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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Subject: Draft Environmental Impact Statement for the Lincoln County Land Act
Groundwater Development and Utility Right-of-Way Project (CEQ#
20080197)

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the above project. Our review and comments are pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

Based on our review, we have rated the Lincoln County Land Act (LCLA) Groundwater Development and Utility Right-of-Way Project as Environmental Concerns - Insufficient Information (EC-2). A *Summary of EPA Rating Definitions* is enclosed. EPA has significant concerns with the long-term reliability and sustainable use of the water provided by this project. Our concern stems from the many pending water right applications-all of which anticipate use of the same carbonate-rock aquifer; uncertainties regarding the long-term sustainable yield of this aquifer; and the effects of changing climate and drought.

We acknowledge regional efforts through the Lincoln County Water District and US Fish and Wildlife Service Stipulation Agreement and the Nevada State Engineer's potential regional plan to evaluate the Lower Colorado Flow system. We urge the Bureau of Land Management, Cooperating Agencies, Lincoln County Water District, Vidler Water Company, Coyote Springs Investments, and other water right applicants to build on these regional efforts to develop a regional groundwater framework to ensure: 1) efficient long-term sustainable use of the deep carbonate-rock aquifer and 2) avoidance of adverse impacts to third parties and surface and groundwater quality/quantity. We also recommend that water allocations from this project occur only after a clear demonstration by beneficiaries that a comprehensive and integrated demand management program including conservation, efficiency, and reuse components would be implemented.

We acknowledge the direct effects of the right-of-way grant and associated utility construction would be temporary and mitigable. However, operation of the groundwater project and associated build-out of the LCLA and Mesquite Land Act Areas will have significant indirect and cumulative impacts. These developments would result in a population increase of more than 500,000 and more than 44,000 dwellings over a 30-year period. Thus, we continue to have concerns with the indirect and cumulative impacts on scarce and vulnerable desert springs, seeps, wetlands, and streams; and at-risk habitats and wildlife species. We recommend the final environmental impact statement (FEIS) provide additional information on mitigation measures to avoid these indirect and cumulative impacts.

The proposed project and associated land developments are located in the Mojave Desert characterized by low humidity, minimal annual rainfall, and scarce water supply sources. The effects of changing climate and drought could have significant adverse effects. We recommend the FEIS evaluate, list, and commit to specific climate change adaptation measures and fall-back options if the quantity and/or quality of appropriated water is not sufficient to meet proposed beneficial uses.

We appreciate the opportunity to review this DEIS. We are available to discuss our comments. When the FEIS is released for public review, please send one copy to the above address (mail code: CED-2). If you have questions, please call me at 415-972-3846 or Laura Fujii, of my staff, at 415-972-3852 or fujii.laura@epa.gov.

Sincerely,

/s/ Connell Dunning for

Nova Blazej, Manager
Environmental Review Office

Enclosures:

Summary of EPA Rating Definitions

Detailed Comments

cc: Jeff Weeks, Bureau of Land Management, Ely District Office
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US EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE LCLA GROUNDWATER DEVELOPMENT AND UTILITY ROW PROJECT, LINCOLN COUNTY, NEVADA, JULY 18, 2008

Sustainable Use of Groundwater Resources

Promote formation of a regional carbonate-rock groundwater framework to ensure efficient long-term sustainable use. EPA has significant concerns with the long-term reliability and sustainable use of the water provided by this project. Our concern is based upon: 1) the many pending water right applications in Nevada and Utah for the same carbonate-rock aquifer system; 2) the uncertainties regarding the amount of ground-water recharge, quantification of subsurface inflows and outflows, the interconnection of the Tule Desert and Clover Valley groundwater flow systems with other multiple flow systems and hydrographic basins; and, 3) impacts on senior appropriated water rights and sensitive aquatic resources in down-gradient basins. The draft environmental impact statement (DEIS) clearly states the potential for impacts to groundwater quantity from drawdown and indirect impacts related to lowered yields at local and regional springs and surface water expressions (p. ES-13).

Recommendations:

EPA commends the collaboration between the water right applicants and U.S. Fish and Wildlife to address potential impacts to springs in the Overton Arm of Lake Mead National Recreation Area, including Rogers and Blue Point Springs and depletion of surface flows of the Virgin River. We also commend the commitment to participate in any regional plan organized by the Nevada State Engineer to evaluate potential effects on the Lower Colorado Flow System region (Appendix 2A Stipulation Agreement).

We recommend the Bureau of Land Management (BLM), Cooperating Agencies, Lincoln County Water District (LCWD), Vidler Water Company (VWC), Coyote Springs Investments (CSI), and other water right applicants build on these regional efforts to develop a regional groundwater framework to ensure: 1) efficient long-term sustainable use of the deep carbonate-rock aquifer and 2) avoidance of adverse impacts to third parties and surface and groundwater quality and quantity. Opportunities for such collaboration should be discussed in the final environmental impact statement (FEIS).

Describe water use efficiency, conservation, and reuse management measures that will be implemented by all water supply users. Operation of the groundwater project and associated build-out of the Lincoln County Land Act (LCLA) and Mesquite Land Act Areas could result in a population increase of more than 500,000 and more than 44,000 dwellings over a 30-year period (pps. 4-64, 4-75). EPA strongly supports the implementation of water management tools to maximize water conservation and water use efficiencies – key components of supply and demand management. Innovative and aggressive supply and demand management is essential in assuring a long-term, sustainable balance between available water supplies, demand, and ecosystem and public health. Efforts to improve water supply system flexibility, conservation, and water use

efficiencies are even more urgent given the projected growth in Clark and Lincoln Counties, the adverse effects of the current multi-year drought, and the potential adverse effects of climate change on scarce water supplies.

Recommendations:

EPA recommends the FEIS clearly demonstrate whether there is sufficient groundwater for the lifetime of this project and other reasonably foreseeable projects in the study area. We also recommend the FEIS address what measures would be taken, and by whom, should groundwater resources in the basin become overextended due to additional growth, continued drought, and the utilization of existing or pending water rights in the basin(s).

We recommend that water from the groundwater development be allocated only after a clear demonstration by beneficiaries that a comprehensive and integrated demand management program, including water conservation, efficiency, and reuse components, has or will be implemented.

We recommend the FEIS describe the water use efficiency, conservation, and reuse management measures that will be implemented by all water supply users. We recommend a list of supply and demand management measures be provided in an appendix to serve as a resource for Lincoln County, as well as other users of the carbonate-rock aquifer, the Nevada State Engineer, and water right applicants who wish to maximize the effective use of scarce water supplies. The appendix should describe the full range of tools available to water users to improve water quality and reuse, maximize water use efficiencies, balance supply and demand, and avoid and minimize adverse effects to third parties.

Efficient water use can be enhanced through development, infrastructure, and drinking water policies. We recommend the FEIS discuss the linkages between water use and these factors and describe potential mechanisms to support water use efficiencies. We recommend the FEIS provide a short discussion of who could best implement the identified mechanisms. The following reports may be of assistance as a starting point for the evaluation:

- *Growing Toward More Efficient Water Use: Linking Development, Infrastructure, and Drinking Water Policies*. EPA Publication 230-R-06-001, EPA National Service Center for Environmental Publications, (800) 490-9198 or nscep@bps-lmit.com.
- *Protecting Water Resources with Higher-Density Development*. EPA publication 231-R-06-001. EPA National Service Center for Environmental Publications, (800) 490-9198 or nscep@bps-lmit.com.

Describe back-up water supplies. Lincoln County and VWC has submitted water right permit applications to the Nevada State Engineer for 14,480 acre-feet per year (afy) from the Clover Valley Hydrographic Area and 9,340 afy from the Tule Desert Hydrographic Area (p. ES-2); of which only 2,100 afy from Tule Desert has been granted. There are

many uncertainties regarding the perennial yield of the Tule Desert and Clover Valley Hydrographic Basins (Section 3.3.2.4 and Appendix A), interconnection with other hydrographic basins, and the effects of changing climate and drought. Therefore, the availability of alternative water sources may be necessary to ensure a reliable supply.

Recommendations:

We recommend the FEIS describe back-up water sources which can be used if actual groundwater yields or granted water rights are below the requested 23,820 afy. In addition, we recommend the FEIS describe the rationale for the requested groundwater quantity for appropriation and the status of the water right permit applications for Clover Valley and Tule Desert.

Effects on Groundwater Resources

Provide additional supporting data for the conclusion of minimal adverse effects on groundwater levels. The DEIS concluded that pumping water from the fractured-rock aquifer in the Tule Desert and Clover Valley hydrographic basins would not result in substantial decline of groundwater levels or a significant reduction in groundwater resources (Sections 4.3.1.2 and 4.3.1.3). The DEIS acknowledges that there is a lack of data in three principle areas: 1) the amount and movement of groundwater in the basin-filled deposits within the Tule Desert and Clover Valley; 2) the amount and movement of groundwater in the fractured-rock aquifer underlying the Tule Desert, Clover Valley, and Virgin River Valley hydrographic areas; and 3) the location and amount of groundwater discharge and recharge from the fractured-rock aquifer underlying the Tule Desert and Clover Valley. The actual extent of the groundwater level decline in the Tule Desert and Clover Valley basin fill deposits is uncertain, because of the aquifer's complexity and limited available data.

Recommendations:

EPA recommends the FEIS discuss how the determination was made that there will be no substantial decline of groundwater levels given the level of uncertainty regarding hydrogeology of the groundwater flow systems in the Tule Desert and Clover Valley. We recommend the FEIS provide additional information on the proposed well fields in the Tule Desert and Clover Valley and clarify whether the wells will tap into the fractured-rock aquifer or the basin-fill aquifer, since there may be hydraulic interconnection between the two units.

Provide information on the adequacy of the monitoring plan and mitigation measures.

The DEIS also anticipates minimal adverse effects of groundwater pumping due to the Stipulation Agreement between the LCWD and the National Park Service that requires LCWD to monitor, manage, and mitigate unanticipated impacts that result from the development of groundwater resources (Appendix A2). The *Monitoring, Management, and Mitigation Plan* provides for two early-warning monitoring wells, one in the shallow aquifer and one between the Tule Desert and Virgin Valley hydrographic areas. The Nevada State Engineer's Ruling #5181 for Tule Desert and the DEIS clearly describe the geological complexity of the groundwater basins and the many unknowns. It is not clear

whether these two monitoring wells would be sufficient to avoid adverse effects or how adverse effects would be mitigated if detected.

Recommendation:

EPA recommends the FEIS provide: 1) data demonstrating the two monitoring wells would be sufficient to avoid adverse effects and 2) a list of measures that would be implemented to mitigate adverse effects of groundwater pumping, if detected.

Describe effects of groundwater pumping on groundwater-dependent vegetation. The DEIS states that operation and maintenance of the groundwater pumping are not anticipated to result in indirect impacts to vegetation resources within the project area or in the region-of-influence (p. 4-20). The evaluation appears to focus on potential effects on surface flows, springs, and their associated sensitive species. The DEIS does not appear to describe potential effects on vegetation, such as phreatophytes, that rely upon the groundwater table.

Recommendation:

We recommend the FEIS describe potential indirect effects of groundwater pumping on vegetation such as phreatophytes that may be dependent on the deep water table. The FEIS should describe whether there would be a loss of surface vegetation and potential habitat. Any air quality effects of this vegetation loss should also be described.

Provide a summary of the water rights permit process and hydrogeology of the carbonate-rock aquifer. The DEIS states that the Clark, Lincoln, and White Pine Counties Groundwater Development Project and Kane Springs Valley Groundwater Project would not have cumulative effects because their withdrawals occur in hydrologic basins located in separate groundwater flow systems (White River Flow System and Great Salt Lake Desert Flow System)(p. 4-67). However, it is our understanding that all of the proposed groundwater development projects would draw from the regional carbonate-rock aquifer system which encompasses the different flow systems and underlies the many hydrologic basins. Thus, we remain concerned with regional connections within the deep carbonate-rock aquifer system and potential cumulative adverse impacts of multiple groundwater pumping projects.

Recommendation:

EPA recognizes and understands the responsibility of the Nevada State Engineer and Nevada Department of Water Resources over Nevada water rights and water resources. Therefore, we recommend the FEIS summarize: 1) the status of the Nevada State Engineer water rights permit process, 2) currently known hydrogeology of the carbonate-rock aquifer system and its various flow systems, and 3) proposed research and studies to reduce the uncertainties regarding groundwater flows, quantities, and quality.

Energy and Water Supply

Provide a discussion of the relationship between water supply and power availability. Water use and power are inextricably linked where water use, from source and conveyance to wastewater treatment, requires energy. Given power shortages and water scarcity across the West, it is important that policy makers, water and energy experts, and the public understand and consider these links.

Recommendation:

We recommend the FEIS discuss and evaluate the relationship between water supply and power requirements. The FEIS should include a description of the projected power needs of the LCLA Groundwater Development Project; associated LCLA development, Mesquite Land Act development, and Toquop Energy Project; and the long-term availability of this power.

Climate Change

Provide a short discussion of climate change and its potential effects on the proposed action and related LCLA and Mesquite developments. A number of studies specific to the Colorado River Basin, which includes the project area, indicate the potential for significant environmental impacts as a result of changing temperatures and precipitation. A more extensive discussion of climate change and its potential effects on the proposed groundwater development action would better serve decision-making on this project, as well as long-term, regional water management planning and planned development.

Recommendation:

We recommend the FEIS include a separate discussion of climate change and its potential effects on the proposed groundwater development project and associated development. We recommend this discussion provide a short summary of the climate change studies specific to the project area and Colorado River Basin¹, including their findings on potential environmental and water supply effects and their recommendations for managing and adapting to these effects.

We recommend the FEIS evaluate, list, and commit to specific climate change adaptation measures and fall-back options if the quantity and/or quality of appropriated water is not sufficient to meet proposed beneficial uses.

General Comments

Off-Road and Off-Highway Vehicle Use. EPA is concerned with effects on air quality, habitat, wildlife, and nearby Areas of Critical Environmental Concern, Wilderness, and other Special Use Areas associated with increased recreational off-highway vehicle (OHV) traffic which may occur on the improved project right-of-way access roads.

Recommendation:

¹ A number of studies specific to the Colorado River Basin indicate the potential for significant environmental impacts as a result of changing temperatures and precipitation (Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability, National Research Council, 2007).

EPA recommends project proponents work with the Bureau of Land Management (BLM) to reduce the potential of inappropriate OHV use of the pipeline right-of-way by developing an access management plan. We recommends the access management plan describe the: 1) agency or agencies responsible for implementation and enforcement of the access plan; 2) frequency of monitoring; 3) methodology for reassessing the implemented measures in the future; and 4) enforcement measures.

Air Quality Cumulative Impacts. The DEIS concludes that there would be no cumulative impacts because all construction and operation activities would have to comply with local, state, or federal policies including a Fugitive Dust Control Plan (p. 4-73). However, operation of the groundwater project and associated build-out of the LCLA and Mesquite Land Act Areas could have significant indirect and cumulative air quality impacts given the potential population increase of more than 500,000 and more than 44,000 dwellings over a 30-year period.

Recommendation:

We recommend the FEIS include an evaluation of the indirect and cumulative air quality impacts of the projected growth enabled by this groundwater development project.

Describe the current housing market and local economy and implications for this project and associated developments. The Proposed Action would assist in meeting a portion of the growing water demands of Lincoln County, and, specifically, the groundwater and utility infrastructure needs of the LCLA Development Area (Maps, ES 1-1). This land is currently undeveloped but is being planned by Lincoln County as Planned Unit Development (self-contained villages) for a total build-out at 44,000 dwelling units over a 30-yr period.

Recommendation:

We recommend the FEIS describe the current housing market and local economy and the implications for this project and associated developments.

We also recommend that the FEIS include an analysis of induced growth and identify the model used to determine land-use impacts caused by the project. EPA recommends the FEIS make both the methodology and the assumptions in the growth-inducing analysis as transparent as possible to the public and decision makers.

- Discuss the model's strengths and weaknesses, and describe why it was selected.
- Identify the assumptions used in the model, the strengths and weaknesses of the assumptions, and why those assumptions were selected. For example, describe which method will be used to allocate growth to analysis zones, its strengths and weaknesses, and why that method was selected.

- Ground-truth the results of the land use model by enlisting local expertise involved in land use issues, such as local government officials, land use and transportation planners, home loan officers, and real estate representatives. Use their collective knowledge to validate or modify the results of the land use model.