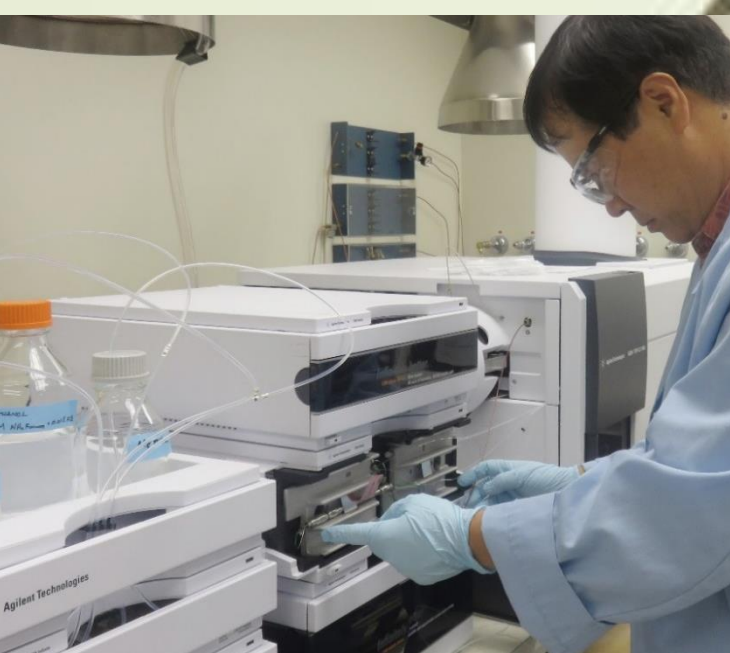


State Laboratories Division: Staying Ahead of Threats 1995 - 2005

Installed Hilo monitoring station for ambient air pollutants



Established Ion Chromatography testing for Drinking Water contaminants



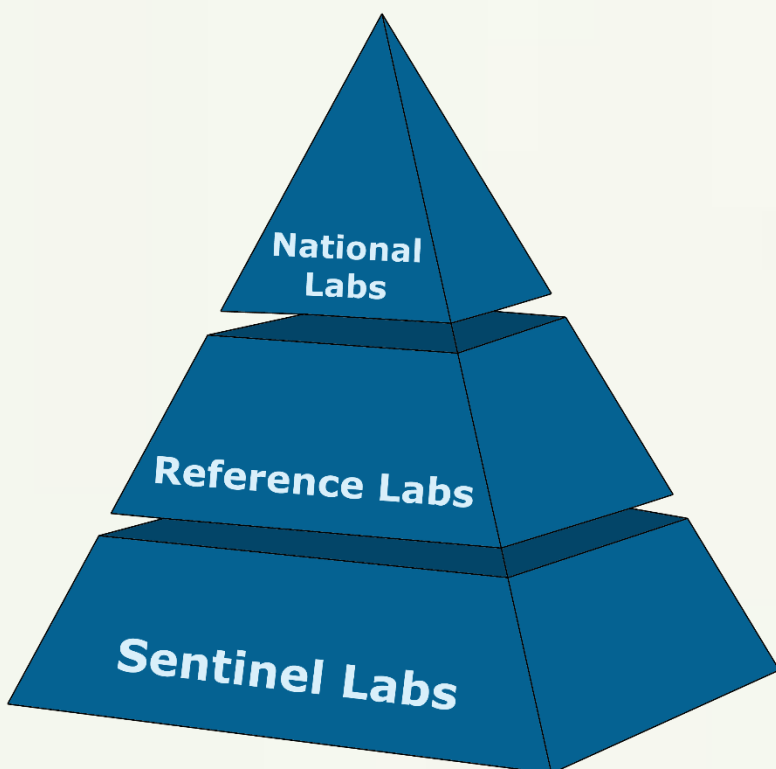
August 1995: State Laboratories Division (SLD) moved to Waimano Ridge

Installed Puna E monitoring station for ambient air pollutants



Installed Kona monitoring station for ambient air pollutants

Polychlorinated Biphenyls (PCBs) detected in Kauai drinking water



SLD Biological Response Lab established



Hawaii LRN launched with informational meetings and training



Automated Solid Phase Extraction concentration of organic compounds in drinking water

Micro-extraction technique for herbicides in drinking water

Air Lab begins near real-time display of air monitoring data on website

Installed University monitoring station for ambient air pollutants



Bioterrorism testing expanded; mutual support with Tripler

Norovirus PCR testing established

Response to UH Manoa flood includes SLD *Leptospira* testing

Conducted statewide SARS table top exercise at Capitol

Trends in Ciprofloxacin resistant *Neisseria gonorrhea* reported



Joined the Food Emergency Response Network (FERN)

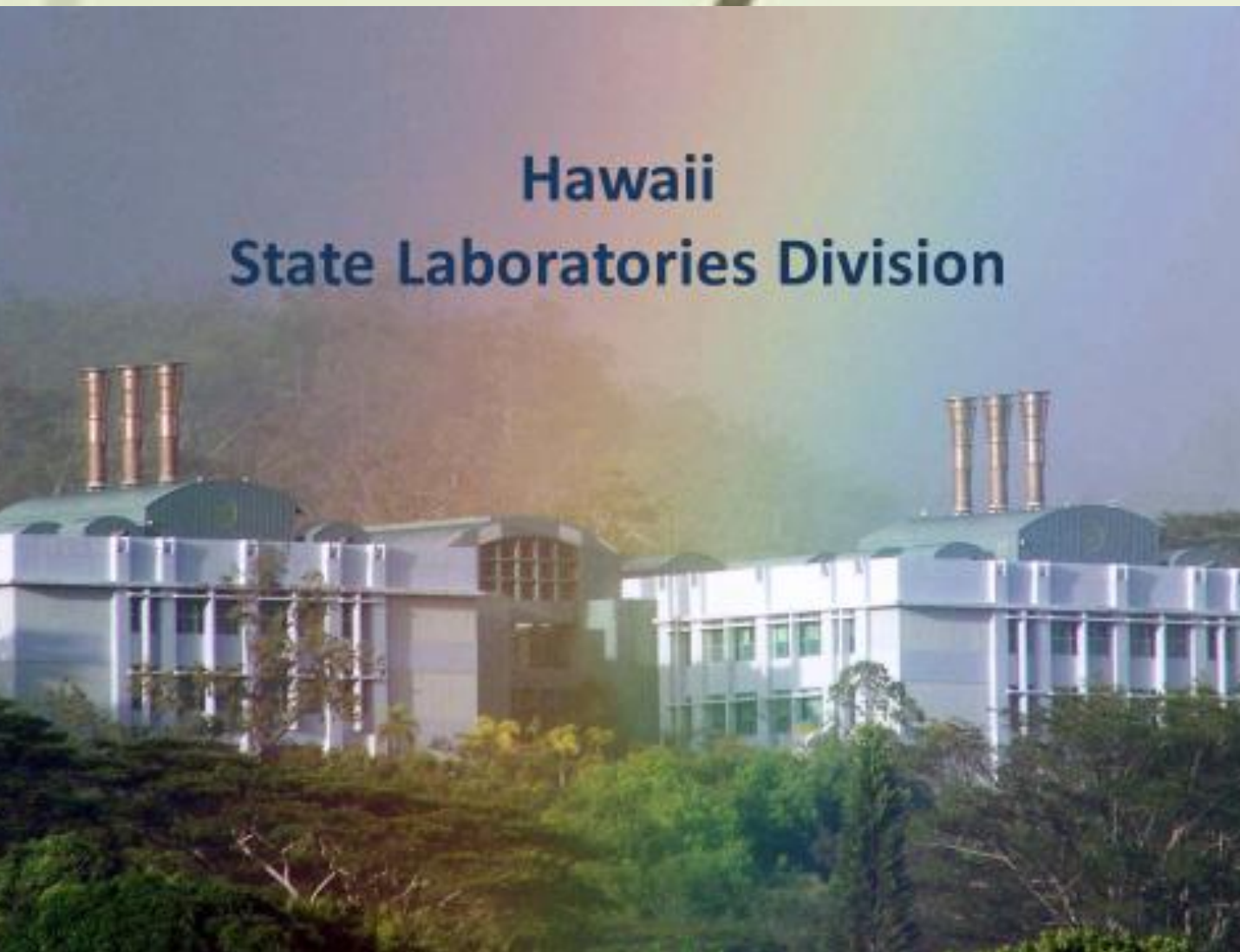


SLD celebrates 10 years on Waimano Ridge

Copper sulfate dumping investigation at Kapakahi Stream and Kapakahi Loi



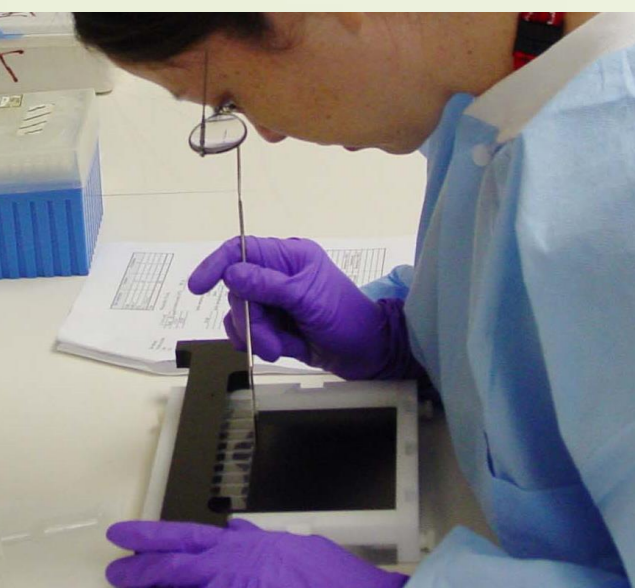
1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005



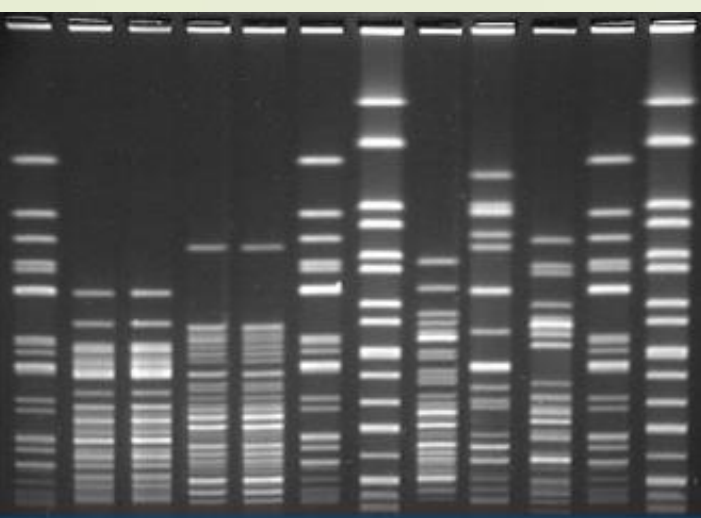
Fluorochrome staining for *Mycobacterium tuberculosis* established

DNA Fingerprinting for bacteria established

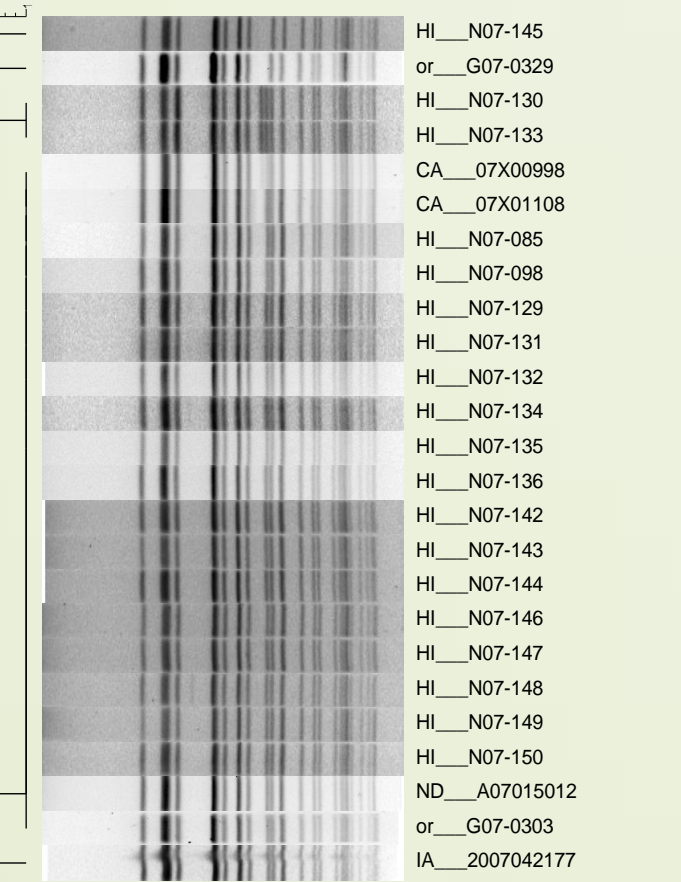
Detection of low-level Chlordane and Dieldrin pesticide in drinking water



DNA Fingerprinting detected clusters of Group A *Streptococcus*



Mercury in a Kauai drinking water sample linked to water pump itself

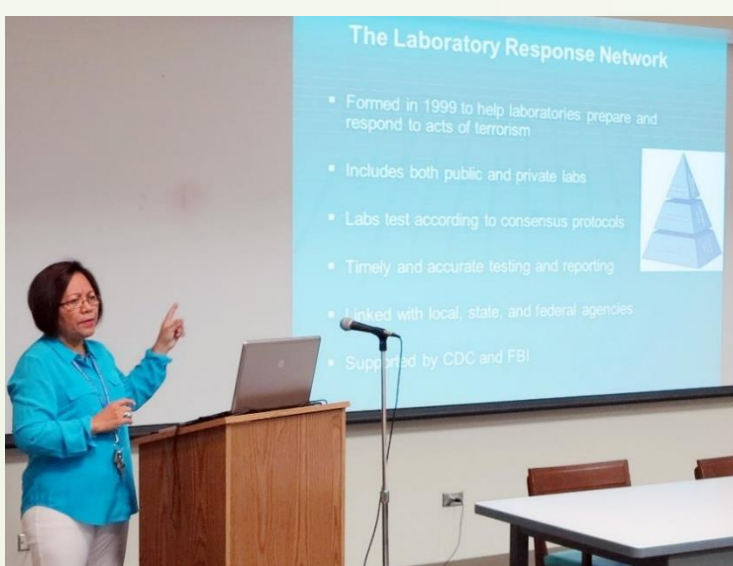


DNA Fingerprinting linked *Salmonella* Enteritidis outbreak in eggs

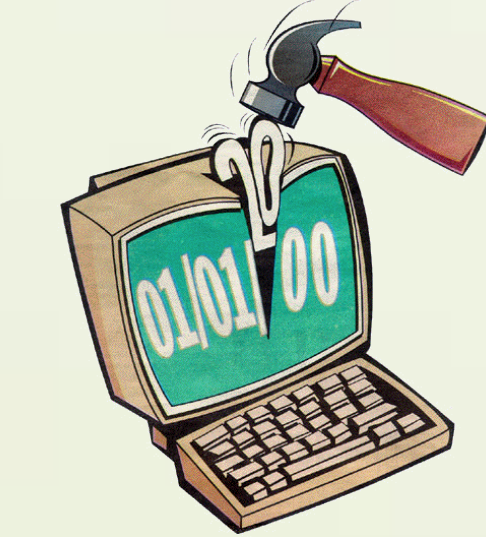
Installed Kihei monitoring station for ambient air pollutants



Heptachlor pesticide detected in cucumbers

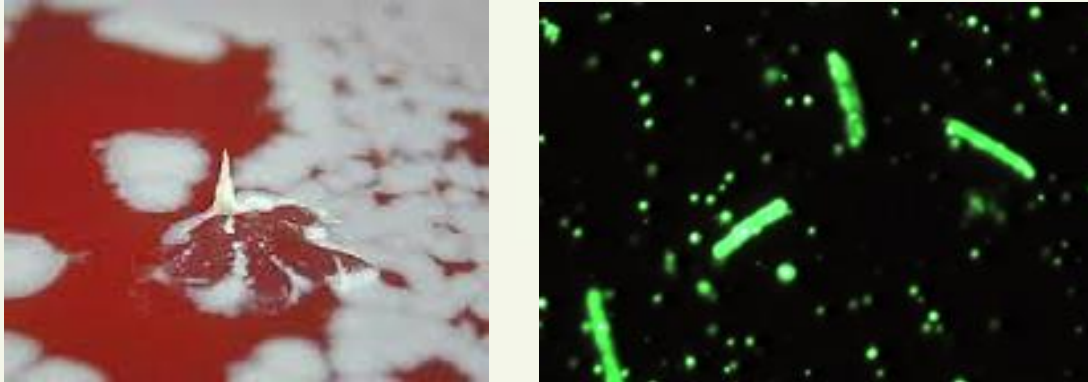


Y2K doesn't end the world



Hawaii LRN activated after East Coast anthrax attacks

Anthrax testing established



Test support for Dengue outbreak

Dengue Fever Cases In Hawaii			
1999.....	1	2006.....	4
2001.....	153	2007.....	8
2002.....	14	2008.....	14
2003.....	3	2009.....	6
2004.....	6		

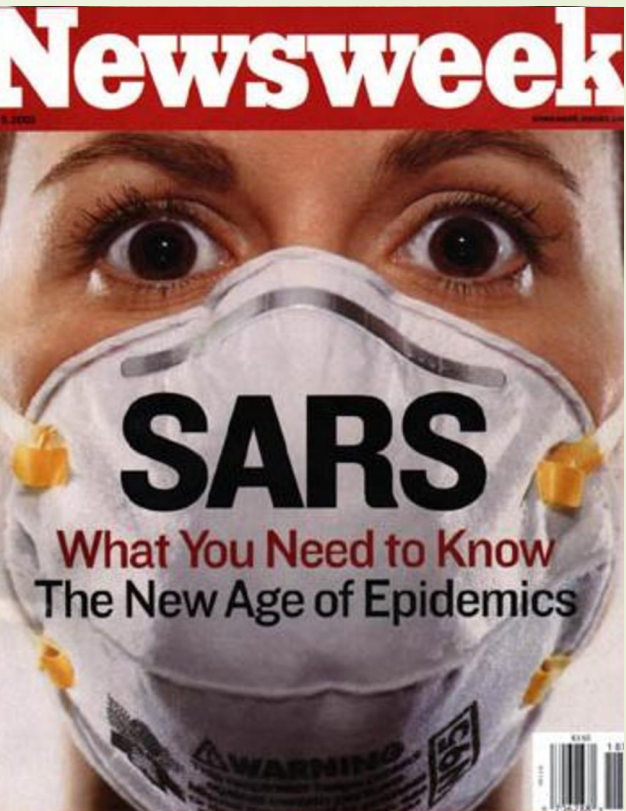
Inductively Coupled Plasma/Mass Spectrometry established to detect heavy metals in drinking water



Began submitting near real time data to EPA AirNow which offers daily Air Quality Index (AQI) conditions

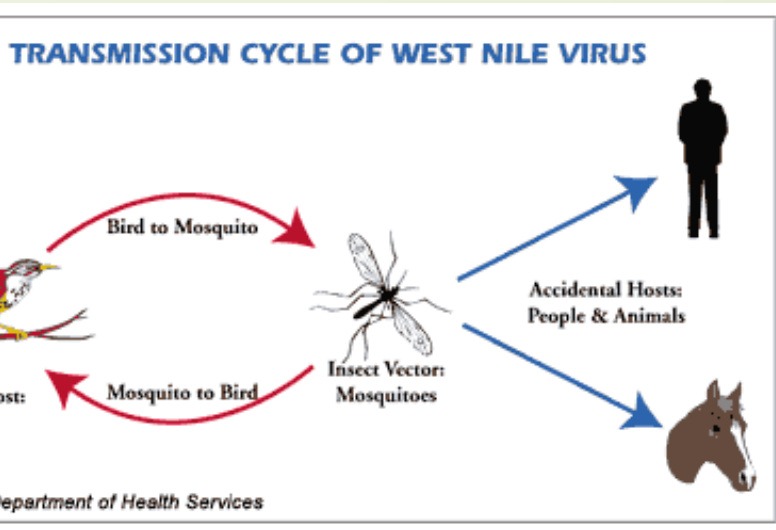


Installed Puna H monitoring station for ambient air pollutants



SARS testing established in response to June outbreak

West Nile virus testing established



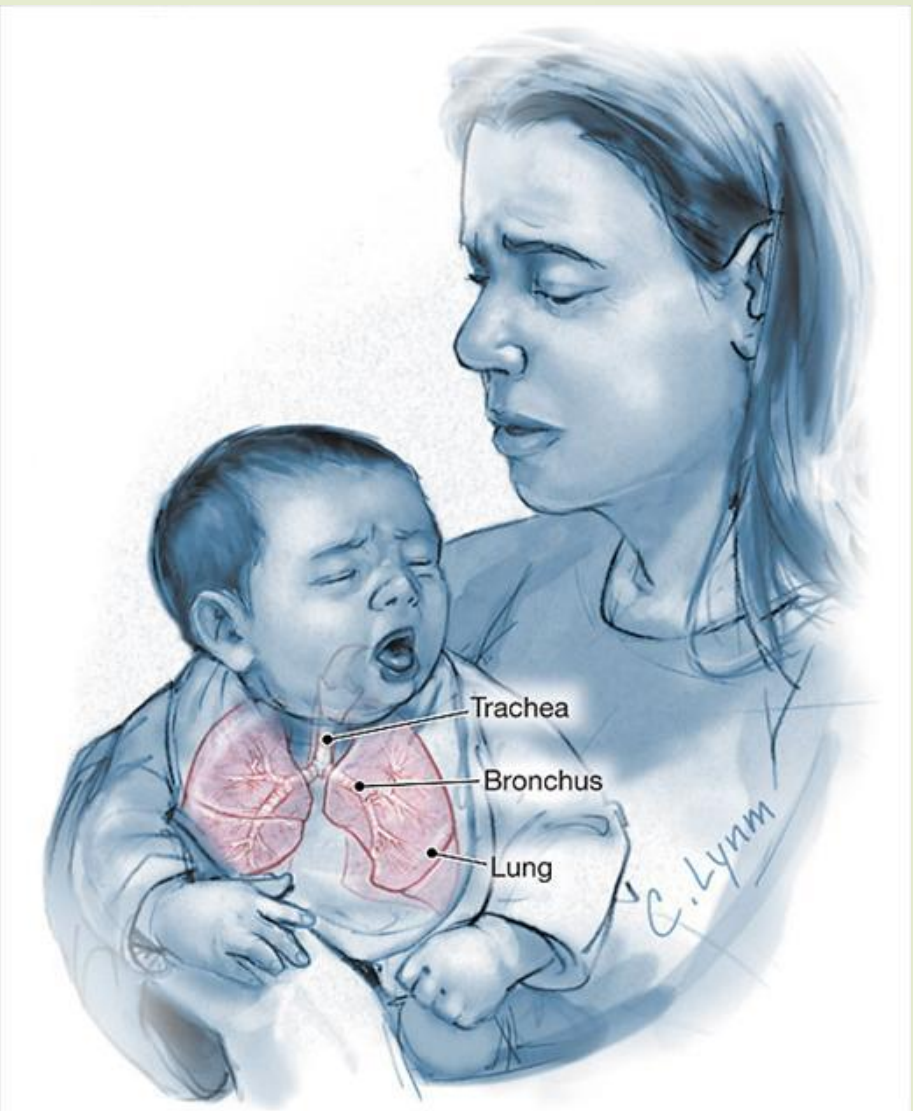
LRN-Chemical Level 2 Laboratory established



Support to Keaau, Big Island Arsenic Exposure Project

Arsenic in Urine, Kea'au Exposure Investigation

Whooping cough (pertussis) outbreak support



Initial FERN Food Safety Inspections Service Cooperative Agreement



State Laboratories Division: Staying Ahead of Threats 2006 - 2015

First Public Health Lab member of National Animal Health Lab Network



Sediments tested for contaminant metals and percent solids

Kaloko Dam breach samples (Kauai) tested for pesticides, metals, oils, and other contaminants

Supported studies investigating Vog contaminants in rainfall catchment systems on Hawaii

Environmental source of Kauai *E. coli* outbreak determined by DNA fingerprinting & FERN methods



Began hosting CDC / APHL EID training fellows

Electronic lab information system (LIMS) implemented for Influenza testing

FDA FERN response testing for melamine in dry foods imported from Asia by GC-MS

Global financial crisis begins

Established DNA sequencing for bacterial identifications

Pearl City Neighborhood Board supports biosafety level 3 certification with letter to governor

Global financial crisis results in loss of 15 positions and several functions at SLD

Tested Niihau fish kill samples for pesticides residues

Responded to 2009 Influenza A/H1N1 Pandemic with statewide lab coordination and management of over 26,000 specimens



Swine Influenza surveillance started

Earned Department of Health Team of the Year



Mumps/Measles PCR testing established

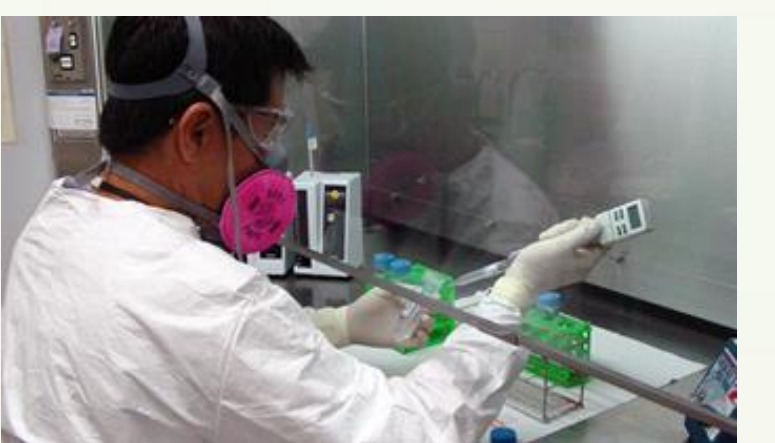
Designated critical infrastructure by Department of Homeland Security

Installed Mountain View monitoring station for Vog

Tested UH threat letters for anthrax

Installed Niimalu air monitoring station in response to community complaints about cruise ship emissions on Kauai

Established 24/7 multi-agency bioterrorism monitoring in support of Asia-Pacific Economic Cooperation



Installed NCore monitoring station for ambient air pollutants

Earns CDC LRN Excellence in Partnership award

Winning Hawaii LRN video featured at national meeting

Supported Kewalo Basin investigation with testing for nutrients and total suspended solids

Provided biothreat testing support for Republican and Democratic Conventions

Chemical and biological training with National Guard 93rd Civil Support Team



Expanded testing for respiratory viruses established to investigate causes of non-flu illness

Automated molecular testing for sexually transmitted infections (STIs)

Installed Waikoloa monitoring station for Vog

Confirmed mercury in marlin fish jerky

APHL Healthiest Laboratory – Runner Up

Testing for Influenza A/H7 (Eurasian Lineage) by PCR established

Installed additional air monitoring station in response to sugarcane burning complaints

Supported Hawaii Kai marina sediment investigation; tested for salt, chlorides and sodium

Electronic systems for drinking water sampling and testing established

Malaria molecular testing established

Tested threat sample for ricin toxin

Confirmed double Malaria infection

1st Chikungunya virus in American Samoa detected; differentiated from measles in Yap

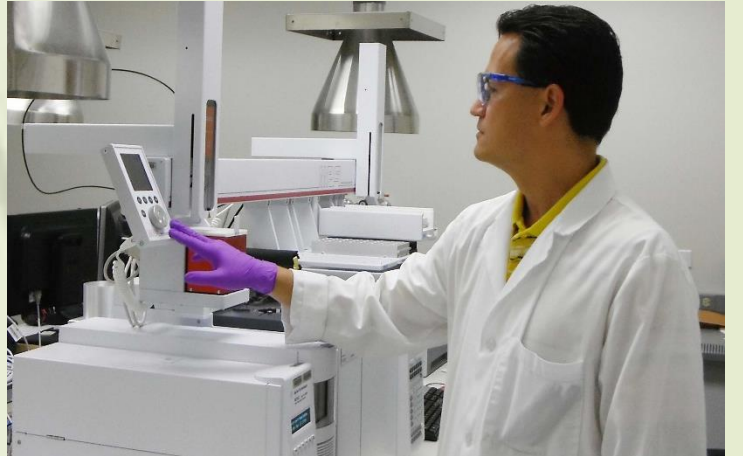
Foot and Mouth Disease and Classical Swine Fever screening by PCR established



Ebola testing established



Purge and Trap Gas Chromatography/Mass Spectrometry MS for volatile compounds in drinking water



Installed Kahului monitoring station for sugarcane burning emissions

Supported FBI Abrine Investigation

Milk certification on Oahu re-established

MERS CoV outbreak in S. Korea – SLD assists Tripler and USAPI

Hosted a sampling workshop for ~70 first responders

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<p>Hosted CDC / APHL Emerging Infectious Disease (EID) research fellow</p> <p>Online licensing of clinical laboratory personnel began</p> <p>West Nile virus surveillance initiated</p> <p>Avian Influenza Surveillance in birds established</p> <p>Established PCR for whooping cough</p>	<p>Molecular testing for STIs established</p> <p>Hawaii Admin Rules revised to allow non-licensed individuals to do Rapid HIV testing</p> <p>Installed Pahala monitoring station for ambient air pollutants</p> <p>Published journal article on lab systems integration and pandemic preparedness</p>	<p>Support from FERN helps reduce impact of decreased CDC funding</p> <p>Online Licensing began accepting credit cards and >90% pay online</p> <p>SLD Staff invited to visit the "LOST" set during filming on Waimano Ridge</p> <p>Halemaumau Crater Eruption response included installation of additional monitoring station in response to sulfur dioxide emissions</p>	<p>Sequencing for Norovirus typing established; joined CDC CaliciNet</p> <p>Hosted FDA FERN microbiology & chemistry training</p> <p>Response testing of unknown liquid (Kauai)</p> <p>Initiates support to US Affiliated Pacific Islands (USAPI) for pandemic response</p>	<p>Insecticide carbaryl found in basil after a misuse report</p> <p>75% of the 95 basil samples analyzed had violative pesticide residues</p> <p>Installed Ocean View monitoring station for Vog</p> <p>Swine Influenza expanded to USDA</p> <p>Initiate internet-based training for OSHA compliance and other requirements</p> <p>Established pyrosequencing to detect antiviral resistance in Influenza</p>	<p>Installed a National Core Network Site: a multi pollutant air monitor that integrates several advanced measurement systems for particles, pollutant gases and meteorology</p> <p>Collaboration with UH to monitor mercury / selenium levels in fish and fish feed</p> <p>Confirmed 1st clinical case of measles since the 2000 eradication</p> <p>Cases of rat lungworm infection gain media attention; SLD works with CDC on testing</p> <p>In response to first dengue outbreak in 10 years, established dengue PCR testing</p>	<p>Hosted training for lab Identification of bioterrorism agents for DOD and South Korean scientists</p> <p>Began hosting 2-10 undergrad interns annually</p> <p>Identification of metals leaching from the activated carbon used to remove contaminants in Central Oahu drinking water</p> <p>Implemented a novel internet system for IT requests</p> <p>Influenza A/H3N2 variant detected on Maui</p> <p>Liquid Chromatography/Mass Spectrometry began for emerging drinking water contaminants</p> <p>SLD featured on KHON Hawaii Five-O story</p> <p>West Nile virus activity on mainland surges while Hawaii remains WNV-free</p> <p>Rat lung worm testing established</p>	<p>Installed Paia monitoring station for sugarcane burning emissions</p> <p>FDA presents Leveraging / Collaboration Award</p> <p>Supported Maui Submarine Springs with scan for metals</p> <p>FDA-approved shellfish testing re-established to support local growers</p> <p>Molasses spill in Honolulu Harbor kills thousands of fish. Testing water quality requires 12-14 hr days, 7 days a week</p> <p>Began hosting undergraduate STEM Interns</p> <p>Identification of PCB's in a drinking water storage tank on Kauai</p> <p>MERS CoV testing established</p>	<p>Kapaa Quarry samples tested for nutrients, oil & grease to address community concerns</p> <p>Next generation ICP/MS system that allows the use of Collision Cell and Reaction Cell technology to analyze metals in complex sample matrix</p> <p>Automated molecular testing for sexually transmitted infections expanded to off-label specimens</p> <p>PCR used to screen <i>Leptospira</i> cultures</p> <p>LIMS release 7 implemented</p> <p>Governor visits to recognize SLD employees</p>	<p>Molecular <i>Salmonella</i> serotyping implemented</p> <p>Before</p> <p>After</p>

And much more to come...