

The Environmental Health of Kittitas County



Key Environmental Health Indicator Report
September 2008



Acknowledgements



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September 2008

In 2007, the Kittitas County Public Health Department published a Key Health Indicator Report, covering 48 indicators in seven categories (Behavioral Risk Factors, Maternal and Child Health, Death, Illness, and Injury, Medical Access, Environmental Health, Social and Mental Health, and Communicable Disease). However, only four of these 48 indicators addressed environmental health. The four indicators did not cover the scope of the work of the Environmental Public Health division, so in 2008 we set out to resolve this discrepancy.



Dr. Mark W. Larson

Unlike personal health indicators, which primarily measure health outcomes, environmental health indicators are more useful measuring intermediate outcomes – the series of events before a person becomes sick, injured, or dies due to an environmental factor. Therefore, the first step to identifying environmental health indicators was developing logic models for all eight environmental health programs. Logic models assist in the identification of intermediate environmental health indicators.

The next step was to compile a list of established indicators from other organizations in Washington State and across the country. This list included nine indicators developed by the Washington State Environmental Health Directors' Indicator Workgroup.

We narrowed the list of potential indicators by verifying data integrity and eliminating indicators for which data collection would not be feasible. We presented this list to the Kittitas County Board of Health Advisory Committee, Environmental Health Directors' Indicator Workgroup, the Public Health Department's Quality Improvement Leadership Team, Management Team, and all Public Health staff for voting and feedback. Based on the votes and comments from these groups, we narrowed the list again. Finally, the Kittitas County Board of Health and Board of Health Advisory Committee unanimously approved the final list of indicators contained in this report. We feel confident that these indicators represent the interests of the Kittitas County Environmental Public Health programs, local residents, and other key stakeholders across the state.

Unfortunately, environmental health data collection is a relatively new area to public health, limiting the availability of data for many indicators contained here. As this report is published, we are in the process of establishing data collection systems to ensure the availability of indicator data in the future.

In 2009, this report will be combined with the personal key health indicators to create one comprehensive Kittitas County Key Health Indicator Report. At that time, data will be available for many of the blank indicators you see today, and will be updated every two years thereafter.

We hope you will join us in our quest for a safer and healthier Kittitas County, and that this Key Environmental Health Indicator Report is useful to you in this mission.

Sincerely,

A handwritten signature in black ink that reads "Mark W. Larson, M.D." The signature is written in a cursive, flowing style.

Mark W. Larson M.D., *Health Officer*

Environmental Health Indicators are specific measurements that enable the public health department, and local partners, to measure changes in the environment. This information is used to drive programmatic decisions, ensuring the public health department is addressing the most pertinent environmental health issues, ultimately protecting human health. As the local community had a large influence on the indicators chosen for this report, the high number of indicators in the Wastewater Management and Drinking Water areas are indicative of their local importance.

Wastewater Management has a direct impact on many people, so is very important to the local community. Anyone with a septic system is directly impacted by the public health department's waste water program, whether through general education, receipt of assistance in the case of a failure, or gaining approval when building a new house. Unfortunately, no data is available for any of the Waste Water Quality indicators. On Site Sewage inspectors have recently set up data collection systems and will be able to report annual data in 2009.

There are three indicators in the **Food Safety** category, one of which currently has data available. Kittitas County has a lower rate of food borne illness than Washington State or the United States, with zero cases of E.Coli or Listeria and lower rates of Salmonella and Campylobacter in 2006 . Comparison data is only available for bacterial food borne illnesses (listed above), although viral outbreaks are also significant and monitored.

One of two indicators in **Water Recreation** has data: a higher percentage of streams in Kittitas County have high levels (100colonies/100mL) of fecal coliform than the statewide percentage. In the Upper Yakima watershed, which encompasses Kittitas County, 63.6% of streams have high levels of fecal coliform, compared to 38.4% in Washington State. This may be indicative of the need for education to property owners and water users about keeping streams clean.

Drinking Water, with six indicators, is a demonstrated area of high importance to the community. Only Sanitary Survey data is available at this time. Sanitary Surveys are water quality tests performed on municipal drinking water systems (Group A). Half (50%) of all sanitary surveys in Kittitas County required corrective action in 2007, compared with 21% of systems requiring corrective action in Washington State in the same year. This may indicate a need for additional education to system operators to avoid infractions during an inspection, ensuring clean and safe drinking water.

Of the three indicators in **Solid Waste**, only one, Garbage Generated, has data this year. Daily, every resident of Kittitas County produces 7.81 pounds of garbage, or municipal solid waste. This is slightly lower than the Washington State daily per capita production of 7.97 pounds, but much higher than the national rate of 4.6 pounds. These numbers include waste products that are eventually recycled or composted.

Vector Control indicators are, fortunately, all zeros. There were zero cases of rabies or West Nile Virus in 2007, and, as such, Kittitas County has met its targets in all vector indicators.

There is no indicator data available in **School Safety** this year, as safety policies are not currently collected or reviewed as part of school inspections. This component of school safety inspections was added in 2008, and data results will be available in 2009.

Outdoor Air Quality indicators, measured by the concentration of particulate matter 2.5 in 1-hour and 24-hour increments, show better air quality in Kittitas County than Washington State air quality measurements.

Overall, this indicator report provides a snapshot of the environmental health factors in Kittitas County that are likely to impact human health. Information contained here will be used to drive program decisions and evaluate effectiveness of environmental public health programs. The information is also available to the public for use in any agency or academic setting where environmental public health data is needed. Data collection efforts are underway for indicators without data, and will be reported in 2009.

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Wastewater Management



Wastewater, or sewage, can be dangerous to people and animals. Sewage contains fecal coliform and other bacteria, protozoa, viruses, and inorganic, volatile organic, and synthetic organic chemicals that can make people and animals very sick if ingested. Potential illnesses include diarrhea, cholera, typhoid fever, giardiasis, and Hepatitis A. Exposure to sewage can be limited by ensuring all septic systems are designed, installed, and maintained properly. Most exposures to sewage occur after a septic system fails. Fortunately, there are warning signs before a system fails. The following Wastewater Management indicators provide a snapshot of the likelihood of a septic failure, and subsequent exposure to people.

Timely Corrective Action

Occasionally septic systems fail, meaning the septic system is no longer functional. When this happens, environmental public health staff must respond quickly to minimize the risk of public exposure to sewage. The faster corrective action is initiated, the lower the risk of illness due to septic exposure.

This indicator is a measure of the **percentage of identified on site sewage failures with appropriate corrective action initiated by the health jurisdiction within two weeks**. Data is currently not available, but is being collected at the county and state levels in 2008, available for reporting in 2009.

If Kittitas County meets its target of 100% corrective action initiated in all failed systems within two weeks, the risk of septic-related illness in the general public will be minimized.

Target: 100%



Timely Resolution of Failures

When an on site sewage system fails, or is no longer functional, a timely resolution will protect the public from sewage exposure and reduce the chance of failures in the future.

This indicator is a measure of the **percentage of on site sewage failures resolved to the satisfaction of the health jurisdiction within 90 days**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

Target: 100%

If Kittitas County meets its target of 100% resolution of all septic failures to the satisfaction of the public health jurisdiction within 90 days, the risk of septic-related illness in the general public will be minimized.

Systems Installed Correctly

If an on site sewage system is properly installed, the likelihood of failures or repairs in the future is reduced, and the subsequent risk to human health is minimized.

This indicator is a measure of the **percentage of on site sewage systems installed correctly**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 100% of septic systems installed correctly, human health will be protected by reducing the chance of septic system failure and subsequent exposure to septic material.

Target: 100%



Sewage and Surface Water

Washington State law requires all septic systems be at least 100 feet from surface water, although waivers are available for systems within 75 feet. No system may be installed closer than 75 feet of surface water. The chance of water contamination due to a septic leak, spill, or failure increases the closer the system is to surface water. By reducing the number of septic systems installed within 100 feet of surface water, the likelihood of water contamination or human illness due to septic issues will remain minimal.

This indicator is a measure of the **percentage of septic systems installed within 100 feet of surface water**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

Kittitas County is striving to meet its target of no more than 10% of new or repaired on site sewage systems on properties adjacent to surface water will be installed within 100 feet of surface water, measured from the ordinary high water mark. If Kittitas County meets its target, the likelihood of contaminated water or human illness will be minimal.

Target: 10%



Did You Know...?

With proper maintenance and use, septic systems can function properly for decades, possibly even a lifetime.

To maintain your septic system, **avoid**:

- Dumping large quantities of grease or cooking oil
- Flushing non-biodegradable hygiene products
- Dumping chemicals, including pesticides, herbicides, or anything with high bleach or lye content
- Excessive water dumped quickly; check for plumbing leaks

And check for:

- Tree roots or buildings, driveways, or other impervious surfaces. They should not be on a septic area



On Site Sewage Failures

On site sewage failures occur when a system is no longer functional. Human health can be protected by reducing the number of septic system failures each year.

This indicator is a measure of the **number of on site sewage failures in one calendar year**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

Target: 0

If Kittitas County meets its target of zero failures per year, all systems will be functioning properly, minimizing human risk of exposure to sewage.

Food Safety



Safe food handling, storage, and preparation is imperative for keeping the public safe from foodborne illnesses. If food is not prepared, cooked, or stored properly, bacteria, viruses, or chemical contamination may occur, potentially causing serious illness. The very young, very old, and immunocompromised persons are most at risk for suffering severe effects from a foodborne illness, although everyone may become sick if they ingest large amounts of illness-causing compounds. Fortunately, all food service establishments are regulated and inspected by the public health department. The inspector checks temperatures, kitchen set-up, food worker behavior, and other factors that could lead to, or prevent, foodborne illness. Food Safety indicators provide a snapshot of the likelihood of foodborne illness.

One or More Critical Violations

Critical violations are behaviors, food temperatures, or establishment set-up that are likely to cause a foodborne illness if not corrected immediately. An establishment may be shut down if it reaches a threshold number of critical violations.

This indicator is a measure of the **percentage of permanent food establishment inspections with one or more critical violations (red items) during a certain time period**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of zero percent of food establishments with one or more critical violations, the likelihood of human illness from eating at a food service establishment will be very low.

Target: 0%



35 + Critical Violation Points

Critical violations are behaviors, temperatures, or establishment set-up that are likely to cause a foodborne illness if not corrected immediately. An established number of points are awarded for each type of violation. Any food service establishment with 35 or more critical violation points is in imminent danger of spreading a foodborne illness.

This indicator is a measure of the **percentage of permanent food service establishments with 35 or more critical violation points (red items)**. Data is currently not available, but is being collected at the county and state levels in 2008, available for reporting in 2009.

If Kittitas County meets its target of zero percent of food establishments with 35 or more critical violation points, the likelihood of human illness from eating at a food service establishment will be very low.

Target: 0%

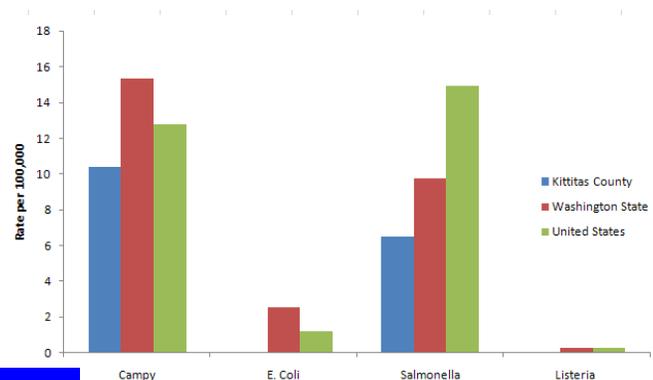
Foodborne Illnesses

If prevention measures fail, food borne illnesses may occur. This indicator is a measure of the **rate of food borne illness per 100,000 people, reported by type**.

Campylobacteriosis, *Escherichia coli* O157:H7 (E. Coli), *Salmonella*, and *Listeria monocytogenes* are the four most common bacterial foodborne illnesses, and the data most available through the state. Viral and chemical contamination concerns are encompassed in the critical violation indicators.

Kittitas County's target is to eliminate all foodborne illnesses. This target has not been met.

Target: 0%



Water Recreation, most often public swimming pools and spas, provide endless fun when kept safe and clean. However, public pools and spas can cause illness or injury if not properly maintained. The Public Health Department is responsible for inspecting water quality in all public pools and spas, safety measures, and other aspects of pool and spa operation. Water Recreation indicators also encompass surface water, such as streams and creeks. The public health department does not inspect surface water recreation areas, so surface water can pose greater potential for illness, injury, or death. The public is responsible for being prepared if recreating in surface water. Water Recreation indicators provide a snapshot of the likelihood of illness, injury, or death caused by water recreation.



One or More Critical Violations

Critical violations in a public health inspection can be chemical imbalances, bacterial presence, or lack of safety mechanisms that could cause illness, injury, or death if not corrected immediately. An establishment may be shut down if it reaches a threshold number of critical violations.

This indicator is a measure of the **percentage of public swimming pools with one or more critical violations during the time period**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of zero percent of pools and spas with one or more critical violation, the likelihood of illness, injury, or death at a public pool or spa is very low.

Target: 0%



Fecal Coliform in Streams

Fecal coliform is a type of bacterial growth that can be found in streams and other surface water. Fecal coliform, from fecal matter of mammals, can be indicative of harmful bacteria in water. If ingested, contaminated water can make people very sick. People have a high risk of becoming sick if they contact water with high levels of fecal coliform. A high level is considered 100 colonies for every 100 mL of water, the state water quality standard for public contact and swimming (WAC 173-201A).

This indicator is a measure of the **percentage of tested streams with high levels of fecal coliform**. Kittitas County has a higher rate of streams with high levels of fecal coliform (63.6%) compared to Washington State (38.4%) as measured by the Washington State Department of Ecology in 2004.



Target: 50%

Drinking Water



Drinking Water comes from Group A systems, Group B systems, or private wells. Group A systems serve 15 or more households. These systems are regulated by the Washington State Department of Health, although water system inspections, or sanitary surveys, are conducted by the local health department. Group B systems serve between two and 14 households. Group B systems are regulated by the local health department. Private wells can serve up to two households, and are maintained and regulated by the homeowners, although the local health department can provide guidance on testing and maintenance. Drinking water indicators provide a snapshot of the likelihood of safe drinking water for all residents.

Group B Coliform Monitoring

Coliform is a type of bacteria that can live in water. Coliform bacteria are an indicator of water quality. If too much coliform is present, people may become ill, especially the very young, very old, or people with compromised immune systems. The local health department monitors coliform levels to ensure safe drinking water in Group B systems.

This indicator is a measure of the **percentage of Group B water systems in compliance with coliform monitoring requirements**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 100% compliance with Group B Coliform Monitoring, the chance of waterborne illness from drinking water in a Group B system will be reduced.

Target: 100%



Group B Compliance

The Washington State Water Quality Regulations and Guidelines outline the levels of certain organic and inorganic compounds that are allowable in Group B drinking water systems.

This indicator is a measure of the **percentage of Group B water systems that meet water quality regulations and guidelines**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 100% compliance among Group B systems with the water quality regulations and guidelines, drinking water will be safe and clean.

Target: 100%

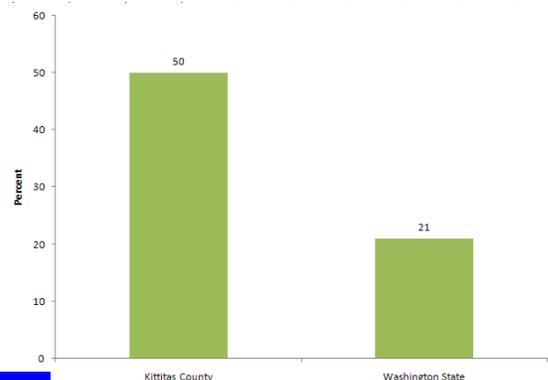
Sanitary Surveys

Sanitary surveys are inspections performed on Group A water systems to ensure compliance with the Federal Safe Drinking Water Act.

This indicator is a measure of the **percentage of sanitary surveys requiring corrective action**. In 2007, 50% of sanitary surveys in Kittitas County (7 of 14) required corrective action, while 21% of sanitary surveys statewide required corrective action.

If Kittitas County meets its goal of zero percent of sanitary surveys requiring corrective action, Group A drinking water will be safe and clean.

Target: 0%





Disease Outbreaks

Disease outbreaks can occur if drinking water systems are contaminated with organic, inorganic, volatile organic, or other compounds, or contaminated with harmful levels of bacteria or viruses. The most common water-borne diseases are Giardia, Cryptosporidium, E. Coli, Salmonella, and Shigella, and will be used in this report.

This indicator is a measure of the **number of waterborne disease outbreaks (2+ cases) caused by Group A and Group B drinking water systems**. There were no water borne outbreaks of the aforementioned diseases in 2007.

Target: 0

Kittitas County has met its target of zero waterborne disease outbreaks. Group A and Group B drinking water is clean and safe.

Indoor Domestic Water Usage

Groundwater quantity is currently unknown in Kittitas County. Measuring household indoor water usage, coupled with a ground water study, will help county residents determine appropriate water usage practices.

This indicator is a measure of **daily water withdrawals, in gallons, per household for domestic (indoor) use only**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 350 gallons per day per household, the county will have met water use recommendations established by the Washington State Department of Health and regulated by the Washington State Department of Ecology.



Target: 350 gallons/day



Domestic Property Water Usage

Groundwater quantity is currently unknown in Kittitas County. Measuring household indoor and outdoor water usage, coupled with a ground water study, will help county residents determine appropriate water usage practices.

This indicator is a measure of **daily water withdrawals, in gallons, per household for indoor and outdoor use**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 1,250 gallons per day per household, the county will have met water use recommendations established by the Washington State Department of Health and regulated by the Washington State Department of Ecology.

Target: 1,250 gallons/day

Solid Waste



Solid Waste, more commonly known as garbage or trash, can range from kitchen scraps and household waste to large appliances or farm and ranch chemicals. If not properly disposed of, contaminants from solid waste materials could leach into groundwater, soil, or air, potentially causing contamination that could lead to human illness. All solid waste materials should be disposed of properly, whether by garbage pickup, recycling, composting, or disposal at a permitted solid waste facility. Permitted solid waste facilities are responsible for ensuring deposited materials are properly sealed and disposed of; if a facility is out of compliance with its permit, the chance of soil, water, or air contamination is heightened. Improperly stored solid waste materials can also lead to vector (bug, rodent, etc.) infestations. Infestations can be prevented by proper solid waste facility management and timely resolution of violations. Solid waste indicators provide a snapshot of the likelihood of human illness or injury due to improperly disposed waste.

Solid Waste Facilities

Solid waste facilities accept and dispose of approved waste products through recycling, reuse, or decontamination before transfer to a landfill or other disposal site.

This indicator is a measure of the **percentage of permitted solid waste facilities in substantial compliance with their permit conditions**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 100% substantial compliance with solid waste permit conditions, the risk of solid waste by-products leaching into the soil, water, or air is minimized, ultimately protecting the health of the residents of Kittitas County.

Target: 100%



Corrected Solid Waste Complaints

Solid Waste complaints encompass permitted facilities and private residences, and can range from a pile of tires in a neighbor's yard to waste material leaking in a solid waste facility.

This indicator is a measure of the **percentage of identified solid waste complaints with appropriate corrective action initiated within 2 weeks**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of corrective action initiated within 2 weeks of all solid waste complaints, the chance of human exposure to potentially harmful solid waste material will be minimized.

Target: 100%

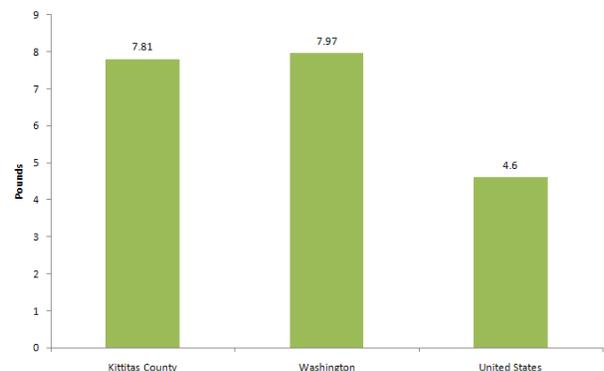
Garbage Generated

Garbage, or municipal solid waste, is household waste material, including material that is eventually composted or recycled.

This indicator is a measure of **pounds of municipal solid waste (garbage) generated daily per capita**. Kittitas County residents produce 7.81 pounds of garbage daily, including materials that are composted or recycled. This rate is similar to Washington State (7.97 pounds) but higher than the national rate (4.6 pounds).

Kittitas County has not met its target of less than five pounds of garbage generated daily per capita.

Target: <5 pounds daily per capita



Zoonotic and vectorborne diseases are illnesses carried and transmitted by vertebrates (pets, livestock, and wildlife) and arthropods (ticks, mites, mosquitoes, and fleas) to humans. Illnesses can be transmitted by ingestion of animal feces or urine, arthropod bite, or by direct contact such as bites or scratches. Fortunately, zoonotic and vectorborne diseases are somewhat preventable. Insect repellent reduces the chance of being bitten. Drinking only purified water when hiking reduces the chance of ingesting contaminated water. Avoiding contact with animals, especially those behaving strangely, can reduce the chance of being bitten. If an animal tests positive for a disease like West Nile virus or rabies, public health professionals will take actions to reduce and halt the spread of the disease. Vector control indicators provide a snapshot of the likelihood of human illness due to vectorborne disease.



Rabies



Rabies is transmitted when the rabies virus makes contact with mucous membranes or open cuts in the skin. The public health department follows up with all reported animal bites in the county, and sends suspect animals to a laboratory for rabies testing.

This indicator is a measure of the **number of animals sent for testing and the number of positive rabies cases**. In 2007 there were zero positive rabies cases in Kittitas County, with only one animal tested. There were 22 positive cases of rabies in Washington State.

Kittitas County has met its target of zero percent of tested animals with a positive result.

Target: 0 positive tests

West Nile Virus in Birds

West Nile virus (WNV) is transmitted from blood to blood contact, primarily by mosquitoes. The virus often appears in birds before surfacing in humans. Therefore, WNV in birds is an indicator of high WNV risk to humans.

This indicator is a measure of the **number of positive West Nile virus cases in birds, and the number of bird specimens tested**. In 2007 in Kittitas County, two birds were tested and zero were positive.

Kittitas County has met its target of zero percent of collected birds testing positive for WNV.



Target: 0 positive tests

West Nile Virus in Mosquitoes



West Nile virus (WNV) is transmitted by blood to blood contact, primarily via mosquitoes. By monitoring mosquitoes for WNV infection, public health officials can monitor the risk of human infection. Adult mosquitoes and mosquito larvae are trapped for testing.

This indicator is a measure of the **number of West Nile virus cases in mosquitoes, and the number of mosquito specimens tested**. In 2007 in Kittitas County, 106 mosquitoes were tested and zero were positive.

Kittitas County has met its target of zero percent of collected mosquitoes testing positive for WNV.

Target: 0 positive tests

School Safety & Outdoor Air Quality



Throughout the school year, parents of Kittitas County children trust schools to keep their children safe and healthy while on school grounds. Individual school safety policies can ensure potential safety and health hazards are addressed. The school safety policy indicator provides a snapshot of the likelihood of illness or injury on school grounds.

Outdoor Air Quality can be affected by forest fires, weather patterns, pollution, pollens, and other factors. In high concentrations or for long periods of time poor air quality can cause adverse health effects in the very young, very old, or anyone with respiratory or cardiovascular disease. In high doses or prolonged exposure, poor air quality can cause adverse health effects even in healthy people. Outdoor Air Quality indicators provide a snapshot of air quality in Kittitas County.

School Safety Policies

Schools are individually responsible for developing and enforcing safety policies addressing health and injury hazards on school grounds. Though safety policies are not mandated by law, schools with policies are more likely to take precautions to protect students, staff, and community members from injury or illness while on school grounds.

This indicator is a measure of the **percentage of schools with school safety policies**. Data is currently not available, but is being collected at the county level in 2008, available for reporting in 2009.

If Kittitas County meets its target of 100% of schools in Kittitas County maintaining a school safety policy, students, staff, and community members will be better protected from illness and injury.



Target: 100%



1-Hour Outdoor Air Quality

In this report, outdoor air quality is measured by particulate matter 2.5 (PM2.5), very fine particles (2.5 μm or smaller in diameter) that can lodge deep in lung tissue if inhaled. At high concentrations, PM2.5 can affect everyone, but even in short periods of time it can cause problems for the very old, very young, and people with asthma or other respiratory ailments.

This indicator is a measure of the **number of times PM2.5 reaches an average of 35 $\mu\text{g}/\text{m}^3$ in a 1 hour time period per year**. EPA standards require daily averages be lower than 35 $\mu\text{g}/\text{m}^3$. In 2007, PM2.5 reached 35 $\mu\text{g}/\text{m}^3$ or higher per 1-hour intervals on 22 occasions. However, 13 of the hourly readings over 35 $\mu\text{g}/\text{m}^3$ were on September 13 and 14.

Target: 0

Kittitas County has not met its target of never reaching 35 $\mu\text{g}/\text{m}^3$ in a 1-hour time period.

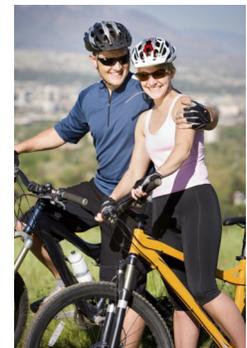
24-Hour Outdoor Air Quality

In this report, outdoor air quality is measured by particulate matter 2.5 (PM2.5) measured in $\mu\text{g}/\text{m}^3$. PM2.5 are very fine particles (2.5 μm or smaller in diameter) that can lodge deep in lung tissue if inhaled. At high concentrations, PM2.5 can affect everyone, but even in short periods of time it can cause problems for the very old, very young, and people with asthma or other respiratory ailments.

This indicator is a measure of the **number of times over one year that PM2.5 reaches an average of 35 $\mu\text{g}/\text{m}^3$ in a 24 hour time period per year**. EPA standards require the daily 98th percentile average for PM2.5 be below 35 $\mu\text{g}/\text{m}^3$, and the annual mean cannot exceed 15 $\mu\text{g}/\text{m}^3$. In 2007, Kittitas County's daily 98th percentile never exceeded 35 $\mu\text{g}/\text{m}^3$. The 98th percentile measurement was 24 $\mu\text{g}/\text{m}^3$, and the annual mean was 11.9 $\mu\text{g}/\text{m}^3$.

Kittitas County has met its target, meeting EPA Air Quality Standards.

Target: 0



Wastewater Management				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
% of systems installed correctly	# of re-inspections due to non conformance to design	n/a	100%	EDEN
	# of systems installed (final inspection by OSS approval, based off complete code)	n/a		EDEN
# of OSS failures	# of OSS failures	n/a	0%	EDEN
% of identified OSS failures with appropriate corrective action initiated by the health jurisdiction within two weeks	# of OSS failures with corrective action initiated within 2 weeks	n/a	100%	EDEN
	# of OSS failures (as defined by state/local code) reported	n/a		EDEN
% of OSS failures resolved to the satisfaction of the health jurisdiction in 90 days	# of OSS failures with corrective action completed in 90 days to the satisfaction of the health jurisdiction	n/a	100%	EDEN - failure reports
	# of OSS failures (as defined by state/local code) reported	n/a		EDEN
% of systems installed within 100 feet of surface water	# of septic systems within 100 feet of surface water	n/a	10%	EDEN - # of waivers
	# of septic systems	n/a		EDEN

Food Safety				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
% of permanent food establishment inspections with one or more critical violations (red items) during time period	# of permanent food establishment inspections with one or more critical violations (red items) during the time period	n/a	0%	EDEN
	# of permanent food establishment inspected during the time period	n/a		EDEN
% of permanent food establishments with 35 or more critical violation points (red items)	# of inspected permanent food establishments with 35 or more critical violation points (red items) in time period	n/a	0%	EDEN
	# of permanent food establishments inspected during time period	n/a		EDEN
Rate per 100,000 of foodborne illnesses reported by type (see below for state and national data)	# of cases of campylobacteriosis	10.38 per 100,000	0 per 100,000	VistaPHw (2006)
	# of cases of <i>Escherichia coli</i> 0157:H7	0 per 100,000	0 per 100,000	VistaPHw (2006)
	# of cases of salmonellosis	6.53 per 100,000	0 per 100,000	VistaPHw (2006)
	# of cases of listeriosis	0 per 100,000	0 per 100,000	VistaPHw (2006)

Rate per 100,000 of food borne illnesses reported by type (cont'd)				
Data Collected	State Data	Source	National Data	Source
# of cases of campylobacteriosis	15.32 per 100,000 (2006)	VistaPHw	12.79 per 100,000 (2007)	CDC
# of cases of <i>Escherichia coli</i>	2.57 per 100,000 (2006)	VistaPHw	1.20 per 100,000 (2007)	CDC
# of cases of salmonellosis	9.73 per 100,000 (2006)	VistaPHw	14.92 per 100,000 (2007)	CDC
# of cases of listeriosis	0.3 per 100,000 (2006)	VistaPHw	0.27 per 100,000 (2007)	CDC



Data Details

Water Recreation				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
% of public swimming pools with one or more critical violations during time period	# of public swimming pools with one or more critical violations	n/a	0%	EDEN
	# of public swimming pools inspected during the time period	n/a		EDEN
% of tested streams with high levels (100 colonies per 100 mL) of fecal coliform	# of streams tested with high levels of fecal coliform	28	50%	DOE (2004)
	# of streams tested	44		DOE (2004)



% of tested streams with high levels of fecal coliform (cont'd)	
State Data	State Data Source
1,047 (2004)	DOE
2,726 (2004)	DOE

Drinking Water				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
% of Group B water systems in compliance with coliform monitoring requirements	# of Group B systems in compliance with coliform monitoring requirements within time period	n/a	100%	EDEN
	# of Group B systems within time period	n/a		EDEN
% of Group B water systems that fail to meet water quality regulation and guidelines	# of Group B systems that do not meet Washington State guidelines (pertaining to water quality only)	n/a	0%	EDEN
	# of Group B systems	n/a		EDEN
% of sanitary surveys requiring corrective action	# of sanitary surveys with 1+ major deficiency	7	0%	DOH (2007)
	# of sanitary surveys	14		DOH (2007)
# of waterborne disease outbreaks (2+ cases) with Group A and Group B drinking water systems	# of cases of Giardia, and Cryptosporidium, E.Coli, Salmonella, and Shigella if traceable to water source	0 outbreaks	0 outbreaks	PHIMS
Indoor domestic water usage	# of gallons of water used per day in all Group A and Group B water systems	n/a	350 gallons/day	EDEN - water monitoring data
	# of households in Kittitas County	n/a		OFM (2008)
Domestic property water usage	# of gallons of water used in all Group A and Group B water systems	n/a	1250 gallons/day	EDEN - water monitoring data
	# of households in Kittitas County	n/a		OFM (2008)



Sanitary Surveys Requiring Corrective Action	
State Data	State Data Source
183	DOH - Drinking Water (2007)
836	DOH - Drinking Water (2007)

School Safety				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
% of schools with school safety policies	# of schools with school safety policies	n/a	100%	School Safety Program
	# of schools in Kittitas County	n/a		School Safety Program

Solid Waste				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
% of permitted solid waste facilities in substantial compliance with permit conditions	# of permitted solid waste facilities in substantial compliance	n/a	100%	EDEN (not defined)
	# of solid waste facilities requiring solid waste permits	n/a		EDEN (not defined)
% of identified solid waste complaints initiated with appropriate corrective action within 2 weeks	# of solid waste complaints initiated with appropriate corrective action within 2 weeks within time period	n/a	100%	Complaint log/files
	# of solid waste complaints received within time period	n/a		Complaint log
# of pounds of municipal solid waste (garbage) generated daily per capita	# of pounds of municipal solid waste (garbage) generated daily per capita	7.81	5 pounds	DOE (2006)

# pounds of municipal solid waste (garbage) generated daily per capita (cont'd)			
State Data	State Data Source	National Data	National Data Source
7.97	DOE (2006)	4.6 pounds	EPA (2006)

Vector Control				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
Number of positive (for each category) specimens collected	# of animals with positive test (rabies)	0	0	Tracking database
	# of animals tested	1	n/a	Tracking database
	# of mosquitoes with positive test (WNV) <i>individuals</i>	0	0	Tracking database
	# of mosquitoes tested <i>individuals</i>	106	n/a	Tracking database
	# dead birds with positive test (WNV)	0	0	Tracking database
	# of dead birds tested	2	n/a	Tracking database

% of positive (for each category) specimens collected				
Data Collected	State Data	State Data Source	National Data	National Data Source
# of animals with positive test (rabies)	22	DOH (2007)	6,943	CDC (2006)
# of animals tested	581	DOH (2007)	113,819	CDC (2006)
# of mosquitoes with positive test (WNV)	0	DOH (2007)	8215 pools	CDC (2007)
# of mosquitoes tested (individuals)	1314	DOH (2007)	3,363,541 <i>individuals</i>	CDC (2007)
# dead birds with positive test (WNV)	1	DOH (2007)	2,182	CDC (2007)
# of dead birds tested	497	DOH (2007)	9,245	CDC (2007)

Outdoor Air Quality				
Indicator	Data Collected (Numerator & Denominator)	Local Data	Target	Local Data Source
Number of times PM2.5 reaches an average of 35 µg/m ³ in a 1 hour time period	Number of times PM2.5 reaches an average of 35 µg/m ³ in a 1 hour time period	22	0	Puget Sound Clean Air
Number of times PM2.5 reaches an average of 35 µg/m ³ in a 24 hour time period	Number of times PM2.5 reaches an average of 35 µg/m ³ in a 24 hour time period	0	0	EPA

Outdoor Air Quality (cont'd)				
Indicator	State Data	State Data Source	National Data	National Data Source
Number of times PM2.5 reaches an average of 35 µg/m ³ in a 24 hour time period	4	EPA	240	EPA

Centers for Disease Control and Prevention (CDC): The federal agency responsible for disease control and prevention in the United States. Various divisions of the agency track data and trends in topic areas, data that is available to the public on the website. (www.cdc.gov)

Coliform Bacteria: A type of bacteria often used to measure sanitary quality of food or water. Coliform bacteria are common, present on most surfaces, and singularly will not necessarily cause illness in humans or animals. The Safe Drinking Water Act uses coliform bacteria as an indicator of water quality, as the presence of coliform bacteria in drinking water may be an indicator of water contamination. Fecal Coliform (see below) are a type of coliform bacteria, used as an indicator of water quality in Surface Water Standards.

Complaint Log: A Kittitas County Public Health Department internal document used for tracking complaints in the Solid Waste, Food Safety, Drinking Water, and other environmental health programs.

Critical Violation Points: Violations in food establishment and swimming pool and spa inspections that present a high risk of illness or injury.

Department of Ecology (DOE): Washington State agency responsible for environmental enforcement, assessment, education, grants and loans, permitting, environmental review, site cleanup, spill response, and technical assistance. Data and program information is available on the website. (www.ecy.wa.gov)

EDEN: The software program used in Kittitas County to track permits, applications, and other inspection activities within the Public Works, Community Development Services, and Environmental Public Health departments. Permit Technician and Public Health Clerks enter data into EDEN, and can pull summary reports using the Crystal Reports report generating software system.

Environmental Protection Agency (EPA): The federal agency responsible for environmental enforcement, assessment, education, grants and loans, site cleanup, spill response, and technical assistance. Data and program information is available on the website. (www.epa.gov)

Environmental Protection Agency Air Quality Standard: The threshold for poor air quality is when the 98th percentile average of PM_{2.5} reaches 35 µg/m³ in a twenty-four hour time period. This means that 98 of 100 daily PM_{2.5} values were less than or equal to 35 µg/m³. The benefit of this measurement is that the data is comparable between counties, states, and the nation; the drawback is that one-time spikes during the day may not show up in the twenty four hour average. (www.epa.gov)

Fecal Coliform: A type of Coliform Bacteria originating in the intestines of warm blooded animals. Increased levels of fecal coliform provide warning of elevated risk of waterborne illness. The presence of fecal coliform bacteria in water does not necessarily mean pathogenic organisms are present, but it is an indicator. Excessive fecal coliform densities in water represent a statistically significant potential health risk for human beings due to pathogenic organisms, and could result in the loss of beneficial uses like swimming, fishing, boating, incidental contact, and water sports. Illnesses resulting from fecal coliform contact can include ear infections, dysentery, typhoid fever, viral and bacterial gastroenteritis, and Hepatitis A. Fecal coliform can enter rivers through direct discharge of waste from mammals and birds, from agricultural and storm runoff, and from untreated human sewage. Certain agricultural practices, including the grazing of livestock near water bodies, spreading manure as fertilizer on fields during dry periods, and allowing livestock watering in streams can all contribute to fecal coliform contamination. (www.ecy.wa.gov)

Group A Water System: A drinking water system serving more than fourteen households. Group A Water Systems are also known as municipal water systems, which are regulated by the state Department of Health. The local Public Health Department is responsible for performing Sanitary Surveys on these systems every five years to ensure drinking water safety.

Group B Water System: A drinking water system serving between three and fourteen households. These drinking water systems are inspected and approved by the local Public Health Department, which is supported by the state Department of Health.

Hazardous Waste: A class of solid waste with properties that are dangerous or potentially harmful to human health or the environment. Hazardous wastes can be liquids, solids, contained gases, or sludges, and are generally the by-products of manufacturing processes or discarded commercial products such as cleaning fluids or pesticides. There are no hazardous waste facilities in Kittitas County. (www.epa.gov)

Local Health Jurisdiction (Public Health Department, Local Public Health Jurisdiction): The local public health department, generally responsible for permitting, inspecting, and enforcing compliance with local, state, and federal regulations.

Memorandum of Agreement: A signed agreement between the Washington State Department of Ecology (Ecology) and Kittitas County regarding a water quantity study in the upper Yakima Basin. Aqua Permanente, a local citizen group, raised concerns to Kittitas County and Ecology about water quantity with the large number of new developments and new wells in the county. In response, Kittitas County and Ecology agreed to commission a water quantity study, establish target water use for private residential wells, and meter all private wells. At the conclusion of these research activities, additional recommendations may be made. (www.co.kittitas.wa.us/health)

Moderate Risk Waste: A class of solid waste that includes household hazardous waste and conditionally exempt small quantity generator waste. Moderate risk waste does not mean that the material is moderately hazardous; it means the hazardous waste is only present in small quantities. A more descriptive term for moderate risk waste is “small volume hazardous wastes.” Kittitas County houses only moderate risk waste facilities. (www.ecy.wa.gov)

Office of Financial Management (OFM): Washington State office responsible for researching and collecting data on population, budget, accounting, and risk management. Detailed information is available on the website. (www.ofm.wa.gov)

On Site Sewage System: A septic system.

Particulate Matter 2.5: A complex mixture of extremely small particles and liquid droplets. Particulate Matter 2.5, or PM2.5, are fine particles, such as those found in smoke and haze, that are 2.5 micrometers in diameter or smaller. These particles can be directly emitted from sources such as forest fires, or they can form when emitted gases react in the air. PM2.5 is a health concern because the particles are so small they can easily pass through the nose and throat and enter the lungs, potentially affecting the heart and lungs and causing serious health effects. (www.epa.gov)

Safe Drinking Water Act: The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974, and is the main federal law that ensures the quality of American’s drinking water. The Environmental Protection Agency sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards in all Group A Drinking Water Systems. The law requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. (www.epa.gov)

Sanitary Survey: An inspection including a series of tests on a Group A Water System. In Kittitas County this inspection is performed by the local Public Health Department. The inspection includes: review of planning and management documents, distribution system and status of cross-connection control program, source and sanitary control area, source pumps and pumping facilities, source treatment procedures and equipment, pressure tanks, finished water storage, and operator certification status. Sanitary Surveys are completed every three to five years. (www.doh.wa.gov)

School Safety Program: Program within the Kittitas County Environmental Public Health division responsible for inspecting all elementary, middle, and high schools in the county. Inspections include review of safety plans and identification of illness and injury risks on school property, including playgrounds.

Surface Water Standards: Standards established by the Washington State Department of Health for contaminant levels in surface water. The standards are outlined in Washington Administrative Code 173-201A.

Tracking Database: A Kittitas County Public Health Department internal database used to track certain environmental health indicators. Environmental Health staff enter raw numerator and denominator numbers, which are analyzed and converted to percentage indicators by assessment staff.

VistaPHw: Washington State database of illness and injury data. VistaPHw provides data at the state and county levels on fertility, birth risk factors, abortion and pregnancy, infant death, birth risk factors for infant death, rates of death, hospitalization, life expectancy, tuberculosis, sexually transmitted disease, and other communicable diseases, and population tables, census tables, and cancer registry data.

Washington State Department of Health (DOH): State agency, under the direction of Secretary of Health Mary Selecky, responsible for oversight of public health in Washington State. Information is available on the website: www.doh.wa.gov.

Water Meter: Starting in July 2008, all new private wells installed in Kittitas County will be fitted with a water meter, a device attached to a private well that measures water usage in gallons per day. Kittitas County is responsible for reading the meters.

Water Quality Regulations & Guidelines: Drinking Water Guidelines and Regulations established by the state Department of Health and enforced by the local Public Health Department for all Group B Drinking Water Systems. Washington Administrative Code 246-291 outlines the Maximum Contaminant Level for all Group B systems. (www.doh.wa.gov)



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