

# Board of Health Recommendations for Hiring Qualified Environmental Health Practitioners



**Board of Health  
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for  
Hiring Qualified Environmental Health  
Practitioners**

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## Foreword

*The work done by the environmental public health workforce affects every person, every day, at every moment. Whether it is the air we breathe, the water we consume, the food we eat, or the homes we live in—the public’s safety is ensured by environmental health practitioners.*

*Author Unknown*

The National Association of Local Boards of Health (NALBOH) is pleased to provide this publication titled *Board of Health Recommendations for Hiring Qualified Environmental Health Practitioners*. The purpose of this document is to assist board of health members in understanding the importance of environmental health programs through the employment of competent personnel. The Environmental Health Services Branch of the Centers for Disease Control and Prevention (CDC), National Center for Environmental Health (NCEH) encouraged the development of this important project and provided technical oversight and financial support.

This publication was a joint effort between Dr. Timothy Murphy from the University of Findlay, Findlay, Ohio and the NALBOH staff. Local boards of health are responsible for assuring the provision of adequate public health services in their communities, including protecting the community from environmental health risks by employing environmental health staff with the knowledge, skills, and abilities needed to mitigate these risks.

The project does not aim to solve the shortage of environmental health professionals, but it will support the development of the workforce by showing the many benefits of employing competent, academically prepared environmental health practitioners by local, state, and tribal health departments.

Members of a local board of health should actively seek to assess their community’s environmental health needs, develop policies and programs to meet those needs, and assure that internal and external support are available to fulfill the established policies and environmental health programs.



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## 1.0 Introduction

These educational resources are to be used by local boards of health for the hiring of qualified environmental health practitioners. This document is the result of numerous individuals' efforts to support the development of the environmental health workforce.

### 1.1 A Critical Public Health Job

In 1965 McKeown indicated that “health has advanced significantly only since the late eighteenth century and until recently owed little to medical advances” (p. 9). This statement is supported by Bunker, Frazier, and Mosteller, who in their 1994 study concluded that of the 30-year life expectancy improvement since 1900, only 5 of those additional 30 years was a result of improvement in medical care. The resulting 25 years can be attributed to “prevention efforts in the form of social policies, community actions, and personal decisions. Many of these decisions and actions target infectious diseases affecting infants and children”. Who then is responsible for this 25-year increase in life expectancy? The answer is public and environmental health practitioners who led the efforts in immunization and improvements in sanitary conditions. As an example of the tremendous impacts on mortality that public health departments have, in 1900 over 48,000 deaths occurred as a result of smallpox; in 1998, there was zero. Figure 1 details the impact of immunization programs on childhood mortality.

**Figure 1** Baseline 20th Century Annual Morbidity and 1998 Provisional Morbidity from Nine Diseases with Vaccines Recommended before 1990 for Universal Use in Children – United States  
**Source:** Public Health Achievements, United States, 1900-1999: Impact of Vaccines Universally Recommended for Children, *Morbidity and Mortality Weekly Report*, Vol. 48, No. 12, p. 245, The Centers for Disease Control and Prevention.

Disease	Baseline 20th Century Annual Morbidity	1998 Provisional Morbidity	Decrease (%)
Smallpox	48,164 <sup>a</sup>	0	100%
Diphtheria	175,885 <sup>b</sup>	1	100% <sup>c</sup>
Pertussis	147,271 <sup>d</sup>	6,279	95.7%
Tetanus	1,314 <sup>e</sup>	34	97.4%
Poliomyelitis (paralytic)	16,316 <sup>f</sup>	0 <sup>g</sup>	100%
Measles	503,282 <sup>h</sup>	89	100% <sup>c</sup>
Mumps	152,209 <sup>i</sup>	606	99.6%
Rubella	47,745 <sup>j</sup>	345	99.3%
<i>Congenital rubella syndrome</i>	823 <sup>k</sup>	5	99.4%
<i>Haemophilus influenzae</i> type b	20,000 <sup>l</sup>	54 <sup>m</sup>	99.7%

<sup>a</sup> Average annual number of cases during 1900-1904.

<sup>b</sup> Average annual number of reported cases during 1920-1922, 3 years before vaccine development.

<sup>c</sup> Rounded to nearest tenth.

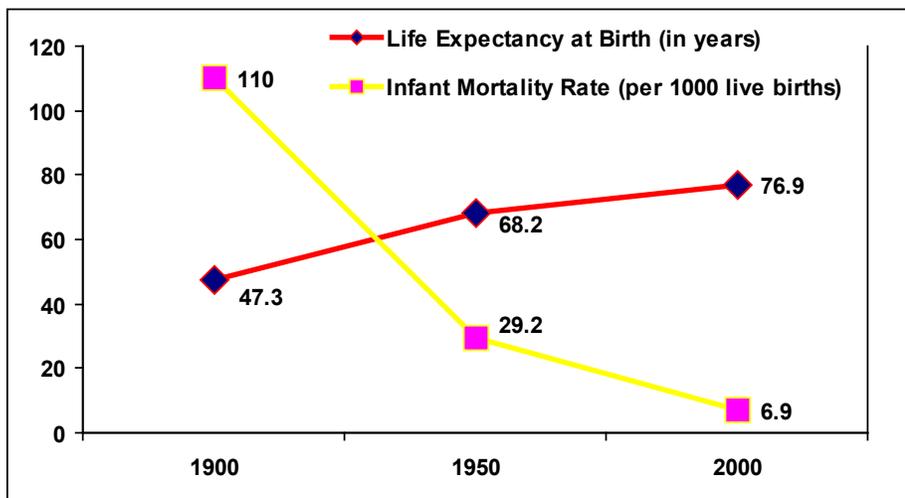
<sup>d</sup> Average annual number of reported cases during 1922-1925, 4 years before vaccine development.

- <sup>e</sup> Estimated number of cases based on reported number of deaths during 1922-1926 assuming a case-fatality rate of 90%.
- <sup>f</sup> Average annual number of reported cases during 1951-1954, 4 years before vaccine licensure.
- <sup>g</sup> Excludes one case of vaccine-associated polio reported in 1998.
- <sup>h</sup> Average annual number of reported cases during 1958-1962, 5 years before vaccine licensure.
- <sup>i</sup> Number of reported cases in 1968, the first year reporting began and the first year after vaccine licensure.
- <sup>j</sup> Average annual number of reported cases during 1966-1968, 3 years before vaccine licensure.
- <sup>k</sup> Estimated number of cases based on seroprevalence data in population and on the risk that women infected during a childbearing year would have a fetus with congenital rubella syndrome.
- <sup>l</sup> Estimated number of cases from population-based surveillance studies before vaccine licensure in 1985.
- <sup>m</sup> Excludes 71 cases of *Haemophilus influenzae* disease of unknown serotype.

America's health depends on knowledgeable and experienced environmental health practitioners who can identify threats, mitigate or eliminate hazards, and offer assistance to those exposed or otherwise affected. For environmental health professionals to be effective in preventing and responding to threats, they must be able to create innovative solutions. To do so there must be a sufficient workforce possessing basic public health competencies including epidemiology, statistics, and communication skills combined with critical thinking skills, and be thoroughly trained in a number of advanced technologies (Association of State and Territorial Health Officials [ASTHO], 2005).

The local public health system includes: governmental agencies, of which local public health agencies and their governing or advisory board of health are critical components; healthcare providers; community organizations; schools; businesses; the media; and others. The local public health system carries out many activities that contribute to the goal of creating and maintaining conditions in which people can be healthy. The specific roles filled by each of these components of the local public health system vary among communities, including the role played by the local health department. The role of every local health department should be to intentionally coordinate all public health activities in a community, regardless of which organization may take the lead in a particular area (National Association of County and City Health Officials [NACCHO], 2005).

**Figure 2** Life Expectancy at Birth and Infant Mortality Rates for Selected Years. **Source:** National Center for Health Statistics, *Health United States 2002*, Public Health Service, Hyattsville, MD, 2002.





When addressing building environmental health workforce capacity, a major issue is that some state and local environmental programs do not have the capacity to use the essential public health services approach to solve environmental health problems. The Ten Essential Public Health Services detail a list of activities associated with the assessment, policy development, and assurance functions of the local public health agency. Environmental health practitioners also have inadequate resources to determine the role that environmental factors have in disease transmission.

In 2000, an estimated 19,431 people comprised the environmental health workforce employed by local health departments. This workforce is a small percentage of the total public health workforce and continues to shrink, further diminishing workforce capacity (Centers for Disease Control and Prevention [CDC], 2006). This decrease in the number of environmental health practitioners is demonstrated by a host of surveys and reports published by NALBOH, CDC, ASTHO, and others and will continue to affect the programs that local health departments are able to provide to their constituents for years if not decades to come.

## 1.2 What is Environmental Public Health?

The two primary definitions of environmental health utilized today are from NACCHO and the National Environmental Health Association (NEHA) and refer to both the discipline and program utilized to protect our health. The NACCHO definition refers to the discipline:

Environmental health is defined as “the discipline that focuses on the health interrelationships between people and their environment, promotes human health and well-being, and fosters a safe and healthful environment.”

The NEHA definition refers to the requirements of the environmental health program goals:

“Environmental health and protection refers to protection against environmental factors that may adversely impact human health or the ecological balances essential to long-term human health and environmental quality, whether in the natural or man-made environment.”

In addition to the definitions identified above for the discipline, environmental health professionals and the programs they work in must be able to anticipate, identify, and respond to adverse environmental exposures and the consequences of those exposures (Buchanan, 2006).

## 1.3 Local, State, and Federal Roles in Environmental Public Health

What are the roles of different agencies and groups in the provision of environmental public health services? The local public health infrastructure includes the systems, competencies, frameworks, relationships, and resources that enable public health’s core functions and essential services in every community. Infrastructure categories encompass human, organizational, informational, legal and policy, and fiscal resources.

Both CDC and NALBOH recognize that local boards of health are important participants in developing local public health action and establishing a science base for public health practice. According to survey results from the *National Profile of Local Boards of Health* (NALBOH, 2009), the majority (80%) of respondents’ indicated that they performed multiple functions including, but not limited to, advisory,

governing, and policy-making functions. The same survey indicated that over 70% of local boards have responsibility for recommending public health policy; proposing, adopting, and enforcing public health regulations; and recommending health department budgets and priorities. In other words, the members of the local board(s) of health understand that they are vital participants in protection of the community's health.

#### 1.4 Workforce Shortage

Environmental public health programs have long been an important component of the public health field and they will continue to be an emphasis in the future, according to the NACCHO research brief on changes in occupations of the local health department staff (NACCHO, 2007). The brief, which summarizes data collected from surveys conducted in 1989 and 2005, showed that the percentage of local health departments that employ environmental health specialists and scientists has increased during the interim time period.

This same study indicated that nurses, environmental specialists, and clerical staff comprise the largest proportion of the local health department workforce. This demonstrates the importance of these front line practitioners, yet these numbers will decline in the near future according to the survey. The survey results indicate five areas that will encounter shortages: nurses, environmental health specialists, epidemiologists, health educators, and information technology specialists. The reasons for the shortages in environmental health specialists most frequently cited included attrition and staff retirement.

*Because many environmental and health threats know no boundaries, we can afford no weaknesses in our line of defense. Either we are all protected, or we are all at risk.*

**Centers for Disease Control and Prevention**

According to CDC's *A Strategy to Revitalize Environmental Health Services in the United States*, the emergence of new biological threats from airborne and waterborne pathogens, along with the most recent priority of homeland terrorism and emergency preparedness, point to the need for a well-prepared environmental health system (CDC, 2002). This need will increase as attested by the fact that 30% of the participants in an ASTHO survey identified environmental health specialists as a job category expected to be most affected by future workforce shortages in their state (ASTHO, 2004).

According to a number of sources including both NALBOH and CDC, local health departments need a workforce with the ability to anticipate, identify, and respond to adverse environmental exposures and the consequences of these exposures for human health.

An understaffed or ill-trained environmental health workforce can ultimately result in higher rates of death, disease, and costly clean-up of environmental hazards in addition to significantly increased health care costs. Not only do state and local agencies need to recruit qualified professionals to perform the wide variety of duties required in environmental health, but the workforce must be highly trained to anticipate, recognize, evaluate, and control these increasingly complex threats.

Qualified environmental health practitioners are on the front line of preserving our nation's health and safety. Yet at a time when the environmental health workforce is most needed, they are too few in



number to meet traditional roles as well as keeping pace with mounting responsibilities and rapidly evolving technologies (NACCHO, 2006).

## 2.0 The Public Health System

What is public health? There are many definitions and even more perceptions of what it is and how it interacts with the overall health system. The definition that is most commonly used by public health practitioners is from Turnock (2004):

Public health is “the activities that society undertakes to assure the condition in which people can be healthy. These include organized community efforts to prevent, identify, and counter threats to the health of the public.”

In short, public health is a system that aims to prevent disease, prolong life, and promote health efficiency through organized social, scientific, and policy-making efforts. The public health system today in the United States is a component of the larger overall medical system (Turnock, 2004).

### 2.1 The Interrelationship between Local, State, and Federal Agencies

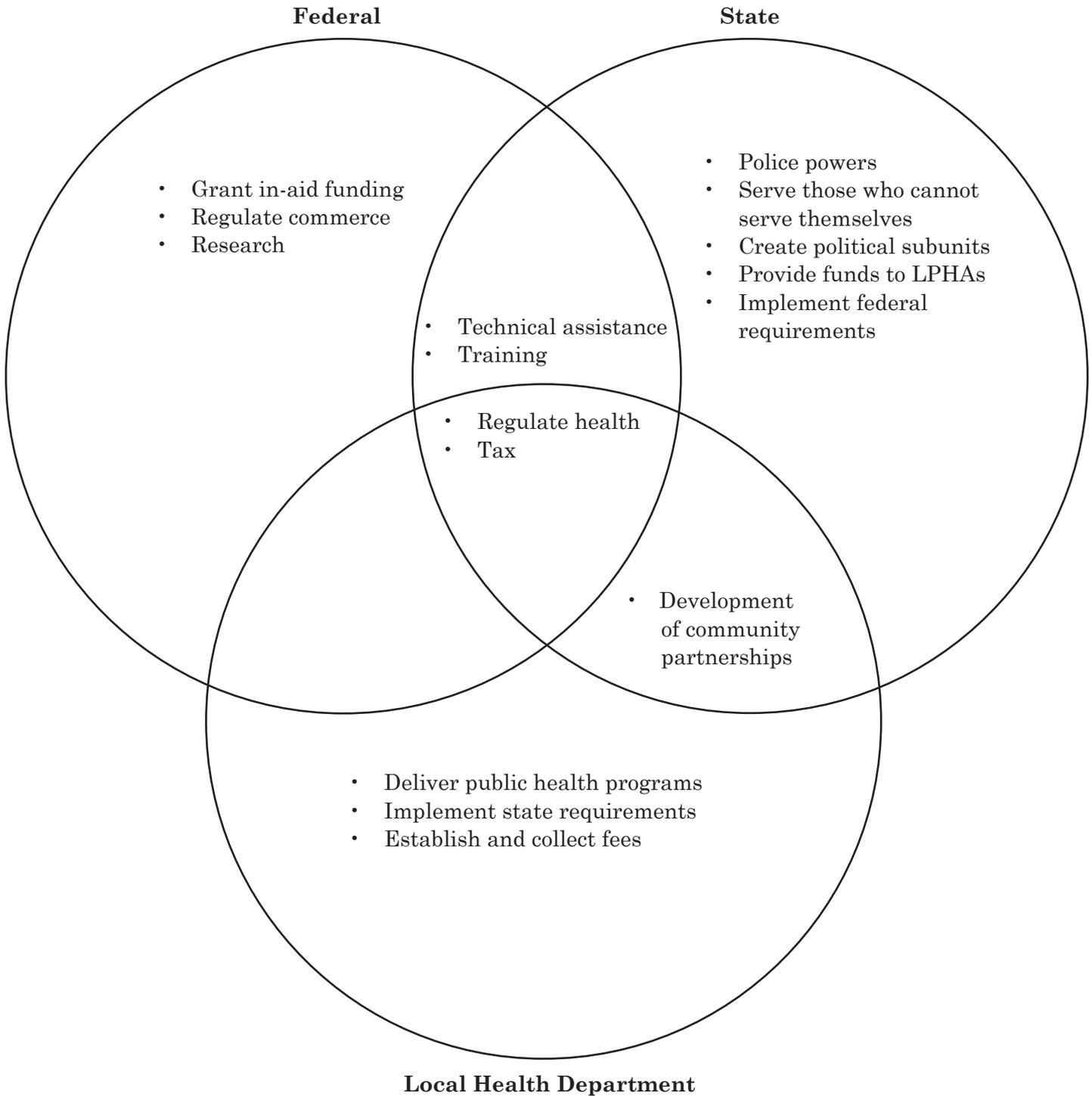
Public health in the United States includes a vast number of state and local agencies working in collaboration with the federal government. This collaboration or partnership is based on a legal foundation that gives the lead for health concerns to states, a financial basis that allows the federal government to promote equality and minimum standards across 50 diverse states, and a practical base of local public health agencies as the point of contact between communities and the three tiers of government. This collaboration or partnership established through law and governmental agencies is a key element of the public health infrastructure and one of the basic building blocks of the public health system (Turnock, 2004).

#### 2.1.1 Federal Role in Public Health

The term “health” is not mentioned in the U.S. Constitution. It is not a power granted to the federal government. Health was therefore left to state and local governments (Turnock, 2004). However, two sections of the Constitution (Preamble and Article I, Section 8) have been interpreted over time to allow for a federal role in health—the implied powers necessary to carry out explicit functions. This gave the federal government the ability to tax in order to provide for the “general welfare” of the population and the specific power to regulate international and interstate commerce. Thus the federal government has a role in the public health of its citizens.

The federal government established the Marine Hospital Service (later the United States Public Health Service) in 1798 to prevent the importation of epidemic diseases and, after ratification of the 16th amendment, the federal government began to raise revenue through taxation. These funds could then be directed towards improvement of the public’s general welfare. This was accomplished primarily through grant-in-aid programs starting in the early 1960s and continues to this day (ASTHO, 2005).

The U.S. Public Health Service (PHS) is the focal point for public health concerns at the federal level. The federal role is important as they provide funding through taxation, technical assistance, training, research, and regulate commerce which allows for actions to be taken in times of epidemics (see Figure 3 on page 6).

**Figure 3** The interdependency of the three levels of government in public health.

### 2.1.2 State Role in Public Health

The states were given primacy in safeguarding the health of citizens under the U.S. Constitution and exercised that role without competition from the federal government up to 1935 when federal funding started to influence the power of the states (Turnock, 2004). In a broad sense, the current role of the



states in the public health system includes police powers, the creating of political subunits, providing funding to local public health agencies, and implementing federal requirements. In addition, states share the regulatory and taxation roles with both the federal and local governments.

### *2.1.3 Local Role in Public Health*

A local public health agency (LPHA) is defined as “an administrative and service unit of local government, concerned with health, employing at least one full-time person, and carrying responsibility for health of a jurisdiction smaller than the state” (ASTHO, 2005).

The local public health agency is where the “rubber meets the road.” The LPHA carries out the public health responsibilities embodied in state laws and local ordinances. LPHAs cannot be considered separate from the state public health system in which they operate as they derive their powers for the most part from the state’s legislative and executive branches. Therefore, the health duties are shared by the state and LPHA. The sharing arrangements between these two entities depend on a number of factors and can vary greatly from state to state.

The LPHA role in public health includes, but is not limited to, the delivery of public health programs, implementation of state requirements, and the establishment and collection of local fees for public health services. In addition, they share with the state agencies a role in the development of community partnerships with a host of organizations including volunteer organizations, academic institutions, faith-based groups, and other non-governmental agencies.

In summary, the nature of the ever changing relationship between the three levels of government has created a patchwork of public health laws and systems. The federal government can preempt state and local government action in key areas involving commerce and aspects of communicable disease control. In addition, due to its fiscal power, research, regulatory and technical assistance roles, the federal government has considerable ability to influence the public health system. States have the authority to preempt the LPHA in almost all areas of public health activity, thus resulting in a public health network that is almost constantly changing. For a more detailed understanding of the interrelationships between the three levels of governments’ role in public health, the reader is directed to Turnock’s *Public Health: What it is and How it Works* (2004).

## **2.2 Local Health Department Environmental Health Programs**

Public health as well as environmental health has changed through time. Historically, public health was environmental health—preserving the safety of food and water, and ensuring basic sanitation. The emergence of new threats, including West Nile virus, SARS, monkeypox, bio/agro-terrorism, and disease clusters with suspected environmental links, has created a need for new skill sets in the environmental health workforce (ASTHO, 2005). Environmental health professionals therefore must continually evolve which requires a strong, academically trained and skilled workforce.

Environmental health practitioners work within many different agencies including public health, environmental protection, agriculture, housing, and others depending on the state and the local governmental structure. Examples of activities undertaken by environmental public health practitioners include (NACCHO, 2005):

- Inspecting, permitting, and grading of food service establishments; possibly embargoing items such as food and other items that are deemed to be a health hazard
- Conducting risk assessments and risk communication activities
- Providing surveillance of exposures and health effects in a community
- Investigating disease outbreaks of suspected environmental origin
- Seeking injunctions and other legal remedies to abate environmental health problems
- Sampling for environmental contamination and human exposures, analyzing data, and assessing potential health impacts
- Conducting public education, information sharing, and outreach
- Working with communities with potential environmental contaminations
- Developing, implementing, and evaluating policies and programs

The local public health system carries out many activities that contribute to the goal of creating and maintaining conditions in which people can be healthy. The specific roles filled by each of the components of the local public health system, including the local health department, vary among communities. The role of every local health department should be to intentionally coordinate all public health activities in a community, regardless of which organization may take the lead in a particular area (NALBOH, 2004).

### *2.2.1 Environmental Public Health Service Areas*

Public health departments manage multiple programs and provide numerous services in their communities. According to the NACCHO 2005 National Profile of Local Health Departments, environmental public health departments provide the following services:

- 89% of local health departments provide surveillance and epidemiology for communicable and infectious disease
- 75% of local health departments provide surveillance and epidemiology for environmental health
- The primary activities conducted by local health departments fall under one of two categories: 1) environmental health activities and 2) regulation, inspection, and/or licensing activities

According to data from the NACCHO profile shown in Figure 4, food safety education is the environmental health activity most frequently conducted by local health departments (75%), followed by vector control (54%), and groundwater protection (40%). Few local health departments are involved in radiation control, noise pollution, land use planning, hazardous waste disposal, or hazmat response (under 20% for each service). As could be expected, local health departments serving larger populations are much more likely than those serving smaller populations to conduct a given activity.

### *2.2.2 Regulation, Inspection, and Licensing Activities*

The NACCHO questionnaire also collected information on the organizations engaged in 19 public health-related regulations, inspection, and licensing activities. This information is summarized in Figure 5.

Many types of organizations (mostly governmental agencies) are involved in public health regulation, inspection, and licensing activities. According to NACCHO, non-governmental organizations are responsible for these activities in a small percentage of jurisdictions (2006). Local health departments are

**Figure 4** Local health departments engaged in environmental health service areas (by size of population served). **Source:** NACCHO.

Service	All LHDs	<25,000	25,000-49,999	50,000-99,999	100,000-499,999	500,000+
Food safety education	75%	64%	80%	84%	86%	76%
Vector control	54%	41%	58%	64%	69%	69%
Groundwater protection	40%	31%	40%	44%	54%	43%
Surface water protection	33%	27%	33%	38%	40%	36%
Indoor air quality	29%	21%	28%	32%	40%	52%
Pollution prevention	28%	21%	26%	35%	38%	43%
Hazmat response	19%	15%	19%	21%	25%	28%
Hazardous waste disposal	18%	16%	16%	18%	22%	26%
Land use planning	16%	13%	17%	18%	18%	21%
Noise pollution	14%	12%	15%	15%	14%	20%
Radiation control	10%	7%	9%	14%	12%	24%

**Figure 5** Local health departments engaged in regulation, inspection, and licensing activities (by size of population served). **Source:** NACCHO.

Area of Regulation, Inspection, and/or Licensing	All LHDs	<25,000	25,000-49,999	50,000-99,999	100,000-499,999	500,000+
Food service establishments	76%	66%	79%	86%	88%	75%
Public swimming pools	67%	54%	70%	76%	82%	77%
Septic tank installation	66%	61%	62%	69%	80%	62%
Schools/daycare centers	65%	56%	66%	72%	75%	68%
Private drinking water	57%	51%	59%	60%	68%	51%
Lead inspection	53%	44%	52%	58%	69%	67%
Hotels/motels	49%	44%	52%	58%	53%	43%
Campground/RVs	39%	28%	42%	45%	53%	49%
Smoke-free ordinances	38%	33%	38%	41%	41%	50%
Public drinking water	30%	24%	29%	35%	41%	37%
Health-related facilities	30%	26%	32%	35%	34%	37%
Food processing	30%	25%	30%	32%	36%	34%
Mobile homes	29%	19%	31%	38%	39%	31%
Housing (inspections)	28%	27%	30%	31%	27%	34%
Solid waste disposal sites	28%	24%	26%	27%	39%	35%
Solid waste haulers	27%	25%	23%	30%	32%	26%
Tobacco retailers	21%	18%	23%	1%	22%	31%
Cosmetology businesses	11%	10%	10%	14%	11%	11%
Milk processing	9%	8%	8%	10%	11%	13%

the most frequent regulators, inspectors, and/or licensors of food service establishments, public swimming pools, septic tank installation, schools and daycare centers, private drinking water, hotels and motels, lead inspection, campgrounds and RVs, and smoke-free ordinances. State agencies are the most frequent regulators, inspectors, and/or licensors of health-related facilities, public drinking water, tobacco retailers, cosmetology businesses, and food and milk processing. Multiple governmental agencies are involved in regulating, inspecting, and licensing public health activities in some jurisdictions.

Of these 19 public health service areas, environmental health practitioners are engaged in many different areas depending upon the jurisdiction. Some of the areas include but are not limited to: food service, public swimming pools, septic tank installation, schools and daycare centers, private drinking water, lead inspection, hotels/motels, campgrounds, food processing, solid waste disposal sites, and milk processing. This is a wide variety of public health service areas which requires a wide variety of skill sets to perform correctly and efficiently. Please note that the list above is not all inclusive. Many environmental health specialists are also involved in emergency preparedness programs, brownfield development, Clean Air Act permitting, land use planning, local nuisance ordinances, healthy homes programs, and many other state and local programs.

### **2.3 The Environmental Health Employee**

The following sections detail the existing workforce as well as the preferred workforce for environmental health programs. According to Turnock (2004), the public health workforce includes individuals:

- Employed by an organization engaged in an organized effort to promote, protect, and preserve the health of a defined population group. The group may be public or private, and the effort may be secondary or subsidiary to the principal objective of the organization.
- Performing work made up of one or more specific public health services or activities.
- Occupying positions that conventionally require at least 1 year of postsecondary specialized public health training and that are (or can be) assigned a professional occupational title.

#### *2.3.1 Who Currently Performs the Work at the Local Health Department*

Local health departments have faced a growing shortage of qualified, highly skilled environmental public health practitioners for over 20 years (CDC, 2002). Current national public health workforce is estimated at 448,254 or 1 public health worker per 635 persons. The public health workforce in the 1970s was estimated at over a half-million or 1 public health worker per 457 people (Health Resources and Services Administration, 2000), a steady decrease of over 50,000 employees in 30 years. In an effort to fill job vacancies, local health departments often have to hire entry level environmental health employees with 2- and 4-year science-based degrees from non-EHAC (National Environmental Health Science and Protection Accreditation Council) accredited programs and in some cases, hire individuals without a college level education.

Many states and some localities establish minimum educational requirements for employment of environmental health professionals. Most states require a minimum number of semester or quarter hours in physical and biological sciences and some require some sort of science degree. Due to the small number of graduates from EHAC accredited programs (just over 300 per year) and the great demand for their skills in the private sector, many local health departments have had to resort to hiring personnel with little or no environmental health academic preparation. These hiring practices themselves created a new

crisis, one in which the local health departments now have employees that are not as effective in their jobs due to the lack of environmental health education and training (Murphy & Neistadt, 2007).

There are many unintended consequences with these practices. First, lowering the hiring requirements requires significant additional training to bring the entry level employees up to an acceptable performance and skill level. Unfortunately, during the training process, the daily environmental health work must also be accomplished. This usually requires increasing the overall workload of the competent, more effective employee, thus adding to burnout and low morale for existing employees. Eventually, health agencies often lose these highly skilled, more effective employees (Murphy & Neistadt, 2007). Low pay, even for the highly competent employee, and an increased workload often leads to high turnover at local agencies which also fuels this cycle.

Second, these new, initially under-qualified employees do not offer the same value and flexibility to their employer (knowledge, skills, and abilities) and are not as effective as graduates from accredited environmental health academic programs. This requires more agency funds and resources to bring the employee to an acceptable level of competence. Although the agency may believe it is saving money by hiring environmental health staff with more limited educational skills, they may in fact be losing agency resources, mainly funds due to the additional training that will be required along with the workload and related turnover problems that could be created. From a public perspective, however, the greater issue caused by hiring environmental health staff without adequate academic training is the weaker capacity the agency will have to provide environmental health services that will properly protect the public.

Due to the lack of appropriate environmental health academic preparation, much of the current incoming workforce lacks adaptability and is not academically prepared to effectively work in the complex and diverse field of environmental public health. As will be seen from a review of Figure 7a on page 14, environmental health employees who have not graduated from accredited environmental health programs lack essential knowledge, skills, and abilities in epidemiology, statistical methods, toxicology, environmental economics, waste, waste water, solid waste, and food protection. In addition, most, if not all, have no skills in the area of risk assessment and mitigation, environmental public policy, and environmental law.

### *2.3.2 Preferred Workforce*

Hiring graduates from accredited environmental health undergraduate academic programs or programs with comparable academic coursework will help ensure a highly skilled workforce that is articulate, adaptable, and better equipped to effectively work in the field of environmental public health. Graduates of accredited environmental health programs receive a standardized education tailored specifically to meet the growing challenges in the field of environmental public health. Boards of health should look into the coursework completed by environmental health applicants and determine if it meets the knowledge, skills, and abilities demanded by the position.

### *2.3.3 Minimum Qualifications*

According to the Association of State and Territorial Health Officials (ASTHO) and the Centers for Disease Control and Prevention (CDC), local health departments need an environmental public health workforce with the ability to anticipate, identify, and respond to environmental threats and exposures. The minimum qualifications needed by these employees are those that enable the employee to successfully implement and perform tasks associated with:

- The Ten Essential Public Health Services
- CDC's Health Protection Goals
- The Healthy People 2010 and 2020 Initiative
- CDC's National Strategy to Revitalize Environmental Health Services
- The Environmental Health Competency Project

In addition, the environmental public health workforce must have the ability to:

- Meet performance standards established by accreditation bodies
- Collaborate with other agencies, non-governmental organizations (NGOs), and community partners

### *2.3.4 Required Knowledge, Skills, and Abilities*

As scientific knowledge continues to increase rapidly, the knowledge needed for competent public health practice is also increasing. To meet environmental health program goals such as those listed above, a competent, well motivated workforce is mandatory. To be competent, the workforce must have a set of knowledge, skills, and abilities that allow them to perform their job at the highest level. Figure 6 on the following page lists the knowledge, skills, and abilities (KSAs) needed to perform at an optimum level in the field of environmental health.

*High tech facilities, laboratory equipment, and disease detection systems are crucial to protect the public's health, but their real value hinges on the availability of sufficient experienced public health professionals who can analyze, interpret, and put to use the information they produce.*

**Mary C. Selecky**  
**Secretary**  
**Washington State Department of Health**

In a recent Environmental Public Health Leadership Institute project, Lemin and Otis, reported the results of a questionnaire that was submitted to local health departments and environmental health program directors (2007). The questions included what activities and services were currently performed by environmental public health employees. Of the respondents, 90% indicated in addition to traditional service areas, that environmental health professionals should be involved in emergency preparedness and response. To meet these new demands placed on the LPHA programs, a competent, highly trained environmental health workforce is needed.

## **2.4 EHAC Accredited Academic Programs**

In 1967, the National Accreditation Council for Environmental Health Curricula was established to implement a program accrediting undergraduate and graduate academic programs in the field of environmental health. The name of the Council was changed to the National Environmental Health Science and Protection Accreditation Council (EHAC) in 1991 to better reflect the entire discipline represented by the Council (EHAC, 2006).

**Figure 6** Knowledge, skills, and abilities of graduates from EHAC accredited Bachelor of Science academic programs (Murphy & Neistadt, 2007).

<b>Knowledge, Skill, and Ability Competencies for Environmental Public Health</b>	
	Fully competent in epidemiology
	Fully competent in statistical methods
	Fully competent in toxicology
<b>Basic Scientific Knowledge of:</b>	
	Environmental economics
	Environmental health management
	Environmental law and public policy development
	Risk assessment and mitigation
	Risk communication
<b>Environmental Health Programmatic Areas such as:</b>	
	Wastewater
	Water quality
	Solid waste management
	Food protection
<b>Field Experience and Problem-Based Learning</b>	
	Field equipment, data collection, and interpretation
	Develop problem solving skills
	Learn to work as part of a team
	Gain understanding of organizational dynamics
<b>Basic Science</b>	
	Biological with labs – 1 year
	Chemistry with labs – 1 year
	Physics – 1/2 year
	Basic science – 1-1/2 years
<b>Communication Skills</b>	
	Speak effectively to others and groups
	Writing skills to communicate clearly
<b>Computer Skills</b>	
	Spreadsheets, databases, writing
<b>General Education</b>	
	Understanding of values
	Historical perspective critical to self and society
<b>Environmental Critical Thinking</b>	
<b>Leadership Development</b>	
<b>Environmental Health Program Development</b>	
<b>Knowledge of Major OSHA and EPA Laws, Rules, and Regulations</b>	
<b>Ethical/Moral Decision Making</b>	

Throughout its history, EHAC has consistently worked to upgrade the quality of education and training delivered by the programs it accredits. EHAC has established specific criteria for undergraduate and graduate program accreditation which includes standards for: curriculum, faculty, program funding, enrollment, and management aspects of the programs. These criteria provide a foundational core for

**Figure 7a** Academic Course Comparison Chart showing the difference in coursework and competencies between accredited environmental health programs, non-accredited programs, and basic science programs (Murphy & Neistadt, 2007).

Competencies	EHAC Accredited Program	4-Year Environmental Degree	4-Year Science Degree	2-Year Science Degree
<b>Separate courses in:</b>				
Epidemiology	Yes			
Statistical methods	Yes			
Toxicology	Yes			
<b>Basic scientific knowledge of:</b>				
Environmental economics	Yes			
Environmental health management	Yes	20%		35%
Environmental law and public policy development	Yes	15%		
Risk assessment and mitigation	Yes			
Risk communication	Yes	15%		
<b>Environmental health programmatic areas such as:</b>				
Wastewater	Completion of at least 4 courses	Varies by program	Electives	15%
Water quality				
Solid waste management				
Food protection				
<b>Field experience and problem-based learning</b>				
Field equipment, data collection, and interpretation	Yes – Internship	25%	55%	20%
Develop problem solving skills				
Learn to work as part of a team				
Gain understanding of organizational dynamics				



a quality educational program and are regularly reviewed and updated to meet the demanding and changing needs of the marketplace.

For an academic program to be accredited by EHAC, the program must include the required course work and students of the program must demonstrate the competencies listed in Figure 7a and 7b.

**Figure 7b** Additional Academic Course Comparison Chart showing the difference in coursework and competencies between accredited environmental health programs, non-accredited programs, and basic science programs (Murphy & Neistadt, 2007).

Competencies	EHAC Accredited Program	4-Year Environmental Degree	4-Year Science Degree	2-Year Science Degree
<b>Basic science</b>				
Biology with labs – 1 year	Yes	100%	100%	
Chemistry with labs – 1 year	Yes	100%	100%	
Physics – 1/2 year	Yes	100%	100%	
Basic science – 1-1/2 years	Yes	100%	100%	
<b>Communication skills</b>				
Speak effectively with others and groups	Yes		20%	10%
Writing skills to communicate clearly	Yes		20%	5%
<b>Computer skills</b>				
Spreadsheets, databases, writing	Yes		5%	
<b>General education</b>				
Understanding of values	Yes	100%	100%	
Historical perspective critical to self and society	Yes	100%	100%	
<b>Environmental Health Critical Thinking</b>	Yes	60%	30%	10%
<b>Leadership development</b>	Yes	10%		
<b>Environmental Health Program Development</b>	Yes			
<b>Knowledge of OSHA and EPA laws and regulations</b>	Yes	10%	5%	20%
<b>Ethical/moral decision making</b>	Yes	20%	5%	

### 3.0 Benefits of Hiring from Accredited Academic Programs

The roles and duties of the environmental public health professional are dynamic and will continue to change in the future. Graduates from EHAC accredited academic programs possess the knowledge, skills, abilities, and the adaptability to meet the challenge of these changes. The following section will detail the benefits to the local board of health and the communities they serve when hiring graduates of accredited environmental health academic programs.

The benefits to local boards of health for hiring graduates of EHAC accredited academic programs include increased utilization of limited budgets, improved provision of environmental public health services, and the ability to meet performance standards more readily.

#### 3.1 The Cost Benefit

If a new employee does not possess the fundamental competencies that are needed of a competent environmental health practitioner, there are a number of costs associated with training this employee that may not be encountered with new employees that graduated from EHAC accredited academic programs.

When comparing the cost of hiring new employees from an accredited environmental health program versus a science or other program, the local board of health should look at a number of hidden costs. These costs include the training costs to bring the new employee up to a competent level, the lost opportunity costs of that new hire that is not prepared to perform his/her job duties, and the costs of a mentor to train and oversee the new employee's work until an acceptable level of performance is reached.

First are the costs of academic coursework or training to provide the new employee with the knowledge, skills, and abilities that are needed to adequately perform environmental public health job duties. These costs can be upwards of \$24,500 or more when hiring an entry level employee with only 30 hours of science (Murphy & Neistadt, 2007). The missing competencies and the training costs to achieve a competent level may include:

Epidemiology	\$ 700
Statistics	\$ 700
Toxicology	\$ 700
Environmental Health Programmatic Areas (2 of 4)	\$1,400
Communication Skills	\$ 995
OSHA and EPA Laws, Rules, and Regulations	\$1,360
<b>Estimated Subtotal</b>	<b>\$7,255</b>

These costs are detailed in Figures 8a and 8b.

Next is the loss of opportunity—what is the new hire not capable of performing at a high enough standard while they are being trained? Also, what is the cost of the employee while they are being trained to give them the missing knowledge, skills, and abilities? The costs incurred when developing the missing competencies may include:

**Figure 8a** Estimated cost to educate employees in missing competencies (Murphy and Neistadt, 2007).

Missing Competencies	Training Program	Cost for the Program
<b>Separate courses in:</b>	Separate course for each subject	\$700/course \$2,100/3 courses
Epidemiology		
Statistical methods		
Toxicology		
<b>Basic scientific knowledge of:</b>	Introduction to Environmental Health	\$700/course
Environmental economics		
Environmental health management		
Environmental law and public policy development		
Risk assessment and mitigation		
Risk communication		
<b>Environmental health programmatic areas such as:</b>	Four separate courses for each subject	\$700/course \$2,800/4 courses
Wastewater		
Water quality		
Solid waste management		
Food protection		
<b>Field experience and problem-based learning</b>	Internship On-the-job training	
Field equipment, data collection, and interpretation		
Develop problem solving skills		
Learn to work as part of a team		
Gain understanding of organizational dynamics		

**Figure 8b** Estimated cost to educate employees in missing competencies (Murphy and Neistadt, 2007).

<b>Missing Competencies</b>	<b>Training Program</b>	<b>Cost for the Program</b>
<b>Basic science</b>		
Biology with labs – 1 year	Course work	\$700/course
Chemistry with labs – 1 year	Course work	\$700/course
Physics – 1/2 year	Course work	\$700/course
Basic science – 1-1/2 years	Course work	\$700/course
<b>Communication skills</b>		
Speak effectively with others and groups	16 contact hours	\$995/course
Writing skills to communicate clearly	16 contact hours	
<b>Computer skills</b>		
Spreadsheets, databases, writing	16 contact hours	\$40/course
Water quality		
Solid waste management		
Food protection		
<b>General education</b>		
Understanding of values	Course work	\$700/course
Historical perspective critical to self and society		
<b>Environmental Health Critical Thinking</b>	Course work	\$700/course
<b>Leadership development</b>	40 contact hours	\$1695/course
<b>Environmental Health Program Development</b>	N/A	
<b>Knowledge of OSHA and EPA laws and regulations</b>	80 contact hours	\$1360/course
<b>Ethical/moral decision making</b>	Course work	\$700/course

Lost productivity of “mentor”	½ pay for 3-6 months	\$10,000
Salary while being trained	½ pay for 3-6 months	\$ 7,500
	Lost opportunity subtotal	\$17,500
	Plus training cost	\$ 7,255
	<b>Potential Total Costs</b>	<b>\$24,755</b>

### 3.2 Provision of Better Services and the Ability to Meet the Core Competencies

In addition to the previously identified costs of training, loss of productivity, and cost of mentorship, there is the intangible cost of having employees who cannot perform at the level of competency needed to provide effective services to the community. As noted in Section 2.3.3, employees that have graduated from EHAC accredited academic programs or similar environmental health academic programs have the knowledge, skills, and abilities to provide services to their constituents that meet the goals or requirements of:

- The Ten Essential Services
- CDC’s Health Protection Goals
- The Healthy People 2010 and 2020 Initiative
- CDC’s National Strategy to Revitalize Environmental Health Services
- The Environmental Health Competency Project

#### 3.2.1 Ten Essential Public Health Services

The Ten Essential Public Health Services detail a list of activities linked to the assessment, policy development, and assurance functions of a local public health agency (EHAC, 2006). Effectively provided, these services reduce the substantial burden of preventable illness and minimize the increasing cost of medical services needed to treat preventable conditions.

A competent environmental health workforce is the nucleus of any effective environmental health program at the local level. Competent employees are highly skilled and proficient and can often operate with little or no supervision. Competent environmental health staff can effectively ensure that public health services in their communities are sufficient through the three public health core functions—assessment, policy development, and assurance. Without assuring a competent workforce, the local board of health may not effectively prevent illness and minimize the cost of medical services to their constituents (Murphy & Neistadt, 2007).

The employee that has obtained an academic degree from an EHAC accredited environmental health academic program or similar environmental health academic program brings knowledge, skills, and abilities to the work place that other employees do not. These KSAs, combined with the proper management of the employee, allow the local board of health to achieve the public health goals that it has established through the strategic planning process.

#### 3.2.2 CDC Health Protection Goals

The Centers for Disease Control and Prevention’s *Health Protection Goals* aim to establish measurable objectives for people’s health. The goals attempt to increase the overall health of individuals and

communities alike (CDC). Without a competent, highly skilled environmental health workforce, it would be very difficult, if not impossible, to meet any of the health protection goals. As an example, under the preparedness goals “decrease the time needed to classify health events as terrorism or naturally occurring in partnership with other agencies,” a truly competent, well-trained environmental health specialist will have the knowledge, skills, and abilities needed to properly investigate the “health event.” He/she will also have the skills necessary to partner with other emergency response officials and agencies to ensure that the situation is properly investigated and a correct diagnosis is made. In this situation, timeliness is imperative and there is no margin for error. A competent environmental health professional will recognize the urgency of this situation and ensure that the ‘health event’ is handled properly and in a timely manner (Murphy & Neistadt, 2007).

### *3.2.3 Healthy People 2010 and 2020*

The *Healthy People 2010* initiative established national health objectives based upon prevention. Of the 17 public health infrastructure objectives presented in this process, three of the objectives specifically address developing the public health workforce. Hiring a competent environmental public health workforce that has the ability to anticipate, identify, and respond to adverse environmental health exposures can, with reasonable expectation, obtain the health objectives through prevention of exposure to those risk factors (Murphy & Neistadt, 2007).

The framework for *Healthy People 2020* is currently being developed. *Healthy People 2020* will reflect assessments of major risks to health and wellness, changing public health priorities, and emerging issues related to our nation’s health preparedness and prevention.

### *3.2.4 National Strategy to Revitalize Environmental Health Services*

The vision of CDC’s *National Strategy to Revitalize Environmental Health Services* is “healthy people in a healthy world through prevention.” This vision can be realized by achieving the six goals identified and described in the *Strategy* (Buchanan, 2006). Hiring a competent workforce directly addresses goal number five: Developing the Workforce. The objective of this guidance manual is to assist the local board of health in improving the recruitment and retention of competent environmental public health practitioners.

### *3.2.5 Environmental Health Competency Project*

The *Environmental Health Competency Project* establishes minimum standards for environmental health specialists by establishing a foundation and providing measurable objectives for a competent workforce (NACCHO, 2007). Without established minimum competencies, and ensuring that employees meet these competencies, a truly effective workforce is not feasible. Hiring new employees that are graduates of accredited environmental health programs fully supports this initiative (Murphy & Neistadt, 2007).

## **4.0 Board of Health Role in Environmental Public Health Programs**

The role of the local board of health is to ensure the provision of adequate public health services in their communities. Provision of adequate public health services includes protecting the public from environmental health risks. This role includes (NALBOH, 2004):

- Assessing community environmental health needs and concerns
- Developing or recommending policies, procedures, and programs to meet community environmental health needs



- Assuring that the health agency possesses well-trained personnel and the resources necessary to support local environmental health programs

As boards of health fully understand, these responsibilities are dynamic. Needs in local areas constantly change, state requirements often get updated, funding sources change, new threats to the community are introduced, and the scientific knowledge base continues to grow, all requiring that the local public health programs adapt as needed.

#### **4.1 Development of a Step Classification System**

The development of a career identity and advancement opportunities are important to attract and retain a qualified workforce in the field of environmental health. At the state and local level, boards of health should consider developing or adopting a career step ladder for the environmental health division based on meeting the established environmental health core competencies and years of service. This will ensure that current and future employees are working towards and meeting the requirements of the position while providing employees an opportunity for advancement. An example includes:

- Step I (Entry Level): 0 to 2 years of environmental health experience
- Step II: 2 to 5 years of environmental health experience plus achievement of established competencies
- Step III: 6 to 10 years of environmental health experience plus achievement of established competencies
- Step IV: 10+ years of environmental health experience plus achievement of established competencies

#### **4.2 The Role of the Board of Health in Hiring**

The role of the board of health is, and should be, changing to include a more active role in the staffing of the health department. This is not to say that the board should interview all applicants for open positions within the health department. The board should, however, act as mentors and oversee the hiring process. The board should approve the development and oversee the implementation of the following aspects of the hiring/employment process:

- Development and approval of job specifications/descriptions
- Creation of a recruiting plan
- Assist in selecting candidates to interview
- Development of an orientation program
- Development of policies for reference/background checks and physical exams including drug and alcohol screening
- Ensuring that standards of performance are established and updated as needed
- Ensuring that performance appraisals are established and utilized
- Ensuring that both motivation and disciplinary programs are in use

#### *4.2.1 Job Specifications and Minimum Qualifications for New Hires*

Job specifications or minimum qualifications describe job requirements for a position of employment; those knowledge, skills, and abilities that are required for the starting point in the position. They do not describe the human characteristics or qualifications of the person for that job. Job specifications focus on the requirements for a job that needs to be performed, not the job duties.

Why is the job specification important? It precisely defines the needs of the position for the board when there is a vacancy. In addition it can:

- Assist in planning the vacancy search
- Assist in complying with the law
- Ease managing and evaluating performance
- Form the basis for the recruitment description

Writing the job specification is, or should be, based on how the job is to be performed. This information can be obtained from existing job descriptions from your health department or other health departments, direct observation of how the job is performed, or through an interview with the present job holder. In addition, interviews of employees who interact with the job holder may be conducted as well as obtaining information from exit interviews of departing job holders.

The process for developing good job specifications requires a number of steps to ensure that the specifications are clearly and accurately written. The process includes the following:

1. List duties and percentages of time spent performing them
2. Determine which duties are essential and which may be handled by other assignment strategies
3. List specific job requirements such as:
  - a. Experience
  - b. Education
  - c. Skills
  - d. Knowledge
  - e. Complexity of duties
  - f. Responsibility
  - g. Confidential data
  - h. Consequence of error
  - i. Mental and physical demands
  - j. Working conditions
4. Make the specifications as clear as possible. For example:
  - a. Experience – 3 to 5 years in the environmental health field
  - b. Education – bachelor of science degree from an EHAC accredited environmental health program



- c. Certification or professional accreditation – currently possesses Registered Environmental Health Specialist (REHS) or RS credentials or required to pass the REHS exam within 6 months of employment
  - d. Skills – ability to perform an environmental risk assessment per the guidelines found in the Risk Assessment Guidance for Superfund Sites
  - e. Knowledge – familiar with MS Word, MS Excel, and MS Project Management software
5. Build some flexibility in the job specifications by using a range from minimum to qualifying, such as 3 years minimum, 5 years experience preferred.

Well written job specifications help in the screening and selecting of candidates for interviews. They set the standards, help in managing performance, and assist in compliance with anti-discrimination laws in hiring. Appendix A contains forms that can be used to assist the hiring manager in developing the job specifications as well as forms for determining the desired traits and attributes of the job holder.

#### *4.2.2 How to Attract the Best Candidate*

The following tips for finding and attracting the best candidate are reiterated in numerous human resources manuals and textbooks. The tips include:

- Set effective recruitment requirements
- Be clear on the job requirements
- Brainstorm the best sources for locating candidates
- Know what to do when there is a shortage of qualified candidates
- You must sell the job to the most attractive candidate

Setting effective requirements necessitates that they be stated in job-related terms such as “dynamic public health director.” The requirements should be stated clearly, briefly, and in an appealing manner. In addition, rank the requirements to help in the final hiring decision.

Be clear on the parameters of the position by listing the minimum and maximums of standard requirements. This would include the salary range, the amount of travel expected on a monthly or yearly basis, the need to relocate or locate in a particular geographical area, and the requirement for emergency work or work outside of the normal work week.

When brainstorming for sources of good candidates, think outside of the traditional sources such as internal advertising, newspaper, other print media, and professional organizations. To improve your pool of candidates, take advantage of college campuses, recruiting fairs, college placement offices, recruitment posters, and open houses for target audiences.

One of the most successful ways to attract good candidates is to establish a summer internship program with a local or regional college or university that has an accredited environmental health, public health, nursing, or social work program. This relationship allows management and the board to develop a close working relationship with the program’s faculty as well as allows the board to get a “look” at potential full-time employees during the short-term summer internship program.

When there is a shortage of qualified candidates, competitive pay is the usual means of attracting the best candidate. However, there are other incentives that can be used. Monetary incentives can include: a hiring bonus paid one time, paid relocation expenses, extra paid vacation, or a waiver of the waiting period for health insurance. The board can consider advancement opportunities and flexible work arrangements as other incentives to attract the most qualified candidates to a position.

Selling the job to the best candidate requires emphasizing the work setting, the office management style, the work culture, and other tangible and intangible benefits of working for the health department and serving the community in that particular location.

#### *4.2.3 Interviewing*

Face-to-face interviewing of potential job candidates is the time when management can obtain accurate information from the applicant. The interview is also when management can provide information to the job applicants. This is the time to sell the position to the applicants you wish to hire. During the interview, management can see the applicant's reactions and adjust accordingly. An effective interview is a planned interview. It is interactive, clear, focused, comfortable, and legal. No one, not the applicant nor the interviewer, should be excessively nervous about what will happen next.

The interviewer should know what they want to cover, for example what skills are presented in the resume and what questions to raise. The interview should have a sequence or agenda that will be followed. Interviewers should establish the sequence from the opening question or statement to the closing remarks.

There are practical realities to interviews. Sometimes the plan does not work and things go wrong. Appendix A contains a list of suggestions on how to remedy typical interview problems such as:

- Poor rapport
- Running out of time
- Interviewee talks to much
- Interviewee will not talk enough
- Interviewee is vague—will not answer questions clearly

##### *4.2.3.1 The Model Hiring Interview*

Under ideal conditions, the hiring interview has six steps:

1. Introduction
2. Data collection
3. Decision point
4. Data presentation
5. Closing
6. Wrap-up



Introduction – start the interview by introducing yourself clearly. Next confirm the pronunciation of the interviewee’s name and how he or she prefers to be addressed. From here make a bit of general conversation to help ease the transition into business, establish a rapport, and give all the parties a preliminary sense of each other. In addition, give the interviewee a basic outline of the interview process, mention the sequence of topics, and the expected total time for the interview.

Data collection – ask about familiar topics first and listen to how the interviewee speaks and thinks. For example you may ask about:

- Interest in this field, what, how, and why
- Interviewee’s area of professional interest

For additional example questions, see Appendix B.

Decision point – decide if the interviewee is a promising candidate for the position. If not, end the interview as quickly as possible. If the interviewee is a possible candidate, present the organization to the candidate in the best possible light, being careful not to make any promises that you cannot keep.

Data presentation – for providing data to the job candidate, talk about the organization and its strengths, future plans, and the organizational climate. Speak on the position, the duties and responsibilities, the “typical day,” and future developments for the organization. You can also talk about the benefits of employment with the organization including basic salary and benefit package. Be prepared to answer questions from the candidate including the job position, the corporate culture, opportunities for advancement, policies, leave, medical benefits, and others. Appendix B contains a list of suggested questions to ask and others to not ask.

Closing and record keeping – indicate to the candidate what the next steps are in the hiring process. These steps may include:

- Reference checks
- Background checks
- Job-related tests such as physical exam, drug and alcohol screening, etc.

Make sure to convey a positive response without overdoing it. Thank the candidate for his/her time and escort the person to the exit.

## **5.0 Why Hiring the Correct Employee is Important**

There are a number of reasons to hire competent environmental public health employees possessing the knowledge, skills, and abilities that can be obtained through accredited environmental health programs, not the least of which will save the local board of health resources over both the short and long term. However, there are more altruistic reasons to hire these competent individuals.

Graduates from accredited environmental health programs are qualified individuals that have the knowledge, skills, and abilities to:

- o Improve community health outcomes
- o Assist the local board of health in meeting CDC health performance standards—a mark of excellence for which all environmental health programs should strive to achieve
- o Properly address and mitigate potential health threats in the community

Environmental public health is often labeled as the invisible profession until a traditional or emerging public health threat becomes newsworthy. It is then that the public may learn of problems that could have been more effectively resolved or prevented altogether by the employment of a competent environmental health workforce. It is time for local boards of health to take a stand to improve the health and environment of their community. It is time for local boards of health to take a stand for hiring, promoting, and keeping employees that are competent in their profession. It is time to hire individuals that have the knowledge, skills, and abilities to adequately promote and protect the public from existing, emerging, and new threats to public health that we face today and will continue to confront in the future.

## Appendix A: Example Interview and Hiring Forms

### Position Specification/Description Worksheet

1. Position Title: \_\_\_\_\_
2. Department location: \_\_\_\_\_
3. Title of person to whom position reports: \_\_\_\_\_
4. Titles/positions of persons jobholder supervises

Position Supervised	Responsibilities
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

5. Core duties performed regularly of the position holder, listed in order of importance

Duty	Percentage of time for this duty
a. _____	_____
b. _____	_____
c. _____	_____
d. _____	_____
e. _____	_____
f. _____	_____

6. Other duties to be performed by the position holder, including frequency

Duty	Periodically?	Seldom?
a. _____	_____	_____
b. _____	_____	_____
c. _____	_____	_____
d. _____	_____	_____

7. Frequency position holder is provided: (circle one)

a. Supervision	Constantly	Frequently	Infrequently	Seldom
b. Instructions	Constantly	Frequently	Infrequently	Seldom
c. Discretionary authority	Constantly	Frequently	Infrequently	Seldom
d. Authority over others	Constantly	Frequently	Infrequently	Seldom

8. Minimum level of competency required for satisfactory job performance in the following categories
  - a. Experience \_\_\_\_\_
  - b. Education \_\_\_\_\_
  - c. Skills \_\_\_\_\_
  - d. Knowledge \_\_\_\_\_
  
9. Describe complexity of position holder duties  
\_\_\_\_\_
  
10. Describe the level of responsibility required  
\_\_\_\_\_
  
11. Does position handle confidential data? If so, what is the level of sensitivity required?  
\_\_\_\_\_
  
12. Describe the consequences of error in performing the position duties  
\_\_\_\_\_
  
13. Describe the mental, physical, and visual demands of the position duties  
\_\_\_\_\_
  
14. Describe the working conditions (environment) of the position  
\_\_\_\_\_



## Data Collection Worksheet

### Identifying Key Traits and Attributes

Position to be filled \_\_\_\_\_

#### If the position is new:

- Why was it created?
- What has changed about the company/department?

#### From the position holder:

- What does the position holder really spend their time on?
- What is the best part of the job?
- What is the worst part of the job?

#### From Management:

- What is most important to you as supervisor about this position?
- What is most important to upper management?
- What within this area of responsibility causes the most strain for the company?

#### Organizational climate:

- What is the workplace environment like?
- How would you describe the workload?
- What is the management style?

#### Historical Perspective:

- How long does the average position holder stay in this position?
- Why is present position holder leaving?
- Promoted? Fired?
- Found it too boring? Too challenging?
- Disliked the working conditions or employment terms?
- What were the qualities of those who did the job well?
- What were the qualities of those who were not successful or satisfied?
- Does the position attract people using it as a launch pad for something else or to meet a temporary need in their lives?
- What would you expect the position holder to be doing in 2 years? In 5 years?

## Positive Job Trait Survey

Instructions: Enter the key duties for the job opening—keep them uppermost in mind and determine which traits or characteristics are most desirable in the person holding the position.

List the needs of the job—not of the individuals who have held the position.

Title of Position Opening: \_\_\_\_\_

Key Duties:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

<b>Trait</b>	<b>Must Have</b>	<b>Nice to Have</b>	<b>N/A</b>
Assertive	_____	_____	_____
Careful	_____	_____	_____
Calm under pressure	_____	_____	_____
Cooperative	_____	_____	_____
Conscientious	_____	_____	_____
Creative	_____	_____	_____
Decisive	_____	_____	_____
Detail-oriented	_____	_____	_____
Enthusiastic	_____	_____	_____
Fast	_____	_____	_____
Flexible	_____	_____	_____
Goal-oriented	_____	_____	_____
Independent	_____	_____	_____
Imaginative	_____	_____	_____

Trait	Must Have	Nice to Have	N/A
Impressive	_____	_____	_____
Innovative	_____	_____	_____
Loyal	_____	_____	_____
Mature	_____	_____	_____
Organized	_____	_____	_____
Outgoing	_____	_____	_____
Patient	_____	_____	_____
Persuasive	_____	_____	_____
Personable/ Interpersonal skills	_____	_____	_____
Process/ Procedure-oriented	_____	_____	_____
Responsible	_____	_____	_____
Sociable	_____	_____	_____
Self-starter	_____	_____	_____
Stable	_____	_____	_____
Team-oriented	_____	_____	_____
Thorough	_____	_____	_____
Well-spoken	_____	_____	_____
Others:			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

## Candidate Screening Checklist

1. Have you considered all the possible sources of information?
  - The candidates resume
  - The candidate's completed application form
  - The comments of references
  - The comments of previous interviewers
  - The reports of investigative agencies, if used
2. Have you considered your recruiting priorities and matched job description priorities to candidate credentials?
3. Have you checked for patterns and consistency?
4. Areas noted for further exploration:



## Interview Summary Sheet

### Effective Interviewing is:

- Planned
- Interactive
- Clear
- Focused
- Comfortable
- Legal

### The Ideal Hiring Interview Structure is:

- Introduction
- Data Collection
- Decision Point
- Data Presentation
- Closing
- Recording

### Supervisors Interview When:

- Hiring
- Dealing with vendors, consultants, customers
- Problem solving
- Appraising performance
- Disciplining
- Coaching
- Dismissing

### Rules for Asking Legal Questions Are:

- Ask only job-related questions
- Treat all job candidates consistently
- Don't make or imply promises you may not be able to keep
- Don't make or imply any sort of threat, condition, or retaliation
- If in doubt, don't ask

## Appendix B: Example Interview Questions

### Data Collection

As previously stated, ask about familiar topics first and listen to how the interviewee speaks and thinks. For example you may ask about:

- Interest in this field: what, how, and why
- Interviewee's area of professional interest
- Academic coursework and professional organization activities
- Ask about the interviewee's experience
- Ask for details on work performed
- Ask about his/her feelings and attitudes about past jobs
- Ask what the reasons were for leaving previous job or interviewing for this one
- Ask what was the favorite or least favorite studies or activities they have had
- Ask about goals or desires such as what is interviewee looking for in a job
- Ask what interviewee is looking for in an employer
- Ask what are the interviewee's career goals are
- Ask about the interviewee's receptiveness to basic conditions such as the willingness to relocate, the salary range, the starting date.

### How to Improve Questioning Techniques

- Ask job-related questions
- Ask open-ended questions that relate to the skill and behaviors that are essential to the job
- Ask "why" and "how" questions
- Avoid asking too many questions that call for just facts
- Use nonverbal signals to encourage the candidate to say more—nod your head, say "uh-huh," or allow for a silence to follow their response. People will often fill that gap themselves with more information.
- Ask follow-up questions by using "how" and "why"

### Asking Legal Questions

In addition to the questions listed above, the interviewer should note questions that should NOT be asked. They include the following:



- Do not ask “how old are you” or “what is your date of birth” as these may be considered age discriminating
  - You may ask for assurance that the person is of minimum age for the job
- Do not ask “Have you ever been arrested”
  - Ask “Have you ever been convicted of a crime” if it is relevant to the position and if accompanied by a statement that conviction does not necessarily bar employment
- Do not ask “of what country are you a citizen” or “where were you born”
  - You may ask about legal eligibility to work in this country
- Do not ask “list clubs and social organizations that you belong to”
  - You may ask “List professional or trade groups, unions, or other organizations that you consider relevant to your ability to perform this work

Remember during the interview to ask only job-related questions; treat all job candidates consistently; do not imply or make promises that you may not be able to keep; do not make or imply any sort of threat, condition, or retaliation; and if in doubt, **do not ask the question.**

## Example Remedies for Six Interview Problems

### 1. Rapport is poor

- Take a minute to collect yourself – are you distracted, too tired, not focusing enough?
- Compliment the interviewee or ask for help on a subject of interest to him/her
- Be candid – We do not seem to be hitting it off this morning, am I doing something to irritate you, is there something on your mind?

### 2. We have run out of time

- Do not rush or force a conclusion or decision prematurely
- Schedule another session and agree on the topic with which to begin

### 3. Interviewee talks too much

- Ask more specific questions to prevent rambling responses – What were your three biggest accomplishments?
- Make an affirming response as soon as possible, followed with a probing question to get to specifics – I couldn't agree more. What elements made the project come together so well?
- State the need to move on more directly – That is really interesting, however our time is limited, my next question is....

### 4. Interviewee will not talk enough

- Spend more time on comfortable topics – I noticed your interest in the martial arts, what styles have you studied and for how long?
- Ask open-ended questions not yes/no questions. Think in terms of “how” or “what” – What did you enjoy most about working at your last employer?
- Give a list of what you want covered in the response – Tell me about your current position, what are your major duties, who did you report to, who reports to you?

### 5. Interviewee is vague – will not answer question clearly

- Pick a few key issues and probe specifically. Be insistent if necessary – Yes I understand, but I want to know exactly what you would do in this situation.
- Listen for opportunities to follow up more deeply on subjects that come up a second time.



## Appendix C: Sample Job Descriptions

5321100

### HEALTH AND ENVIRONMENTAL INVESTIGATOR I

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#### Class Summary

The responsibilities of this classification include ensuring compliance with current environmental codes, regulations and policies by inspecting or auditing properties, businesses or waste streams; identifying health and environmental hazards; and providing information and technical assistance to the public, businesses and industries on a well defined limited scope environmental or health program(s).

#### Distinguishing Characteristics

This is the first level in a four-level classification series. This classification is distinguished from the Health and Environmental Investigator II by its limited responsibility to interpret or analyze standard facts using existing policies, procedures and practices. Contacts with others are mainly to provide guidance or to receive, screen or share information. Instructions are received on specific assignment objectives; assistance is given on unusual problems; and work products are limited in range, direction and impact on programs, operations or systems. The Health and Environmental Investigator II works independently with guidance only on unusual or complex problems and makes broad based decisions that may cross environmental or health program lines involving interpretation and analysis of how to use resources and carry out work procedures and assignments using limited established choices and precedents. Contacts with others may involve guidance or advice on non-routine or multiple environmental program matters. Work produced may affect the scope, direction, planning or control of programs, operations or systems.

#### Essential Duties (May vary by position)

1. Provide information, interpretation, technical assistance and regulatory compliance advice to industry, the public, the media and other agencies for environmental codes, regulations and policies. Coordinate program activities with higher level environmental investigators, agencies and jurisdictions.
2. Conduct routine/required inspections or audits to ensure compliance with current environmental codes, regulations and policies and provide technical assistance for environmental management activities. Conduct investigations and initiate enforcement or corrective actions as required.
3. Respond to public complaints and inquiries on environmental or health matters
4. Collect samples, conduct field tests, collect and analyze environmental data and interpret results.
5. In collaboration with businesses, trade associations, agencies, staff and the public, participate in the development of environmental-best management practices, regulations and cost-effective options that prevent pollution.
6. Identify health or pollution problems and recommend solutions to mitigate identified problems. Assess extent and severity of possible contamination of property.

7. Determine regulatory status and potential for waste reduction or regulatory violations by comparing business representative's responses to investigation questions and physical evidence.
8. Participate in the development, implementation and evaluation of long and short range plans for overall program.
9. Recommend effective solutions to normal waste management problems at business sites.
10. Visit and correspond with commercial and industrial hazardous chemicals users to determine their processes, type and quantity of wastes, and potential impact on the environment and human health.
11. Maintain, update and use computerized data management systems.
12. Present information on basic environmental or health programs, an individual environmental or health program or Seattle/King County Department of Public Health rules and regulations and pollution-prevention strategies to individuals at meetings and public forums.

*When assigned to Hazardous Waste Management or Public Health the following additional essential duties may be performed:*

1. Identify and characterize industrial and commercial wastes and recommend proper management guidance. Recommend compliance, education or enforcement strategies.
2. Recommend monitoring requirements for waste generators.
3. Research and review public health and environmental permit applications and variances; verify conditions; prepare and recommendation authorization or denial of permits.

### **Knowledge/Skills (May vary by position)**

Knowledge of industrial health and environment processes

Knowledge of environmental sciences and environmental engineering principles

Basic understanding of environmental protection programs, laws, regulations, and policies

Knowledge of data collection, analysis and interpretation techniques

Knowledge of federal, Washington State and local environmental regulations

Knowledge of safety procedures for handling hazardous materials

Knowledge of regulatory and technical research methods

Knowledge of valid sample procedures and protocol

Skill in basic engineering and scientific mathematical calculations

Skill in effective written and oral communications

Skill in maintaining accurate field records



- Skill in interpreting and applying environmental protection regulations
- Skill in evaluating and applying information from technical reports and drawings
- Skill in applying conflict resolution techniques
- Skill in recognizing and properly responding to environmental hazards
- Skill in translating technical and regulatory information to a variety of audiences
- Skill in making presentations to a variety of audiences
- Skill in applying scientific principles when problem solving
- Skill in working independently and in teams as necessary
- Skill in managing a variety of data in the appropriate format and manner
- Skill in using a variety of field equipment
- Skill in using computerized data management systems

*When assigned to Hazardous Waste Management or Public Health:*

- Knowledge of valid sample procedures and protocol
- Knowledge of business practices and processes that generate hazardous waste
- Knowledge of pollution prevention and waste minimization practices
- Knowledge of substances that are hazardous and their impact on human health, environment and economy

*When assigned to only Public Health:*

- Knowledge of public health principles and disease process

*When assigned to Solid Waste:*

- Knowledge of enforcement techniques and evidence gathering

## **Licensing/Certification Requirements**

- Washington State Driver's License
- 
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**ENVIRONMENTAL HEALTH DIRECTOR  
Kittas County Washington**

Closes 12/4/2007, posted 10/12/2007

The current vacancy in the Health Department is a full-time (40-hrs per week), benefited, exempt, position expected to begin as soon as possible. Anyone who meets the qualifications below may apply.

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\*Screening of applications will commence on October 25th, 2007 and continue until an appropriate candidate has been found.\*  
-----

**\*Salary Range\***

\$3,727 - \$4,919 per month

**\*General duties\***

Management of the Public Health Environmental (EH) programs and staff assures the safety and protection of residents from environmental health hazards and to develop a productive system within the Environmental Health division. Meet regularly with KCPHD management team and provide support and leadership to departmental planning, budgeting, problem-solving and quality improvement. Work in partnership with other department managers to strengthen the agency's involvement in the Public Health Standards. Provide management and oversight to EH budget. Provide leadership to EH staff in the development of goals, objectives, performance measures, and quality improvement strategies for all EH programs. Conduct regular EH staff meetings and keep EH staff updated on departmental issues. Monitor and track staff workload demands and make recommendations when adjustments are needed. Evaluate effectiveness of programs; develop accountability structure for EH staff. Evaluate staff performance, resolve departmental and external conflicts and technical issues related to the functioning of the department and staff job responsibilities. Assure staff accomplish legal and policy goals and are operating within the boundaries of the appropriate RCWs and WACs within their programs. Provide leadership with the development and implementation of Environmental Health program policies and standard operating procedures for all EH programs including enforcement protocols. Draft appropriate ordinance and resolution documents for the Board of Health and Board of County Commissioners. Review and comment on draft WACs and other pertinent documents. Organize staff and resources in a most effective manner to accomplish goals. Ensure a technically competent workforce.

*Technical support to professional staff:*

- Develop a thorough understanding of the WACS and RCWs relative to each environmental health program.
- Review and approve staff-related actions which are alternatives to standard operating procedures.
- Determine best solutions to problems based on staff input, resources available/negotiate most feasible resolution.
- Review staff actions for technical accuracy/consistency with goals.
- Use program databases to generate appropriate quarterly reports for the Board of Health.
- Develop and manage the Environmental Health section of the Public Health Department website.
- Oversee staffs participation in the Permit Center Review Team and participate with the Administrator on the Permit Center Management team.



Represent agency at all levels (state, local government, inter-governmental, groups, individuals) dealing with policy, functions, and legal arenas. Represent the agency at state and local meetings as needed. Through direction from the Administrator and Board of Health, develop agency positions on issues, collaborate to determine the response of the agency to any policy or procedural matter at the state or local level, and draft agency responses to local EH issues and statewide EH proposals. Provide feedback to local and statewide groups of environmentally sound policies, actions, and positions

**OTHER FUNCTIONS:**

Assist the Public Health Department as needed in the event of a Public Health Emergency (i.e., food borne illness outbreak, bioterrorism event)

**\*Minimum qualifications\***

Two to three years experience in a management or supervisory position. Bachelor of Science degree in environmental health or closely related field; or two years previous work in an environmental health position in public health or other governmental agency. Valid Washington state driver's license and a safe driving record.

**\*Preferred qualifications\***

- Master of Science degree.
- Ability to maintain confidentiality and to work independently.
- Ability to maintain records and prepare written reports.
- Computer skill with Word, Excel, PowerPoint, Access databases, and Publisher programs.
- Public speaking experience.
- Strong interpersonal communication skills that enable effective communication with the public under stressful conditions.
- Ability to understand, develop, present and work within a budget.
- Ability to locate, read, interpret, and enforce county, state and federal regulations and interact with multiple public agencies in this process.
- Ability to work cohesively in a team atmosphere.

## *Pacific County Department of Community Development*

### PLANNING • ENVIRONMENTAL HEALTH • BUILDING

**SOUTH BEND OFFICE**  
Courthouse Annex  
1216 W. Robert Bush Drive  
P.O. Box 68  
South Bend, WA 98586  
Website: [www.co.pacific.wa.us](http://www.co.pacific.wa.us)  
  
(360) 875-9356  
FAX (360) 875-9304  
Tokeland (360) 267-8356  
Naselle (360) 484-7356



PACIFIC COUNTY COURTHOUSE  
National Historic Site

**LONG BEACH OFFICE**  
318 North Second  
Long Beach, WA 98631  
Website: [www.co.pacific.wa.us](http://www.co.pacific.wa.us)  
  
(360) 642-9382  
FAX (360) 642-9387  
Naselle (360) 484-7382  
Tokeland (360) 267-8382

October 16, 2006

TO: Seattle Times/Oregonian(Sunday Editions)  
Chinook Observer(Wednesday Editions)  
Willapa Harbor Herald (Wednesday Editions)

FROM: Mike DeSimone, Director

RE: Job Announcement

Please include the following position announcement for Pacific County Department of Community Development in your paper for the next two Sunday or Wednesday editions as noted above:

**ENVIRONMENTAL HEALTH SPECIALIST:** Full time position in South Bend, Washington. Requires Bachelor of Science degree in Environmental Health, Biological Science or closely related field. Position will work in a variety of Environmental Health programs with the primary focus on the wastewater/on-site sewage disposal review and permitting.  
Union Position - Grade 13 Salary Range: \$3043 – \$3918/mo  
Open until filled.  
To Apply: Request application/info from Department of Community Development, P.O. Box 68, South Bend, Wa. 98586 (360)875-9356 or (360)642-9382.



## Appendix D: Additional Resources

The following is a list of resources for hiring managers that the local board of health may find of use.

- International Public Management Association for Human Resources <http://www.ipma-hr.org/>
  - o IPMA-HR is an organization that represents the interests of human resource professionals at the federal, state, and local levels of government. Their goal is to provide information and assistance to help HR professionals increase their job performance and overall agency function by providing cost effective products, services, and educational opportunities.
  
- Society for Human Resource Management <http://www.shrm.org/>
  - o The Society for Human Resource Management (SHRM) is the world's largest professional association devoted to human resource management. Their mission is to serve the needs of HR professionals by providing the most current and comprehensive resources, and to advance the profession by promoting HR's essential, strategic role. Founded in 1948, SHRM represents more than 225,000 individual members in over 125 countries, and has a network of more than 575 affiliated chapters in the United States, as well as offices in China and India.
  
- WorldAtWork (formerly American Compensation Association) <http://www.worldatwork.org/waw/home/html/home.jsp>
  - o WorldatWork is the world's leading not-for-profit professional association dedicated to knowledge leadership in total rewards, compensation, benefits, and work-life. Founded in 1955, WorldatWork focuses on human resources disciplines associated with attracting, motivating, and retaining employees. Besides serving as the membership association of the professions, the WorldatWork family of organizations provides education, certification, publications, knowledge resources, surveys, conferences, research, and networking.

## References

- Association of State and Territorial Health Officials. (2004). State public health employee worker shortage report: A civil service recruitment and retention crisis. Washington, DC: ASTHO.
- Association of State and Territorial Health Officials. (2005). Issue brief: Public health workforce shortage – environmental health practitioners. Washington, DC: ASTHO.
- Buchanan, S. (2006). Revisiting Revitalization. *Journal of Environmental Health*, 68, 6.
- Bunker, J. P., Frazier, H. S., & Mosteller, F. (1994). Improving health: Measuring effects of medical care. *Milbank Quarterly*, 72, 225-258.
- Centers for Disease Control and Prevention. (2002). A strategy to revitalize environmental public health services in the United States. U. S. Department of Health and Human Services, Atlanta, GA: CDC.
- Centers for Disease Control and Prevention. (2006). Fact sheet: Building environmental health services workforce capacity. NCEH, Division of Emergency & Environmental Health Services. Washington, DC: CDC.
- Centers for Disease Control and Prevention. Health protection goals. Retrieved November 13, 2007 from <http://www.cdc.gov/osi/goals/>
- Health Resources and Services Administration. (2000). The public health workforce: Enumeration 2000. Rockville, MD: U.S. Department of Health and Human Services.
- Lemin, N., & Otis, A. (2007, June). Defining the emergency response roles of environmental health specialists in northwest Ohio. In proceedings of the National Environmental Health Association Annual Educational Conference, Atlantic City, New Jersey, June 15-20.
- McKeown, T. (1965). *Medicine in Modern Society*. London: Allen & Unwin.
- Murphy, T. J., & Neistadt, J. S. (2007, June). Improving public health services and saving resources: Hiring graduates from accredited environmental health programs. In proceedings of the National Environmental Health Association Annual Educational Conference, Atlantic City, New Jersey, June 15-20.
- National Association of County and City Health Officials. Definition of environmental health. Retrieved November 13, 2007 from <http://www.naccho.org/topics/environmental/index.cfm>
- National Association of County and City Health Officials. (2005). Operational definition of a functional local health department. Washington, DC: NACCHO.
- National Association of County and City Health Officials. (2006). 2005 National profile of local health departments. Washington, DC: NACCHO.



National Association of County and City Health Officials. (2007). Research brief – Changes in occupations of local health department staff. Washington, DC: NACCHO.

National Association of Local Boards of Health. About local boards of health. Retrieved November 12, 2007 from <http://www.nalboh.org/>

National Association of Local Boards of Health. Environmental health program. Retrieved November 12, 2007 from <http://www.nalboh.org/envh/envh.htm>

National Association of Local Boards of Health. (2009). Local board of health national profile. Bowling Green, OH: NALBOH

National Environmental Health Association. (1996, April). Definition of environmental health. Retrieved November 13, 2007 from [http://www.neha.org/position\\_papers/def\\_env\\_health.html](http://www.neha.org/position_papers/def_env_health.html)

National Environmental Health Science & Protection Accreditation Council. (2006). Undergraduate Guidelines. Portland, OR: EHAC.

Turnock, B.J. (2004). Public health: What it is and how it works. Sudbury, MA: Jones and Bartlett.

The National Association of Local Boards of Health has publications available in the following public health programs:



BOARD GOVERNANCE



ENVIRONMENTAL HEALTH



COMMUNITY HEALTH



EMERGENCY PREPAREDNESS

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**N A L B O H**

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