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Albany County Commissioners
Attn: David Gertsch, Planning Director
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On behalf of the City of Laramie the following comments are provided on the County Aquifer Protection Plan draft dated February 8, 2012. These comments and recommendations are provided by the City in its capacity as an affected municipal government within Albany County; as the operator of a public water system providing potable water to 90% of the residents of Albany County; and, as a property owner within or adjacent to the potential County Aquifer Protection Overlay Zone.

The City requests the Commissioners consider these recommendations within the context of their scheduled consideration of the Aquifer Protection Regulations on August 7, 2012. Provided herein is a comparison between the City of Laramie's Casper Aquifer Protection Ordinance and the draft County Aquifer Protection Regulations. The current draft Regulations were proposed by the Commissioners in their June 5, 2012 regular meeting as a substantial modification of the earlier draft reviewed jointly with the City Council in October 2011.

Major differences between the City ordinance and current County draft include:

- *"Development" is defined differently in the City and County regulations.*

In the City Ordinance, "Development" means the preliminary and final platting of land, construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure; any mine, excavation, landfill; and/or any change in use, or alteration or extension of the use of land. Excluded from this definition are additions to single-family residences that do not increase the amount of wastewater effluent above the capacity of a permitted small wastewater system (effluent amount determined by number of bedrooms); residential accessory buildings; construction of a single-family home on an existing lot that will be attached to a municipal or centralized sewer collection line; and construction that does not require a building permit.

In the County draft regulations, "Aquifer Protection Overlay Zone (APOZ) Development" is defined as any modification to the natural land surface that may result in the introduction of contaminants and/or increasing the vulnerability of the aquifer to contamination.

This County definition has remained largely unchanged during the drafting of the regulations. Under both regulations the definition of development is used to determine when a Site Specific Investigation is required. If one is participating in an activity that is considered "development", a Site Specific Investigation is required, and depending upon the results of the investigation and the ability to meet the required findings of the investigation, a project may or may not be permitted. The County definition *could* be considered more restrictive than the City's because of the statement "any modification to the natural land", thus requiring the SSI in more instances. This is unclear, however, because of the phrasing of this definition. It is difficult to pinpoint when an investigation will be required, because we do not know how "any modification to the natural land" will be interpreted by the County.

- *The Casper Aquifer Protection Boundary is different in the City and County regulations.*

As stated above, the Albany County Planning and Zoning Commission recommended a major modification to the western boundary of the APO zone. The Commission wished to ensure that at least of 75 feet of Satanka Formation overlay the Casper Aquifer. To help ensure this, all proposed development within 2000 feet of the current western boundary would be required to complete a Site Specific Investigation. This requirement and other sections of the regulations that reference the 2000-foot extension of the western boundary were removed by the new County Commissioners' draft.

As it is being considered now, the County APO Zone is different than the adopted City APO boundary. In summary the County Commissioners recommended keeping the original delineation, based on an estimated thickness of the Satanka formation of 75 feet. The City has determined that this original line was not defined (surveyed or identified on the ground), and that it is unlikely to provide an accurate level of protection based on a required minimum 75 feet of Satanka, due to known locations outside the original overlay zone with less than the recommended 75 feet. Two recent City-required SSIs bear out this determination: Turner #2 and Bone & Joint #1. Although these properties are inside the City boundary, they lie near the unincorporated County boundary and suggest ambiguity at the least between the City's eastern edge and the western County APO boundary. The original County APO zone also does not include key Zone 1 wellhead locations, which were identified in both plans as needing protection.

Based on this boundary change (or more accurately, lack of change), it appears likely that County areas with less than 75 feet of Satanka Formation fall outside of the County's protection area, potentially allowing development of those areas without a Site Specific Investigation.

Staff believes that the 2000-foot western extension would have been more in line with City's approved boundary, and felt that this was a measure which provided additional protection.

- *The County regulation creates a process for Inclusion in the APO Zone.*

The County regulations allow a process for requests to include property west of the current boundary into the APO zone. This interesting provision is not found in the City ordinance. The County's process includes a written request to the County accompanied by a professional geologist or hydrologist report that show less than 75 feet of Satanka Formation. The request is followed by an independent investigation of the report by the County, public notice, recommendation by the Albany County Planning and Zoning Commission and finally consideration by the Board of County Commissioners. If approved by the Commissioners, the boundary can be extended.

Allowing the ability to include properties in the APO zone is generally favorable in terms of protection of the Aquifer; however, it is unclear how this section of the county regulations would be interpreted. For example, it is unclear who has "standing" to make an inclusion request for any property west of the current APO zone, as the regulations only require "a written request and professional report". It is also unclear why the process for including a new property in the County APOZ is different from the process of excluding an existing APOZ property – the exclusion is done through the County Zoning regulations, but the inclusion makes no mention of following County Zoning.

It should also be pointed out that the new draft makes a significant change to what constitutes data for determining if a given area has less than 75 feet of Satanka. The draft states: "Such scientific evidence [for the geologist's or hydrologist's report] shall not include the thickness of the Satanka Formation within Zone 1 of the APOZ." Well-drilling logs and records for Zone 1 wells (i.e., the City's wellheads) are among the best-documented sources of existing information regarding Satanka thickness. It is unknown why a regulation would specifically restrict certain scientific evidence from being submitted, if the goal of the regulations is to protect the aquifer. It is also unclear why Zone 1 records from wells are singled out as being unsuitable; presumably, well logs for private wells remain eligible.

- *Significant differences, and even contradictions, in Prohibited Uses between the City and County regulations.*

Both the current City ordinances and draft County regulations have Tables of Prohibited Uses that are similar with respect to the types of uses prohibited. However the County list allows specific items that are prohibited by the City's Table of Prohibited Uses. For example, Industrial classifications are not listed in the County Table – it is unclear how significant that may be, as the County list includes a number of activities under the Commercial heading that the City UDC would classify as Industrial. More particularly, some specific activities, such as golf courses and multi-family dwellings, are not in the County Table and are thus *de facto* permissible.

- *Setbacks from vulnerable features differ between the City and County regulations.*

Both City and County regulations require setbacks from vulnerable features and basically consider the same types of features as being vulnerable. Both recommend a 100 foot setback.

However, there is a fundamental difference between the two regulations as to what uses or activities are required to be set back from vulnerable features. The City APO requires the 100' setback for all

"development." As noted above, the City definition includes the great majority of activities that require a building permit. Any development within 100 feet of a vulnerable feature in the City requires approval of a variance, supported by evidence from a SSI.

In the draft County regulations the 100-foot setback from vulnerable features may apply to development in general (see below). The County draft is somewhat ambiguous as to what uses or activities require the 100' setback. However, it most clearly applies to wastewater treatment systems (i.e., septic tanks).

A key provision in the draft is that the minimum 100-foot setback for wastewater treatment systems can be lessened upon review of the County Wastewater Engineer, based on no significant threat to groundwater. In essence, the County Wastewater Engineer can just waive the setback requirement if there is documentation provided – which need not be a SSI. It is unclear what criteria the County Wastewater Engineer would use to make this determination.

The County also allows a mandatory setback (presumably for any development) from vulnerable features if the Site Specific Investigation determines it to be necessary; however, the same section allows the County to determine that a required setback may be either more or less than 100 feet, depending upon the facts reported. It is unclear how this section would operate in practice, who would make the determination, and upon what criteria a numerical setback would be determined.

- *Different application of requirements for scientific analysis - Site Specific Investigation (SSI).*

This section has seen the largest and most significant change since the last review provided. County regulations still require Site Specific Investigations to be completed if the development is located within the Aquifer Protection Overlay Zone. As noted, it is unclear as to how "any modification to the natural land" will be interpreted by the County, or how and who will make that interpretation. Additionally, if a Site Specific Investigation is required it is unclear who at the County level makes the determination that it complies with the regulations; the current draft assigns this to "the County".

The current draft does not include the ability to attach conditions of approval to the SSI report; apparently the report is either accepted or denied as a whole. Even if issues are noted in the SSI report, evidently no requirement to make the changes can be enforced because of removal of this section. In the City ordinance, a qualified independent professional hired by the city determines if the Site Specific Investigation meets the requirement of the Plan and ordinance. Depending upon the results, a Site Specific Investigation may meet the requirements of the ordinance, meet the requirements with conditions, or not meet the requirements. This process leaves scientific review of the Site Specific Investigation up to a qualified professional and leaves policy or conditions to the staff. Because of the lack of clarity as to who reviews at the County level, the actual reviewing process is unclear, which renders how this ordinance will actually function to protect the aquifer even more unclear.

Most significantly the County draft states, "Exceptions to Site Specific Investigation Requirement. The following do not require a site specific investigation: parcels subdivided *or* zoned Residential prior to the effective date of this resolution" [emphasis added]. A great majority of APOZ properties east of the City are therefore exempt from the SSI requirement, as most of this area is either subdivided or zoned Residential (often both). As confirmed in the CAPP, this area is one of the most vulnerable locations in the APO zone. It

consists primarily of existing residential units with septic systems, up-gradient from many City and private wells. The attached County Zoning map shows residentially zoned properties in yellow; those properties would be exempt from the SSI requirements. The map does not directly show previously subdivided properties, so it is very possible that the yellow areas include only part of the exempt properties.

Furthermore, it is not clear at this time how the term "parcels subdivided" will be interpreted by the County; will this be only those subdivisions required to go through the County Planning Office, exempt subdivisions, large lot subdivisions, or all? Depending upon how this is interpreted, it is possible that almost no property in the APO zone would require an SSI.

City of Laramie Recommendations for the Albany County Aquifer Protection Overlay Zone

Based on this summary and the analysis outlined, the City submits the following eight (8) recommendations and respectfully requests these modifications or additions be incorporated into the final County Regulations.

1. The Exceptions to the SSI section should be removed. The wording of this section exempts all residential properties and parcels which have been subdivided. This includes most, if not all, developed or developable properties near the City's eastern boundary. Considerable geologic evidence is available indicating the hydraulic vulnerability of this region. As part of this modification, the City would also request that the term "subdivision" be clarified in this context.

2. The western boundary of the Casper Aquifer Protection Area should incorporate the County Planning and Zoning Commission's recommended 2000-foot buffer, or more preferably simply extend the existing western boundary 2000 additional feet. *This revision to the current draft Regulations is critical to protect the vulnerable municipal wells in Zone 1 of the protection area.* The extension of the western boundary will provide added protection to areas that are known to have less than 75 feet of Satanka Formation overlay between ground surface and the aquifer, which is the depth recognized in both the City and County Aquifer Protection Plans as a standard for reasonable protection of the aquifer.

3. The setbacks from vulnerable features section should be clarified to require a minimum setback from development – including wastewater disposal (septic) systems. A minimum setback of 100- feet from vulnerable features is recommended. Development in this context should be appropriately defined relative to this section, and the entirety of the regulations.

4. The definition of "development" requires clarification. The Regulations should clearly state what process, or types of development, will require additional scientific study through a Site Specific Investigation. Currently, "any modification to the natural land" could include landscaping, utilities, grading, roads, drainage, placement of a stock tank, etc.

5. The section that allows the County Wastewater Engineer to lessen the required setback from vulnerable features for installation of a wastewater system requires clarification and expansion, *if it is not removed altogether.* Without a Site Specific Investigation, or any decision-making criteria other than no significant threat to groundwater, the determination of setback (including no setback) is virtually

arbitrary. At a minimum, a scientific study should be prepared by a professional similar to that of an SSI or an SSI itself, to delineate clear criteria for setback-related evaluation of the results.

6. The following sentence should be removed: "Such scientific evidence [for the geologist's or hydrologist's report] shall not include the thickness of the Satanka Formation within Zone 1." All information regarding the geology and hydrology of the aquifer should be considered. *A priori* exclusion of valid scientific data is poor practice. The City will provide any Zone 1 data from the drilling and testing of municipal well to the County or other interested parties on request via standard procedures.

7. The Site Specific Investigation section should clarify who determines compliance with the regulations. Currently this is left to the "County", which may mean staff, the Planning and Zoning Commission, the Board of County Commissioners, or a combination of two or all three.

8. The Site Specific Investigation section should allow for conditions of approval to be placed on the submitted SSI. Without conditions of approval, the SSI is either approved or denied, and no changes to the plan and SSI submitted can be done.

In closing, I would like to address the value of quality groundwater to the City of Laramie and Albany County. The City public water system provides potable water to roughly 90% of the residents of Albany County. Currently, water pumped from municipal wells in Zone 1 is only chlorinated prior to being introduced to the City distribution system. Additionally, a small amount of fluoride is added to the water to prevent dental caries (tooth decay) in the general population. No other treatment of the groundwater is performed or required at this time because of the high quality of aquifer water.

In the event groundwater from the Casper Aquifer is contaminated, additional treatments would be required by State and Federal law. The degree of treatment, and the resultant cost, would be associated with the specific contaminant and volume of water to be treated. In terms of the type of treatment that would be required, current technologies routinely utilize membrane filtration to remove contaminants such as nitrate from the drinking water. Capital and operating costs for membranes are associated with the degree of treatment, and each requires a significant investment and ongoing electrical expense for pumping as well as disposal of the solute (waste) that is produced by the process.

Testing of wells in the aquifer protection area in 2009 revealed nitrate-nitrogen in many wells in that area (attached). The acceptable drinking water standard is 10mg/L for nitrate-nitrogen; three wells exceeded this level, and 29% of wells sampled in the East Grand area were above 5mg/L. If this trend continues, the City will be required to remove this nitrate – a process that requires the highest level of membrane treatment and therefore the highest cost. Pressure requirements for this treatment are typically in excess of 150 PSI and can be as high as 300 PSI for non-sea water applications. Capital costs for this treatment are in the range of $2-million to $4-million per MGD. ***Based upon the potential maximum demand from each of the City's well sites in Zone 1, the total capital cost to treat nitrate***

contaminated water would be in the range of $28-million to $56-million. Additional cost would be required for annual maintenance of the systems and significant electrical costs that in total would exceed $80,000 per year.

Please feel free to contact me should you have questions.

Sincerely,

Janine Jordan
City Manager