

2002-2003 SANTA CLARA COUNTY CIVIL GRAND JURY

INSPECTION AND INQUIRY REPORT INTO SANTA CLARA COUNTY CRIME LABORATORY

Summary

Members of the Santa Clara County Civil Grand Jury (Grand Jury) conducted an inspection of the Santa Clara County Crime Laboratory on October 10, 2002. During the course of this tour, the Grand Jury observed a problem involving fume hoods and building ventilation. As a consequence, a team of Grand Jury members revisited the facility to perform a more thorough assessment of the problem observed. During the course of the second visit, the Grand Jury team observed an additional problem regarding lead contamination in the weapons test firing station. Recommendations to correct these problems are included in this report.

Crime Laboratory Mission Statement

It is the mission of the Santa Clara County District Attorney's Crime Laboratory to:

1. Provide the Santa Clara County criminal justice system with quality laboratory services through accurate and valid testing in a timely manner;
2. Promote a working relationship with the agencies of the Santa Clara County criminal justice system through communication and training;
3. Establish a state-of-the-art full service laboratory through quality assurance programs, modern instrumentation and automated analysis procedures.

Laboratory Organization

The Crime Laboratory is part of the Office of the District Attorney. Special Assistant Deputy District Attorney William Larsen is responsible for administrative oversight of the laboratory, acting on behalf of the District Attorney, George W. Kennedy. Laboratory Director Benny Del Re, Assistant Director Grady L. Goldman, Secretary Jan Homen and Criminalist Denise Wong manage operations of the laboratory and its 52 staff members. The laboratory is divided into the following seven technical operating units, each with a technical supervisor:

- ◆ Forensic Biology I Unit - Serology and DNA examinations. 7 staff
- ◆ Forensic Biology II Unit - Serology and DNA examinations. 8 staff
- ◆ Chemistry Unit - Controlled substances identification; blood/breath/urine alcohol analysis. 7 staff
- ◆ Comparative Evidence/Trace Evidence Unit - Firearms; toolmarks; latent

- ◆ fingerprint analysis; glass analysis; hair and fiber analysis; arson analysis; paint analysis; gun shot residue analysis. 8 staff
- ◆ Computers/Questioned Documents Unit - Computer crimes; document examination; document impression evidence. 4 staff
- ◆ Forensic Toxicology Unit - Presumptive and confirmatory blood/urine drug analysis. 7 staff
- ◆ Laboratory Support Unit - Graphics; photography; laboratory assistants; accountant and clerical assistance. 11 staff

Laboratory Accreditation

The Crime Laboratory is fully accredited by The American Society of Crime Laboratory Directors and the Laboratory Accreditation Board, (ASCLD/LAB) a national organization, for a five-year period beginning June, 2001 and ending June, 2006. According to the accreditation citation, the Crime Laboratory meets or exceeds the standards for accreditation set forth in the ASCLD/LAB Accreditation Manual. The accreditation review covers laboratory management practices, personnel qualifications, technical procedures, quality assurance programs and facilities.

Laboratory Statistics

The following data describe the type and frequency of activity the Crime Lab investigates. Data shown are for calendar year 2001. This information is taken from the *Crime Laboratory Annual Report for 2001*.

- ◆ Court Testimony:

Criminalistics	70
Controlled Substances	13
Alcohol effects	38
Drug effects	6
Alcohol/Drug Analysis	<u>25</u>
Total Testimonies:	152
Hours Away from Lab.:	488
- ◆ Criminalistics Requests: 1,857
- ◆ Narcotics Cases Submitted: 5,609
- ◆ Toxicology Analyses: 19,827
- ◆ Breath Alcohol Tests: 2,835
- ◆ Blood/Urine Alcohol & Drug Analyses: 32,904
- ◆ Predominant Drugs Analyzed:

Methamphetamine - 49%; Cocaine - 14%

Grand Jury Review

The Grand Jury spent a total of three and one half hours touring and inspecting the Crime Laboratory on its first visit. Visiting members were able to see each one of the seven technical units, view demonstrations of actual case studies underway, examine evidence being analyzed and talk with staff throughout the laboratory. While members of the Grand Jury are not qualified to assess the equipment in the laboratory, it was evident that the Crime Laboratory has a wide range of state-of-the-art machines being used in the analysis of evidence submitted. In addition, the ingenuity of individual staff members in developing methods to study particularly difficult or small samples of evidence contributes to the laboratory's significant output of work. We were impressed with the evident camaraderie of the staff, of the way they worked with each other in fitting together pieces of the evidence puzzle, and of the crossover in the use of techniques to resolve questions presented by the evidence. We found staff to be knowledgeable, well trained and articulate. Many expressed how much they liked the work they were doing and what a good place the laboratory was in which to work. One technologist told us that her work involved the most practical application of her genetics training that she could ever envision.

The laboratory employs a carefully controlled bar code system to label each piece of evidence in order to track it from the time it enters the facility until it is completely analyzed. While no human system is totally foolproof, the Grand Jury members came away satisfied that tainting of evidence as a result of poor laboratory management or techniques is probably very rare, if it occurs at all.

We questioned members of the staff and administration about the time it takes to report out results, particularly in the increasingly important and high volume DNA tests. Because of the complexity of some of the evidence (tire tracks, footprints, fibers, and so forth), it may take the laboratory staff considerable time to identify the exact nature of the evidence or to determine if samples are even evidence at all. However, in the case of DNA testing, the normal response time is about one week. The minimum response time, due to the technical nature of the test and the manner in which samples are delivered to the Crime Lab, is three days for a preliminary assessment, and five days for a final assessment. According to laboratory directors, most delays in producing results of DNA tests are not due to lab inefficiencies, but are the result of time delays by the arresting agencies in getting evidence samples to the laboratory.

While the staff is well trained and the methodologies used are very up to date, the facility itself may be working against the staff's best efforts. The Crime Laboratory building is 30 years old. The space allocated to the Crime Lab is too small and not amenable to organizing for efficient workflow, nor to maintaining good air quality. The advances in technology that have occurred in the last ten years require more space and staff. The laboratory has managed to accommodate each new technology, although this may be at a cost to efficient workflow and possibly the health of laboratory workers. While new equipment has been obtained to enable the lab to do

its work, one supervisor told us that oftentimes this equipment is squeezed in where it fits, and not where it is best used. Although the Grand Jury saw no evidence that this less than optimal workflow resulted in evidence becoming tainted through misplacement or cross-contamination, nonetheless, one has to consider that this kind of situation may ultimately lead to serious mistakes or accidents that could render valuable evidence useless. In that people's lives are at stake here, every step needs to be taken to assure that this does not happen. In spite of these inconveniences, the Crime Laboratory enjoys a national reputation as one of the most productive labs of its type in the country. In fact, the Crime Lab receives a steady stream of requests for its services, which it accommodates for a fee.

In the course of the tour, Grand Jury members noted and commented on the poor ventilation throughout the laboratory. Fume hoods are used where staff have to work with various toxigens (chemical hazards) and pathogens (biological hazards), but we were told by senior staff that many of the hoods we saw were not ventilated to the outside, as is the standard. Since the laboratory is located in the basement of the building, the Grand Jury was told that additional ventilation to the exterior is either not physically possible or prohibitively expensive. The laboratory resolves this problem by using self-contained fume hoods with charcoal filters. These hoods recirculate the air back into the laboratory work spaces. While overall building ventilation in the laboratory area meets industry standards, as periodically tested, it is not optimal for this type of laboratory.

During the second visit, two Grand Jury members met with the director and assistant director discussing and further observing the fume hood situation. The team learned that since the original tour on October 10, 2002, laboratory administration has relocated the most toxic of the procedures to an area where fume hoods were originally installed with outside ventilation. This has greatly improved the ventilation situation we observed on our first visit. However, in the narcotics division, staff still use small self-contained fume hoods. These hoods are desktop models and are placed where staff use small amounts of chemicals to perform drug tests. Even though the amounts of chemicals used are small, some staff told us they could still smell fumes, which means these toxins are getting into their air passages. Even though the directors told us the amounts were small, that regular testing shows that toxins in the ambient air are at or below acceptable standards, and that they have had no complaints from staff or observed any illness related to inhalation of toxic fumes, the Grand Jury team believes this constitutes a potential problem over the long-term operations of the Crime Lab. The Crime Lab will resolve these problems when it moves into its new building, which is in the planning phase. (Note: As the Grand Jury completed this study, the Board of Supervisors approved funding for the new Crime Lab. Occupancy of the new building is expected by 2005-2006.)

The Grand Jury team reinspected the weapons testing station at the suggestion of the director. He told the team that he believed that because of the large number of weapons fired, lead contamination from the bullets probably existed all over the room. The testing chamber, which is a walled off portion within a much larger room, is open at the ceiling, allowing lead particles to escape into the general atmosphere.

Given the high degree of toxicity of lead, and the long time it sometimes takes for the effects of lead poisoning to manifest itself, the team considered this a high-risk area requiring an immediate solution.

The Grand Jury concludes that the Santa Clara County Crime Laboratory is doing an overall excellent job in serving the needs of the citizens in the matter of analyzing crime evidence. Staff morale, important in such highly sophisticated technical work, seems to be very good.

Findings and Recommendations

Finding I

There is a need for an improved facility

There are built-in inefficiencies in the building's layout. Although response time appears reasonable, workflow is not optimal. We have no doubt that overall efficiency and response time, especially in the increasingly important DNA test results, could be improved in a facility designed to meet not just today's technology, but improvements in such technology that we can expect to come on-line in the coming years.

Recommendation I

The Grand Jury strongly supports the County Board of Supervisors' recent decision to provide the Crime Laboratory with a state-of-the-art facility to match the capabilities of its staff and the applicable technology. Therefore, the Grand Jury recommends that the Board of Supervisors proceed with these plans as expeditiously as possible.

Finding II

Certain fume hoods in the narcotics laboratory provide minimal protection for staff even though reports we examined indicate they do meet industry standards. Finding II is complex and requires further explanation:

The Grand Jury is concerned for the health of all laboratory workers due to what appears to be the inadequate and technically backward ventilation system. The Grand Jury team studied this situation in greater detail on its second visit to the laboratory. The director shared with the Grand Jury team an independent assessment of the facility. One of the recommendations of this assessment dealt with the ventilation system. This factor played a large part in the decision to proceed with a new Crime Laboratory, resulting in management's deferral of planned renovations of the ventilation system and the weapons firing area. On this second tour, the director explained in greater detail the measures taken to minimize the potential hazards due

to the ventilation problems. The Grand Jury team believes that in many parts of the facility, the problem is being adequately addressed. For example, since the visit on October 10, one of the most toxic procedures has been moved to an area with fume hoods that vent to the outside. This has made a great improvement. However, the small desktop fume hoods used in the narcotics laboratory provided very little protection from toxic fumes because their openings are so large that very little draw of vapors actually occurs, unless the technician works well into the back of the hood. While these hoods may be adequate for storing desktop chemical vials, they do not appear adequate for actual working conditions. Moreover, the hoods themselves may be creating an unrecognized problem. These hoods use charcoal filters over which the contaminated air is passed and then vented back into the room from the rear of the hood. We noticed, and staff stated some concern, that particulate carbon, no doubt containing the very toxins they have filtered, may be entering the atmosphere to be breathed in by staff.

Recommendation II.1

The Grand Jury recommends that the Crime Laboratory administration immediately upgrade the current small desktop fume hoods to larger, more efficient fume hoods observed elsewhere in the facility. While the Grand Jury recognizes that these hoods cost from \$6,000 to \$9,000 each to purchase, and are expensive to maintain, the cost is minimal in comparison to the overall operating budget of the laboratory, and worth the investment to provide maximum protection to staff who are exposed to these toxins on a daily basis.

Recommendation II.2

The Grand Jury recommends to the Board of Supervisors that the funds needed to purchase these fume hoods and their ongoing maintenance, be provided on an emergency basis to the Crime Laboratory, and that these funds not be taken from grant or other funds earmarked for the development of the new Crime Laboratory.

Finding III

The weapons test chamber has no ceiling and is open to the larger room in which it is located, allowing lead particles to escape into the larger room. Since this larger room is used for many other functions and entered by personnel on a regular daily basis, there is a potential threat of lead poisoning present. The Grand Jury team and the director discussed how this chamber could be fitted with a sealed ceiling, thereby containing lead particles within the room.

Recommendation III - 1

The Grand Jury recommends that this chamber be improved with the following changes in structure and operations:

- (1) The enclosure be fitted with a sealed ceiling within three months;**
- (2) A door be installed to the chamber;**
- (3) Contaminated water and sand be cleaned on a monthly basis as a minimum;**
- (4) The area be posted with a caution sign warning of potential lead contamination;**
- (5) Technical staff firing weapons be required to wear protective overalls and a face mask, while performing tests in the room.**

Recommendation III-2

The Grand Jury recommends that the larger room be thoroughly cleaned and tested for lead residue.

Recommendation III-3

The Grand Jury recommends that pregnant women not be allowed to enter the larger room until it is declared safe, nor should pregnant women be allowed to perform the weapons testing.

PASSED and ADOPTED by the Santa Clara County Civil Grand Jury on this 20th day of February 2003.

Fred de Funiak
Foreperson

Ron R. Layman
Foreperson Pro Tem

Patricia L. Cunningham
Secretary

References

Crime Laboratory 2001 Annual Report
Facilities Needs Assessment - Final Report, April 20, 2000
ER&HDR Architects, Inc.
McClaren, Wilson & Lawrie, Architects

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