracting. Fourth, privatization needs to be properly monitored to ensure the ongoing quality of services.

Principles to Guide Decisionmaking

In our review, we found many commonalties in how states make these decisions, and we have merged them into nine principles. The Wyoming privatization committee mentioned earlier included a similar list in its report. Our list involves both quantitative and qualitative issues. Quantitative elements have to do with matters such as cost and timeliness, and data may be available. Qualitative elements, on the other hand, can call for public or governmental policy decisions by decisionmakers. We applied these principles in our analyses of privatizing lab services in the following chapters.

1. **Core Government Responsibility.** Is this a core government responsibility, such as regulatory and enforcement activities? Such areas, as well as those that allow for broad discretionary authority and value judgments, tend to be less suitable for privatizing.

2. **Control of Process.** Is the process as important as the result? If so, it may not be a good candidate for privatization. However, the opposite may be true if the results are most important.

3. **Routine/Non-Special Projects.** Are the services highly complex, or do they lack specific performance measures? The best candidates for privatization are services with clearly defined tasks, good unit cost data, and good quality and quantity measures.

4. **Legality/Statutory Issues.** Do laws have to change to allow the private sector to provide the service? Are there federal laws and regulations that would interfere?

5. **Availability of Private Providers/Competition.** Are able, willing, and reliable private providers available? Are there multiple potential providers to ensure competition? Would privatization create a monopoly? Would private providers likely be located outside of the state?

6. **Lack of Resources, Personnel, or Expertise.** Does government have the staffing, equipment, and facilities that are necessary? Does the private sector have expertise that is not easy to develop or maintain in government?

7. **Cost Savings.** Will operating or capital costs to the state be decreased, or will there be an efficiency gain? Is there a threshold of savings, below which decisionmakers choose not to proceed with privatization?

8. **Quality of Service and Timeliness.** Is there reason to believe that a private business can maintain or improve the quality of service, timeliness, and customer satisfaction?

9. **Risk Considerations.** Is there a risk that a private firm will fail to provide the services? If the service is interrupted or stopped, what will be the consequences? What

are the costs of resuming government production, if privatization options do not materialize as planned? Is there need for a contingency plan?

It is important to note that these principles represent idealized standards for setting up a privatization process. Wyoming policymakers may choose to use others in considering whether or not to privatize services. Nevertheless, these principles provide a context for understanding how complex making such decisions, and evaluating the results, can be.

We Offer Options Based on Assumptions

There are numerous possibilities for providing lab services, depending upon the judgments and assumptions policymakers embrace. In order to develop our analyses, we had to make some judgments ourselves, and we have acknowledged them. A judgment we made that significantly affected the scope of our work was to consider only privatization options available within the state. With respect to consolidation, we made judgments to look at a few specific areas of duplication or similar services that we believed might be most practically combined. Because the Legislature may choose to make different judgments and assumptions, this report presents data, analysis, and a selection of options, not recommendations for action.

Each of the following five chapters looks at one of the labs we were asked to consider for the review. Each generally describes purposes and operations, and goes on to describe work already being outsourced, as well as what other opportunities might exist for providing lab services. Following this are three chapters that explore cross-agency options for consolidation and privatization, and a final chapter directed at legislative decisionmaking.

CHAPTER 2

The Public Health Lab

The Legislature authorized the Public Health Lab (PHL) within the Department of Health (DOH) through W.S. 35-1-240(a)(ix). The statute generally provides for the establishment and maintenance of a chemical, bacteriological, and biological laboratory to conduct investigations and examinations for the protection of public health. The statute further authorizes the DOH to investigate diseases, exercise sanitary control over water supplied to the public or used in the irrigation of edible crops, and enforce the quality of effluent for the protection of public health. DOH has statutory authority over the chemical testing of blood, breath, and urine under the Implied Consent Statute (W.S. 31-6-105), which can require drivers to submit to chemical tests. Finally, the DOH has a statutory role in testing water systems.

The primary function of the PHL is to protect the health of the citizens of Wyoming. Department literature states this is accomplished by:

- providing epidemiological support for analysis of disease outbreaks
- testing for communicable diseases

- microbiological testing of public and private water supplies used for culinary or recreational purposes
- establishing baseline data for disease surveillance
- providing tests which are not economically feasible through the private sector
- testing for alcohol, controlled and non-controlled substances, carbon monoxide and other volatiles affecting human behavior

Program Description

Housed on the fifth floor of the Hathaway Building in Cheyenne, the PHL is divided into two sections: chemistry and microbiology. The chemistry section provides toxicology testing of blood and urine. It serves all state, county, and municipal law enforcement agencies, state agencies such as the Departments of Corrections and Family Services, county coroners, treatment centers, and private individuals submitting samples under the Implied Consent Statute.

The microbiology section primarily conducts testing in the areas of bacteriology, parasitology, and serology. Much of the testing serves the laboratory needs of state health programs, but the section also serves hospitals, physicians, public health nursing services, state institutions, and other laboratories. In FY98, the microbiology section accounted for 10 of the PHL's 17 FTEs.

The PHL is primarily funded through the General Fund, and statutes do not authorize it to charge for laboratory testing. However, the PHL assesses a minimal charge for collection supplies used in strep and sexually transmitted disease (STD) testing. Federal funds support salaries of lab technicians and offset laboratory supply costs for several state health programs, such as AIDS/HIV and STD. Also, the Centers for Disease Control (CDC) and some pharmaceutical companies have loaned the PHL equipment for research and advanced testing.

We estimate that the PHL completed more than 309,000 determinations, or tests, on 65,279 samples received in FY97. The microbiology section has experienced a 49 percent decline in samples over the past seven years. This decrease is largely due to a dramatic decline in the number of strep tests, which the PHL no longer accepts from private physicians. In contrast, the chemistry section's blood and urine sample load rose from 6,848 to 11,179, a 63 percent increase. Lab officials indicated the increase is largely due to more aggressive monitoring within the Department of Corrections' (DOC) probation and parole program.

Looking toward the future of PHL testing, department officials expressed interest in genetically identifying viruses using advanced DNA technology. To conduct this testing, the microbiology section would require two additional dedicated rooms to prevent contamination. Evidence suggests the chemistry section's future workload will likely decrease as DOC field agents make more use of on-site kits to screen for controlled substances. These kits identify the presence or absence of one or more drugs in a human specimen, often through a color indicator.

Outsourcing, Collaboration, and Coordination

The PHL has established informal arrangements with 11 different laboratories including the CDC lab, other state health labs, and private and public hospitals and laboratories. These various labs perform a range of testing for Wyoming including newborn screening, specialized microbiological testing, mycological testing, and quantitative drug testing. The primary reasons cited for these outsourcing arrangements include PHL's low volume in certain areas of testing and the occasional need to use expensive, specialized technology.

The DOH coordinates with the WSVL, the ASL, and the Crime Lab. To avoid duplication, the WSVL conducts rabies testing in Wyoming and reports the results to the DOH. There is also a memorandum of understanding in place between the DOH and the Department of Agriculture concerning microbiological testing of food during a disease outbreak. Finally, the PHL tests all "liquid" biological samples for the Crime Lab to identify the presence of drugs and alcohol.

An area where coordination has not developed is in the microbiological testing of water. The PHL, DEQ and ASL all conduct this type of bacteriological testing. The PHL currently tests over 9,000 samples of water, primarily for municipalities under the SDWA. DEQ performs microbiological testing on waste water, while the ASL tests both drinking water and waste water.

Privatization Considerations

Since the purposes of testing performed at the PHL vary, so do the options and considerations for privatization. To carry out an analysis, we grouped a number of PHL tests in categories. The categories we chose are: investigation and reference; surveillance and service; and enforcement. While we recognize these may not be universally accepted groupings, they offer a starting point for policy discussions.

Due to the differences in their intrinsic purposes, these categories yielded different results when we examined them in light of our privatization criteria. Also, throughout this analysis, we attempt to set legislative policy and philosophical decisions aside and focus on the more value-free aspects of laboratory testing.

However, making these judgments is not a purely objective process. For example, many might define public health labs as a "core government responsibility." In that vein, the American Public Health Association maintains that a private laboratory is not prepared to provide either the rapid response to epidemics or the laboratory research needed to discover and identify new agents. They add, "The state's responsibility for the health of its citizens cannot be delegated."

Nevertheless, Wyoming, along with other states and government agencies, has contracted with the private sector to obtain certain laboratory services traditionally provided by public health laboratories. This suggests determining which tests qualify as a "core government responsibility" may depend on individual judgment.

Investigative and Reference Testing. An example of investigative lab work is the testing done for the town of Alpine to identify the strain and source of e-coli bacteria during a recent outbreak. Reference testing involves the identification of rare or unusual microorganisms, which other labs may be able to screen for but not identify. The sophisticated testing in this category

includes such areas as parasitology, tuberculosis, some bacteriology, and testing related to the emerging hantavirus.

PHL officials indicated that any testing currently performed by the PHL could be outsourced. However, DOH officials stated some testing, such as for the hantavirus, would have to be sent to other state public health labs. In addition, the state would risk losing control over the outsourced testing. The American Public Health Association maintains that without such control, false negatives could go undetected and cause unwarranted spread of disease. Our expert lab consultant added a caution about outsourcing work that involves laboratory problem solving or method development.

These considerations appear to be particularly relevant to PHL's investigative and reference testing. Due to them, we decided not to survey the private sector to determine costs, timeliness, and market strength for investigative and reference testing.

Surveillance and Service Testing. Surveillance testing identifies diseases in the population, and the resulting data is used to monitor trends. We define service testing as diagnostic lab testing that largely serves the need of the patient or customer. We grouped this testing together to cover the detection and tracking of diseases for the public, public water systems, or individuals. Well over half of PHL's sample volume falls in this category.

For our purposes, this type of testing includes STD testing for gonorrhea, chlamydia, syphilis, and HIV; strep testing; rubella testing; and bacteriologic testing of water. Depending on interpretation, these tests could be classified as either service, surveillance, or both. For purposes of our analysis, we assume that the state would continue to pay for these tests, even if they were privatized, in order to obtain public health data. Therefore, our analysis considers outsourcing this testing, not shedding this service.

Surveillance and service testing differs from the previous category (investigative) in that for this group, the testing procedures are routine and well established. According to our expert laboratory consultant, "Standardized procedures are the easiest to outsource." For these tests, the result, not the testing process, may be more important.

We surveyed 65 Wyoming clinical labs to gather information on costs and timeliness related to surveillance and service testing. Just two to five labs, depending on the test, indicated an interest in performing these tests for the state. This response suggests limited availability of private providers for this category, at least within Wyoming. It should be noted that the responses we received are not binding bids; nevertheless, they provide useful information about Wyoming's private sector laboratory environment.

Using data gathered from PHL and from our survey, we considered the issue of timeliness. With the exception of the bacteriological testing of water by some responding labs, the private sector could deliver test results in about the same amount of time as the PHL. On the other hand, it appears that outsourcing this testing would be more expensive for the state. See Appendix A for the methodology used to determine both the costs of the PHL and the private sector. Figure 2 summarizes the results of our analysis.

Figure 2: Comparison of PHL Surveillance Testing Costs With Responding Wyoming Laboratories

		PHL	Outsourcing Estimates	
		Estimated Cost	**Low Cost**	**Median Cost**
	Strep	$81,000	$18,000	$90,000
	Gonorrhea	$21,000	$77,000	$92,000
	Chlamydia	$36,000	$77,000	$91,000
	Syphilis	$25,000	$19,000	$19,000
	Rubella/Rubeola	$20,000	$55,000	$66,000
	HIV	$44,000	$76,000	$109,000
	Bacteriological testing of water[a]	$78,000	$106,000	$163,000

[a] These results include responses from two clinical labs and seven environmental labs, from a separate survey, interested in the bacteriological testing of water.

Source: LSO estimates and analysis of agency provided data and survey results.

Cost Accounting. To conduct this analysis, we needed to estimate the costs of PHL's tests, since neither PHL nor the other four state labs have a cost accounting system. We offer two caveats about the comparison in Figure 2.

First, to cover state administrative and quality control costs, our figures include contract monitoring charges. A privatization report from Kansas suggests charges of 10 to 20 percent of the contract costs. We used 15 percent.

Second, the costs listed for the PHL are "total costs." In addition to personnel and supplies, we accounted for administrative costs, existing facility costs, and equipment. Should these tests be outsourced, many of these costs may be unavoidable, thus offsetting any anticipated cost savings. Unavoidable costs include costs that will likely continue to be incurred, even if the service is outsourced. Examples include facility and administrative overhead.

Explanation of Cost Comparison. The survey results suggest that all but two of these tests, syphilis and strep, can be provided at a lower cost to the state by the PHL than they might be by the private sector. For syphilis testing, three respondents indicated 24 percent lower costs than the PHL, even after adding in contract costs. For strep testing, one community hospital responded with an extremely low price, and two private labs responded with prices comparable to those of the PHL. We also found that differences in testing methods, and related accuracy, could impact testing prices.

Based on these responses, it appears the total estimated cost to the state for outsourcing the strep and syphilis tests could be less than the current PHL costs. However, actual state expenditures may increase due to unavoidable PHL costs.

Options: The DOH and the Legislature may wish to consider whether surveillance and service testing is a candidate for privatization, or whether it more appropriately belongs in the PHL. Assuming the state wishes to retain the financial and monitoring responsibility for data generated from this category, the testing could either remain in the PHL or be outsourced. Alternatively, if policymakers believe some or all of these tests are not the responsibility of government, they could shed this service.

Regardless of the policy decision, the DOH could monitor its own costs, as well as opportunities for outsourcing. If the Legislature believes there are benefits to outsourcing surveillance testing beyond those discussed, it could direct the DOH to modify operations.

Testing Related to Enforcement. Another classification of PHL testing is the drug and alcohol testing performed by the chemistry section. This toxicology testing is a combination of routine tests (screens) and more complex testing (confirmations). Toxicology testing primarily supports the investigation efforts of state, county, and municipal law enforcement agencies and monitoring within state programs within the DOC and Department of Family Services (DFS).

We grouped all toxicology testing performed by the PHL under enforcement testing. Most of the chemistry section's testing falls into three categories:

- Alcohol identification and quantitation (1,600 per year)
- Nine and four panel drug screens (15,500 per year)
- Drug confirmations (800 per year)

From FY95 to FY97, PHL's yearly average turnaround time on enforcement tests decreased from 55 to 17 days. However, even faster results are available through other means. We learned that using on-site test kits can provide either immediate results or, at most, a 48-hour test response, depending on the type of kit used. Also, we included questions about chemical

toxicology testing in our survey to Wyoming clinical labs. The firms responding indicated an expected turnaround time for toxicology testing of one to four days. Improving timeliness of this testing appears to be the chief benefit to outsourcing.

PHL's lengthy turnaround time has an impact on the programs served. We were told of instances in which the DOC discharged individuals before they could obtain drug test results from PHL, due to laboratory delays. As well, DOC officials stressed the need for immediate sanctions in order to impact behavior.

One purpose of our survey was to gauge whether there is private sector interest in conducting toxicology testing. Not unlike the previous testing (surveillance and service), the responses we received suggest there is minimal private sector interest in conducting enforcement testing. Only one lab of the 65 we surveyed indicated an ability and interest to do all of the toxicology tests currently performed by the PHL. Another lab could perform nearly all of the tests, and two labs could perform small portions of the testing. The two labs responding most completely to the survey indicated they would be performing at least some of the testing out-of-state.

Cost Comparison of Toxicology Testing. Our analysis is based on the assumption that the state would continue to pay for this enforcement testing, whether or not it is conducted in a state lab. Using aggregate cost data from our survey responses, we compared the total costs of all toxicology testing, including related testimonies, with PHL costs.

Based on our calculations of the total costs of testing and court testimony, we estimate it costs the state 50 percent less to obtain toxicology testing from PHL than it would from a private lab in Wyoming. We estimate a total cost of $408,000 for the PHL, compared to $612,000 if this testing were outsourced. This estimate does not include a factor for potential contract monitoring costs.

We identified two primary reasons for the disparity in costs. First, the comparison includes the costs of testifying in approximately 75 court cases per year. Responses to our survey indicate that outsourcing this associated testimony, which includes witness fees and travel expenses, would be extremely expensive. Second, some of the low-volume specialized drug tests, such as those for LSD, are much more expensive in the private sector.

Comparing the chemistry section's costs with those of the private sector is not a straightforward process. The total costs of outsourcing all toxicology testing appear to be much higher than current PHL costs. We make this assertion even though our survey responses show that some high-volume, routine drug screens and confirmations can be obtained faster and cheaper from the private sector. The difference is that those individual prices do not include court testimony. Once the private sector prices for court testimony are factored in, PHL is significantly cheaper.

Finally, savings from outsourcing may not be realized unless large portions of the chemistry testing could be privatized completely, in order to fully free up equipment and personnel.

Test Kits. Informally, we reviewed the prices of test kits for drug screens from selected firms. We found the cost of these kits ranged from $2 for one drug to $10.50 for four drugs. In addition,

we identified one company that provided a nine-panel drug screen and confirmation of all positive results for less than $10 to qualifying entities under a Federal Bureau of Prisons contract. These costs appear lower than our estimated cost of $14.67 for PHL drug screens.

The DOC accounted for nearly 60 percent of all testing performed by PHL's chemistry section in FY97. Based primarily on concerns about timeliness, the DOC has already taken steps to increase use of on-site kits. In the 1998 Budget Session, the DOC requested and obtained $170,000 for testing through private vendors and on-site test kits. Although DOC will continue to use PHL's services, information we gathered suggests this new appropriation will substantially reduce the volume of samples sent to the PHL.

Options: Assuming the state wishes to retain the financial responsibility for enforcement testing, the DOH and the Legislature may wish to consider whether enforcement testing should continue within the PHL, or whether it is more appropriately outsourced. For example, the PHL, in cooperation with other state programs, may wish to encourage additional use of on-site test kits. If the Legislature does not believe this enforcement testing is a responsibility of the state, then it could shed this service altogether.

Additional legislative policy options for toxicology testing are included in Chapter 9.

CHAPTER 3

Department of Environmental Quality Labs

The DEQ operates two laboratories located on the fifth floor of the Hathaway Building in Cheyenne. The laboratories have been housed in this facility since 1974 when the state constructed the building. The labs help fulfill the analytical needs of the DEQ, whose mission is, in part, to prevent, reduce, and eliminate pollution and to preserve and enhance the air and water of the state.

DEQ's laboratories are not specifically authorized in statute. The agency derives authority to operate laboratories through the director's general powers and duties established in W.S. 35-11-108 and 109. Statutes empower the agency to conduct investigations, research, and experiments by contract, grant, or otherwise as is deemed reasonable and necessary for the proper enforcement of the Environmental Quality Act.

The director has authority to designate department representatives to monitor the air, water, and land quality, and solid waste operations of all facilities that have been permitted, to assure continuing compliance and to discover noncompliance. The agency also has authority in W.S. 35-11-110 to determine the degrees of air, water, or land pollution throughout the state.

Program Description

The DEQ maintains a Water Quality Lab (WQL), which is part of the Department's Water Quality Division, and an Air Quality Lab (AQL), which is part of the DEQ Air Quality Division.

These labs provide testing for their respective divisions, as well as for other divisions in the agency.

Lab testing fulfills regulatory obligations and agreements with the U.S. Environmental Protection Agency (EPA). The labs conduct special projects for the Department, as authorized by agency officials. The WQL also provides a minimal amount of courtesy testing of soil for the Wyoming Game and Fish Department and hazardous waste testing for the Wyoming Department of Transportation.

While three individuals work in the WQL, only one is a full-time laboratorian. Another employee splits time between the lab and field sampling. The WQL manager spends approximately half-time on lab work and half-time on non-laboratory responsibilities within the Water Quality Division. Similarly, the two individuals working in the AQL have non-laboratory responsibilities within the Air Quality Division. They spend only 40 percent of their total time, or .8 FTE, on lab operations.

DEQ does not budget for its laboratories separately from the divisions in which they are housed. Laboratory operations are funded through a federal/state match. Federal funding for the match ranges from 60 to 64 percent. DEQ has also occasionally leveraged one-time federal monies from EPA to purchase equipment.

WQL Samples. The WQL is equipped to perform 56 different types of analyses, including both microbiological and chemical testing. Water samples are collected either by DEQ field samplers, or in the case of investigative work, by laboratory staff. The WQL received 619 samples in 1997, and of them, 98 percent were water samples. The lab conducted 1,882 analyses on these samples in 1997. This compares to a high of 1,741 samples and 8,292 analyses of these samples in 1988. There is a noticeable trend downward in the number of samples received and analyses conducted in the last ten years. However, DEQ officials stated the numbers of samples and analyses will be increasing in the future, both for an existing program and for a new stream assessment program.

Historically, about half of the samples the WQL receives are for testing under the National Pollutant Discharge Elimination System (NPDES). Under this EPA program, which is administered by DEQ, every entity that discharges into the state's waters must have an NPDES permit. Discharge permits set effluent limits and self-monitoring requirements, and DEQ renews the permits at various intervals. The WQL tests the waste water of a permittee prior to renewal to compare its results to the self-reported testing results provided by the permittee. WQL's testing verifies compliance with permit limitations. DEQ officials indicated that samples will be increasing for this program, because DEQ is issuing more permits.

The WQL manager estimates that another 25 percent of the samples are for an Office of Surface Mining program and the Underground Injection Control program. Special projects account for the remaining 25 percent of samples.

AQL Samples. The AQL analyzes air quality data collected by a network of ambient air monitors located at 35 sites throughout the state. Ambient monitors do not measure pollution

from a source, but instead, measure pollution levels in a community by using a filter to trap particulate matter. Laboratory staff compare those levels against state and federal standards.

AQL's current monitoring program accounts for approximately 2,500 samples per year, or 96 percent of the sample load. The lab primarily weighs the filters and does not identify the compounds in the filters, unless requested by DEQ. Special projects, such as filter analysis, represent the remainder of the samples. The AQL's sample load has not varied significantly in the last ten years.

New Programs. The lab managers indicate that DEQ's priorities for testing may change from year to year, and recent developments indicate both labs will be taking on additional programs, which will increase sample loads. During the summer of 1998, DEQ began to conduct stream assessments to fulfill requirements under the Total Maximum Daily Load (TMDL) program. The Clean Water Act requires states to identify impaired water bodies and to establish maximum pollutant loads for these streams. A lawsuit was filed against EPA to enforce these requirements. To assess the quality of streams, the WQL will conduct 2,100 assessments on at least 270 samples a year over the next five years.

DEQ will also be involved in an additional ambient air monitoring program, in response to new National Ambient Air Quality Standards for fine particulate. The AQL is currently not equipped to conduct the analyses for the program, so officials in the Air Quality Division are considering initially outsourcing the analyses.

Outsourcing, Collaboration, and Coordination

The DEQ labs have outsourced tests based on informal costs-benefit considerations. Managers noted that DEQ only outsources testing that they cannot readily perform in-house.

The WQL manager has outsourced testing when the volume of samples is too low to justify the expense of maintaining a capability in-house. These tests include radium, pesticides, and acrylamides. Radium testing is conducted by a private lab in-state, while WQL sends pesticide tests either to a private laboratory in Colorado or to ASL in Laramie. ASL also conducts the acrylamide testing for DEQ. Testing conducted at Analytical Services is done as a courtesy for DEQ.

The AQL has outsourced testing on a project-by-project basis. The lab recently outsourced analysis of non-polar toxic organics for a special project. This testing was outsourced because the AQL manager indicated the volume of samples was minimal; the testing was outsourced to a California firm.

Cooperation and Duplication. The AQL does not duplicate services with any other state laboratory we reviewed. The WQL manager indicated that state laboratories informally cooperate with each other, especially when a lab is having trouble with equipment or is overwhelmed with samples.

However, the WQL has not developed cooperative arrangements with other labs that are conducting water testing in the state. As noted in the previous chapter, we found duplication of the microbiological water capabilities in the WQL, the PHL, and the ASL. Also, both the WQL and the ASL have capabilities to conduct the chemical testing of water.

Privatization Considerations in DEQ Labs

When we applied the privatization criteria found in other states to the services provided in the DEQ labs, we identified a number of policy decisions that DEQ officials and the Legislature may wish to consider when determining where these services are best provided. For example, in water testing, it appears that it may be less expensive for the state to outsource NPDES testing. However, policymakers need to determine if they believe this testing is a core government function, more appropriately conducted in-house.

Policymakers also need to determine if the state should maintain in-house capability for special projects and investigative water testing. If the state wishes to maintain this capability, that decision likely negates any savings that might be achieved by outsourcing other water tests. This is because the lab would still need to be staffed and equipped at a certain level to perform investigative work. Furthermore, the WQL has recently purchased equipment and the state may not want to dismantle this investment.

For air testing, our analysis indicates it may be more expensive to outsource ambient air monitoring analyses, primarily because this testing did not require DEQ to make a large investment in equipment. However, only about 40 percent of the laboratory staff's time is spent conducting the air filter analyses. The rest of the time in the AQL is spent on special projects. Much of the equipment used to conduct the special projects in the AQL is aging. Policymakers need to determine if they want to make an investment in new equipment to maintain in-house capability for investigative air testing, or outsource the work.

In our analysis of privatization options, we assume that DEQ would still pay for the lab services and retain control of data derived from those services, either through in-house provision or through outsourcing lab testing. We did not review the option of shedding this service altogether.

Cost Savings. The privatization literature we reviewed noted that cost savings should be a goal of privatization. Our analysis indicates that outsourcing NPDES testing could save money, but that outsourcing air filter analysis would likely increase state expenditures. Outsourcing NPDES testing would call into question what to do with the rest of the water testing conducted in the lab. Since WQL's equipment is used for all testing, maintaining that capability only for testing other than NPDES would reduce any cost savings achieved.

We sent surveys to 39 private sector environmental labs in Wyoming to determine costs and to gauge the strength of the private sector to provide air and water testing. We surveyed the private sector for testing prices on both the NPDES program and the ambient air monitoring program. The analysis in these programs is fairly routine and there appeared to be a private sector in Wyoming capable of doing the work.

We calculated DEQ's costs to provide this testing in-house, and compared them to the costs of outsourcing to the private sector. Because DEQ does not have a cost accounting system, in-house costs represent our estimates to provide the services. The surveys sent to the private sector do not represent a formal bid, and respondents' prices may not be indicative of actual bids. See Appendix A for more details about this methodology.

Survey for NPDES Analysis. Seven labs expressed interest in the NPDES water testing program. We estimate that it costs DEQ $37,400 to perform NPDES tests in-house. We calculated a 15 percent contract monitoring fee and added it to each respondent's price. Using both the low and median respondent costs, it appears the state may be able to save approximately $9,700 to $14,500 by outsourcing these tests.

However, actual savings to the state may be lower than the above analysis portrays. Many of the in-house costs, such as administrative costs, facilities, and supplies, may be unavoidable. A portion of personnel costs would likely still be incurred even if this testing were outsourced, since the WQL manager has non-laboratory responsibilities within the Water Quality Division.

Furthermore, depending on DEQ's and legislative decisions regarding water testing within the agency, equipment may also represent an unavoidable cost. If the state wants to maintain the capability to conduct emergency water quality testing in-house, significant cost savings may not be realized from outsourcing NPDES testing. The WQL's equipment is used for all testing, so outsourcing NPDES would not reduce the agency's need for its equipment.

Survey for Air Filter Analysis. Six labs responded they would be interested in conducting the air monitoring analyses. We estimate that it currently costs the AQL $15,500 to perform the ambient air monitor analyses. We calculated a 15 percent contract monitoring fee and added it to each respondent's price. Using both the low and median respondent costs, we estimate state expenditures could increase by approximately $7,500 to $23,300 to outsource these tests.

This is the minimum amount it could cost the state to outsource this testing. Again, many costs we accounted for in our analysis of in-house costs may be unavoidable, including administrative costs, facilities, and supplies. A portion of personnel costs would likely still be incurred even if this testing were outsourced, since the staff have non-laboratory responsibilities within their division.

Also, based on the survey results, it appears that DEQ may receive less timely information from the private sector than it does from the AQL. The AQL manager reports that the lab can provide results for these analyses in three days. Only one private lab reported that it would turnaround the analyses that quickly. The median turnaround time was ten days.

Core Responsibility of Government. The privatization criteria we reviewed notes that particular caution is warranted when considering privatizing core government functions, such as regulatory and enforcement activities. DEQ is authorized to monitor the air and water quality of all facilities that have been permitted, to assure continuing compliance and to discover noncompliance. The agency also has the authority to determine the degrees of air and water

pollution in the state. The labs provide data for the agency to perform its regulatory and enforcement role.

DEQ has chosen to develop in-house capability, when possible, to conduct the air and water analyses related to its monitoring and enforcement role. DEQ officials have stated that because they use the data generated in the labs to make enforcement decisions, they need to rely heavily on the accuracy of the data. As a result, they have expressed a greater comfort level with in-house testing.

All seven of the private labs that responded to our water survey currently conduct NPDES testing for dischargers, although their purpose for testing differs from DEQ's purpose. Private labs perform NPDES tests as a service to dischargers, who are required to monitor and report effluent levels. DEQ independently obtains its own sample and the WQL analyzes the effluent of dischargers to verify the quality of the self-monitoring data. DEQ can take enforcement action against a discharger based on the data. DEQ has raised concerns that the private labs conducting commercial testing for dischargers would have a conflict if they conducted DEQ's monitoring test for the same permittees.

DEQ has an obligation to EPA to ensure the quality of the data, regardless of where testing is performed. At the same time, according to EPA officials in Denver, the state has broad latitude in structuring its quality assurance program for waste water testing. EPA officials we interviewed said the state would not be precluded from using a private laboratory to conduct both regulatory and commercial testing. EPA notes that the state could require a sample control program as part of any contract, using a numbered sampling system, which would not denote the source of the sample.

DEQ could take another approach to ensure the quality of the self-monitoring data dischargers submit. It could end its regulatory sampling and testing program for NPDES and begin a certification program of laboratories that conduct commercial NPDES testing. According to DEQ officials, Utah assures quality of commercial NPDES testing in this manner.

DEQ officials prefer the current check sampling program, because the agency obtains an independent sample and maintains custody of that sample from collection through analysis. While certifying labs would help ensure the accuracy of analysis, DEQ would no longer have an independent source for sample collection. DEQ officials also believe certifying labs would be more expensive than in-house testing because it would require an additional employee, as well as increased travel time for lab staff. However, any savings that DEQ would achieve by eliminating its NPDES testing program could offset the costs of lab certification.

Control of Process and Routine Testing. States that have studied privatization have found that routine, standardized work can be a good candidate for privatization. A majority of the work the DEQ labs conduct could be characterized as routine. About 25 percent of the WQL's work and 4 percent of the AQL's work represents special projects.

DEQ officials believe that having internal laboratories helps the agency meet its obligation to the public to investigate complaints regarding air and water quality in the state. Much of the special

project work is conducted in response to complaints. DEQ administrators believe that this work requires special method development that may be difficult to outsource. They question if the private sector would respond to emergency testing needs. The lab managers also assist the agency in interpreting the results of non-routine projects.

Options: DEQ and the Legislature may wish to consider whether DEQ testing services represent a core responsibility of government, or whether these services are more appropriately outsourced. We assume that if DEQ testing were privatized, the state would continue to pay for the work because DEQ needs the lab data.

In determining whether DEQ's need for lab services is better provided in-house or by the private sector, policymakers may want to consider the importance of DEQ's role in providing investigative testing services, and whether emergency testing needs can be met by the private sector.

Given WQL's relatively low volume of samples and the level at which it must be equipped, as well as the pending equipment needs in the AQL, DEQ may wish to monitor its own internal costs and opportunities for outsourcing, even as the sample loads increase.

Additional options and considerations for water testing, including consolidation, are discussed in Chapter 8.

CHAPTER 4

Analytical Services Lab

The mission of the Wyoming Department of Agriculture (WDA) is broad, "to assist the citizens of Wyoming to live safe and healthy lives, promote and preserve our agricultural community, be responsible stewards of our natural resources, and achieve integrity in the market place." As part of WDA, the Analytical Services Lab (ASL) supports WDA's mission by providing scientific analyses and information to WDA inspectors and officials, as well as other customers. ASL is sometimes referred to as the "Ag Lab."

Statutes. The "state chemist" is statutorily created by Article 2 of the Wyoming Food, Drug, and Cosmetics Act. The state chemist is appointed by the Board of Agriculture and acts as manager of ASL. Statutes generally prescribe duties and allow the state chemist to hire assistants, accept samples from the general public, and charge fees to customers other than cities, counties, and state regulatory agencies. UW is required to provide space for the state chemist.

Some of the many statutes which relate to WDA, typically the ones that regulate commodities, involve ASL. The Wyoming Food, Drug, and Cosmetics Act empowers WDA to:

- Enter into agreements with the federal government to operate a state meat inspection program in accordance with US Department of Agriculture (USDA) requirements.

- Regulate milk and milk products in accordance with FDA requirements.
- Sample pesticides for label guarantee purposes.
- Inspect and take samples from food, drug, or cosmetics manufacturing establishments.

These programs utilize the services of ASL. WDA can, for example, close down a dairy producer based on ASL's test results.

Other statutes also affect ASL. State commercial feed laws (W.S. 11-13-106), fertilizer laws (W.S. 11-14-107), and livestock remedy laws (W.S. 11-17-106) allow WDA to sample and test these products used by agricultural producers to ensure compliance with legal standards. WDA can stop the sale of these products based on the test results.

W.S. 40-7-107 directs the state chemist to test petroleum and antifreeze products for compliance with American Society for Testing and Materials standards. W.S. 40-9-103 requires the state chemist to test natural gas at the request of the Public Service Commission (PSC) or the mayor of a community. WDA has enforcement authority for petroleum and antifreeze, while PSC has enforcement authority for natural gas.

The Food, Drug, and Cosmetics Act, enacted in 1911, is somewhat dated. For example, although the substance is not commonly used today, the statute still references the testing of "illuminating oils." The Governor's Food Safety Task Force is working to update Chapter 7 of Title 35, and other statutes that relate to ASL may also be in need of updating.

Program Description

Located in Laramie, ASL is housed in the same UW facility as the WSVL. ASL is certified by EPA, USDA, and FDA. It is the only lab in Wyoming with either USDA certification for meat testing or FDA certification for dairy testing, which are required by the federal government.

As evidenced by the various statutes, ASL performs a broad range of testing. ASL tests approximately 13 different types of substances, or matrices, although water is by far its largest matrix. In FY97, water represented 64 percent of total samples submitted to ASL and 61 percent of total tests. A proportional breakout of the rest of ASL's work follows:

- Dairy was 22 percent of samples and 16 percent of tests.
- Feed, forage, and fertilizers were 5 percent of samples and 13 percent of tests.
- Veterinary was 3 percent of samples and under 1 percent of tests.
- Meat was 3 percent of samples and 3 percent of tests.
- Food, drugs, natural gas, pesticides, petroleum fuels, industrial chemical residues, soil, and other substances made up the remaining 3 percent of samples and 6 percent of tests.

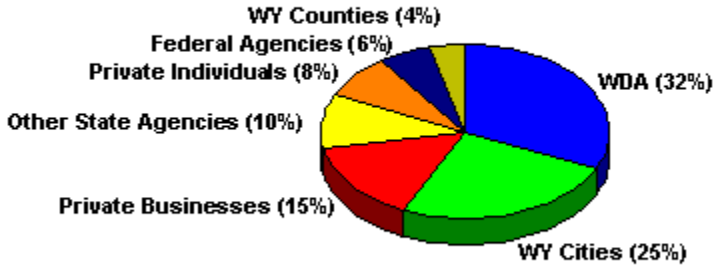
WDA downsized ASL during the early 1990s. Samples declined from 10,657 in FY88 to 6,383 in FY97, and staff numbers dropped from 14 FTE to 10.8 FTE. A major factor in ASL's decreased sample load and staffing was a 1994 decision by the director of WDA to discontinue the chemical testing program for potability of private well water.

Customers. Statutes permit ASL to accept work from customers outside of WDA. Consequently, ASL's customers are WDA, other state agencies, cities and counties in Wyoming, private businesses, and private individuals. Figure 3 shows 32 percent of all samples were submitted by WDA inspectors or directly by regulated establishments in FY97. These samples can be considered regulatory work for ASL. Another ten percent of samples are from other state government agencies.

Thus, most of ASL's samples, 58 percent, are neither WDA regulatory work nor work for state government. They can be considered "service testing" for public or private sector customers in matters where WDA has no regulatory or enforcement authority.

Figure 3: ASL FY97 Percentage

of Samples by Submittor



Source: ASL Annual Reports.

In FY97, ASL collected a total of $25,480 in fees, although its fee revenue has declined 75 percent since the chemical testing of well water was discontinued in 1994. ASL does not charge fees to General Fund state government agencies, or subdivisions of state and local government, and all fees collected from private individuals or businesses are remitted to the General Fund. ASL could not provide a cross tabulation of fee revenue by customer or analysis type.

Organization of the Lab

ASL has a microbiology lab, plus a chemistry lab with an inorganic section and an organic section. As of FY95, the Seed Laboratory, which had been part of ASL, was moved to the Technical Services Section of WDA and is now located in Cheyenne.

Microbiology Lab. The main programs of the microbiology lab, water and dairy testing, are carried out by 2.5 FTE staff. The testing of raw and finished dairy, as well as the testing of dairy plant water, is regulatory, based on FDA requirements. Most of the water testing done by the microbiology lab is service testing for entities regulated by EPA or DEQ. Only the water testing

of dairy plant water, meat plant water, and food plant processing water is regulated, either directly or indirectly, by WDA. The microbiology lab also tests foods and medicated livestock feeds on a complaint basis.

Prior to FY98, the microbiology lab had a small role in the meat inspection program, but it has recently become more involved. The microbiological testing of meat for organisms, such as e-coli or lysteria, is a program that is increasing due to USDA requirements being phased-in. State law obligates Wyoming to comply with these requirements.

Chemistry Lab. The main programs in the chemistry lab, water, meat, and feed, forage and fertilizers, are carried out by 5.8 FTE staff. Smaller testing programs in the chemistry lab are pesticides, soil, and natural gas.

WDA's meat inspection program requires regulatory testing of samples from slaughter houses and processing plants. The specifics of this testing are stipulated by USDA, which requires the microbiological testing of meat plant water by an EPA certified lab. ASL also tests samples of feed, forage, and fertilizers with methods similar to meat testing.

The chemistry lab tests water for both organic and inorganic substances. ASL is certified to do a broad range of chemical testing for SDWA requirements, and also tests waste water for businesses or municipalities for NPDES self-monitoring purposes.

The organic chemistry section has capabilities to test pesticides and other compounds. It can test pesticide formulations to guarantee that a label is accurate and can also test for pesticide residues in any matrix. ASL staff stated they currently do no label guarantee work because in recent years, they have not found problems with pesticide formulations. Hence, these capabilities are used for pesticide residue testing. For example, once a year the organic chemistry section screens raw milk produced in Wyoming for pesticide residues. Soil testing is done with methods similar to pesticide residue testing.

Finally, the organic chemistry section tests natural gas samples submitted by the PSC. This is a regulatory function for the PSC, and ASL is obligated by statute to do the testing.

Outsourcing, Collaboration, and Coordination

ASL has chosen to outsource petroleum testing to a public lab in North Carolina because ASL lacks the specialized equipment to do this testing, which involves very few samples each year. ASL also outsources the few samples it receives for species identification to the Game and Fish lab.

Other than the previously mentioned memorandum of understanding with DOH, ASL has no formal agreements with other state labs. However, it does coordinate with other state laboratories on a casual basis. For some areas of organic chemistry, primarily dealing with pesticides, ASL does the testing for DEQ because they have such a limited number of samples. Until recently, ASL had been routinely doing toxicology work for the WSVL, but ASL is currently phasing out this testing as the WSVL develops in-house ability.

Privatization Considerations

The testing ASL does varies widely in terms of analytical discipline, as well as customers served. For example, a water sample could be submitted by a WDA inspector who has visited a dairy plant, a city monitoring its water supply, or by a private well owner.

Since its testing is so varied, we grouped ASL's different programs by purpose to aid in analysis. Specifically, the groups we created are: regulatory testing for WDA, and service testing for customers who would otherwise need to use a private lab. We also examined water testing which we treated as a subset of service testing.

We applied the privatization criteria discussed in Chapter 1 to these groups. However, we concluded that the main policy issue regarding ASL is service shedding. A governmental decision to shed services is a policy decision, not a cost or quality of service decision. Thus, we did not conduct a survey of private labs to obtain cost and timeliness information.

Testing for WDA Regulatory Purposes. A number of ASL's testing programs support WDA's regulation of products either used or produced by the agriculture industry in Wyoming. According to our criteria, WDA's regulation of these commodities in accordance with federal or state laws is an important consideration when making outsourcing decisions. Testing programs in both the microbiology and chemistry labs that relate to regulated commodities are: meat, dairy, livestock feeds, fertilizers, and pesticides. This testing directly supports WDA's mission to "preserve our agricultural community ... and achieve integrity in the market place."

ASL will use any of the capabilities it has for regulatory work to provide testing to customers outside of WDA. For example, ASL has taken on additional testing, such as for forage and food, which is not for WDA regulatory purposes. It appears ASL did so because the testing methods are similar to those used for regulatory programs and this additional testing evens out the workload and makes fuller use of lab equipment. This testing is done mainly as fee-for-service work.

Market strength is a consideration in making outsourcing decisions. The meat and dairy programs require a lab to have certain USDA and FDA certifications respectively, and ASL is the only lab in Wyoming that has these certifications. Feed and fertilizer testing does not require laboratory certification, but it does not appear there are private labs in Wyoming performing this type of testing.

Our criteria state that legal issues should be reviewed as part of outsourcing decisions. WDA officials believe the agreements they have with the federal government would not preclude outsourcing lab services. However, WDA would still have an obligation to assure federal requirements were met. The director of WDA stated that if WDA's regulatory work were outsourced, WDA would conduct inspections of private labs doing this work.

Due to these considerations, we did not survey the private sector to determine costs, timeliness, and market strength for regulatory testing.

Service Testing. Much of the testing conducted by ASL does not appear to be a core responsibility of government, since ASL is simply providing services to customers who would otherwise use a private sector lab. The Legislature has given authorization to accept this work.

What has developed, as a result, is a blurring of the boundary between government services and private sector services. Testing done by ASL is a mixture of non-fee-service work for government entities, fee-for-service work for private customers, and regulatory testing done for WDA. The state chemist stated ASL will do fee-for-service work in any analytical program.

By statute, the state chemist can charge fees, but the fees must be "reasonable and comparable to that charged for the same service by commercial laboratories operating within the state." WDA has no formal procedure to ensure fees are comparable and ASL has not adjusted its fees since 1992. In addition, we compared ASL fees for four tests with the results of our private sector surveys. We found that ASL's fees were between 20 and 60 percent below the median private sector prices. For these reasons, we concluded ASL is not currently charging fees comparable to the private sector.

Options: Using state government resources to provide services that are not part of an agency's core responsibility involves a policy choice. Assuming policymakers want to continue the practice of allowing the general public to use a state lab, WDA should specify a method for the state chemist to use to ensure that fees are comparable to those of Wyoming's private sector.

If policymakers do not want state agencies to perform activities that are not a core government responsibilities, WDA or the Legislature may wish to direct ASL to shed service testing or to otherwise limit the service work it performs. This would mean a majority of samples currently sent to ASL would be left to the private sector.

The following section is a subset of shedding all service testing.

Service Testing of Water. We looked at ASL's service testing of water and considered whether it is a core government responsibility. Approximately 60 percent of ASL's sample load is water testing for public sector or private sector customers. Again, we believe providing services available in the private sector is not a typical core government responsibility. On the other hand, providing services to other divisions of government could create efficiencies. A decision to allow such services is clearly a policy choice, and at present, statutes permit ASL to accept work from both types of customers.

WDA has no statutory or regulatory directive to test water, other than the microbiological testing of dairy, meat, and food plant water. ASL received fewer than 300 of these samples in FY97.

ASL Acts as a Regional Lab. A major customer group for water testing is municipalities that must monitor their public water supplies or waste water emissions. However, even though ASL does not charge municipalities, only some of them use ASL for their testing.

An analysis of submittors shows that in FY97, 29 percent of samples were submitted by municipalities, and most of these were water samples. Of these samples, 47 percent were from

municipalities in Albany County, 12 percent were from Laramie County municipalities, and 11 percent were from Carbon County municipalities. In all, municipalities from these three counties submitted 70 percent of these samples.

The remaining 30 percent of samples were submitted by municipalities from 15 counties. There were five counties from which no municipalities submitted samples.

EPA sets short holding times for some water samples, and these holding times help to explain the concentration of samples coming from nearby municipalities. EPA's short holding times for microbiological SDWA and NPDES testing may make it inconvenient for communities outside of the southeastern part of the state to use ASL for this testing.

However, the holding times for chemical SDWA testing are much longer and ASL could conceivably be used by all Wyoming municipalities, regardless of location, for this testing. Even so, many municipalities throughout the state do not use ASL for chemical SDWA testing, and appear to have it performed in the private sector.

The pragmatic result of all these circumstances is that ASL acts as a regional lab for nearby municipalities. Hence, ASL is providing a financial benefit to municipalities concentrated in the southeastern part of the state. We could not definitively quantify the amount of this benefit, as the specific tests mandated by SDWA and NPDES vary according to population, water source, or permit type. However, we estimated drinking and waste water testing would cost the city of Laramie $27,000 annually.

According to the state chemist, ASL does not have the personnel to provide all required water testing for all municipalities. If ASL's workload becomes too high, the state chemist refuses samples. This would happen if all municipalities began using ASL for water testing.

Market Strength. A weak private sector may be justification for government services. However, Wyoming has private sector labs that do NPDES and SDWA testing. Waste water testing for NPDES compliance is done by approximately 14 private labs in Wyoming, and there are 13 private sector or county health labs with EPA certification for microbiological SDWA testing. In addition, PHL is EPA certified and performs this testing for municipalities at no charge. PHL's objective is to have as much surveillance information as possible about public water supplies in Wyoming.

At present, there are at most four labs in Wyoming certified to do parts of the chemical SDWA testing. No lab in Wyoming is certified to do all the components of chemical testing for SDWA, and no other Wyoming lab appears to have the range of certification for chemical SDWA testing that ASL does. In spite of this, many municipalities get their testing done without using ASL.

Additionally, DEQ's Water Quality Lab has the capability to perform the full range of microbiological and chemical water testing. However, DEQ has chosen to outsource some chemical testing of water to ASL because it is not cost effective to keep supplies and equipment ready for the limited number of samples that require this testing.

Impact on ASL. If ASL were to shed the service testing of water, it would significantly change the operations of the lab. Its sample load for all analytical programs would decrease substantially, to roughly 2,500 samples per year, which would be a 60 percent decrease. Personnel and equipment needs would be reduced, although not necessarily by a proportional amount. Since the state chemist stated that ASL currently has 30 to 40 percent excess capacity in terms of space and equipment usage time, such a reduction in samples would call into question ASL's current structure and staffing.

Shedding service testing of water would have little impact on the overall efficiency and capability of the microbiology lab, as it has no equipment or staff dedicated to water. The regulatory water testing it performs for dairy, meat, and food plant water requires little in terms of equipment and staff. The supervisor of the microbiology lab estimated water testing involves three people, part-time, for .7 FTE.

However, shedding service testing of water would have an impact on the chemistry lab. Some staff and equipment in the chemistry lab are dedicated to water, while some would still be necessary for other programs but would be used less. There are two FTE dedicated to inorganic water testing, plus two chemists who have other duties but combined spend 40 percent of time on organic water testing.

We determined that there are at least 12 instruments in the chemistry lab either dedicated to water testing or used primarily for water testing. The purchase prices of these instruments ranged from about $5,000 to $75,000. Some, but not all, of this instrumentation would not be necessary if ASL were to shed service testing for water. In that case, it would be WDA's discretion to determine how best to realign equipment and duties. As well, some unavoidable costs are likely to be involved.

Options: The use of state government resources to provide water testing to government subdivisions and other customers outside of state government, whether for fees or at no charge, involves a policy choice. Assuming policymakers do not want to fund capabilities that do not support an agency's regulatory role, ASL could shed most of the water testing it does. Customers using ASL for this work would need to turn to the private sector. The small amount of microbiological water testing ASL does that is regulatory could still be maintained. If capabilities are reduced in the chemistry lab as a result of service shedding, remaining needs might be addressed by the DEQ Water Quality Lab.

If policymakers believe providing water testing to government subdivisions is an efficient use of government resources, they may wish to consider increasing staff and equipment at ASL. This would create the capability for ASL to do all routine water testing for all government subdivisions.

Additional considerations for water testing are discussed in Chapter 8.

CHAPTER 5

DCI Crime Lab

The Crime Laboratory is one of three sections in the Division of Criminal Investigation (DCI) within the Office of the Attorney General. The lab shares the Rogers Building in Cheyenne with the other DCI sections. The facility was remodeled in 1987 specifically to accommodate laboratory functions.

Although the lab is not specifically mentioned in statute, the DCI director has implicit authority to establish a laboratory through statutory discretion to employ persons with specific skills in the area of forensic science (W.S. 9-1-613 (c)). Additional implicit authority for the lab exists in legislation passed in 1997 that calls upon the division to perform or contract for tests on DNA samples from convicted felons to implement the state DNA database (W.S. 7-19-401 - 405).

Statute does not require DCI to provide forensic services to law enforcement authorities within the state. It does, however, require that the division cooperate with them for the efficient investigation of criminal activity. The pragmatic consequence appears to be that through the Crime Lab, the division provides forensic lab services to local authorities without charge. In FY97, local law enforcement agencies, either police or sheriffs' departments, submitted 74 percent of the cases from which the Crime Lab processed evidence. The lab also provides forensic analyses for public defenders, state and federal agencies, county coroners, and DCI itself.

Program Description

The DCI Crime Laboratory is a full-service forensic laboratory that provides examinations by court-certified personnel in four functional areas: chemistry, biology or serology, fingerprints and questioned documents, and firearms and toolmarks. Functional areas are major areas of casework for which crime laboratories may seek accreditation from the American Society of Crime Laboratory Directors. The Crime Lab is not yet accredited, but has begun the process. Accreditation is a voluntary program for labs to demonstrate that their procedures and physical plant meet established standards.

Crime Lab examiners specialize in one of these functional units and do not cross-train. The lab supervisor is also a division deputy director with other administrative duties. To be court certified, examiners must be able to articulate concepts and provide testimony as expert witnesses relevant to their work. Although they are not designated as law enforcement officers, Crime Lab personnel must undergo the same background investigation procedures. Examiners work a normal working day, but must be available during other hours when circumstances demand. In addition, all examiners must rotate on-call, making themselves available within one hour to travel throughout the state to process crime scenes.

Chemistry Unit. This unit is involved in the majority of case work that comes to the lab. This unit primarily identifies drugs (controlled and non-controlled) and performs organic and inorganic tests on other items. The lab director estimates that 80 to 85 percent of the analyses

done in the chemistry unit involve controlled substances. This unit has recently added automated instrumentation to enable it to process samples around the clock, but it still faces a backlog.

Biology Unit. The lab's biology or serology unit screens and characterizes samples that contain biological material. The lab director estimates that 90 percent of the analyses done in this unit involve screening for blood. This unit is involved with all sexual assault and homicide cases, but not generally with controlled substance cases.

Over recent years, the unit has assembled the equipment to conduct Polymerase Chain Reaction (PCR) DNA analyses. This is a gene amplification technique that makes it possible to analyze biological substances from very small samples. Although it is not yet operational, lab officials expect this technology to be on-line for state casework later this year. Now, the lab sends DNA analyses on major cases to the FBI lab, which has a lengthy turnaround time, or to out-of-state private labs at local expense. Both state and local law enforcement officials expect to see this analysis applied to more cases when the Crime Lab begins to offer it.

Fingerprint/QD Unit. The fingerprint/questioned document unit processes items submitted as evidence to develop latent fingerprints, and to compare and identify document features. Because fingerprint issues cross the boundaries of all offenses, it is not surprising that this unit performed the greatest number of Crime Lab determinations in FY97.

Firearms/Toolmarks Unit. This unit examines and compares evidence resulting from the discharge or use of firearms and compares marks made by various tools. This unit also participates in DRUGFIRE, a national database developed by the FBI that uses firearms evidence to link interstate cases.

In addition to the four functional areas, the Crime Lab also analyzes trace evidence from crime scenes through analytical procedures using either chemical or instrumental techniques. The lab also includes an evidence section, where all evidence coming into the lab is tracked, secured, and eventually returned to the submitting agency.

Funding. The Crime Lab is primarily funded by the General Fund: the budget request for the 1999-2000 biennium was $1.5 million. Division officials also actively pursue federal grants to benefit the lab, as well as other state law enforcement activities. As a result of the division's success in obtaining these funds, lab officials told us that DCI has not requested state funds for lab equipment since approximately 1987. Using federal funds, the lab has become one the best equipped labs in the region, in the opinion of DCI officials.

However, legislators may not have been able to see the extent to which federal funds have supported the Crime Lab. Until the most recent biennium, DCI presented the Crime Lab's budget request as part of the larger criminal investigation budget, and that request has not included a line item for laboratory equipment. This contrasts with the labs that rely upon General Fund appropriations for equipment, and over which the Legislature can more directly exercise its oversight.

Crime Lab Tracks Evidence and Cases. The Crime Lab tracks the number of items of evidence it analyzes and the number of cases from which it analyzes evidence. Most cases involve controlled substances. Multiple examinations may be done on single items of evidence. The number of these items has more than doubled since FY88, when the new facility became operational.

The Crime Lab has an average turnaround time of 100 days to complete examinations of evidence submitted from a crime. The lab's priority is to work evidence on a "first in-first out" basis, with exceptions made to expedite no-suspect homicides, crimes involving children, and shootings involving law officers. However, the lab's general priorities change constantly as examiners must move some analyses ahead of others to ensure they are completed in time for court dates. Lab officials noted that despite the lengthy average turnaround time, examiners always meet court deadlines.

Crime Lab officials note that the lab faces a backlog of casework. We determined from case information that lab examiners mostly work on evidence from previous years' cases. For example, in FY97, 84 percent of lab personnel time was spent analyzing evidence from cases from previous fiscal years. The remaining time was applied to current cases, presumably following the priorities described above.

Evaluating specific lab procedures was outside the scope of this report. Therefore, we did not determine whether this backlog and turnaround time are excessive or problematic, or what might cause them. Lab officials say the lab's increasing caseload and the number of items submitted for each case affect its turnaround time. They also note that an increase in awareness of forensic science has created expectations for more examinations. Further, the lab works evidence submitted by local authorities from misdemeanor as well as felony crimes, and does not distinguish between the two.

Figure 4: DCI Crime Lab Statistics

		FY94	FY95	FY96	FY97
	Items Analyzed	15,247	15,302	22,863	20,562
	Exams Performed[a]	53,100	44,753	50,514	31,898
	Total Cases	1,537	1,656	1,544	1,522
	Percentage Drugs	53%	63%	63%	66%
	Turnaround	32 days	50 days	107 days	100 days 50

	Time	40	71	60	15
	Court Appearances	13	13	14	
	FTEs				

[a] Does not include examinations done on items form previous years' cases.

Source: LSO compilation of DCI data.

Outsourcing, Collaboration and Cooperation

In general, the Crime Lab strives to be a full-service lab and not to outsource tests. The only testing the lab routinely outsources is for chemical toxicology (primarily drugs) in blood and urine. Through an informal agreement, the PHL chemistry section does this testing for the Crime Lab. The decision to outsource blood and urine toxicology to the PHL appears to have been made because PHL has the capacity for this testing and the Crime Lab does not.

The lab will outsource, to a private contractor outside of the state, the analysis of the backlog of DNA samples gathered in response to the 1997 legislation requiring the felony database. Once the backlog has been addressed, officials plan to use the lab's DNA analysis capacity to process subsequent samples, once they are prepared to implement it.

Although the Crime Lab also has facilities for human identification, including autopsies and various comparisons for the identification of the bodies, it contracts with forensic pathologists, anthropologists, radiologists, odontologists, and other specialists needed for this work. Individual county coroners are responsible for the pathologist fees for the autopsies they request performed at the Crime Lab.

Privatization Considerations

A consideration of the privatization criteria presented in Chapter 1 brings forth several issues with respect to Crime Lab activities. Of those criteria, a primary consideration for the Crime Lab is that the control of the analytical process is as important as the result. Officials noted extensive measures taken to ensure the integrity of the lab's analytical processes and the security of the evidence submitted. The lab's control of its processes must be such that its results can withstand cross-examination in court. However, lab officials noted that private forensic laboratories also are capable of maintaining the necessary quality control and confidentiality.

Another criterion is that certain core government functions do not lend themselves to privatization. Law enforcement is among those functions listed as a core responsibility. Crime Lab examinations are a means of investigation that lead to law enforcement, but the lab's analyses per se do not perform that core function. Presumably, officers of the law could enforce

laws and protect the public as long as they have reliable supporting forensic analyses, regardless of what lab performs them.

Project-oriented labs with services that require high levels of judgment or discretion may not be privatization candidates. Crime Lab examiners employ discretion in determining what forensic examinations are warranted and in coordinating their work on the evidence. Although identifying controlled substances constitutes a large volume of the lab's testing, lab officials do not consider this routine work. The drugs come packaged in various types of evidence, and analysts must specify drug weights rather than a simple positive or negative result. Examiners must also keep detailed notes on their lab work and discussions with attorneys or prosecutors, all of which may be subpoenaed. However, lab officials noted that this level of service is available in the private sector.

Lab officials and local law enforcement authorities maintain that using private labs would be costly, especially for expert testimony. A local official said that a move to privatize forensic lab services would be cost-prohibitive to local authorities, unless the state continued to pay. He noted that a critical factor is having examiners available for trial, conceivably as often as once a month.

There are no forensic laboratories in Wyoming and we did not formally survey out-of-state labs nor estimate Crime Lab costs to develop a cost comparison. However, we heard from a nationally known private lab that expert witness charges could reach $1,400 per day plus expenses.

Final considerations include whether the state has the capability to provide services, and whether privatization would risk the state's capability to resume the services if necessary. At this point, the state has dedicated substantial resources to the lab, both in facility improvements and equipment. To privatize may mean dismantling this investment. Further, it appears that the federal funding upon which the Crime Lab has relied to buy equipment focuses on developing state law enforcement capabilities rather than upon contracting for expertise. Therefore, the state would not likely have the same level of support available to it if it chose to privatize these services.

Options: The Legislature could reconsider how it provides forensic laboratory testing. If policymakers decided to privatize this testing but wanted to continue funding these analytical services for local law enforcement authorities, the state would need a mechanism to transfer funds. If the Legislature wants to be more involved in determining how the Crime Lab develops its capabilities and provides its services, the Legislature may wish to consider making the lab's responsibilities explicit in statute.

CHAPTER 6

The Veterinary Laboratory

The Wyoming State Veterinary Laboratory (WSVL) is a full-service diagnostic and research laboratory located in Laramie. It operates as a unit of the Department of Veterinary Science within the College of Agriculture at the University of Wyoming. As a state-assisted laboratory, WSVL is subject to policy direction from the Legislature and from the University Trustees.

Generally, W.S. 21-17-308 directs WSVL to conduct research into the causes of contagious, infectious and communicable diseases found among livestock in this state, and to assist veterinarians and the livestock industry in Wyoming. WSVL's director is a veterinarian, and of the 16.3 FTE staff, 4.5 are faculty members.

WSVL is nationally accredited as a diagnostic laboratory for all species. It is also certified by the USDA to perform tests that are part of a national eradication program, such as brucellosis and pseudo-rabies testing. Advising WSVL is a statutory council composed of six members: three veterinarians and three members of the Wyoming Livestock Board.

Since 1985, WSVL has been authorized by the University Trustees to charge fees for services. The veterinarians, livestock producers, commercial companies, and pet owners who request services pay for them at rates roughly comparable to those charged by other states' veterinary labs. However, WSVL does not charge for tests related to public health considerations, such as rabies, plague, and tularemia, or for tests which are part of a national disease eradication program.

In FY98, fees constituted approximately 37 percent of WSVL's total income. Most fee income is used to augment the costs of salaries, support, and supplies. The lab's remaining income comes from University appropriations, lease income, and research grants.

Program Description

WSVL performs a mix of diagnostic testing, consultation, and research work. It is organized into units that provide such services as serology, bacteriology, immunology, pathology, virology, parasitology, and toxicology. Many routine samples are processed within one section, but some cases require immediate diagnostic investigation involving several sections. For example, this might be the case when a herd of cattle is dying and the cause is not known.

Certain tests performed at WSVL are official government-regulated tests, required for the interstate shipment of livestock. An example of such testing is the Coggins test on horses, which confirms whether equine infectious anemia is present. In other cases, where a threat to human health exists, WSVL performs tests and provides information to the PHL.

In addition, the lab does a great deal of wildlife-related testing and research. For example**,** WSVL is one of the few labs in the country conducting cervid hybrid testing of deer and elk, which phenotypes wildlife and demonstrates whether an animal is "pure."

In 1997, WSVL received 11,616 new cases and performed 110,068 examinations on those cases: 62 percent were on cattle, sheep, bison, horses, and pigs; 10 percent were on dogs and cats; and 28 percent were on "other," which is mostly wildlife. These percentages do not include

approximately 30,000 brucellosis tests, which are accounted for separately because that testing is shared with USDA.

As a function of the University, there is a considerable tie or link between research and diagnosis. According to the director, it is not possible to determine what percentage of the work is diagnostic, and what is research, because much of the work serves both purposes. WSVL takes the approach that the one function complements the other, and that research is completely integrated with diagnostics.

Range of Services. We noted that WSVL's current mix of cases and range of services goes beyond those areas clearly identified in statute. W.S. 21-17-308 directs the lab to serve "the livestock industry" and to "assist licensed veterinarians." Because the statute emphasizes the livestock industry and veterinarians, legislators may not be aware that a significant portion of WSVL's work is related to wildlife, companion animals, and public health. Currently, nearly 40 percent of the tests WSVL conducts have to do with these three areas.

As part of the mandate to assist veterinarians, WSVL provides services related to companion animals and public health. However, WSVL's statutory authority for providing services related to wildlife is not as clear. WSVL's premise for providing these services is the connection in Wyoming between the livestock industry, veterinarians, and wildlife. In open-range areas where wildlife mingle with livestock, trans-species disease transmission may occur. For example, brucellosis is a disease that can cause cows to abort, and the disease is also found in elk and bison. Thus, diseases that affect wildlife may also have an impact on livestock, and vice versa. While this linkage may be generally understood within the livestock industry, the connection is not clearly stated in statute.

Cervid hybrid testing is one of WSVL's most important tests in terms of fee income, but this testing is performed exclusively on wildlife. WSVL is one of the few labs in the country that offers blood testing to assist in determining whether animals are elk, red deer, or elk/deer hybrids. Wyoming law does not permit private game farms in-state, but proof that elk are pure is necessary for sale and registration purposes in other states. This test appears to be even less closely linked to livestock and veterinarians than brucellosis testing.

Fee income in general reflects the importance of wildlife and companion animal work to WSVL. In 1996, WSVL estimated that 36 percent of its income came from work on wildlife, and another 24 percent came from work on companion animals. Only 40 percent of income came from work on livestock and horses. These figures illustrate the extent to which WSVL's operations include and affect far more than the livestock industry alone.

This analysis is not intended to suggest criticism of WSVL; according to the WSVL director, these areas have been an inherent part of the lab's understood mission for years. Rather, it points out ways in which the lab's current operations are not fully reflected in the authorizing statute. Since that statute has not been revised since 1978, the Legislature may consider this an appropriate time to review W.S. 21-17-308 and to create clearer authorization for WSVL's current range of services.

In addition, as part of the academic planning process currently underway at the University of Wyoming, WSVL's scope of services and fee structure are under internal review. If the outcome is a recommendation to leave WSVL intact, with no change in mission or functions, then the University is faced with a large immediate need for equipment purchases, plus an ongoing need to replace aging and outdated equipment. This issue is discussed in relation to all labs' equipment needs in Chapter 7.

Outsourcing and Collaboration

Since it strives to be a full-service laboratory, WSVL outsources only those tests for which there is limited demand and which require technical expertise too expensive to develop. WSVL collaborates extensively with other state and federal agencies, both in research and for the purposes of law enforcement.

Outsourcing. It appears common for state veterinary laboratories to outsource specialty work to one another and to the National Veterinary Services Laboratory. There is limited demand for some kinds of testing which require expertise and equipment not every state can afford to develop. Thus, individual labs tend to be known for particular specialties and referrals from other states are common.

In 1997, WSVL outsourced 822 of its 110,068 tests, or less than one percent, in the areas of specialized serology, toxicology, and what are termed "unusual" requests. By the same token, other states referred several kinds of tests to WSVL: bovine viral diarrhea, cervid hybrid, and other testing, such as the identification of larkspur and locoweed toxins. However, work referred by another state is unlikely to be any lab's first priority, and WSVL has found that turnaround time to obtain results from outsourced tests can be poor.

If WSVL wished to outsource some of its more routine testing, it is not clear to what extent and under what conditions other states' vet labs would be willing to take on that work. However, several states could band together to create a regional agreement by which each lab would have a defined and somewhat limited range of services. The director of Virginia's consolidated lab suggested that a partnering approach might work well for Wyoming, since it is likely to have a low volume of testing in some areas. In such cases, he said, running couriers would be significantly less expensive than setting up new services.

Collaboration. WSVL collaborates with PHL in testing for zoonotic diseases, or those diseases such as rabies and plague, which are carried by animals and can be transmitted to humans. Also, for more than 50 years, WSVL has had a cooperative arrangement with USDA to do brucellosis and certain other disease testing as a shared responsibility.

WSVL collaborates with the U. S. Fish and Wildlife Service and with the Colorado Division of Wildlife on various research projects and wildlife forensic work. For example, a current case has the lab examining a broad range of chemicals and drugs screens that might have been the cause of the deaths of several bald eagles.

Similarly, there is a long and extensive history of collaboration between WSVL and the Game and Fish Department. The two cooperate closely and share in research and diagnostic projects, such as chronic wasting disease, to determine whether the disease is transmissible from wildlife to cattle.

In most cases, WSVL can rely on resources of its own; with this strong network of collaborative relationships, it can rely on other agencies when conditions warrant. At present, WSVL, Game and Fish, the Department of Agriculture, and the Livestock Board are working on agreements to formalize cooperative arrangements of long-standing.

Privatization Considerations

Applying the privatization principles from Chapter 1 to WSVL produced mixed results. For example, state law mandates that WSVL must provide services, but determining whether assisting veterinarians and the livestock industry is a "core government responsibility" is a separate policy decision. Also, when conducting research, privatization may not be desirable because the process is as important as the result. With routine testing, privatization may be more appropriate because producing accurate results is the focus. WSVL carries on both routine testing as well as the higher-level functions of research and special projects, and in ways that are often integrated and therefore difficult to segregate for privatization purposes.

What is more clear is that the lack of in-state private sector alternatives is a major obstacle to privatizing Vet Lab services. Within Wyoming, we found no private sector alternative to WSVL that would provide a full range of veterinary testing services, or that would be capable of conducting research. Also, while there may be private sector labs in other states that are certified to perform certain routine, high-volume tests such as Coggins tests, in-state alternatives do not exist. Finally, in Wyoming and elsewhere, there is little or no private sector capacity to perform the unusual tests that WSVL currently outsources. Given these considerations, opportunities for privatizing did not emerge.

Options: Since privatization options are limited for WSVL, the Legislature may wish to consider whether it approves of maintaining the full range of services currently provided by WSVL. Assuming it does, the Legislature could consider clarifying statutory language as to the lab's purposes.

On the other hand, if the Legislature desires a change in focus or operations at WSVL, it could direct that process. As well, UW Trustees could influence the re-shaping of WSVL's mission. WSVL could concentrate on strengthening and honing core areas of expertise, and this could open the way for whole functions or specific tests to be outsourced to other states' labs.

CHAPTER 7

Options for Laboratory Equipment

The five state labs we reviewed are not coordinating efforts to use or fund equipment. The cost of maintaining technologically adequate equipment is a factor in making decisions about privatization or consolidation of lab functions. We determined that the labs' equipment is generally in good condition, but is old, and each lab has identified needs for additional equipment. While equipment often cannot be shared due to scientific constraints and physical location, its expensive nature warrants exploring opportunities where sharing may be possible.

Inventory of Lab Equipment

For each lab's operations, we examined equipment inventories, equipment usage patterns, and equipment funding sources. To assist our analysis, we created an inventory of lab equipment by arbitrarily designating a $3,000 purchase price as a threshold. This threshold was chosen in part to make our analytical task manageable. Also, in our estimation, purchases of $3,000 and above are not easily absorbed by an agency's operating budget. We compiled information from the statewide inventory list administered by A&I, and from UW, in the case of the WSVL. However, some agencies had not kept current with their inventory reporting to A&I. Where we could identify these gaps, we endeavored to add pieces of laboratory equipment to our list.

Using the threshold of a $3,000 acquisition price, the five labs reported a total of 226 pieces of lab equipment. The WSVL had 92 pieces of equipment, including 20 pieces that are built into the facility. By contrast, the DEQ labs had 24, and ASL, DCI, and PHL had roughly the same level of instrumentation with 41, 37, and 32 pieces of equipment respectively.

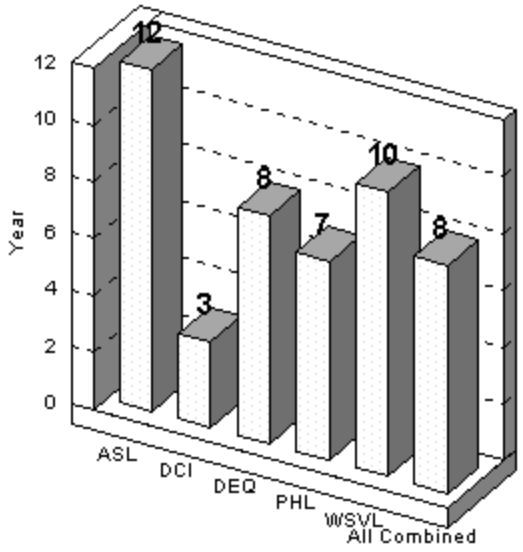
We estimate the sum of the purchase prices for these pieces of lab equipment is approximately $4.2 million. However, since the instruments were purchased at different times between 1969 and 1998, this amount does not represent the present value or what it would cost to replace this equipment. This information was not available.

Age and Condition of Equipment Vary

Most of the lab equipment used by the state labs in Wyoming is beyond the age experts believe is optimal. The inventory we compiled indicates a median age of lab equipment of eight years. Individual roundtable discussions of the Analytical Laboratory Managers Association (ALMA) and the National Science Foundation (NSF) each came to consensus that lab equipment becomes technologically obsolete in five to seven years. Our consultant said that after ten years, equipment it is no longer supported by manufacturers.

Based on equipment age and lab managers' comments, we characterize the overall condition of lab equipment as good, but old. However, as Figure 5 shows, the age and condition of equipment vary considerably from one lab to another.

Figure 5: Median Age of Lab Equipment



Source: LSO compilation from inventory lists.

DCI, which has access to federal funds for equipment purchases, has equipment with a median age of three years, and they consider it one of the best equipped crime labs in the region. On the other hand, ASL's equipment has a median age of 12 years. The state chemist said ASL's equipment is in good condition and has outlived its life expectancy due to the excellent care it is given. The director of PHL judged that lab's equipment, which has a median age of seven years, to be in moderate condition.

Labs Fund and Use Equipment Independently

Generally, each lab owns equipment ranging from inexpensive pieces to highly sophisticated precision instruments that can cost hundreds of thousands of dollars. Despite proximity and sometimes similar needs for instrumentation, we did not find evidence of any cross-laboratory coordination regarding equipment purchases.

For example, the WSVL purchased a used inductively coupled plasma spectrometer (ICP), which had been surplused by another university, and then invested months of staff time to make it operational. The purpose of this acquisition was to enhance the WSVL's capability to perform toxicology work, which would enable it to perform new services for fees. The WSVL chose not to continue to outsource or to begin sharing equipment with ASL, which is located in the same facility and has its own ICP. Consequently, each lab currently owns an ICP, and each lab claims its ICP needs to be replaced. The estimated purchase price of a new ICP is $175,000 or more.

One of the experts we consulted stated a lab must justify having expensive instrumentation. One way to justify it is by processing a large load of routine samples. Otherwise, expensive equipment would have to be justified by extremely urgent situations which make infrequent use

acceptable. Neither of these conditions appears to exist relative to the ICPs used by the labs in Laramie.

Traditionally, labs have been purchasing equipment individually, through their own considerably different funding sources. Some labs, such as DCI and DEQ, have access to federal funds for equipment purchases. PHL and ASL rely on appropriations from the General Fund, while the WSVL relies on fee income, research grants, and UW funds for its equipment purchases.

As Figure 6 shows, the labs have purchased at least $1.3 million in equipment since 1991. For the five labs, this averages $102,000 per year in General Fund expenditures, or $189,000 from all funding sources.

Figure 6: Expenditures on Equipment FY91 - FY97

		General Fund	Federal Funds	Other	Total
	ASL	$317,895	$0	$0	$317,895
	DCI[a]	$0	$272,439	NA	$272,439
	DEQ[b]	$78,200	$117,300	$0	$195,500
	PHL	$287,111	$0	$0	$287,111
	WSVL	$29,235	$0	$218,173	$247,408
	Total	$712,441	$389,739	$218,173	$1,320,353
	% of Total	54%	30%	17%	100%

[a] Estimate based on best information available.

[b] The federal and state funds used to purchase this equipment are estimated using a 60/40 ratio. This is a conservative estimate of the federal share.

Source: LSO compilation of agency reported data.

Many labs use the same types of equipment, and in fact, one lab might own several of the same instruments. We found labs tend to dedicate or semi-dedicate equipment according to the substances being tested and the detection ranges sought. Labs tend to dedicate instruments, in

part because each is built to have maximum capability for a defined range of detection. Also, equipment sharing can present problems related to cross-contamination. Finally, lab managers and experts we consulted said the time involved to recalibrate equipment for different matrices often makes it more cost effective to dedicate equipment.

While there are many scientific reasons why lab equipment often cannot be shared, its expensive nature warrants a concerted effort to seek out those opportunities where sharing may be possible. Clearly, location is critical to the idea of shared lab equipment. Two of the labs which would have the most in common in terms of equipment, ASL and the DEQ Water Quality Lab, are not currently in the same location. Nevertheless, even for labs in the same location, we found no patterns of sharing arrangements.

In some situations, laboratory equipment is not currently put to full use. For example, equipment in the DEQ Water Quality Lab is not fully used because of a low volume of samples and also because of seasonal programs that operate primarily from May to November. With apparently no direction given to labs to coordinate equipment usage between agencies, it is not surprising that the possibility of recalibrating some of this equipment for use in another lab for the winter months has gone unconsidered. However, DEQ officials project that with increasing sample loads, the Water Quality Lab equipment will be used more during the winter months.

Maintaining individual lab priorities appears to be the primary reason such independent patterns of equipment usage have developed. Each lab wants to be able to set its own operational priorities and be responsive to the changing needs of its agency.

However, the director of the consolidated lab in Virginia spoke from a different perspective. Although his lab juggles many priorities, he said "In my five years here, I can think of only one or two times where we've had to put someone's samples aside to run emergency samples." He added that for separate labs, shared equipment would require lab directors having an understanding of statewide priorities and emergencies.

Labs Do Not Have All Desired Equipment

We asked the labs to identify their most pressing equipment needs. Together, the labs believe they need a total of $1.8 million in new equipment.

Some of the requested equipment would be for currently performed tests, while some would be for developing new testing capability. Estimates from individual labs ranged from $24,000 at DEQ, to more than $800,000 at the WSVL. Four pieces of equipment account for nearly half the cost identified: an ICP for ASL, an electron scanning microscope for DCI, an HPLC-MS for the WSVL, and an uninterruptible power supply for the UW facility which houses the WSVL and ASL. The most expensive pieces of lab equipment in the inventory we assembled were in the range of $100,000 and up, as were these four pieces.

Currently, the state does not have a depreciation reserve or other automatic mechanism to fund the replacement of lab equipment as it wears out. Labs must either ask for an appropriation or find outside funding to replace aging and worn-out equipment.

The intragovernmental fund created by W.S. 9-4-204(p) is a model for how lab equipment purchases could be continuously funded. This fund can be used to finance and maintain state government units which are self-supporting through charges to other state government units. Two state government programs, both within A&I, can use this fund: Information Technology Division and Motor Vehicle Management. At present, however, because lab services are not structured to be self-funding, they could not participate in the intragovernmental fund.

Funding Decisions Difficult

The state does not have a mechanism to prioritize equipment needs across labs or, for the most expensive pieces of lab equipment, to explore opportunities for sharing. Thus, when making budget decisions, it may be difficult for the Legislature to decide the level at which to fund equipment requests.

We considered $100,000 to be a reasonable threshold to use for the most expensive pieces of equipment. Again, we looked at the example of an ICP, which is used for testing of inorganic substances, and is likely to be one of the more expensive pieces of equipment owned by a lab. Three labs currently own ICPs and all three are more than ten years old. A fourth lab does not have an ICP, but would like one. As it stands now, all of these labs could submit individual budget requests for an ICP without having considered sharing options and statewide priorities.

Experts we consulted cautioned that in many instances, either efficiencies or scientific necessity justify the semi-dedication of equipment. Yet they also stated it is possible to share some equipment, in some circumstances. The key is to identify situations where recalibration and setup time for equipment are cost-effective.

Options for Agency or Legislative Consideration

The following options discuss ways to provide more assurance to decision-makers that laboratory equipment is being used efficiently. Also, either of these options could facilitate consolidation efforts or any restructuring that may occur among the five labs. These options particularly target the most expensive pieces of laboratory equipment.

Option 1: Cross-Agency Group to Prioritize Equipment Needs and Develop Sharing

Laboratory operations are extremely technical, and it would be extraordinarily difficult for a non-scientist to prioritize lab equipment needs, justify the purchase of expensive pieces of equipment, or pilot shared equipment arrangements.

However, if given a definition of "expensive" equipment, a cross-agency group of lab personnel and consumers of lab services could identify needs held in common among labs. For equipment needs that are both expensive and common among labs, this group could consider sample

volume and potential for urgent situations, and then advise agency directors on whether the purchase of the equipment for one lab would be justifiable.

If expensive equipment could not be justified, this group could explore ways to more fully use existing or new equipment through sharing arrangements. It could also advise agency directors as to how much personnel time would be required for recalibration and set up.

Option 2: Hire Consultants to Prioritize Equipment Needs and Develop Sharing

The executive branch or the Legislature may wish to contract with qualified microbiology and chemistry consultants to review the current equipment inventory and usage patterns. Such an arrangement might avoid turf issues among the various labs. Using input from each of the lab managers, consultants could pinpoint opportunities for efficiencies to be gained from sharing expensive equipment. Finally, consultants could provide the Legislature with an expert opinion on equipment needs from a statewide perspective.

In light of other changes that agencies or the Legislature may direct labs to carry out, consultants could help to restructure lab operations and relocate equipment. Should policymakers determine that some of the testing currently done by state labs ought to be outsourced or shed, equipment might be left idle and would need to be reassigned. If the labs remain as they currently are, the Legislature needs more assurance that equipment is being carefully managed from a statewide perspective.

Options: If the Legislature or executive branch agencies believe laboratory equipment has not been put to maximum use, either a cross-agency group or microbiology and chemistry consultants could improve the statewide management of laboratory equipment.

CHAPTER 8

Options for Water Testing

During our review of state lab operations, we found that several labs perform the same water testing. We found duplicative microbiology capabilities in three state labs, two of which also maintain overlapping chemistry water testing capabilities. Although the programs and reasons for this testing differ, the capabilities are identical.

Duplication exists in the labs because responsibilities for water quality at the state level have not been clearly articulated. As a result, testing of water has been split among labs. Consequently, the state may be maintaining a larger investment in equipment, staff, and space than necessary to perform water tests.

We identify several options policymakers may wish to consider, either in whole or in part, to address duplication. Options include combining lab operations to more efficiently perform water

testing, or privatizing all or some of the current water testing. These options could create efficiencies within the labs. However, we also note there are benefits to maintaining existing capabilities.

The State Maintains Duplicative Capabilities for Water Testing

As discussed in the individual chapters on each lab, PHL, DEQ, and ASL all conduct microbiological tests on water. Additionally, both DEQ and ASL conduct chemical tests on water, with ASL performing some chemical tests for DEQ. Chemical tests are generally more complicated than microbiological tests, and thus involve more staff and equipment.

PHL and ASL perform most of the water tests carried out at the state level. In FY97, the PHL received 9,241 water samples and ASL received 4,114, while DEQ received only 619. Customers submit most of the water samples tested in the PHL and ASL, while all water samples tested in DEQ are collected internally by DEQ field samplers.

Although the labs provide testing for a number of programs, most of the water analysis currently conducted in the labs falls under two EPA programs: the SDWA program (drinking water) and NPDES program (waste water). Both programs contain microbiology and chemistry testing requirements.

SDWA Program. The SDWA program requires public water systems to periodically test their drinking water to gauge the level of compliance with microbiological and chemical standards. Wyoming does not have primacy over its drinking water, so EPA administers the SDWA in Wyoming. Tests must be conducted in an EPA-certified lab. Labs are certified to test for different drinking water parameters.

Customers can go to any certified lab for drinking water analysis. The PHL and ASL are both certified to conduct microbiological tests, and ASL is certified to conduct most of the chemical tests under the SDWA. In addition to ASL and PHL, there are private labs in Wyoming certified to conduct both microbiological and many of the chemical tests for this program.

NPDES Program. DEQ administers the NPDES program, under which dischargers must periodically monitor their effluent and report the results to DEQ. A discharger can have the testing conducted in any lab, as long as that lab uses EPA-approved methodologies for NPDES. The ASL conducts both microbiology and chemistry tests for dischargers. In this regard, ASL is like any other private laboratory doing compliance analysis for a customer. There are also several private labs in Wyoming that conduct NPDES tests for dischargers. As stated in Chapter 3, DEQ obtains its own sample from each discharge site to verify the data that dischargers submit.

Duplicative Water Testing May Not be Most Effective Use of State Resources

We found that the state may be maintaining a greater investment in water testing capabilities than necessary. While recognizing that the programmatic reasons for testing differ, we nevertheless found overlaps that create inefficiencies in equipment, staffing, and space. The state may be able to decrease lab costs if water testing is combined or reduced. However, the total costs associated with water testing are relatively low, and while eliminating or consolidating testing may reduce state expenditures, any savings are likely to be modest.

Equipment Used in Water Testing. We found overlap in the equipment used to conduct water testing. Most of the equipment expenses are associated with chemistry testing, since equipment used for microbiology testing is relatively "low-tech" in comparison.

DEQ and ASL use identical equipment to run chemical analyses on water. Combined, the two labs have nearly $600,000 invested in this equipment, ASL received an appropriation of almost $200,000 during the 1998 Budget Session, most of which will be used to purchase water testing equipment. Both labs also report excess equipment capacity, although DEQ officials noted that their excess capacity will be reduced with projected sample increases. However, If ASL and DEQ testing were combined, there may still be opportunities to eliminate some common pieces of equipment.

DEQ and ASL have demonstrated that the use of some equipment can be maximized. Both labs own gas chromatograph mass spectrometers (GCMS). DEQ's instrument needs to be upgraded, but because demand for it is low, DEQ sends this work to ASL rather than purchase a new instrument.

Staff Associated with Water Testing. A total of 11 employees run chemical and microbiological water tests in the PHL, DEQ, and ASL. While two individuals in ASL and one in DEQ spend almost 100 percent of their time running water tests, the remaining employees spend only a portion of their time conducting these analyses. We calculate that of the 11 employees who spend all or part of their time on water, there are 5.8 FTE associated with this testing. If policymakers choose to consolidate or privatize water testing, there may be opportunities to reduce staff dedicated to this function. However, staffing must be sufficient to accommodate peaks in workload.

Adequacy of Space for Water Testing. With duplicative water capabilities, the state has dedicated more space to water analyses than may be necessary. Before making any facility decisions, policymakers should determine if it is appropriate to maintain three separate areas to conduct water testing.

If policymakers are interested in consolidating water testing, we believe the best opportunities to consolidate this testing exist at the ASL facility in Laramie. It appears that the HVAC and electrical systems on the fifth floor of the Hathaway Building may not be adequate for DEQ's Water Quality Lab operations. Furthermore, the lab does not have enough testing or storage space in the Hathaway Building. The ASL manager reports that the ASL facility was built with the intent to absorb additional staff and testing equipment in the future. ASL also reports that, other than a need for a UPS, the building is well designed for workflow and has appropriate mechanical systems for lab work.

Authority for Water Testing is Fragmented

Duplicative capacity for water testing has arisen because the Legislature has divided responsibility for ensuring water quality in Wyoming. The Legislature has granted two labs a formal role in water testing, and has allowed another to develop similar capacity. Statutes establish an explicit role for both DEQ and the DOH specific to Wyoming's water. As such, each agency's respective labs have taken on responsibilities for water testing.

Statutes require DEQ to monitor the water quality of permitted facilities to determine compliance with permit requirements. Statutes further task the agency with determining the degree of water pollution throughout the state.

Statutes authorize the DOH to enforce sanitary standards for the protection of public health as it relates to the quality of publicly supplied water or the quality of water used in the irrigation of edible crops. The agency also has statutory authority to enforce the quality of effluent.

While we found WDA has no explicit statutory or regulatory directive to test water, other than that related to dairy, meat, and food plants, it has traditionally offered this service as part of its defined mission. WDA broadly defines its mission as having a public health component in assisting Wyoming citizens to live safe and healthy lives, and to be responsible stewards of natural resources.

Statutes allow the ASL to accept samples from public and private sector customers. A majority of the samples ASL receives are water samples. The ASL manager said the lab began SDWA water testing before other state government labs existed. The lab has continued conducting these tests, as other capabilities arose. Since the lab has not been instructed to end this testing, its historical role has created a de facto mission to test water.

Programmatic Roles Differ. In addition to statutory justifications for duplicative water testing, we also found programmatic reasons for duplication. Based on our review, it appears each lab's capabilities were developed with programs in mind, rather than analytical function. We found lab managers more closely identify their role in water testing with the program they administer or provide service for, rather than the analytical capabilities used for analysis.

The reasons each lab is performing water testing differ. While both ASL and the PHL provide service testing of drinking water under the SDWA, the PHL justifies these analyses as part of its public health surveillance role. DEQ and ASL are performing identical tests under the NPDES program, but ASL is performing the tests as a service to customers, while DEQ's testing is regulatory in nature. DEQ has expressed reluctance to outsource its regulatory tests to ASL, because ASL is currently conducting these tests as a service to dischargers. DEQ presumes a conflict of interest might occur if ASL were to conduct both service and regulatory testing for the same customer.

Policymakers May Wish to Consider Clarifying Agency Water Testing Roles

If policymakers find it undesirable to have duplicative capacity to perform water testing at the state level, they may wish to clarify responsibilities for water testing. The affected agencies and the Legislature have several options available to them regarding the location of such testing. Policymakers may wish to eliminate some or all of the testing currently offered, or offer testing in one facility. However, policymakers may also find advantages to maintaining the current testing intact.

The following options may be treated as separate, stand-alone options, or aspects of different options could be adopted. For example, if ASL water testing is eliminated, ASL could likely reduce expenditures and still absorb DEQ's limited sample volume. Each option includes policy considerations that may impact the provision of services.

Option 1: Leave Current Water Testing Intact

There are several advantages to maintaining duplicative water testing capability at the state level. The current arrangement allows each agency to retain flexibility in administering programs for diverse purposes. Maintaining service testing of water provides customers another option for testing, which is especially convenient for users located in the southeast corner of the state. Maintaining current capabilities also allows DEQ and PHL to conduct investigative work in response to complaints and emergencies, such as water-borne disease outbreaks.

Nevertheless, there are considerations policymakers should evaluate in maintaining the status quo. As noted, the state may not be providing such testing by the most efficient means. Also, the service testing provided by both ASL and PHL is available in the private sector. Some municipalities in the southeast corner of the state have relied heavily on ASL for water testing services, and as a result, it has acted as a regional resource.

Option 2: Privatize Some or All Water Testing

Privatization of water testing may have different consequences for each agency currently conducting water tests. Policymakers have the option of either outsourcing the work to the private sector, but continuing to fund the provision of these services, or shedding some water testing altogether. Drinking and waste water testing is currently available in the private sector, but policymakers should consider if maintaining capability at the state level is important.

Outsource DEQ Water Tests. As discussed in Chapter 3, there are a number of factors policymakers should consider when determining if DEQ water testing should be conducted in-house or privatized. If the water testing conducted in DEQ were privatized, we assume the state would outsource the work such that DEQ would retain financial and monitoring control over the work. DEQ would still need laboratory data to carry out its responsibilities related to water, in the event that lab analyses were privatized.

Outsourcing DEQ's water analyses could affect facility decisions in the Hathaway Building. As mentioned earlier, it appears that HVAC and electrical deficiencies have been identified in the current facility. Furthermore, although DEQ reports they have addressed city fire marshall

concerns related to the housing of chemicals in the facility, we were unable to determine the extent to which these improvements affect other identified code issues.

Shed ASL Service Water Tests. The considerations to privatizing the water testing ASL currently performs as a service are discussed in Chapter 4. In our analysis of privatization options for ASL water testing, we assume that if policymakers want to privatize this testing, they would simply stop providing this service. ASL is under no regulatory obligation to conduct water testing; thus, under this scenario, ASL would not pay for or monitor any testing provided in the private sector. ASL is currently providing this testing as a service, and has no need to receive the data associated with it.

If ASL shed service testing of water for the SDWA and the NPDES programs, ASL would have excess staff and equipment. If ASL ended its NPDES service testing, DEQ may be less hesitant to send its regulatory samples to ASL. ASL could easily absorb these samples within its existing facility, and with current staff and equipment.

The state could also likely reduce General Fund expenditures on equipment and staffing of these services. However, while ASL may be able to eliminate some equipment and staff, certain equipment is used not only for water testing, but for other testing programs, as well.

Outsource or Shed PHL Water Tests. The options available for privatizing water testing in the PHL are discussed in detail in Chapter 2. Policymakers need to determine if the water testing PHL performs is a surveillance activity or a service. If the data generated from this testing is important to the PHL, we assume the state would outsource this work and maintain the fiscal and monitoring responsibilities for the tests.

However, if the state does not think this testing is the responsibility of state government, the PHL could simply stop offering this service. Under this scenario, PHL would not pay for or obtain the results of the testing conducted in the private sector.

Eliminating water testing in the PHL would reduce laboratory operations on the fifth floor of the Hathaway Building, and may affect the decisions that would be made with regard to the facility. However, the risk associated with conducting microbiology tests on drinking water appears to be minimal. Equipment and staffing for this program are also relatively small.

While ASL and PHL both provide water testing services for the SDWA, DOH has statutory responsibilities specific to water and its impact on public health. If policymakers determine all water testing services should be privatized, ASL's service testing could be shed, but they may also wish to outsource the testing PHL currently conducts. In this manner, DOH can continue gathering public health surveillance data for water in the state.

Option 3: Conduct All Water Testing in One Laboratory

There are several variations to conducting water testing in one laboratory. Options could range from sending tests currently conducted in two of the labs to the third state lab, to co-locating staff from different agencies in the same lab, to consolidating the authority for water testing under one agency. If water testing services were consolidated under one agency, one of the three existing agencies could take responsibility for the testing, or an approach similar to Virginia could be taken to house the testing in A&I.

In reviewing facility options for consolidated water testing, the facility occupied by ASL appears most suited to housing the water testing done in all the labs. The facility accommodates good workflow and has adequate mechanical systems, with the exception of its need for a UPS. The ASL manager also noted that the lab has excess space. However, if testing were consolidated in this facility, it would not necessarily mean testing must be provided under the auspices of ASL.

Moving the water testing currently conducted on the fifth floor of the Hathaway Building to Laramie may reduce the need for improvements in that facility. However, because the microbiological testing of water currently provided by the PHL in the Hathaway Building does not appear to pose a high risk to building occupants or require extensive HVAC and electrical improvements, policymakers may only wish to consolidate DEQ and ASL testing, especially given DEQ's relatively small sample load.

There are advantages to a consolidated approach to providing lab testing. One agency would have centralized information about water, and there would be opportunities for greater economies of scale relative to employees, space, and equipment. Such a move would also centralize the expertise for water testing in the state.

Options: The Legislature may wish to examine the state's current approach to providing water testing. If the Legislature believes the benefits derived from current lab functions outweigh the costs, then maintaining current testing capabilities is appropriate.

If privatization is desired, the Legislature may wish to consider which testing is more appropriately outsourced and which testing can be shed as a state responsibility.

The Legislature may wish to consider providing water testing at one location within the state. If combining water testing at the state level is desired, the Legislature needs to determine the extent to which it wants to consolidate these services.

CHAPTER 9

Options for Toxicology Testing

We found the turnaround time for the drug and alcohol testing performed by the PHL is quite high. According to program officials, delays in obtaining lab results have had a detrimental impact on the behavior modification programs of the agencies served. In addition, the enforcement purposes advanced by the toxicology testing within the PHL may not be congruent with the overall mission of the Department of Health.

Turnaround Time for Toxicology Testing is Lengthy

Although turnaround time within the PHL's chemistry section has consistently improved over the past three fiscal years, that time reportedly can hinder the operations of the programs served. Turnaround time averaged 55 days in FY95, 37 days in FY96, and 17 days in FY97. The DOH currently has a goal to reduce the turnaround time to 7 calendar days by the end of 2000. In comparison, test kits can offer immediate results, and our survey found the use of private laboratories would result in a turnaround time of just one to four days.

State agency officials in the DOC and DFS, as well as a district court judge, all commented on the varying and often lengthy response time for toxicology lab results. A lengthy turnaround means there are no immediate consequences for an offender's behavior, which program officials say is critical.

We identified three factors contributing to the delayed results provided by the PHL. First, the chemistry section manager and others stated that employee turnover in the chemistry section impacts the turnaround time. Second, equipment breakdowns and subsequent repair time have resulted in testing delays. Finally, the methods used by the PHL include drug screening by clinical analyzer and drug confirmation by gas chromatograph (GC) or gas chromatograph mass spectrometer (GCMS). These mechanical methods are more advanced and time-consuming than on-site test kits, which simply indicate the presence or absence of a drug by a change in color.

Toxicology Testing: A Mission of Public Health or Law Enforcement?

Conducting toxicology tests to determine if individuals have violated state laws relating to controlled substances or operating motor vehicles while under the influence of alcohol may fit better within DCI's mission than DOH's. By statute and mission, the DOH currently focuses on the protection of public health. A PHL official suggests that PHL's toxicology testing supports DOH's mission by helping to prevent disease and accidents, and by monitoring patient health.

The PHL's toxicology testing determines whether or not individuals have violated the law or their probationary restrictions. In this sense, we believe toxicology testing by the PHL appears to be primarily for public safety, not public health. In contrast, investigating drug use and violent crimes related to drug use are priorities for DCI.

According to one DOH official, recent dramatic increases in drug testing are resulting in an internal struggle to maintain more classical health testing. This concern can be illustrated by the fact that the FY99 budget for the chemistry section is 58 percent higher than its expenditures were in FY96. During the same period, the microbiology section's FY99 budget grew just eight percent over its FY96 expenditures.

Statutes and tradition are likely influences on the state's current approach to toxicology testing. The Legislature authorized the DOH to approve the methods and issue permits to qualified individuals to conduct alcohol or controlled substance analysis under the Implied Consent

Statute. Permits for chemical analysis of blood and urine are available to any qualified individual through the DOH. The Department has issued two permits for chemical analysis of blood and urine, both to personnel within the PHL.

While statutes provide the DOH authority over toxicology testing under the Implied Consent Statute, this testing accounts for much less than half of the chemistry section's volume. In contrast, drug tests for DOC and DFS are the largest part of their volume. Due to the PHL's involvement in testing under the Implied Consent Statute, it appears the lab has accepted all toxicology testing in the state, de facto.

Alternate Testing Arrangements Exist in Wyoming and Other States

Wyoming's approach to toxicology testing is not uncommon compared to many other states, nor is it the only structure available. The Legislature has already initiated an alternative method of testing by allocating $170,000 to the DOC. The DOC requested these funds "in order to be more responsive to the critical area of drug testing for offenders" through private contracting. Community corrections programs under contract with the DOC are currently using private laboratories. Also, some district judges are ordering individuals to pay for private lab testing themselves. As a result, this testing does not go to the PHL.

These flexible measures, which enable state agencies to perform more of the non-technical lab work when possible, are consistent with our consultant's advice. He suggested letting the laboratory customer do more work, rather than being served.

The most recent Consolidated Annual Report of State Public Health Labs shows that just 15 of 46 responding public health labs conduct forensic drug and alcohol testing, including Wyoming. Some states offer this testing through their crime lab, and the Crime Laboratory Accreditation Program, established by the American Society of Crime Laboratory Directors, accredits toxicology as a functional unit of a crime laboratory.

Options for Legislative Consideration

If policymakers wish to address either the timeliness of toxicology testing or the location of services, additional information may prove helpful. We identified several options and analyzed the impact each might likely have on the state.

The Legislature may find advantages to maintaining the current lab testing, relocating the lab services within state government, or privatizing the lab testing. These three options may be treated as separate alternatives, or specific pieces could be grouped together. For example, privatizing drug screening might allow a state laboratory to increase emphasis on confirmatory testing, regardless of which agency houses the toxicology lab.

Option 1: Maintain Current Testing in the PHL

Performing toxicology testing in the PHL has many associated benefits. First, interviews with state agency customers, including the Wyoming Highway Patrol and the DOC, all pointed to the quality of the laboratory work and testimony provided by PHL personnel. Second, although we limited our analysis to traditional laboratory testing services, PHL's chemistry section also provides valuable non-testing services. For example, the section trains enforcement officers, consults, and repairs and maintains breath analyzers for all municipalities in the state at no charge. Third, the Legislature recently authorized an additional FTE for the chemistry section, and its average turnaround time has consistently improved over the past three fiscal years.

Despite these advantages, a number of issues remain with toxicology testing performed by the PHL. As described previously, timeliness and incongruent mission are two factors. Equipment costs and facility considerations may also impact a policy decision.

The chemistry section depends on appropriations from the General Fund to replace equipment. The section currently has a need to replace 26 and 16 year-old instruments, and it would like to add a lab management information system and computerized training equipment. In total, the section's estimated equipment needs of up to $374,000 would account for a sizable one-time increase in its budget.

The city fire marshall has ordered improvements to the Hathaway Building based on health and safety violations. We did not definitively determine the extent to which this lab section contributes to needed facility improvements. However, the current proposal to renovate the Hathaway Building also includes making improvements to the labs, beyond those required by code. With the prospect of an estimated $7.4 million renovation, the Legislature may wish to consider options that could reduce this capital expenditure.

Option 2: Reorganize Toxicology Testing Under the DCI Crime Lab

While reorganization of the state's toxicology testing under DCI would address some of the current problems with the PHL testing, it also presents new considerations. As the DCI director noted, this option would have the benefit of having all crime functions in one place. There are also potential advantages in terms of funding equipment needs. However, we found no evidence to suggest that reorganization would either improve or harm the timeliness of the testing.

Historically, the Crime Lab has been able to access federal funds to update its instrumentation, whereas the PHL is dependent upon General Fund appropriations. Locating the toxicology testing under the Crime Lab may enable the program to benefit from DCI's aggressive approach toward seeking federal funding for equipment needs. One federal formula grant, which is a major source of federal funding for the Crime Lab, provides monetary support for charges associated with the prosecution of driving while intoxicated. The grant's purpose also has special emphasis on enforcement related to controlled substances.

We recognize that additional federal funding may not necessarily be available through reorganization. In fact, we were cautioned against the potential impact such a reorganization

might have on other Crime Lab functions. However, the equipment the Crime Lab purchased through federal funds has a median age of three years, compared to a median age of seven years for PHL equipment. We believe opportunities may exist to improve the toxicology testing equipment while maintaining the integrity of the equipment associated with traditional Crime Lab functions.

Although moving the toxicology testing out of the Hathaway Building may reduce renovation needs, it would likely require an addition to the Crime Lab. Lab officials maintain, and the professional consensus is, that to ensure samples are not cross-contaminated, a toxicology function must be physically separated from existing solid-dose drug testing. This may not be possible under the existing space and configuration of the Crime Lab.

Next, employees of the Crime Lab must undergo background investigations and meet more extensive employment expectations than do employees of the PHL. This may create hardship for PHL employees if they were to be transferred.

Finally, several individuals we interviewed stated that performing the toxicology examinations on human specimens within the Crime Lab could be construed as a conflict of interest. The Crime Lab conducts forensic analyses for law enforcement agencies to assist in the prosecution of criminal activity. By contrast, we were told the PHL is a neutral agent with respect to the lab results; the technicians just report the presence or absence of a particular substance.

We believe claims and perceptions of a conflict of interest are without merit. We found that the DCI's testing, like the PHL's, has a great deal of integrity. Wyoming Crime Lab officials take pride in the lab's reputation as being balanced, and we received no indication that toxicology testing would be treated any differently if housed under the DCI.

Option 3: Privatize All or Some of the Toxicology Testing

Both privatization and increased use of on-site test kits would improve the timeliness of toxicology test results. However, as stated in Chapter 2, the costs of outsourcing all lab testing to a Wyoming lab would be substantially higher than current PHL costs. Flexibility and facility impacts may also be important factors to consider with regard to privatization of this testing.

Our analysis assumes that the state would continue to pay for toxicology testing, even if it were privatized. Outsourcing could be coordinated through the DOH, or carried out separately through the agencies served. Under outsourcing options, the Legislature may also wish to consider whether arrangements would be made to provide for continued law enforcement training and maintenance of breath analyzers for political subdivisions performed by the PHL personnel.

There may be advantages from the flexibility of outsourcing. Not all toxicology testing circumstances are the same, and using either on-site test kits or private laboratories allows for needed flexibility. For example, we learned that a presumptive test may be sufficient for a recommendation of treatment for an offender. Additionally, several program officials stated a

presumptive on-site test resulting in a confession may be sufficient in hearings and some court cases. Exhaustive and highly precise lab methods may not be necessary.

If the toxicology testing were outsourced, a portion of the laboratory function on the fifth floor of the Hathaway Building could be partially or completely removed. In addition, outsourcing would reduce the size of any new facility that may be considered in the future.

Options: The Legislature may wish to evaluate the current approach to human toxicology testing. If the Legislature establishes a statewide policy, it may choose to maintain the current laboratory testing structure. Alternatively, it may wish to consider the benefits of reorganizing this function under DCI. Finally, the Legislature may wish to re-direct funding to allow for privatizing or increased use of alternate testing methods.

CHAPTER 10

Decisions about State Labs

The purpose of this report has not been to present one definitive solution to consolidation and privatization issues regarding state laboratories in Wyoming. There is no one solution. While we have identified lab services that *could* be privatized or consolidated in this report, decisions regarding the provision of lab services are first and foremost of a policy nature.

What Lab Services Should the State Provide?

One principle that guides this review is that it is important for legislators first to decide what services they want state labs to provide. While the Legislature has specifically authorized some of the labs we reviewed, other labs have developed over time to meet the needs of different agencies. The Legislature is now in a position to reassess those authorized in statute, those created at the discretion of agencies, the services they provide, and to whom they provide them. Then, the Legislature can determine overall what services it wishes to support at the state level.

In this report, legislators have a "roadmap" to guide decision making about lab services. We provide tools and information to assist legislators in making both philosophical and practical decisions about state labs:

- Chapter 1 provides insight into consolidation and privatization. We identify privatization principles and an example of consolidation, which can aid legislators in clarifying what lab services should be provided by the state. These principles are by no means exhaustive or absolute. Rather, they provide an example of an ordered framework to assist in decisionmaking.
- Chapters 2 through 6 examine each lab and apply the principles to lab services to identify privatization considerations within the labs.
- Finally, Chapters 7 through 9 provide practical options for providing these services. The options in these chapters are examples of ways to restructure lab services. They are not

the only alternatives, nor are they mutually exclusive choices. Rather, they are case scenarios to consider.

Ultimately labs provide data: some to support government programs, some to assist individuals. The Legislature must decide whether these are integral functions of government, and if so, how to provide the services.

A Comprehensive Decision Making Process is Needed

While we found that operational efficiencies from privatization or consolidation of state laboratory services are likely to be small, the potential capital expenditure for a new or renovated facility could be substantial. As the state's budget becomes tighter, the Legislature may wish to carefully and comprehensively consider the provision of state lab services.

Analysis of state lab services is particularly difficult because any single choice, once made, opens up a host of further options, with each having potentially different consequences. While decisions about lab services can be made separately, we recommend the Legislature comprehensively review the options. Any individual decision may resolve specific issues, but may or may not have cross-cutting significance.

For example, a decision to shed a particular test or type of testing could free up additional space and personnel to conduct other testing. As a consequence, other functions or an entire lab could be relocated. The number of possibilities for all state lab functions, and the resulting consequences for laboratory services, are myriad.

In light of the cross-cutting nature of state laboratory services, we recommend that a legislative committee comprehensively review these options. The goal of the committee would be to clarify what lab services are best provided by the state, determine how to provide those services, and then sponsor legislation for the Legislature to consider. The Legislature may desire significant changes to the provision of state lab services, or it may wish to consciously maintain the status quo. If some services are more appropriately provided through contract with the private sector, they could be considered for outsourcing. Services that remain could be reviewed for opportunities to consolidate.

From those legislative decisions, related decisions about equipment and facilities can follow. We found that past reviews have focused on facility needs for state labs, and facility needs have been identified without fundamentally rethinking what lab services are integral to government. As such, a sense of urgency regarding options stems from the perceived need to make a capital investment decision.

We recommend the Legislature decide first which lab services are appropriately delivered by the state, which ones could be outsourced, and which ones are no longer important or desirable. Then, having made those decisions, it can go on to determine what facilities configuration is most workable.

Determining whether to consolidate certain lab functions or entire laboratories, or whether to privatize some tests or whole functions, is a complex undertaking. Either process would require legislators and agencies to make a great many policy and operational decisions. Approaching consolidation and privatization options together presents a whole range of opportunities to change the way the state does its lab business. It remains for the Legislature to determine the proper mix.

AGENCY RESPONSES

Note: The responses to the report from the Department of Health, Department of Environmental Quality, Department of Agriculture, Attorney General's Office, and the University of Wyoming are on file at the Legislative Service Office.

APPENDIX A: Survey and Cost Accounting Methodology

Survey Methodology and Determination of Private Sector Costs

At the outset of our research, we established two criteria for determining which state laboratory tests we would include in our survey of private sector providers. Survey responses would give us information about costs of outsourcing, timeliness, and the number of interested firms. The criteria included:

- The extent to which state labs provide services that are also available from the Wyoming private sector.
- Whether the tests are relatively standardized and routine.

After applying these criteria to state laboratory tests, we identified specific laboratory procedures within both the DEQ water and air labs and the PHL for further review. These criteria are not meant to suggest that our selections are the only tests the Legislature may wish to privatize. Rather, we wanted to focus our evaluation on specific areas of testing, and chose this method to gather additional information on selected tests.

It should be noted that the service water testing within the ASL also met our criteria. However, we assumed that the state would no longer pay for this service testing, if policymakers decided to eliminate it (service shedding). Accepting this assumption, private laboratory costs would not be as prominent a factor in the state's policy decision regarding this service testing.

We sent separate surveys to clinical and environmental laboratories within the state of Wyoming. We collected laboratory names and addresses from past surveys sent out by state laboratories,

current yellow page listings, EPA certification lists, and the CLIA-88 list of licensed clinical laboratories. Sixty-five clinical labs and 39 environmental labs were sent a copy of the surveys.

Five clinical labs responded to their survey indicating an interest and ability to conduct at least some of the clinical testing. Nine environmental labs responded to their survey with an interest and capability in performing some or all of the environmental testing.

Each of the responding labs provided their charge per test[4] based on FY98 state laboratory volume, the lab's expected turnaround time, and whether the work would be conducted inside or outside of Wyoming. We calculated the total cost of providing groups of tests by multiplying the number of tests by the private charge for each lab. When a lab responded with more than one charge for a test and included an explanation, we used our judgment in choosing the most appropriate price.

[4] We asked respondents to the air filter survey to provide their total charges to assume the filter analysis program.

In the toxicology testing, we assume that each court appearance would take an entire day and expenses would be $100 per day. In presenting the clinical, water, and air testing, we assume a 15 percent contract cost for monitoring the contract work and ensuring quality assurance. Toxicology (drug and alcohol) testing does not include such contract costs, since the total costs of outsourcing all toxicology testing are already clearly much higher than current PHL costs, regardless of contract charges. Also, it is not clear whether the state would outsource this work or shed the service.

Cost Accounting Methodology for State Laboratory Services

We attempted to fully cost the state-provided laboratory tests we selected. We present these as total costs, inclusive of total personnel costs associated with performing the test, supplies[5], administrative overhead, facility overhead, and an amortized value of dedicated equipment.

For the PHL, administrative overhead is determined by multiplying all direct testing costs by a proportionate value of department and division administrative expenditures. Facility overhead is determined by multiplying the net square feet related to the testing by an allowable building cost rate. For the DEQ labs, we used their federally-negotiated statewide cost allocation plan (SWCAP) rate to determine administrative overhead. SWCAP accounts for administrative overhead both within the DEQ as well as inter-agency administrative overhead. The SWCAP rate includes a proportionate building factor.

All PHL costs are estimated using FY98 data, with the exception of the facility overhead which uses the lagging, FY97 rate. Costs for DEQ are estimated using FY99 data. DEQ does not budget

for its labs separate from the divisions in which they are housed. As such, DEQ estimated FY99 data for the labs by prorating division budgets to the labs. To determine the amortized value of equipment, we divided the total costs of equipment purchased for at least $3,000 and directly related to the testing in question, by eight (the estimated life of the equipment based on information from the A&I).

Total costs include avoidable and unavoidable costs. Avoidable costs will not be incurred by the state if the test is outsourced. Unavoidable costs, such as facility and administrative overhead, will likely continue to be incurred even if the service is outsourced.

We did not consider one-time conversion costs in transferring the service to contract. These costs might include severance items that must be paid to terminated employees and the costs of leaving facilities and equipment unused until they are reallocated. We also did not consider any off-setting revenue that may accrue to the state as a result of sale of equipment.

[5] We assume that federal and state funds used to provide sample kits or filters to lab customers would still generally be available under a privatization option. With the exception of HIV testing, we did not include these costs for either the state labs, or request them of private laboratories.