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# MEMORANDUM

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Date: May 15, 2012

To: The Honorable Chairman and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry  
County Administrator *CHH*

Re: **Limitations to the Aquifer Protection Program and the Pima County Appeal of the Arizona Department of Environmental Quality-issued Aquifer Protection Permit for the Proposed Rosemont Mine**

The Arizona Department of Environmental Quality (ADEQ) was established by the Arizona Environmental Quality Act in 1986 to serve as a separate, cabinet-level agency to administer all State-level protections for air, water and waste. The same legislation established a comprehensive groundwater protection program, in part in reaction to the aquifer contamination issues on Tucson's south side.

In 1981, the Pima County Health Department ordered wells to be shut down to protect residents from industrial pollutants. This incident, along with others in the State, demonstrated the mounting need for stricter protection of aquifers and clearer lines of responsibilities among State agencies.

A coalition of public interest groups organized an initiative for the November 1986 ballot. This threat motivated the Legislature, which had previously been deadlocked over the issue, to act before voters would decide the issue, and ADEQ was created.

ADEQ's Aquifer Protection Permit (APP) program was a key part of the new legislation. Rather than focus on remediation – trying to clean up a mess after the fact – the APP program is intended as a preventive program to minimize the potential for pollutants to contaminate aquifers. This approach is especially important from a public policy standpoint because, so often, the taxpayers end up paying for cleanup costs, not the polluters. Arizona's legislation also stipulated that all of its aquifers are important and should be designated as drinking water aquifers; that is to protect their quality for the future (Arizona Revised Statute §49-224 (B)).

Compared to what public expectations might be for environmental control, the APP program has its limits. Many of these limits are apparent in ADEQ's responses to comments regarding the Rosemont Mine APP published along with the final permit decision on the APP for the Rosemont mine, available at:

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[http://www.azdeq.gov/environ/water/permits/download/rs\\_app106100.pdf](http://www.azdeq.gov/environ/water/permits/download/rs_app106100.pdf)

In ADEQ's own words:

1. *ADEQ does not have authority to require covers on process solution impoundments through the APP Program to protect migratory birds.* [Response to Comment 1]
2. *Chemical constituents used in processing at the mine are not regulated by the APP program unless they are discharges related to APP regulated facilities (i.e. —impoundments or stockpiles).* [Response to Comment 8]
3. *The APP application process is independent of the U.S. Forest Service and Army Corps of Engineers permitting process.* [Response to Comment 9]
4. *The department has accepted a closure strategy and cost estimate...any detailed plans can only be made at the time the mine makes notification of closure (emphasis added).* [Response to Comment 11]
5. *The applicant is not required to demonstrate that there will be no discharge of pollutants to the aquifer.* [Response to Comment 22]
6. *Continuing hydrological studies are not required.* [Response to Comment 29]
7. *There are currently no authorities under A.R.S. §49-241 through §49-244, or A.A.C. R18-9-A201 through A209, to require construction of preemptive mitigation measures.* [Response to Comment 49]
8. *Although longer term testing is more likely to accurately predict the results of life-of-mine leaching, the tests required are a balance between predictive perfection and practicality.* [Response to Comment 30]
9. *There is no authority in the statute or rule to require the completion of the ambient monitoring program prior to ground disturbance.* [Response to Comment 74]

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10. *Statute and rule do not provide timeframe limits for which a facility can remain in temporary cessation before initiating closure.* [Response to Comment 80]
11. *ADEQ rules are specific to those closure and post-closure costs associated with APP defined discharging facilities only.* [Response to Comment 93]
12. *The ADEQ does not have authority to require a financial mechanism for mitigating unforeseen environmental impacts from the mine site after closure and post-closure.* [Response to Comment 94]
13. *The pit is not a categorical discharging facility and does not receive a discharge as described in previous comments and responses. Therefore, BADCT does not apply to the pit or pit lake. The commenter provides several suggestions and alternatives that could be considered by the Applicant, however, because the pit is an unregulated facility, ADEQ does not have the authority to require the Applicant to consider these.* [Response to Comment 95]

In providing comments on the draft APP for the Rosemont mine, Pima County saw many opportunities to strengthen the ability of ADEQ to avoid, detect or control groundwater pollution through permit conditions that we believe were within the agency's discretion. However, only a few of our comments resulted in substantive changes to the permit.

For instance, Pima County believes there is potential for pollutants from the mine to enter the fractured limestone aquifer and then discharge to the surface via springs and seeps. Spring flows that support aquatic and wildlife use are one of several downgradient uses of the aquifer. Surface water quality standards to protect aquatic and wildlife use are, for many pollutants, more stringent than drinking water standards applied to the aquifer in the APP, but these standards will not be protected via the Rosemont APP. Section 2.5.4 of the proposed Rosemont permit states that surface water monitoring is "not applicable for this permit."

ADEQ states they will instead rely on the US Army Corps of Engineers' permit conditions or other State programs to control pollution emanating from the mine to springs (see response to Comments 10 and 131). They classify springs as surface water, rather than recognizing that springs emanate from groundwater discharges. Protecting flowing springs from drawdown impacts as well as overall water conservation within the watershed are other important water management issues that have been ignored by the APP process.

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The Rosemont APP process illustrates how permit reviewers can narrowly interpret the APP program to ignore areas where the interface with other regulatory programs could be useful to the program and assist the agency in building a better permit. The agency has exempted as much of the facility as possible from APP requirements. Does this minimize their workload and streamline the administration of the permit? Yes. Does it honor the intent of the Arizona Environmental Quality Act in terms of reducing potential for pollution and protecting aquifers? No. In this particular permit, we see evidence that wherever regulation and guidance allowed agency discretion, the agency has acted to minimize the applicant's burden of responsibility to prevent pollution.

Mitigation measures that were intended to prevent water quality from exceeding legal requirements have failed at many mines, including those that were developed under federal and state oversight. This phenomenon was studied in detail by Drs. Ann Maest and Jim Kuipers, P.E. for a 2006 report entitled "Predicting Water Quality Problems at Hardrock Mines." The reasons for the failures to predict and prevent pollution at modern mines were found to be with ineffective administration, as well as inadequate understanding of the characteristics of the complex geology and hydrology at mine sites.

Science cannot adequately model and predict some types of natural systems, and Rosemont is among of them. ADEQ, of necessity, has accepted a groundwater model that assumes homogeneous aquifer conditions and is unable to mimic flow in fractured bedrock. However, as a regulator, ADEQ should have recognized the limits of science and required additional safeguards in the design, monitoring and compliance measures for the Rosemont mine.

The issuance of the Rosemont APP certainly gives the appearance of progress. Rosemont's APP will have to be amended again later if the project is ever approved by the federal agencies.

Rosemont's premature application for an APP was unusual in that most mining companies would be unwilling to pay for review of a speculative mine design the company is unable to implement. The federal government, not Rosemont or ADEQ, must make many decisions affecting how the project would be located, designed, operated and closed. These decisions will not be completed for some time due to deficiencies in the Draft Environmental Impact Statement and requirements in the Code of Federal Regulations.

Thus, this APP will likely need significant amendment in the event of federal approval. In the event of a significant amendment, ADEQ must provide the public an additional

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opportunity to comment on the changes. However, by applying for a “placeholder” APP, Rosemont foreclosed the public’s opportunity to appeal on any provisions of the APP that would not be deemed a significant amendment by ADEQ – an unusual and incremental approach to permit approval.

The APP process is flawed. While it is an improvement over past practices where significant pollution occurred to drinking water supplies, our experience with its application to the proposed Rosemont Mine required our appeal of the proposed ADEQ APP permit.

CHH/mjk

c: Nicole Fyffe, Executive Assistant to the County Administrator  
Linda Mayro, Director, Conservation and Sustainability  
Julia Fonseca, Environmental Planning Manager, Conservation and Sustainability