SEPA Responsible Official
Okanogan County
Office of Planning and Development
123 – 5th Ave. N. Suite 130
Okanogan, WA 98840

Dear Sirs and Madams:

Subject: Comments on Environmental Impact Statement Addendum A: Revisions to the Okanogan County Comprehensive Plan February 11, 2011

Thank you for the opportunity to comment on the update of the *Environmental Impact Statement Addendum A: Revisions to the Okanogan County Comprehensive Plan*.

I believe the environmental impact statement (EIS) and the addendum are both broadly inadequate and do not meet requirements of the State Environmental Policy Act (SEPA). The focus of my comments here are the potential impacts of the draft Comprehensive Plan on the quality and quantity of water used for public water supplies.

Serious evaluation of the potential impacts of future development on groundwater resources is missing in the three EIS documents prepared to date.

Groundwater is the principal source of water for domestic use in Okanogan County, both currently and for the foreseeable future. As a result, protecting that resource is of vital importance to the economic health and well-being of the County and its citizens. State law mandates that the County protect the quality and quantity of groundwater through its land use plan.

However, based on available information, including scientific studies and other documentation, it is evident that the land uses and densities proposed in the draft Comprehensive Plan (and as shown on the Comprehensive Plan map) would threaten both the quality and quantity of the most significant and productive groundwater resources in Okanogan County.

The following is a summary of findings related to the potential impacts of development under the draft Comprehensive Plan on groundwater. A more detailed discussion, with citations, follows the summary. The existing conditions, development impacts and mitigation measures discussed here are missing from the current EIS. This information is vital to public understanding and evaluation of the draft Comprehensive Plan and points to land use alternatives that should be addressed in the EIS.

Summary

1. The uses and densities proposed under the draft Comprehensive Plan present a high risk of contamination to what constitutes the primary source of public water supply in Okanogan County.

2. Significant groundwater contamination from septic systems has already been found in inland regions of the northwest at lot sizes proposed under the draft Comprehensive Plan.

3. Existing state and local Department of Health regulations are designed to mitigate the impacts of septic systems on groundwater quality, but may not be sufficient to prevent groundwater contamination.

4. The quantity of groundwater available for future domestic use in Okanogan County is not yet known but there is evidence of significant limitations.

5. Failure to manage and protect groundwater resources could prove costly to existing and future homeowners, farmers and local government.

6. The most cost-effective way to mitigate the potential impacts of development on the quantity and quality of groundwater resources in Okanogan County may be to limit lot sizes and overall development densities.

Background Discussion

1. The uses and densities proposed under the draft Comprehensive Plan present a high risk of contamination to what constitutes the primary source of public water supply in Okanogan County.

Groundwater is the principal source of water for domestic use in Okanogan County, both currently and for the foreseeable future. Due to relatively arid climate conditions and geology, this important resource is extremely limited in distribution and extent within the County. The most productive aquifers are located in relatively narrow bands along the valley bottoms and adjacent terraces of the Methow and Okanogan rivers, as well as their tributary streams. These aquifers consist of glacial deposits (unconsolidated alluvium and glaciofluvial sediments) that are highly permeable, overlying generally impermeable bedrock. Bedrock formations comprise the vast majority of land in the County and produce relatively little groundwater for domestic use.

Because the valley aquifers are largely unconfined (meaning there is no protective layer above them) and composed of permeable materials overlain by permeable soils with characteristically shallow water tables (meaning the top of the aquifer is not far below the surface), they are highly vulnerable to contamination. Anything that happens on or in the soils above the aquifer may enter the groundwater system. On-site waste disposal, fertilizers, industrial spills, mining runoff, feedlots and a variety of other sources could seriously contaminate groundwater supplies.

In addition, scientific studies done in the Methow river watershed show significant hydrologic connection between the valley aquifers and local surface waters. This means that contaminated groundwater can also deteriorate water quality in local rivers, lakes and streams. This would also impact current efforts to protect salmonid species listed for protection under the Endangered Species Act.

The land use element of the draft Comprehensive Plan designates most of the areas overlying these important but vulnerable aquifers for one-acre lots (or smaller) on septic systems. In addition, commercial, agricultural, industrial and mining uses would be allowed. These land uses and densities present a variety of threats to the quality of the most productive aquifers in Okanogan County, as well as to local surface waters. Of principal concern is the threat of contamination from dense development on septic systems, which are known to be among the most significant sources of groundwater contamination in developing rural and suburban areas.

2. Significant groundwater contamination from septic systems has already been found in inland regions of the northwest at lot sizes now proposed under the draft Comprehensive Plan.

The following describes a number of areas in which groundwater contamination associated with septic systems has occurred. Each is similar to Okanogan County in the following important ways: they receive relatively little precipitation, rely on groundwater for domestic water supplies and have allowed development on septic systems over aquifers that are highly sensitive to groundwater contamination. Also included are examples of surface waters being impacted from groundwater contaminated by septic systems. The communities involved are currently dealing with groundwater contamination by a variety of methods, which are not covered here, but can be found at the links provided.

A. La Pine, Oregon

La Pine is a small town located east of the Cascades and south of Bend, Oregon. Once a small town in a rural area, the community has grown rapidly since the l960s, due in part to national marketing of local real estate. Because much of the area was platted prior to establishment of local development regulations, 82 percent of lots are smaller than two acres and many are one acre or less.

As in Okanogan County, the principal source of public water supply in La Pine is an unconsolidated aquifer that is highly vulnerable to contamination. The aquifer is composed of alluvial sands and gravels overlain by permeable soils with no intervening protective layer. There are also strong hydrologic connections between groundwater and local rivers.

Nitrate contamination from septic systems was first detected in the late 1970s at levels exceeding the U.S. Environmental Protection Agency (EPA) maximum contaminant level of 10 mg/L for drinking water. Over a period of 20 years, nitrate plumes spread slowly through the aquifer impacting a significant number of domestic wells. In 2000, nitrate concentrations greater than 4 mg/L were detected in ten percent of wells sampled. In addition, local rivers exhibited excessive algae in some reaches, possibly due to groundwater contamination.

According to projections by the USGS, if residential development were to proceed as planned, large areas of the aquifer would have nitrate concentrations above 10 mg/L. The result would be drinking water composed of at least 22 percent septic system effluent.

B. Spokane Valley, Washington

Spokane Valley-Rathdrum Prairie aquifer, although much larger, also shares features with the principal aquifers of the Okanogan. Spanning four counties in Washington and Idaho, the aquifer is the most significant source of water supply for the region. It is generally composed of highly permeable soils and subsurface materials (coarse sand, gravel, cobbles and boulders) with no overlying protective layer. Contamination was found to have occurred at the margins of the aquifer where groundwater entered from adjacent uplands, which are characterized by thin soils over bedrock. The principal source of contamination was determined to be septic system effluent from homes in the upland areas.

C. Missoula County, Montana

Missoula's sole source of drinking water is the Missoula Valley aquifer. The aquifer is susceptible to contamination from septic systems due to the coarse nature of aquifer materials and soils, shallow depth of the water table and lack of a protective layer above the aquifer.

Dense development on septic systems prompted concerns about groundwater quality. A study was conducted to evaluate future development capacity under continued use of conventional septic systems. Groundwater quality assessments were done in unsewered areas where average densities were less than one home per four acres. These included areas in which 20 to 23 percent of septic systems had been replaced because they were substandard or failing.

Well water sampling showed increased nitrate contamination in all areas studied, including areas with average densities between three and four homes per acre. Although contamination levels were not yet above EPA drinking water standards, the study found evidence of cumulative impacts from septic system discharges. It also found regional contamination of groundwater from septic systems at densities as low as three to four homes per acre.

D. Lower Portneuf River Valley Aquifer, Idaho

The lower Portneuf aquifer is a fast moving, shallow aquifer with limited soil cover over gravels. The aquifer and its tributaries are the sole drinking water source for Pocatello, Chubbock and north Bannock County. The aquifer has been described as being vulnerable to contamination due to current development and associated infiltration from septic systems, ditches and drain wells. In addition, the aquifer is vulnerable due to its permeability, lack of a protective layer and the rate at which groundwater moves and is

capable of spreading contamination.
Gradual deterioration in water quality in north, central and southern portions of the lower Portneuf valley have been occurring over the past 15 to 30 years. A number of wells have shown increased nitrate and chloride concentrations from septic system effluent with water in some exceeding EPA safe drinking water limits for nitrate. Even in well-flushed portions of the aquifer, nitrate is entering rapidly enough to allow concentrations to build up over time.

E. Examples of Surface Waters Impacted by Septic Systems

A number of important surface water bodies in the inland northwest have nutrient enrichment problems associated with groundwater pollution from septic systems. They include the Clark Fork River in Missoula County, Montana, Lake Pend Oreille, in Bonner County Idaho, and the Clackamas River, in Clackamas County, Oregon.

3. Existing state and local Department of Health regulations are designed to mitigate the impacts of septic systems on groundwater quality, but may not be sufficient to prevent groundwater contamination.

Septic systems are the most frequently reported source of groundwater contamination in the U.S., and the single largest source, by volume, of water discharged to groundwater. State and local health department regulations are designed to mitigate the impact of development on septic systems. However, because maintenance of septic systems is left up to individual homeowners and is not monitored by the local health department unless a request for inspection is filed, there is no evidence systems are working properly. Also unknown is the existing number of homes using cesspools or substandard septic systems. In some areas, studies have found as many as 20 percent of septic systems showing signs of failure. Systems that are substandard or failing could cause groundwater contamination, especially when located over vulnerable aquifers.

Contamination of groundwater below septic system drain fields is well documented and studies have shown that concentrations increase in areas with a high density of septic systems. In Helena, Montana, nitrate concentrations increased by 2.5 percent as septic systems increased by 26 percent. Groundwater contamination from septic systems has also been found in areas with larger lots, where septic system densities average one home per three and four acres.

Nitrate is the primary contaminant that septic systems contribute and is known to pose significant health risks. High concentrations have been linked to “blue baby disease,” hypertension, central nervous system disorders, birth defects, certain cancers, non-Hodgkin’s lymphoma, and diabetes.

Conventional septic systems (including sand filter and pressure systems) generally remove most contaminants when properly designed and installed. However, these systems are not designed to remove nitrogen from wastewater. Studies also indicate septic systems are less effective at nitrate removal in arid climates. According to a report on nitrate contamination in the southwest, “nitrate contamination issues are compounded by low precipitation, high evapotranspiration, and resultant low recharge that would otherwise dilute subsurface nitrate.” In addition, septic systems located in sandy soils (often found in Okanogan County) may contribute 10 to 15 times more nitrate to groundwater than those located in less permeable soils. Although enhanced systems designed to remove nitrates are available, they are costly and require considerable maintenance. In Nevada, enhanced systems are being discouraged because homeowners have not been able to maintain them properly, resulting a higher rate of system failures.

In Okanogan County, "alternative treatment systems," including sand filter and pressure distribution systems, are being required in some 25 to 35 percent of cases. These are required where additional treatment is deemed necessary, based on site conditions. Systems designed to remove nitrates are not required, although the health department has the regulatory authority to do so. Otherwise, lot size minimums are increased, depending on soils and groundwater levels, to as much as one home per three acres for homes using conventional systems (does not apply to sand filter or pressure distribution systems).

Build-up of nitrates in groundwater occurs slowly and can take decades before it is detected, as was the case in the communities described earlier (see pages 6-8). As the numbers of systems increase, the capacity of groundwater to dilute nitrates can be exhausted leading to groundwater pollution. Once pollution occurs, it can take decades of costly mitigation to reduce nitrate concentrations.

The absence of septic system monitoring and enforcement programs constitutes a weak link in state and local regulatory efforts to prevent ground water contamination. Without monitoring, the risk of groundwater contamination at the high densities proposed in the Comprehensive Plan is increased. More importantly, there is insufficient recognition that aquifers have a limited capacity to dilute increasing amounts of waster water nitrate. The cumulative, long-term impact of hundreds or thousands of systems upon local or regional groundwater quality is not accounted for. Managing development on septic systems can't be adequately achieved without a broader understanding of the larger groundwater system.

4. The quantity of groundwater available for future domestic use in Okanogan County is not yet known yet there is evidence of significant limitations.

Numerous hydrologic studies have been conducted in the Okanogan and Methow river basins in attempts to understand the nature and limits of local water resources. Current efforts are underway in both basins to develop and implement watershed plans, as provided for under the Watershed Planning Act (Chapter 90.82 RCW). Pursuant to the act, rules applying to the use of water in each basin were adopted. The rules establish minimum instream flow levels to be maintained for the survival of fish. Water withdrawn from aquifers for domestic and stock use may not exceed what would impact minimum stream flows. The rule applies to groundwater sources that have a hydrologic connection to surface waters. Such connections have been found within the unconsolidated aquifers of the Methow and Okanogan basins, also primary sources of public water supply.

A preliminary study of water use and estimates of available supplies in the Methow river basin indicated groundwater withdrawals may be approaching or surpassing limits in portions of the Methow watershed. This included the lower and middle portions of the Methow. In the Okanogan basin, the city of Oroville's water rights could be consumed by new demand outside City limits. Responding to this concern, the City invoked a moratorium on connections outside its limits. Additional information indicates as many as nine streams may be over-allocated in the Okanogan basin.

Under the state rule for the Methow watershed, 14 streams and 17 lakes are closed to new water withdrawals, including withdrawals from associated aquifers. Most of the stream closures in the Methow are located in the lower valley. These include areas designated in the draft Plan for one-acre development. Similar limits have been placed on streams in the Okanogan basin.

Current efforts are attempting to refine earlier studies, but the amount of water available for future use for most of the County has not yet been determined. In the Methow and Okanogan basins, watershed planning councils are working to assess how much water is available, when water is available, how much is being used currently and how much reserve capacity is available to support future development. Watershed planning will also look at where any current reserves can be used to meet needs elsewhere within each watershed and how reserve capacity might be increased through a variety of engineering measures to enhance groundwater storage.

Information expected in the near future from local water shed planning will be important to incorporate as part of land use planning in Okanogan County. However, there is already enough evidence that groundwater resources are limited to raise serious concerns about the level of development that would be allowed under the draft Comprehensive Plan—especially in areas such as the lower Methow valley where most streams have been closed. In addition, global climate change will mean there will be even less water available in the future, due to reductions in snow-pack. Also, droughts are expected to become more severe and long-lasting.

There is a reasonable probability, under the proposed draft Plan, that resource limits would be reached long before full build-out (maximum development that would be allowed under zoning). Once resource limits are reached, additional development will be difficult. Water supplies will have to be drawn from bedrock aquifers, which are known to offer little water for domestic use. Should development exceed resource capacities, emergency measures may need to be taken, as was the case in upper Kittitas County. As a result of over-allocation of groundwater supplies, a moratorium was placed on approval of all new wells followed by state adoption of a new rule (WAC 173-539A) that withdraws from appropriation all groundwater in the upper County. New wells drilled for residential use must now acquire water rights and are subject to interruptions (stoppages or limits) during periods of drought or low stream flows. According to newspaper reports, the impact of this new rule may have lowered property values.

5. Failure to manage and protect groundwater resources could have economic impacts and prove costly to existing and future homeowners, farmers and local government.

Costs of extending sewers: As in places like Missoula and Spokane, jurisdictions often address groundwater contamination by extending sewers. Because 70 to 75 percent of installation costs are associated with installing the sewer line itself, costs go up as housing densities go down. The costs of extending sewers in rural areas at the one-acre densities proposed in the Comprehensive Plan could be expected to be as much as $60,000 per home.

Costs of installing alternative septic systems: Implementing alternative methods of onsite treatment could double or triple installation costs. Installing septic systems with additional denitrification capacities could cost $30,000 or more.

Costs of implementing ongoing septic system maintenance and replacement programs: Under this type of program, certified inspectors routinely monitor all on-site systems within a designated area. Systems that are found to be failing or performing below standards must be repaired or replaced. Monthly fees are assessed to each home or property ($12 per month has been assessed under some programs). Programs differ in terms of who must pay for septic system repairs. In some cases the homeowner is required to pay. In others, funds are established by the monitoring agency (in Washington state most likely the local department of health) for system replacement. A variety of issues remain unresolved in terms of how to implement such programs.

Costs in terms of impact on property values: Studies have shown that groundwater contamination generally lowers property values. Similarly, depletion of groundwater supplies has been shown to reduce the value of agricultural land. In contrast, government regulations to protect the environment have not, in most cases, been shown to reduce property values, and more often have increased or helped to sustain property values.

6. The most cost-effective way to mitigate the potential impacts of development on the quantity and quality of groundwater resources in Okanogan County may be to limit lot sizes and overall development densities.

Based on the experience of other communities (described in the previous), limiting development densities where septic systems are being used could prove to be a more cost-effective approach to protecting groundwater. Development under the proposed Comprehensive Plan could exceed groundwater resource capacities. This could lead to the need for new sewer and water supply systems, septic system monitoring programs, and requirements for enhanced septic systems capable of removing nitrates. It could also result in new government regulations that would cut off water supplies to junior water rights holders (including owners of individual wells), require acquisition of water rights, and involve new engineering projects to increase water supplies. These measures would prove costly to the property owners and citizens of Okanogan County.

It is possible to identify development densities that will not degrade water quality over the long term. Hydrologic studies have been done elsewhere to help planners and decision makers identify lot sizes appropriate for development on septic systems. For example, a study conducted for a rural County in Utah recommended one home per five acres and one home per fifteen acres, based on assessments of aquifer sensitivity to contamination and ability to carry nitrate loading. Similar studies could be done in Okanogan County. In addition, the results of current watershed planning for the Methow and Okanogan river basins will yield information about how much groundwater is available for domestic use. This will help planners better understand what level of development is feasible in the future, given resource capacities and limitations.

Land use planning, and subsequent zoning recommendations that are informed by hydrologic studies will help to ensure groundwater resources are protected. They will also provide more realistic expectations about future development potential. However, without more information about groundwater than is presently available, a more conservative approach than is outlined in the Comprehensive Plan is called for. The evidence indicates that development alternatives involving more extensive large lot zoning, especially over the unconsolidated aquifers in the Methow and Okanogan valleys, would better protect groundwater resources. Such alternatives should be included in the EIS.

Thank you for considering my comments. I will be happy to provide you with additional information, data sources or simply answer questions you may have about what has been presented here. Please contact me by telephone at 206-283-9254. You may email me at HYPERLINK "mailto:tooruth@earthlink.net" tooruth@earthlink.net My mailing address is 2549 Eleventh Avenue West, Seattle, WA 98119.

Sincerely,

Ruth Dight, AICP
210 Gold Creek Road
Carlton, WA

Environmental Impact Statement (Draft 1) Okanogan County Comprehensive Plan Revisions (March 11, 2009); *Environmental Impact Statement (Draft 1) Addendum 1 Revisions to Okanogan County Comprehensive Plan* (preferred alternatives) (May 12, 2009); *Environmental Impact Statement Addendum A: Revisions to the Okanogan County Comprehensive Plan* (February 11, 2011).

RCW 36.70.330 (1) states the following: "The land use element (of the Comprehensive plan) shall also provide for protection of the quality and quantity of groundwater used for public water supplies…"

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Morgan, D.S., Hinkle, S.R., Weick, R.J., et al. "Evaluation of Approaches for Managing Nitrate Loading from On-Site Wastewater systems newar La Pine, Oregon." USGS 2007-5237. Accessed on March 28, 2011 at HYPERLINK "http://pubs.usgs.gov/sir/2007/5237/section" http://pubs.usgs.gov/sir/2007/5237/section See Summary.

Whitehead, R.L., Groundwater Atlas of the United States—Idaho, Oregon and Washington, HA 730-H (USGS 1994) ; Walters, Kenneth, and E.G. Nassar, "Water in the Methow River Basin, Washington," Water Supply Bulletin 38. (Department of Ecology 1974)

Konrad, Chris, Research Hydrologist, USGS. Phone interview (March, 2011)

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Okanogan Public Health, Environmental Health. Phone interview (March 2010)

Wood, Yvonne and Lee, Brad, "Septic System Failure." Accessed at March 29, 2011 HYPERLINK "http://celnyo-mono.ucdavis.edu/files/82099.pdf" http://celnyo-mono.ucdavis.edu/files/82099.pdf

Ibid

Yates, Marylynn, "Septic Tank Density and Ground-Water Contamination," Vol. 23, No. 5, Ground Water (September-October 1985) Accessed on March 15, 2011 at HYPERLINK "http://info.ngwa.org.gwol/pdf/89104949.PDF" http://info.ngwa.org.gwol/pdf/89104949.PDF

Ibid

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Santa Cruz County Environmental Health Service, "Septic Systems and Design Standard in Santa Cruz County." (March, 1999) Accessed on Mar 15, 2011 at HYPERLINK "http://sccounty01.co.santa-cruz.ca.us/eh/sewage_disposal/ehseptic.htm" http://sccounty01.co.santa-cruz.ca.us/eh/sewage_disposal/ehseptic.htm

Rosen, Michael. Nevada Water Science Center, USGS. Phone interview (March 2011)

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Bauman, B.J. and Schafer, W.M. "Estimating Ground-Water Quality Impacts from On-Site Sewage Treatment Systems." Accessed on March 31, 2011 at HYPERLINK "http://www.bouldercounty.org/find/library/environment/baumanestgrndwtrimpct.pdf" http://www.bouldercounty.org/find/library/environment/baumanestgrndwtrimpct.pdf

Ibid. Pg 286

Ibid. Pg 285

See Chapter 173-549 WAC, "Water Resources Program in the Okanogan River Basin," WRIA 49 and Chapter 173-548 WAC, "Water Resources Program in the Methow River Basin," WRIA 48.

This was based on an estimated domestic use of 5000 gallons per day for each well—the amount of water that may be legally withdrawn from a permit-exempt well supplying one or more homes. When lower estimates of domestic water use were used, over-allocation had not been reached.

Department of Ecology, "Recent Water Use in the Methow River Valley: An Estimate," Publication No.

91-20. (December 1991)

"Final WRIA 49 Watershed Assessment Level 1 Report," Okanogan Conservation District.

A certain degree of uncertainty is associated with how to estimate domestic water use, including whether or not lawn watering is included and whether septic system effluent may be counted as adding drinkable water back into the groundwater system.

Geller, Lynn, "Water Suppliers, Government Need Proactive Response to Drought." Department of Ecology, Environment Education Guide No. 09-11-08. Accessed on March 15 at HYPERLINK "http://www.doh.wa.gov/ehp/dw/programs/water_smart.pdf" http://www.doh.wa.gov/ehp/dw/programs/water_smart.pdf

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See HYPERLINK "http://www.mass.gov/smartgrowthtoolkit" http://www.mass.gov/smartgrowthtoolkit accessed on March 21, 2011.

Chateauneuf, Russ. Onsite Wastewater Treatment Denitrification System Rule, Rhode Island Dept. of Environmental Management (2008) Accessed on March 25, 2011 at HYPERLINK "http://www.dem.ri.gov/programs/benviron/water/permits/isds/pdfs/wcpowts.pdf" http://www.dem.ri.gov/programs/benviron/water/permits/isds/pdfs/wcpowts.pdf ; See also "Septic Smart: Cost of Installation or Repair," Boulder County (2011) Accessed on March 25, 2011 at HYPERLINK "http://smartserviceinfo.com/products/industries/service/septic_tank_service_software.html" http://smartserviceinfo.com/products/industries/service/septic_tank_service_software.html; See also HYPERLINK "http://www.netseptic.com" http://www.netseptic.com accessed on March 25, 2011.

Environmental Protection Agency. "Polluted Runoff (Nonpoint Source Pollution), B. Operating Onsite Disposal Systems Management" Accessed on March 15, 2011 at HYPERLINK "http://www.epa.gov/owow/NPS/MMGI/Chapter4?ch4-5b.html" http://www.epa.gov/owow/NPS/MMGI/Chapter4?ch4-5b.html

Turner, Leslie, Washington State Department of Health, Wastewater Management Specialist. Phone interview, March 2011.

Jaeger, William, "The Effects of Land-Use Regulation on Property Values," (2006) Accessed on March 25, 2011 at HYPERLINK "http://arec.oregonstate.edu/jaeger/land/EL%20jaeger%20final.pdf" http://arec.oregonstate.edu/jaeger/land/EL%20jaeger%20final.pdf

Lowe, Mike, Janae Wallace and Sabbah Walid Sabbah, "Science-based Land-use Planning Tools to Help Protect Ground-water Quality, Cedar Valley," Iron County, Utah. Special Study 134, Utah Geological Survey (2010) Accessed on March 28, 2011 at HYPERLINK "http://geology.utah.gov/online/ss/ss-134text.pdf" http://geology.utah.gov/online/ss/ss-134text.pdf

According to Yates, EPA considers areas with septic system densities greater than one home per 16 acres as regions of potential groundwater contamination. In guidelines for operating onsite disposal systems, EPA indicates development within 1200 feet of a nitrogen-limited surface water on lots of at least 20 acres as being exempt from the need for septic system monitoring. The implication is that development on 20 acres would have minimal impact. (See Yates, Marylynn, "Septic Tank Density and Ground-Water Contamination," Vol. 23, No. 5, Ground Water (September-October 1985) Accessed on March 15, 2011 at HYPERLINK "http://info.ngwa.org.gwol/pdf/89104949.PDF" http://info.ngwa.org.gwol/pdf/89104949.PDF; see also Environmental Protection Agency. "Polluted Runoff (Nonpoint Source Pollution), B. Operating Onsite Disposal Systems Management" Accessed on March 15, 2011 at HYPERLINK "http://www.epa.gov/owow/NPS/MMGI/Chapter4?ch4-5b.html" http://www.epa.gov/owow/NPS/MMGI/Chapter4?ch4-5b.html)

Okanogan County SEPA Responsible Official
March 31, 2011