

## ENVIRONMENTAL HEALTH

### Exposure to Lead

According to the NMDOH Office of Epidemiology, “In San Miguel County, 31.6% of the houses were built prior to 1950. More than 27% pre-1950 housing in an area is considered a greater than average risk for lead poisoning in children. It is estimated that 60% to 80% of children with elevated blood lead levels are in the Medicaid population.”

### Number of Children Under 6 with Elevated Blood Lead Levels Of Those Children Screened in San Miguel County

NMDOH, Office of Epidemiology

	2001	2002
<b>San Miguel Co.</b>	0	2
<b>New Mexico</b>	37	35

(Most of the material for the Environmental Health section was prepared by Chris Cudia, Health Program Manager, NM Environment Department, Las Vegas, March 2004)

The following Environmental Health categories have a significant impact on the health and well being of San Miguel County Residents.

### Food Safety

According to Centers for Disease Control, it is estimated that food borne diseases are the cause of approximately 76 million illnesses, 325,000 hospitalizations and up to 5,000 deaths each year. More than 200 diseases are known to be transmitted through food. Three of these known diseases, Salmonella, Listeria, and Toxoplasma are responsible for over 75% of deaths from known pathogens. Over the past several years, San Miguel County has been fortunate in that very few incidences of food borne illness have been documented and no food borne illness outbreaks have occurred. Most reported illness has been limited to a single individual and therefore have not constituted a major food borne illness outbreak. Two of the inspectors for this County are currently Certified Food Safety Professionals (CFSP) under the National Environmental Health Association.

### Food Safety Protection Activities in San Miguel County (2003)

New Mexico Environment Department

Permitted Permanent Food Facilities In San Miguel County	Inspections Performed at Permanent Food Facilities	Food Related Complaints Received	Individual Food Borne Illness Cases Reported	*Food Borne Illness Outbreaks	Formal Food Related Regulatory Enforcement Actions	Food Safety Training Sessions
250	326	32	7	0	7	15

\*Food borne illness outbreaks are defined as two or more unrelated cases of illness with an associated exposure. An example of this would be if three unrelated families became ill after dining at the same restaurant.

In addition to the above activities, the NMED's Las Vegas Field Office also responded to a regional recall of Beef Jerky by removing and destroying over three hundred packages of product from the shelves of local retailers. This product recall was due to suspected contaminated by a rare serotype of Salmonella.

### **Opportunities for Health System Collaboration in Food**

Two areas of opportunity are presented here. The first is with regard to coordination in the event of a food borne illness outbreak. The second is related to permitting and inspection of food facilities located in a "home setting".

#### **Establishment of an Acute Disease Response Team (ADRT)**

Investigation of Food borne illness outbreaks is a coordinated effort between NMED, local DOH Nurse Practitioners, Office of Epidemiology, hospitals, and the State Laboratory Division. Given that food borne illness outbreaks are never planned, early coordination efforts are critical to an efficient and effective investigation. When most of these key logistical decisions are made ahead of time, investigations tend to be more successful in identifying the suspected infectious agent and quickly correcting the problem.

Formal development of an Acute Disease Response Team made up of local representatives from the DOH, NMED Field Operations Division and Northeastern Regional Hospital, could significantly improve local response to food borne illness outbreaks. This team could also develop response scenarios and/or distribute information about other acute diseases such as anthrax, smallpox, West Nile Virus, or hepatitis.

#### **Permitting of Facilities Located in the "Home Setting"**

Under the New Mexico Environmental Improvement *Board's Food Service and Food Processing Regulations* (7.6.2.1 NMAC — Rp 7 NMAC 6.1.001,08/12/2000), food service permits must be obtained whenever food is being served to the general public. However, the definition of general public specifically exempts the following:

- residents of private homes or home environments where residents take part in preparing or serving their own meals;
- non-paying guests in private homes;
- clients of facilities operated in private homes that are licensed by or registered with the Department of Health, or the Department of Children, Youth and Families; or
- participants in a pot-luck dinner, covered dish supper, or similar event in which the food is prepared and/or contributed by the participants and for which no fee is charged.

Exemption number 3 potentially affects a number of high-risk populations, mainly the elderly and/or children, who reside in home-operated assisted living facilities or attend daycares. Because NMED does not require these facilities to obtain a food service permit, a greater potential for food safety problems exists. This is primarily due to these facilities never being subject to inspection nor being required to comply with critical food handling, preparation, and storage requirements. This situation could easily be mitigated if the permitting entity (i.e. DOH and/or Children Youth and Family) adopted a policy

that would require these facilities to obtain a food service permit from NMED as a condition of their operating license.

## Water

### Surface Water Quality

According the New Mexico Environment Department, surface water quality (lakes, rivers, and streams) in San Miguel County is generally good. The New Mexico Environment's Surface Water Quality Bureau identifies clean sediment as the single greatest source of water pollution in the state. Sediment is simply soil that has eroded and made its way into the stream channel or lake. Sediment, although not especially toxic in and of itself, may contain heavy metals such as aluminum which do have significant health implications. Bacterial pathogens such as E. coli, and protozoans such as cryptosporidium and giardia are also commonly transported along with sediment into stream channels. Fish and other aquatic life are adversely affected when too much sediment smothers their habitats. Excessive sediment also blocks irrigation channels, decreases the amount of storage capacity in municipal reservoirs, and makes the water treatment difficult. **In Las Vegas, where approximately 80% of the municipal water supply is provided by the Gallinas River, The Municipal Water Treatment Plant cannot effectively treat water that is even moderately turbid (cloudy).** Reducing erosion and thus sedimentation is an environmental priority with implications on public health.

Two significant issues associated with surface water are fish consumption guidelines due to mercury contamination and West Nile Virus.

- **Fish Consumption Guidelines Due to Mercury Contamination:** The New Mexico Environment Department, Department of Health, and the Department of Game and Fish, have issued fish consumption guidelines because mercury has been found in fish caught from surface waters in the state. These guidelines should be observed by everyone who eats fish caught from lakes and streams in New Mexico. Exposure to mercury is known to cause numerous adverse health affects such as kidney disease, eye and respiratory disorders, nervous system disorders, and/or brain damage. Those consuming fish over long periods of time are most at risk. Children, infants and the unborn are especially vulnerable because their nervous systems are still developing. It is not known what proportion of the population of San Miguel County routinely consumes caught fish.
- **West Nile Virus:** Although not directly related to water quality, West Nile Virus (WNV) is associated with standing surface waters. Last year clinical diagnosis confirmed 7 human cases in San Miguel County, out of 201 statewide. There were 22 confirmed equine cases out of 399 statewide. Discussions with local veterinarians also indicate that hundreds of horses have been given a vaccine to treat this illness but despite these efforts, many horses continue to contract and die of this illness. **Las Vegas area veterinarians indicate the virus is fairly**

**widespread throughout the county.** The disease is primarily spread by mosquitos.

Ground Water Quality

Ground water refers to water from wells. **In San Miguel County, the quality of groundwater is generally high.** In some instances naturally occurring contamination exists. The most common of these is the “rotten egg” smell associated water high in hydrogen sulfide. This condition is caused by naturally occurring bacteria that uses sulfur as its energy source. As this water comes in contact with the air, hydrogen sulfide gas is released. Although not aesthetically pleasing, this water does not pose a significant health threat. The one groundwater contaminant that should be a concern to county residents is nitrogen, specifically nitrates and nitrites. Nitrates are a known carcinogen and the cause of methoglobinemia, or blue baby syndrome. This syndrome, which mainly affects infants under six months of age, occurs when nitrates interfere with the bloods ability to carry oxygen. The result is oxygen deprivation and the associated blue color of the skin. Infants who are on formula are the most at risk population.

The presence of nitrates in well water can also indicate the potential for contamination by pathogenic bacteria such as E. coli and/or viruses such as hepatitis. **In some parts of New Mexico groundwater contamination from septic systems is significant. Although not widespread, groundwater contamination in San Miguel County has led to the abandonment of wells.** Once a well is contaminated, little can be done to correct the problem and boiling the water actually makes matters worse because the nitrates then become concentrated. All residents who depend on well water are encouraged to get their well water tested.

The New Mexico Environment Department’s Las Vegas Field Office, offers free water testing for private wells. Although not certified laboratory tests, the results do provide a good measure of well water quality. The office can test for nitrates, sulfates, iron, and, when supplies are available, fluoride. In 2003 a total of 34 water analyses were conducted.

**Results of Nitrate Testing of Private Wells in San Miguel County**

New Mexico Environment Department

<b>*Concentration of Nitrates in mg/l</b>	<b>0.0-3.9</b>	<b>4.0-6.9</b>	<b>7.0-9.9</b>	<b>&gt;10.0</b>
<b>Number of Water Samples in the Range</b>	28	5	0	1

\*The New Mexico Drinking Water Quality Standard for nitrates is 10.0 mg/l.

Nitrate concentrations below 3.0 mg/l can occur naturally. However, those above 3.0 are almost always attributable to anthropogenic causes. **One water sample from 2003 was found to be above the drinking water standard.** The individual who submitted the

sample was encouraged to stop consuming the water until such time as follow up testing (including analysis for pathogens) from a certified laboratory could confirm its safety.

### Opportunities for Health System Collaboration in Water

#### Well Testing for Nitrates

The main opportunity in ground water could be a collaborative effort to test private wells. Ground water contamination due to septic systems is a growing concern. Recent changes in NMED Liquid Waste Disposal Regulations have led to the Department adopting stricter standards for septic systems. Stricter standards are most critical in areas already known to have elevated nitrate levels. Special attention should also be given to wells serving vulnerable populations such as newborns on formula. One of the challenges in targeting areas for stricter liquid waste disposal (septic system) standards is knowing where these areas are located. Limited ground water quality data exists so more testing is needed to fully delineate areas of concern. NMED would greatly benefit from a coordinated effort with the local health authority to identify priority areas and/or populations.

#### **Air Quality**

**Air quality in San Miguel County is also generally good.** The New Mexico Environment Department abandoned formal air quality monitoring efforts in town of Las Vegas in 1994 after completing over 15 years of continuous monitoring with a high volume sampler. Throughout this monitoring effort, nitrogen oxides (NOx) and volatile organic compounds (VOCs) were well within ambient air quality standards. These pollutants are most often associated with elevated ozone levels and the photochemical oxidation reaction that results in smog. Although neither of these are of significant concern **in San Miguel County, another air pollutant, particulate matter, does have the potential to aggravate respiratory illnesses.** Anyone who has traveled in this county has undoubtedly noticed the result of atmospheric temperature inversions on wood smoke. Even in small communities smoke is commonly trapped near the surface by an overlying layer of less dense warm air. The result is the tell tale “log smog” that can affect even the smallest small communities. Fortunately, temperature inversions and wood heating are generally limited to the winter months so exposure to elevated particulate matter is not a constant occurrence. Nevertheless, **particulate matter can aggravate and/or trigger existing respiratory conditions such a emphysema and asthma.**

### **Opportunities for Health System Collaboration in Air Quality**

An obvious opportunity in the air quality category would be in promoting voluntary no burn days when atmospheric conditions do not favor rapid smoke dispersal. It would also be useful to compare the number of respiratory illness-related hospitalizations in San Miguel County with atmospheric conditions occurring at the time.