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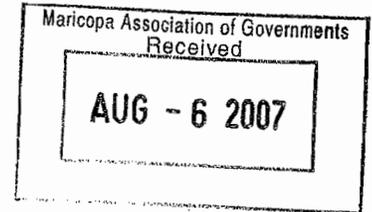


**ARIZONA CORPORATION COMMISSION**

**KRISTIN K. MAYES**  
Commissioner

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August 2, 2007



Mayor James M. Cavanaugh  
Chairman  
Maricopa Association of Government  
302 North 1<sup>st</sup> Avenue, Suite 300  
Phoenix, Arizona 85003

**Re: MAG 208 Water Quality Management Plan Amendment for the Hassayampa Utility Company N.E. Service**

Dear Mayor Cavanaugh:

It has recently come to my attention that Global Water Resources ("GWR"), through its subsidiary Hassayampa Utility Company ("HUC"), has filed an application to amend the MAG 208 Plan in the far West Valley. I am very familiar with the area in question, which includes large master planned communities like Belmont and Hassayampa Ranch. I recently wrote a law review article which includes a discussion of the benefits of Global's proposed water conservation practices (a copy of the article is attached to this letter).

HUC currently holds a Certificate of Convenience and Necessity ("CCNN") for both water and wastewater service (otherwise known as an integrated utility) that covers the application area. Integrated utilities are an important topic of discussion here at the Commission and throughout the State of Arizona. Over the last few years, this Commission has encouraged the development of integrated utilities because of their ability to aggressively use effluent – rather than groundwater – for such things as golf courses and turfed areas, and their capacity to carry out other conservation programs.

I would respectfully urge that MAG act affirmatively on HUC's application, in order to allow for a more efficient and effective way to serve water and wastewater in the State of Arizona.

Please feel free to contact me if you should have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Kris Mayes".

Kris Mayes  
Commissioner



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ARTICLE

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ENCOURAGING CONSERVATION BY ARIZONA'S PRIVATE WATER COMPANIES:  
A NEW ERA OF REGULATION BY THE ARIZONA CORPORATION COMMISSION

*Kris Mayes*

SUMMER 2007

# ENCOURAGING CONSERVATION BY ARIZONA'S PRIVATE WATER COMPANIES: A NEW ERA OF REGULATION BY THE ARIZONA CORPORATION COMMISSION

Kris Mayes\*

## I. THE ARIZONA CORPORATION COMMISSION: AN INTRODUCTION

### A. *Private Water Companies and Growth: Managing Complexity*

The Arizona Corporation Commission ("Commission") has both constitutional and statutory authority to regulate Arizona's public service corporations, including the approximately 350 private water companies currently serving an estimated 400,000 customers in the state.<sup>1</sup> Article 15, section 2, of the Arizona Constitution specifically mandates that water companies are to be among those shepherded by the Commission.<sup>2</sup>

With as many as 12,000 people moving to Arizona each month—9,400 per month to Maricopa County alone—ensuring the long-term availability of water

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\* Arizona Corporation Commissioner. This Article is a revised version of a paper originally presented at the Water Law and Policy Conference hosted by the University of Arizona James E. Rogers College of Law in Tucson, Arizona, on October 6–7, 2006. Articles from the Conference are collected in this symposium issue, Volume 49 Number 2, of the *Arizona Law Review*.

1. Interview with Commission Staff, including Steve Olea, Assistant Dir., Utils. Div., Ariz. Corp. Comm'n, in Phoenix, Ariz. (Oct. 2005).

2. The Arizona Constitution defines "public service corporations" as follows:

All corporations other than municipal engaged in furnishing gas, oil or electricity for light fuel or power; or in furnishing water for irrigation, fire protection, or other public purposes; or in furnishing, for profit, hot or cold air or steam for heating or cooling purposes; or engaged in collecting transporting, treating, purifying and disposing of sewage through a system, for profit; or in transmitting messages or in furnishing public telegraph or telephone service, and all corporations other than municipal, operating as common carriers, shall be deemed public service corporations.

ARIZ. CONST. art. 15, § 2.

for all residents has become increasingly important.<sup>3</sup> The Commission uses a number of tools to encourage or mandate water conservation. These tools include the use of Orders Preliminary for water companies outside an Active Management Area to require that companies prove up adequate water supplies prior to receiving a Certificate of Convenience and Necessity ("CC&N"); a preference for integrated wastewater and water utilities in order to maximize the potential for the use of reclaimed water in common areas, golf courses, and ornamental water features; measures to encourage the consolidation of small water companies, particularly those in growing areas prone to shortages; curtailment tariffs, now required of all water companies; tiered water rates, which are also now established in rate cases; and the use, when necessary, of hook-up moratoriums.

However, as the state struggles to match water supplies with its booming population and ensure reliable water delivery to future generations, the Commission will need to expand its efforts at conservation into uncharted areas. This will likely include allowing for recovery in rates of the costs associated with specific conservation measures that are soon to be required by the Arizona Department of Water Resources ("ADWR"); pinpointing small distressed water companies that are suffering high water loss rates or otherwise providing substandard service and utilizing rate premiums or acquisition adjustments to encourage their consolidation into larger entities; and working more closely with executive branch agencies to facilitate the aggressive institution of conservation measures at all of the state's private water systems. The combination of a broad network of water companies under its watch and the growing demands on Arizona's water supplies requires creative oversight by the Commission. In the face of such complexity, the Commission should continue to use its plenary powers as the regulator of private water companies to mitigate the effects of growth on water supplies and to help ensure the long-term availability of Arizona's most precious resource.

### *B. A Brief History of the Commission's Broad Mandate*

Established at statehood as a popularly elected branch of state government, the Commission was originally composed of three commissioners. It was expanded by popular vote to five commissioners in 2000. The Commission was intended by the state's founding fathers to be a bulwark for consumers against the power of the large corporations that dominated commerce at the turn of the century.<sup>4</sup>

In addressing various challenges to the Commission's authority, courts have largely upheld the Commission's jurisdiction over public service corporations. The courts most often note the Commission's broad powers as suggested by the language of the primary constitutional provision, article 15, section 3, of the Arizona Constitution:

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3. See Jon Kamman, *County Gained 313 People a Day Since 2000*, ARIZ. REPUBLIC, June 27, 2006, at B1.

4. See THE RECORDS OF THE CONSTITUTIONAL CONVENTION OF 1910, at 614, 970 (John S. Goff ed., 1991); *Ariz. Corp. Comm'n v. Woods*, 830 P.2d 807, 811-13 (Ariz. 1992) (detailing the constitutional origins of the Commission).

The Corporation Commission shall have full power to, and shall, prescribe . . . just and reasonable rates and charges to be made and collected, by public service corporations within the State for service rendered therein, and make reasonable rules, regulations, and orders, by which such corporations shall be governed in the transaction of business within the State, and may prescribe the forms and contracts and the systems of keeping accounts to be used by such corporations in transacting such business, and make and enforce reasonable rules, regulations, and orders for the convenience, comfort, and safety, and the preservation of the health, of the employees and patrons of such corporations . . . .<sup>5</sup>

Two years after enactment of the constitution, the Arizona Supreme Court distinguished the Commission from other commissions nationally: "Article 15 of our Constitution is unique in that no other state has given its Commission, by whatever name called, so extensive power and jurisdiction."<sup>6</sup> The court called the Commission's responsibility for supervising public service corporations "one of the most vexatious as well as vital questions of government" and noted that it was created by the state's founding fathers "primarily for the interest of the consumer."<sup>7</sup> In short, the court ruled that the Arizona Legislature could not infringe on the Commission's exclusive powers to regulate public service corporations; it could only legislate to broaden its powers.

A later line of cases, beginning with *Arizona Corp. Commission v. Pacific Greyhound Lines*,<sup>8</sup> questioned the breadth of the Commission's authority and "apparently established"<sup>9</sup> the doctrine that the Commission's exclusive constitutional authority is limited to ratemaking. However, the Arizona Supreme Court, in *Arizona Corp. Commission v. State ex rel. Woods*, criticized the *Greyhound* court's narrow construction of the Commission's authority to regulate public service corporations.<sup>10</sup> In this decision, the court noted that *Pacific Greyhound's* interpretation of article 15, section 3 was unreasonably narrow in light of "the framers' vision of the Commission's role" as well as earlier case law.<sup>11</sup> The court, however, declined to overrule *Pacific Greyhound*, noting that even a restrictive interpretation of article 15, section 3 extends the Commission's authority beyond simple ratemaking to actions that are required to complete its ratemaking responsibilities.<sup>12</sup> Constricting the scope of the Commission's authority, according to the *Woods* court, would frustrate the framers' intent in

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5. E.g., *Woods*, 830 P.2d at 812; *State v. Tucson Gas, Elec. Light & Power Co.*, 138 P. 781, 783-84 (Ariz. 1914).

6. *Tucson Gas*, 138 P. at 783.

7. *Id.* at 786.

8. 94 P.2d 443, 450 (Ariz. 1939); see also *Rural/Metro Corp. v. Ariz. Corp. Comm'n*, 629 P.2d 83, 85 (Ariz. 1981) (in banc) (finding that the legislature's ability to expand the Commission's authority is limited to the public service corporations delineated in article 15, section 2, of the Arizona Constitution).

9. *Woods*, 830 P.2d at 815 & n.8 (noting that the language in the *Greyhound* opinion is "less than clear").

10. *Woods*, 830 P.2d at 813-15, 818.

11. *Id.* at 813-15.

12. *Id.* at 815.

forming the Commission. Today, the Commission continues to issue decisions that are rooted in the broad language of the constitution and in the spirit of *Woods* and other early cases affirming its position as the exclusive regulator of public service corporations in Arizona.<sup>13</sup>

## II. ORDERS PRELIMINARY

### A. Recognizing the Problem

As existing private water companies seek to expand their boundaries to accommodate new customers and new water companies sprout up in rural Arizona and on the periphery of the state's urban centers, the Commission is facing new questions about how to license these companies. The Commission's practice of issuing conditional CC&Ns as the primary vehicle for approving new companies and expansions is evolving to meet the new challenges posed by growth, in particular its consequences for conservation and water supplies.<sup>14</sup>

For decades, the Commission issued conditional CC&Ns, granting the CC&N but imposing a series of requirements designed to be subsequently met by the water company.<sup>15</sup> Developers generally favor this form of CC&N because it allows them to proceed with construction and implementation of their project while the water company making the application for the CC&N works on fulfilling the conditions.<sup>16</sup> The fundamental difference between an Order Preliminary and a conditional CC&N is that under the conditional CC&N, developers may commence construction of homes and a water system designed to deliver services to residents, whereas under the Order Preliminary regime, a developer could not begin building either homes or the water system until he had met all of the conditions outlined in the Order Preliminary and then been granted a final CC&N by the Commission. As noted above, the Commission is beginning to question the usefulness of the conditional CC&N, at least in cases involving water companies

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13. Observers of the Commission have also argued for a continued expansive reading of the body's authority and reach. *E.g.*, Deborah Scott Engelby, Comment, *The Corporation Commission, Preserving Its Independence*, 20 ARIZ. ST. L.J. 241 (1988). Scott Engelby argues that *Rural/Metro* failed to take into account the constitution's framers' "intent to encompass the entire field of public utilities." *Id.* at 259. She contends that the Commission should be permitted to determine on a case-by-case basis which new technologies and forms of utilities should be brought under its regulatory umbrella. *Id.*

14. In the case of water companies, a CC&N is essentially a grant of authority by the Commission to do business as a monopoly water company. CC&Ns are provided for by statute. ARIZ. REV. STAT. ANN. § 40-281 (2006). Section 281 permits the Commission to issue a CC&N authorizing public service corporations to conduct business in Arizona; section 282(D) allows the Commission to issue Orders Preliminary authorizing public service corporations to conduct business in Arizona.

15. In some cases, water companies are given up to 24 months to fulfill the prescribed conditions.

16. Often the water company making the application for a new CC&N is owned by the developer of the subdivision or is affiliated with the developer. *See, e.g.*, Picacho Water Co., Decision No. 69174, Docket No. W-03528A-06-0313, at 3 n.2 (Ariz. Corp. Comm'n Dec. 5, 2006); Woodruff Water Co., Decision No. 68453, Docket No. W-01445A-04-0755, at 5 & n.1 (Ariz. Corp. Comm'n Feb. 2, 2006).

outside Active Management Areas (“AMAs”).<sup>17</sup> To that end, Chairman Jeff Hatch-Miller issued a letter in February 2005 announcing that the Commission had opened a generic docket to consider replacing conditional CC&N’s with Orders Preliminary.<sup>18</sup>

Orders Preliminary are a seldom-used form of CC&N authorized under statute:

If a public service corporation desires to exercise a right or privilege under a franchise or permit which it contemplates securing, but which has not yet been granted to it, the corporation may apply to the commission for an order preliminary to the issue of the certificate. The commission may make an order declaring that it will thereafter, upon application, under rules it prescribes, issue the desired certificate, upon terms and conditions it designates, after the corporation has obtained the contemplated franchise or permit or may make an order issuing a certificate on the condition that the contemplated franchise or permit is obtained and on other terms and conditions it designates. If the commission makes an order preliminary to the issuance of the certificate, upon presentation to the commission of evidence that the franchise or permit has been secured by the corporation, the commission shall issue the certificate.<sup>19</sup>

In moving toward the issuance of Orders Preliminary outside AMAs, the Commission is attempting to avoid situations where it grants a CC&N that allows a water company to begin serving customers, but later discovers that the company has failed to meet the CC&N conditions. Some of the developer’s conditions are critical to a public interest standard, including obtaining a Letter of Adequate Water Supply from ADWR or an Approval to Construct from the Arizona Department of Environmental Quality (“ADEQ”).<sup>20</sup> The Commission was clearly

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17. See generally *Ariz. Dep’t of Water Res., Assured/Adequate Water*, [http://www.azwater.gov/WaterManagement\\_2005/Content/OAAWS/default.asp](http://www.azwater.gov/WaterManagement_2005/Content/OAAWS/default.asp) (last visited Mar. 9, 2007). The 1980 Groundwater Management Act created five Active Management Areas: Prescott, Pinal, Phoenix, Tucson and Santa Cruz. ARIZ. REV. STAT. ANN. §§ 45-411, -411.03. Water conservation and recharge requirements are stricter within the state’s AMAs; for example, inside an AMA, developers must comply with ADWR’s Assured Water Program, which requires a demonstration that a water supply to the proposed development will be physically, legally, and continuously available for the next 100 years. This showing must be made before the developer records plats or sell parcels. Outside AMAs, developers must still determine whether there is a 100-year assured water supply, but may proceed with the sale of lots and the recording of plats as long as the developer has informed the buyer of the lack of an assured water supply.

18. See Letter from Jeff Hatch-Miller, Chairman, Ariz. Corp. Comm’n, to All Interested Parties (Feb. 14, 2005), available at <http://www.azcc.gov/divisions/admin/about/Hatch-Miller-02-14-05.pdf>.

19. ARIZ. REV. STAT. ANN. § 40-282(D).

20. Under normal circumstances, before any additions can be made to the infrastructure for a public water system, the company must first get an Approval to Construct from ADEQ. For a water company located inside an AMA, before the developer can get Department of Real Estate approval to sell lots, the developer must prove to ADWR

worried that with conditional CC&Ns, it could be conveying a property right, difficult to dislodge, before the water company and associated developers had achieved the necessary approvals from other state agencies.<sup>21</sup> Thus, in August 2006, after receiving only two comments during a year-long comment period,<sup>22</sup> the Commission directed Staff to begin using Orders Preliminary as a matter of standard practice when preparing recommendations on all new CC&N applications and CC&N extensions outside AMAs.

### ***B. Historical Context***

The Commission has utilized the Order Preliminary sparingly over the past three decades. For example, Orders Preliminary were issued in cases involving the Morrystown Water Company and Johnson Utilities (Decision Nos. 41802 and 67586, respectively). In the Johnson Utilities case, the Commission granted an Order Preliminary requested by Johnson Utilities which was to be used as a vehicle to assume control over the assets and service territory of the beleaguered Arizona Utility Supply and Services, L.L.C. (“AUSS”).<sup>23</sup> In the end, Johnson Utilities had to fulfill a number of conditions before a final CC&N for the territory previously served by AUSS would be transferred to Johnson.<sup>24</sup>

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that it has a 100-year assured supply of water. For developments outside an AMA developers just need a letter of adequacy *or* inadequacy to get permission from the Department of Real Estate to sell lots.

21. See Letter from Hatch-Miller to All Interested Parties, *supra* note 18, stating:

In many instances, the utility will begin serving customers in the certificated area in question without meeting one or more of the conditions. As a result, the utility is serving customers without a valid CC&N, thereby operating without the necessary permits and possibly endangering the public. In other instances, the applicant will request several extensions of time to comply with the conditions, saddling both itself and Commission Staff with unnecessary work.

22. Constellation New Energy and Strategic Energy filed comments on March 30, 2005 and Arizona Water Company filed comments on May 18, 2005. The companies wrote in support of the Commission’s continuing its practice of issuing conditional CC&Ns but preventing the applicant from serving customers within the CC&N until all conditions have been fulfilled and the applicants have received a confirmation letter from the Commission. Arizona Water Company filed comments on May 18, 2005, indicating support for the continued issuance of conditional CC&Ns, with the addition of language preventing the applicant from serving customers until all conditions have been fulfilled and the applicant has received a confirmation letter from the Commission.

23. Ariz. Util. Supply & Servs., L.L.C., Decision No. 67586, Docket No. SW-04002A-02-0837, at 13 (Ariz. Corp. Comm’n Feb. 15, 2005). AUSS was a wastewater utility that filed for bankruptcy protection and experienced difficulty operating two of its treatment plants; thus, this case essentially involved one utility coming to the rescue of another. See *id.* at 5–7.

24. *Id.* at 8–9. Among the conditions that had to be met by Johnson before a final CC&N would issue were the transfer of all AUSS’s franchise rights with Pinal County to Johnson, the transfer of any governmental approvals needed by AUSS to Johnson Utilities, and a series of ADEQ requirements necessary to the operation of AUSS plants and transfer of the assets.

Conversely, in *Utility Source, L.L.C.*,<sup>25</sup> the Commission acknowledged the usefulness of Orders Preliminary but nonetheless denied the request.<sup>26</sup> In its application, the water company sought two concessions from the Commission: first, a conditional CC&N for a segment of homeowners that were already being served, but without a CC&N; and, second, an Order Preliminary for a future phase of the development.<sup>27</sup> The Commission ultimately granted a conditional CC&N for the portion of the development that was already being served, but it rejected the bid for an Order Preliminary because the water company had violated title 40, section 281 of the Arizona Revised Statutes by serving customers without a CC&N.<sup>28</sup> Consequently, the Commission ruled that the water company would have to apply separately for a CC&N extension for the future development.<sup>29</sup>

Perhaps the most compelling evidence of the need for Orders Preliminary comes from a case pending before the Commission out of Mohave County.<sup>30</sup> This application involves the effort of a Nevada developer to obtain a conditional CC&N for a 30,000 home development in an area outside Kingman, Arizona. The application was filed with the Commission on July 7, 2005, and subsequently received a hearing before an Administrative Law Judge. Four days prior to the Commission's scheduled vote on the Recommended Opinion and Order, the Company's attorneys filed a letter in the docket from the ADWR, which stated that the developer had not proven up adequate water supplies. Concerned about ADWR's findings and the prospect of voting on a CC&N application that had critical deficiencies, two Commissioners requested an additional evidentiary hearing as well as discovery. At the time of this writing, the Commission is conducting additional evidentiary hearings and discovery in the matter and has hosted one public comment session in Kingman to collect input from area residents. In this instance, the use of an Order Preliminary would allow the Commission to avoid a scenario in which it might approve a CC&N, only to discover later that the company failed to acquire adequate water supplies to serve the area.

While construction of a given subdivision may be delayed during the time it takes a water company to obtain the permits required by an Order Preliminary, the Commission will have upheld the public interest by ensuring that the water company in question actually has an adequate or assured water supply, an approval to construct, and the necessary county franchise permit prior to serving its customers, all factors that reduce the likelihood of forming a water company where none should be. The consequence of this policy for the internal operation of the Commission is that most, if not all, of the Recommended Opinion and Orders in cases involving new CC&N requests and CC&N extensions in areas outside AMAs will come to us in the form of an Order Preliminary. Thus, the

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25. Decision No. 67446, Docket No. WS-04235A-04-0073 (Ariz. Corp. Comm'n Jan. 4, 2005).

26. *Id.* at 10–11, 25.

27. *Id.* at 10.

28. *Id.* at 20, 23–25.

29. *Id.* at 25.

30. See Perkins Mountain Util. Co., Docket Nos. W-20380A-05-0490, SW-20379A-05-0489 (Ariz. Corp. Comm'n filed July 7, 2005).

recommended Order Preliminary would be approved or denied at a Commission Open Meeting, and, after the applicant water company meets all of the pre-conditions, it would return to the Commission for a final Order granting or denying a CC&N.

### III. REQUIRING WATER RE-USE AT ARIZONA'S PRIVATE WATER COMPANIES

#### *A. Toward a New Paradigm: Integrated Water and Wastewater Systems*

In recent months, the Commission has issued decisions indicating a preference that new subdivisions be served, where possible, by integrated water and wastewater companies. These integrated utilities help to achieve economies of scale, encourage conservation efforts, and facilitate the use of effluent for golf course irrigation, ornamental lakes, and other water features.<sup>31</sup> The concept of integrated wastewater and water companies was approved by the 1999 Commission Water Task Force, a working group comprised of Commission Staff, the Residential Utility Consumer Office ("RUCO"), ADEQ, ADWR, and water company stakeholders. Though the Task Force's policy proposals have never been formally adopted by the Commission, the integrated water and wastewater model has been explicitly favored in several recent decisions. One of these cases involved a clash between the Arizona Water Company ("AWC"), a stand-alone water utility, and a competing entity that proposed to serve the area in question with an integrated water and wastewater operation.<sup>32</sup>

In *Woodruff*, the Commission was presented with a choice between two water companies that wanted to serve the same 3,200 acre development (called Sandia) in a fast growing area of Pinal County.<sup>33</sup> The Commission's decision was heavily influenced by the question of whether the CC&N should be granted to an entity capable of utilizing effluent. Ultimately, the Commission awarded the CC&N to Woodruff Water and Sewer Companies over AWC. The Commission chose Woodruff despite the fact the AWC was a far more experienced water provider.<sup>34</sup> The Commission favored Woodruff's planned use of effluent from its

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31. The following companies are integrated water and wastewater providers: Ajo Improvement Co., Baca Float Water Co., Bachmann Springs Utility Co., Clear Springs Utility Co., Cloud Nine Water Co., Far West Water and Sewer, Fisher's Landing Water and Sewer Works, Francisco Grande Utility Co., Johnson Utilities Co., MHC Operating Limited Partnership, Oak Creek Utility Co., Pima Utility Co., Rainbow Parks, Red Rock Utilities, Rio Rico Utilities, Rio Verde Utilities, Sunrise Utilities, Sunrise Vistas Utilities, Utility Source, Willow Springs Utilities, Litchfield Park Service Co., Santa Cruz Water Co., Picacho Water Co., Palo Verde Utilities, Santa Rosa Utilities, and Arizona-American Water. Arizona-American is the oldest integrated water-wastewater company in Arizona.

32. Woodruff Water Co., Decision No. 68453, Docket No. W-01445A-04-0755, at 5-6 (Ariz. Corp. Comm'n Feb. 2, 2006), *appeal filed*, 1CA-CV 07-0167 (Ariz. Ct. App. Mar. 9, 2007).

33. At build-out the Sandia development will serve an estimated 25,000 to 30,000 people. *Id.* at 7.

34. *Id.* at 5, 31. AWC is a water company serving more than 80,000 customers in eight Arizona counties. Woodruff is a water company founded by a developer with no prior experience operating water companies in Arizona, though the Company did put on evidence

planned wastewater treatment facility to sustain the development's proposed golf course.<sup>35</sup> During the CC&N hearing, Woodruff testified that its integrated approach to wastewater and water was designed to facilitate a 20-year build-out of the development, and that it would allow it to implement a water reuse program that it called "essential" to the project.<sup>36</sup> Against this backdrop, the Commission concluded that "[t]he benefits of developing and operating integrated water and wastewater utilities in this instance outweigh the economies imputed to AWC's larger scale."<sup>37</sup>

Companies competing for the right to serve some of the state's fastest growing areas are advantaged when they present an integrated approach to the Commission, thus allowing Commissioners the opportunity to mandate the use of effluent from the moment the service area is created.

### *B. Mandating Effluent for Use on Golf Courses and Ornamental Water Features*

In recent decisions, the Commission has begun prohibiting water companies from selling groundwater for use on new golf courses or ornamental water features.<sup>38</sup> This effectively means that developers hoping to construct golf courses and ornamental water features within the service territories of water companies subject to this provision will either have to find the effluent for use on their golf courses, or wait to build the golf course until the development is

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that it had hired an individual with significant experience running a separate water and wastewater company serving master planned developments in Arizona. *Id.* at 5.

35. *See id.* at 29.

36. *See id.* at 8. During the Commission's Open Meeting on the matter, the company's attorney told the Commissioners that the developer, which was owned by the same individual as the proposed water company, had agreed to voluntarily postpone construction of two golf courses until such time as effluent was made available from build-out of second phase of the development. The Author believes *Woodruff* to be a critical case in the evolution of the Commission's decision making in this area. Woodruff was the first company to concede that it was possible to defer the construction of a golf course until it had adequate build-out of homes to provide the effluent needed for the golf course. Additionally, the Author of this Article offered an amendment to the Administrative Law Judge's Recommended Opinion and Order, which was approved, requiring Woodruff to file with the Commission within a year a report detailing the company's progress in the utilization of effluent on ornamental lakes, golf courses and other aesthetic features.

37. *Id.* at 29.

38. Commission orders now routinely contain the following language:

In recent months, the Commission has become increasingly concerned about the prolonged drought in Central Arizona. Therefore, we believe [the company] should be required to conserve groundwater and that [the company] should be prohibited from selling groundwater for the purpose of irrigating any future golf courses within the certificated expansion areas or any ornamental lakes or water features located in the common areas of the proposed new developments within the certificated expansion areas.

*E.g.*, Ariz. Water Co., Decision No. 69163, Docket No. W-01445A-06-0059, at 10 (Ariz. Corp. Comm'n Dec. 5, 2006).

sufficiently built out to provide the effluent.<sup>39</sup> Two water companies have objected to this provision, arguing that it veers into regulatory territory already occupied by ADWR. The opponents of the effluent provision assert that ADWR has promulgated rules under its Third Management Plan that allow the use of some groundwater on golf courses inside AMAs, and that therefore the Commission prohibition goes too far.<sup>40</sup> The Commission retained the language over the Company's objections in both instances.<sup>41</sup> The Commission should continue its recently established practice of prohibiting groundwater for use on golf courses and ornamental water features in order to achieve the state's conservation goals.

*C. Aggressive Water Reuse by Newly Formed Water Companies: The Global Water Resources Example*

While it has become commonplace for wastewater utilities to deliver effluent for use on golf courses, greenbelts, ornamental lakes, and other ornamental water features (and for the Commission to require these uses as a condition to a new CC&N) no Arizona water or wastewater company has yet provided effluent for outdoor or indoor residential use. One Arizona water company, however, has announced plans to begin the aggressive use of effluent at the home-site. Global Water Resources recently briefed Corporation Commissioners on the company's decision to take effluent to home-sites within the Belmont development in western Maricopa County, a 25,000 acre residential

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39. To date, the language prohibiting the use of groundwater on new golf courses has been adopted in twelve cases: Empirita Water Co., Decision No. 69399, Docket No. W-03948A-06-0490, at 13 (Ariz. Corp. Comm'n Mar. 29, 2007); Ariz. Water Co., Decision No. 69386, Docket No. W-01445A-06-0317, at 14 (Ariz. Corp. Comm'n Mar. 22, 2007); Lucky Hills Water Co., Decision No. 69381, Docket No. W-01961A-06-0037, at 8 (Ariz. Corp. Comm'n Mar. 22, 2007); Green Acres Water, L.L.C., Decision No. 69256, Docket No. W-20430A-05-0839, at 18 (Ariz. Corp. Comm'n Jan. 19, 2007); Beaver Dam Water Co., Decision No. 69243, Docket No. W-03067A-06-0117, at 7 (Ariz. Corp. Comm'n Jan. 19, 2007); Diablo Village Water Co., Decision No. 69206, Docket No. W-02309A-05-0501, at 11 (Ariz. Corp. Comm'n Dec. 21, 2006); Picacho Water Co., Decision No. 69174, Docket No. W-03528A-06-0313, at 7 (Ariz. Corp. Comm'n Dec. 5, 2006); Ariz. Water Co., Decision No. 69163, Docket No. W-01445A-06-0059, at 10 (Ariz. Corp. Comm'n Dec. 5, 2006); Willow Springs Utils., L.L.C., Decision No. 68963, Docket No. WS-20432A-05-0874, at 16 (Ariz. Corp. Comm'n Sept. 21, 2006); Johnson Utils. Co., Decision No. 68961, Docket No. WS-02987A-05-0695, at 7 (Ariz. Corp. Comm'n Sept. 21, 2006); Diversified Water Utils., Inc., Decision No. 68960, Docket No. W-02859A-04-0844, at 6 (Ariz. Corp. Comm'n Sept. 21, 2006); Ariz. Water Co., Decision No. 68919, Docket No. W-01445A-05-0701, at 7 (Ariz. Corp. Comm'n Aug. 29, 2006).

40. See Arizona Water Company's Exceptions to Administrative Law Judge's Recommended Order at 5, Ariz. Water Co., Decision No. 69163, Docket No. W-01445A-06-0059 (filed Oct. 12, 2006); Exceptions of Picacho Water Company to Administrative Law Judge's Recommended Opinion and Order, Picacho Water Co., Decision No. 69174, Docket No. W-03528A-06-0313 (filed Nov. 16, 2006).

41. See Picacho Water Co., Decision No. 69174, at 7; Ariz. Water Co., Decision No. 69163, at 10.

subdivision.<sup>42</sup> This subdivision will receive water from the Water Utility of Greater Tonopah and wastewater service from Hassayampa Utilities, both owned by Global.<sup>43</sup>

Global is proposing using reclaimed water for all outside uses at home sites within the Belmont community. Assuming the average home usage is 0.4 acre-feet ("AF") of water, 0.16 AF for outside uses and 0.24 AF for indoor uses, the home would send 0.16 AF of discharge to treatment.<sup>44</sup> Under Global's Belmont proposal, the 0.16 AF of discharge would go to treatment and then be used as treated effluent to supply the outside water needs for homes within the development.<sup>45</sup> Basic water reclamation would result in a decrease in annual water consumption by 30%, but with the aggressive use of water reclamation annual water consumption is reduced by 40% at Belmont.<sup>46</sup> The neighborhood would not discharge any water, compared with a typical neighborhood, which discharges 117,288,000 gallons of water a year.<sup>47</sup> When the plan is complete, it is estimated that Belmont will be the largest master planned community with fully integrated water reclamation planning in Arizona.<sup>48</sup> The Commission should begin a process designed to examine whether provisioning of effluent for use at home sites should eventually become a requirement in future CC&N approvals, particularly in cases involving large, well-capitalized utilities.

***D. Arizona Department of Water Resources' Modified Non-Per Capita Program: Expecting Conservation at all Water Companies***

The Commission is likely entering an era of mandating conservation measures at Arizona's regulated water companies. This is in part because ADWR is currently engaged in a stakeholder process that will culminate in the amendment of the agency's Third Management Plan, and with that amendment will come new conservation requirements for water companies.

The Third Management Plan is designed to implement the safe yield requirement established pursuant to the 1980 Groundwater Management Act. It is believed that the newly amended rules governing safe yield will require water systems, including the private water companies regulated by the Commission, to implement water conservation measures, called Best Management Practices ("BMPs"), geared toward achieving the state's safe yield target.<sup>49</sup> Larger water companies will likely be asked to implement more BMPs than smaller companies,

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42. See Briefing to Commissioners, Trevor T. Hill, Global Water Resources LLC, Minimizing Water Use/Maximizing Water Reuse in Development (Apr. 2, 2007) (on file with author).

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.* For a typical section of land with 2,250 units, the neighborhood that consumed 293,220,000 gallons of water before reclamation and reuse would now use 175,932,000 gallons of water per year.

47. *Id.*

48. *Id.*

49. See Ariz. Dep't of Water Res., Program Framework: Modified Non-Per Capita Conservation Program (Oct. 5, 2006) (on file with author).

but all companies will be permitted to choose from a list of approximately 25 BMPs.<sup>50</sup> Among the list of BMPs currently under discussion are the installation or promotion of low-flush toilets or low-pressure shower heads and conservation advertising.<sup>51</sup> In order to meet the requirements, companies will have to show that they have implemented the BMPs, but will not be required to show that the measures have resulted in a prescribed amount of conservation.<sup>52</sup>

Water companies have long argued that they cannot implement conservation programs because they are unable to obtain rate relief from the Commission for their conservation efforts.<sup>53</sup> This is a fundamental misperception on the part of the companies. The Commission has never been asked for rate recovery of these programs, and Commission Staff have made it clear that they would be receptive to filings from Companies seeking to recover (in rates) the costs of implementing conservation programs, particularly those designed to satisfy ADWR's new rulemaking.<sup>54</sup> The Commission should continue to make it clear that it is ready to facilitate conservation efforts by water companies, especially those programs that are necessary to meet ADWR's new rules, and that the Commission is prepared to do this even before ADWR finalizes its rulemaking. Moreover, the Commission should notify water companies that they can file tariff applications with the Commission that are designed to implement conservation programs. For example, these tariffs could be designed to allow water companies to carry out conservation measures in the same way municipalities do. Such water company tariffs could condition service on the installation of low-flow toilets, low-flow shower heads, or minimal or zero usage of groundwater for outdoor irrigation. The Commission could adopt these tariffs as part of rate cases, CC&N applications or CC&N extensions.

#### IV. ENCOURAGING CONSOLIDATION OF DISTRESSED WATER COMPANIES AS A MEANS OF ACHIEVING WATER CONSERVATION AND REUSE

Implementation of conservation programs is generally a low priority for the state's troubled water companies. Most of these utilities lack the resources and the management experience to make conservation a priority. The only long-term hope for the advancement of conservation measures at these companies is their consolidation into other larger utilities.

In the 1999 Water Task Force Report to the Commission, Commission Staff and industry stakeholders issued a number of recommendations aimed at

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50. *See id.* Under the Draft Program, water companies with up to 5,000 service connections would be required to implement a basic water conservation education program plus one other BMP; companies with between 5,001 and 30,000 service connections would be required to implement the education program plus five BMPs; and companies with more than 30,000 service connections would be required to implement the education program plus ten BMPs.

51. *See id.*

52. *See id.*

53. Interview with Commission Staff, *supra* note 1.

54. *Id.*

encouraging the consolidation of smaller water companies (Class D and E companies with Class A or B or C utilities).<sup>55</sup> Pursuant to section R14-2-103 of the Arizona Administrative Code, the Commission classifies public service corporations into five categories based upon the public service corporation's annual operating revenue. For water and sewer companies, the breakdown is as follows: Class A: Annual Operating Revenue exceeding \$5,000,000; Class B: Annual Operating Revenue from \$1,000,000 to \$5,000,000; Class C: Annual Operating Revenue from \$250,000 to \$999,999; Class D: Annual Operating Revenue from \$50,000 to \$249,999; Class E: Annual Operating Revenue less than \$50,000. Though each Task Force representative agreed that incentives should be used by the Commission to achieve the goal of consolidating distressed water companies, the group could not come to consensus on which incentives are best.<sup>56</sup> Among the consolidation incentives promoted by Staff as part of the Task Force report were rate premiums for larger water companies that acquire smaller companies, and the development of a policy or rule setting forth the Commission's parameters for acquisition adjustments—premiums on the purchase price of troubled water companies.<sup>57</sup> The use of an acquisition adjustment represents a fairly radical deviation from normal ratemaking processes, as it involves a decision by the Commission to allow rate base to reflect a purchase price for a company's assets that is higher than the book value of that company. Under ordinary circumstances, rates are set using the book value of a company's assets at the time they are placed in service.

Staff recommended that acquisition adjustments be used under a specific set of conditions, including where the acquisition would not be deleterious to the acquiring company; where it was in the public interest; where the purchase price was judged to be fair and reasonable; where the recovery period for the resulting acquisition adjustment was set for a definitive period of time; and where the acquisition would have a positive effect on the service of the acquired company.<sup>58</sup> RUCO opposed the idea of acquisition adjustments, and industry representatives argued for California's policy allowing the use of fair market value in setting acquisition adjustments.<sup>59</sup>

Alternatively, Staff and RUCO agreed that rate premiums on the Company's authorized rate of return could be a valuable tool in the effort to encourage consolidation. Under this proposal, acquisitions would be spurred when an acquiring company realized it would be able to recover the costs of folding in a troubled company, and could do so without the regulatory lag created by the normal ratemaking process at the Commission.<sup>60</sup> According to RUCO, rate premiums are preferable to acquisition adjustments because they permit the

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55. See WATER TASK FORCE, ARIZ. CORP. COMM'N, INTERIM REPORT OF THE ARIZONA CORPORATION COMMISSION'S WATER TASK FORCE 7-11 (1999) (Docket No. W-00000C-98-0153) (on file with author).

56. *Id.* at 8.

57. *Id.*

58. *Id.*

59. *Id.* at 8-9.

60. *Id.* at 9.

Commission to maintain control over the amount of the incentive allowed.<sup>61</sup> Rate premiums, unlike acquisition adjustments, can be limited to a set number of years, or a specific period of time, such as the length of time between rate cases.<sup>62</sup>

To date, rate premiums and acquisition adjustments have not been formally blessed by the Commission via either a rulemaking or policy statement. Since the Water Task Force report was issued, the Commission has only approved one acquisition adjustment, in a case involving the acquisition by a Class A utility of a small distressed company in southeastern Arizona.<sup>63</sup> In that case, which involved the Commission's approval of the purchase of the severely hobbled and disastrously managed McLain water systems in Cochise County, the Commission approved a \$696,000 purchase price<sup>64</sup> of the companies by Algonquin Water Resources of America, a multinational income fund that owns five water and wastewater companies in Arizona (excluding the McLain systems).<sup>65</sup> The price represented a significant inflation of the estimated book value of the companies,<sup>66</sup> which were believed to be in such poor shape that they represented a threat to the health and safety of the companies' customers.<sup>67</sup> The Commission did not refer to the purchase price as an acquisition adjustment, but that is essentially what it was, as the purchase price was substantially greater than the book value of the company. Moreover, the large purchase premium was being used by the Commission to establish a positive rate base and encourage the purchase by Algonquin.<sup>68</sup> The Commission acknowledged the extraordinary nature of the acquisition price and of the Commission's role in setting it, but felt it was the only hope for stimulating a purchase and rehabilitation of the companies.<sup>69</sup>

Acquisition adjustments and rate premiums hold promise for use when the Commission desires to encourage the consolidation of small, troubled water companies. Strengthening the two dozen or so small water companies that currently find themselves on the financial ropes would dramatically improve the opportunities for implementing water conservation measures at those companies. The Commission should first endeavor to identify those water companies it believes are the likeliest targets for consolidation. A model for this has been developed in California, where the California Public Utilities Commission ("CPUC") has identified in its 2005 Water Action Plan the goal of providing incentives for the acquisition and operation of small water companies by larger

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61. *Id.*

62. *Id.*

63. *See* Miracle Valley Water Co., Decision No. 68412, Docket No. W-01646A-05-0506, at 12 (Ariz. Corp. Comm'n Jan. 23, 2006).

64. *Id.* at 12.

65. *See* N. Sunrise Water Co., Decision No. 68826, Docket No. W-20453A-06-0247, at 4-5 (Ariz. Corp. Comm'n June 29, 2006).

66. *See* Minutes of the Commission Open Meeting (June 27, 2006) (on file with author). The meeting included a discussion by Commissioners regarding the dilapidated condition of the water systems; ultimately, the Commission established a purchase price that was tailored to covering the amount of taxes owed by the water companies to the State of Arizona and Cochise County, rather than to the actual value of the systems.

67. *Id.* at 8.

68. *Id.* at 9-10.

69. *Id.*

private or municipal water companies.<sup>70</sup> CPUC's Water Action Plan did not identify specific companies for acquisition; rather, the report identified the goal of providing incentives. CPUC Staff, working with other government agencies, has since identified thirty systems (serving 10,500 customers) that would be in a position to qualify for acquisition by larger systems.<sup>71</sup> The Arizona Commission should similarly establish a list of troubled water systems considered candidates for consolidation and then establish a policy statement informing the water company community that acquisition adjustments and rate premiums will be considered to encourage the consolidation of these identified systems where the conditions laid out by Staff in the 1999 Water Task Force are met.<sup>72</sup>

#### V. CORRALLING WATER LOSS: CONSERVING WATER BY KEEPING IT IN THE PIPELINE

An increasing number of Arizona's private water companies are suffering from water loss—losses that occur between the point of origin (i.e., either at a well site if groundwater is used, or the Central Arizona Canal if CAP water is used) and the point of use by customers. In determining the amount of acceptable water loss, the Commission generally follows the recommendation of the American Water Works Association that loss greater than 15% is per se unacceptable, and loss below 10% is acceptable. The Commission monitors and enforces this standard in two ways. First, each company must include as part of its annual report to the Commission an accounting of the number of gallons pumped and the number of gallons sold, which, when analyzed, offers a glimpse of the amount of water each company is losing during the distribution process. Second, each company's water loss is reviewed by Commission Staff when the company is before the Commission for a rate case or request for a CC&N extension. The Commission derives its authority to regulate water loss from its authority to establish rates that are just and reasonable.<sup>73</sup>

The Commission has routinely required companies that are experiencing higher than acceptable levels of water loss to report back to the Commission with a plan to reduce loss to below the 10% standard or to explain why doing so is not

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70. CAL. PUB. UTILS. COMM'N, WATER ACTION PLAN 7 (2005), available at [http://www.cpuc.ca.gov/static/hottopics/3water/water\\_action\\_plan\\_final\\_12\\_27\\_05.pdf](http://www.cpuc.ca.gov/static/hottopics/3water/water_action_plan_final_12_27_05.pdf).

71. Memorandum from Michael Miller, Utils. Eng'r, Cal. Pub. Utils. Comm'n, et al. to John Bohn, Comm'r, Cal. Pub. Utils. Comm'n 1 (Oct. 23, 2006) (on file with author).

72. See WATER TASK FORCE, *supra* note 55, at 8.

73. Specifically, title 40, section 250(C) of the 2006 Arizona Revised Statutes provides:

[T]he commission shall by order establish the rates, fares, tolls, rentals, charges, classifications, contracts, practices, rules or regulations proposed, in whole or in part, or establish others in lieu thereof, which it finds just and reasonable, and which, if not suspended, shall, on the expiration of thirty days from the time of filing the order, or in such lesser time as the commission grants, become effective and be established, subject to the power of the commission to alter or modify the order.

possible. For instance, in *Livco Water Co.*,<sup>74</sup> Livco Water was found to have a 17.2% water loss. The Commission required Livco to file a water loss mitigation report with the Commission within 15 months of the effective date of the decision. Furthermore, the Commission ruled that Livco's water loss could not exceed 15%.<sup>75</sup>

In the most recent rate case involving the Pine Water Company, a utility chronically beset by water shortages in the summertime, the Commission rejected a provision in the proposed Settlement Agreement that would have allowed the company to file a water loss plan designed to reduce its 12.6% water loss rate.<sup>76</sup> The Commission did not find the proposed water loss provision aggressive enough under the circumstances, stating:

Arizona is in a severe drought. Water is a precious resource and is in particularly limited supply in the Pine area. It is unacceptable that a utility would request that its customers pay the costs of a speculative chance for additional water but could determine that reducing existing water loss to within acceptable levels is not "practical." Pine Water's detailed water loss plan shall only address ways to reduce water loss to less than ten percent.<sup>77</sup>

In other words, the Commission was mandating that the Company find a way to get its water loss beneath the 10% standard. The Commission further ordered its Staff to return to it with recommended actions if not satisfied by the Company's plan for remediation of the water loss problem.<sup>78</sup> Subsequent to this decision, Pine Water filed a detailed report looking at water supplies not only for their certificated area, but for the entire Payson area.

The Commission has also determined that some companies simply cannot come into total compliance with the water loss standard without undertaking unreasonable capital expenditures. In Decision No. 66849, the Commission determined that it would not be reasonable to require the Arizona Water Company to improve its water loss rates to below 10% on its Superior water system. The Commission found that doing so would necessitate the replacement of an above-ground pipeline that traveled significant distances and experienced evaporative losses as a result of warm temperatures.<sup>79</sup>

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74. Decision No. 68751, Docket No. W-02121A-05-0820, at 6 (Ariz. Corp. Comm'n June 5, 2006).

75. See *id.* at 6, 17.

76. Pine Water Co., Decision No. 67166, Docket No. W-03512A-03-0279, at 5-6, 15-16 (Ariz. Corp. Comm'n Aug. 10, 2004). Pursuant to the Settlement Agreement, if the Company found that reducing the 12.6% rate was infeasible or impractical, it could present its arguments against further reductions to the Commission. The Settlement Agreement also required the Company to file quarterly reports describing in detail the sources of the Company's water, quantity of water, and gallons of water pumped, whether from the Company's wells or well water obtained via well-sharing agreements, from water hauling or through the pipeline known as Project Magnolia.

77. *Id.* at 11.

78. *Id.* at 15-16.

79. See *Ariz. Water Co.*, Decision No. 66849, Docket No. W-01445A-02-0619, at 41 (Ariz. Corp. Comm'n Mar. 19, 2004).

The Commission's approach to addressing water loss suffers from its passivity. The Commission cannot know whether a company is posting high water losses unless the company comes forward and files for a rate increase or for an expansion of its territory. A random review of two water companies' annual reports illustrates that there are companies that remain out of compliance with the water loss requirement in the intervening years between rate cases. For instance, Ehrenberg Water is experiencing an 11% water loss rate and has not been in for a rate case since November, 1996. Golden Shores Water is experiencing a 16% water loss rate and has not been before the Commission since August, 1999.

The Commission's method of addressing water loss also suffers from a lack of auditing of the water loss reports. For instance, the 2003 annual report of the Beardsley Water Company (serving portions of the West Valley) claimed that it had sold five million gallons more than it pumped in 2003, suggesting a next-to-impossible net water *gain*.<sup>80</sup> Yet in its 2004 rate case, the Beardsley Water Company was found to have a system-wide water loss of between 2% and 3%.<sup>81</sup>

Water losses are also tracked by ADWR through the agency's Annual Water Withdrawal and Use reports, required of all water companies serving within AMAs. But these reports also go largely without audit, and appear to be often unreliable. Using the West End Water Company as an example, the Company's ADWR Annual Water Withdrawal and Use Report for 2002 declared that the Company had withdrawn 137.07 acre-feet, and delivered 126.38 acre-feet to its users, or a water loss rate of 7.8%.<sup>82</sup> This contrasts with the 2002 Annual Report, filed with the Commission, in which West End Water stated that it sold 87.01 acre-feet of water, but pumped 136.18 acre-feet, for a loss rate of approximately 36%.<sup>83</sup>

Staunching water losses at Arizona's water companies will require a multi-pronged effort. First, the Commission should continue on its current course requiring companies to engage in water loss mitigation planning whenever those companies come in for rate cases or CC&N extensions. Second, the Commission should consider financial incentives for companies that engage in water loss mitigation, potentially including a surcharge mechanism designed to allow for more timely recovery of costs associated with infrastructure improvements that are aimed at preventing water loss. Such a surcharge has been advocated by a coalition

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80. BEARDSLEY WATER CO., ANNUAL REPORT 11 (2003), *available at* <http://www.azcc.gov/divisions/util/Annual%20Reports/2003/Beardsley%20Water%20Company.pdf>.

81. *See* ARIZ. CORP. COMM'N, STAFF REPORT: BEARDSLEY WATER COMPANY, DOCKET NO. W-02074A-04-0358: APPLICATION FOR A PERMANENT RATE INCREASE, at attachment A, at 6 (2004).

82. WEST END WATER CO., ANNUAL WATER WITHDRAWAL AND USE REPORT: PROVIDER SUMMARY 2002 (2003).

83. WEST END WATER CO., ANNUAL REPORT (2002), *available at* <http://www.azcc.gov/divisions/util/Annual%20Reports/2002/West%20End%20Water%20Company.pdf>.

of Arizona water companies<sup>84</sup> and has been implemented in other states, including Pennsylvania, Delaware, Ohio, and Illinois.<sup>85</sup>

## VI. ENCOURAGING CONSERVATION THROUGH TIERED WATER RATES AND CURTAILMENT TARIFFS

Tiered water rates and curtailment tariffs have become the de facto norm for all new water company applications, rate cases, and CC&N extensions. Beginning in 2001, Commission Staff began recommending in each water utility rate case that the Commission adopt a tiered water rate structure in order to properly price water and encourage conservation. The tiered rates are tailored specifically to each water company.

Recent Commission decisions demonstrate the use of tiered rates. In *Chaparral City Water Co.*,<sup>86</sup> the Commission implemented the following rate schedule:<sup>87</sup>

Commodity Rates (per 1,000 Gallons), based upon the size of the meter going to the customer.

### ¾" Residential Meter

1,000–3,000 Gallons:	\$1.68
3,001–9,000 Gallons:	\$2.52
Over 9,000 Gallons:	\$3.03

### ¾" Commercial & Industrial Meter

1,000–9,000 Gallons:	\$2.52
Over 9,000 Gallons:	\$3.03

### 2" Meter (Residential, Commercial & Industrial)

From 1,000–100,000 Gallons:	\$2.52
Over 100,000 Gallons:	\$3.03

The Commission decision in Arizona Water Company's Eastern Group System<sup>88</sup> adopted the following rates for the Company's Bisbee system:

84. See INVESTOR OWNED WATER UTILS. OF ARIZ., RECOMMENDATIONS TO THE ARIZONA CORPORATION COMMISSION'S WATER TASK FORCE 10 (2005) (on file with author). The IOWUA white paper called on the Commission to implement a number of reforms geared toward allowing companies greater financial recovery. Among those proposals was the DSIC surcharge mechanism to permit water companies to recover funds from ratepayers between rate cases for "qualifying system improvement projects," including expenditures made by the company for "projects that reduce water losses, enhance water quality,[and] improve fire protection and long-term system viability." *Id.* at 5.

85. *Id.* at 4–5.

86. Decision No. 68176, Docket No. W-02113A-04-0616 (Ariz. Corp. Comm'n Sept. 30, 2005).

87. *Id.* at 41–42.

88. Ariz. Water Co., Decision No. 66849, Docket No. W-01445A-02-0619 (Ariz. Corp. Comm'n Mar. 19, 2004)

0 to 10,000 gallons	\$2.594
10,001 to 25,000 gallons	\$3.242
Over 25,000 gallons	\$3.89 <sup>89</sup>

The rates for the Company's Apache Junction System:

0 to 10,000 gallons	\$1.9688
10,001 to 25,000 gallons	\$2.4610
Over 25,000 gallons	\$2.9532 <sup>90</sup>

Between 2001 and 2004, the Commission began implementing curtailment plans for water companies as they filed applications at the Commission for rate cases and CC&N extensions. In May 2004, the Commission took steps to encourage every water company in Arizona to adopt a water curtailment tariff, regardless of whether they intended to come in for a rate case or CC&N extension in the near future. Originally designed to address emergencies such as a lightning strike to a well, the Commission realized that curtailment tariffs could also be used by water companies to require customers to conserve during a water shortage or severe drought conditions. Today, each water company that comes before the Commission for a rate case or CC&N extension must propose a curtailment tariff as a part of its case. If it fails to do so, Commission Staff proposes the tariff.

The Pine and Bella Vista Water Companies, serving Pine and Sierra Vista respectively, have used curtailment tariffs with regularity to address seasonal water shortages.<sup>91</sup> At the Pine Water Company, customers have become accustomed to a curtailment regime that allows the Company to prohibit certain water uses at Stages 3, 4, and 5, dependent on water production and storage levels at the time.<sup>92</sup>

The Pine curtailment tariff operates as follows:

Stage 1 (green): Water storage level is at least 90% of total capacity; no curtailment or notice required.

Stage 2 (blue): Water storage level is less than 90%, but at least 75% of capacity for at least 48 consecutive hours. Voluntary conservation measures may be employed by customers to reduce water consumption by 10%. Outside watering on weekends and holidays is curtailed. The Company is required to notify customers by changing sign postings, emailing, and posting a sign in the Pine Post Office.

Stage 3 (yellow): Water storage level is less than 75%, but at least 65% of its capacity for 24 consecutive hours. Mandatory conservation measures must be employed by customers to reduce water consumption by 25%. Outdoor watering is

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89. *Id.* at 48.

90. *Id.*

91. *See, e.g.,* Teresa McQuerrey, *Water Saving Mandated by State*, PAYSON ROUNDUP, July 15, 2005, available at <http://www.paysonroundup.com/section/localnews/story/19739>; *see also* Bella Vista Water Co., Decision No. 67505, Docket No. W-02465A-04-0692 (Ariz. Corp. Comm'n Jan. 20, 2005).

92. *See* Pine Water Co., Decision No. 65914, Docket No. W-03512A-03-0104 (Ariz. Corp. Comm'n May 16, 2003).

completely curtailed, with the exception of livestock. The Company is required to notify customers by changing sign postings, emailing, and posting a sign in the Pine Post Office.

Stage 4 (orange): Water storage or production is less than 65%, but at least 55% of capacity for 24 consecutive hours. Mandatory water restrictions are put into place and customers can be disconnected for not complying.

Stage 5 (red): Water storage or production is less than 55% of capacity for 12 consecutive hours. Similar to Stage 4, mandatory water restrictions are put into place.<sup>93</sup>

Customers are notified of the Stages via a bill stuffer and the posting of the Stage colors on flags throughout the service territory.<sup>94</sup>

The Bella Vista Water Company implemented a similar curtailment tariff, but found that some customers violated the mandatory curtailment measures. Bella Vista claimed it had few ways to force customers to abide by the curtailment stages and wanted to impose a presumptive violation of the advanced stages of the tariff. Under the Company's proposal to amend the tariff on its Southern system, customers using more than 600 gallons per day or 18,000 gallons per month during Stages 4 and 5 (when outdoor uses were prohibited) were presumed to be using water for those prohibited purposes.<sup>95</sup> The curtailment tariff approved by the Commission in *Bella Vista Water Co.* permits the Company to shut customers off with prescribed notice requirements, if they are issued a presumptive violation.<sup>96</sup> However, concerned about the effect the presumptive violation and ensuing shut-offs would have on customers, the Commission required the Company to follow strict notification guidelines aimed at providing the maximum amount of notice to customers.<sup>97</sup> Specifically, the Commission altered Bella Vista's curtailment notice proposal to require the Company to give presumptive violators two business days' notification that they are believed to be in violation of the tariff prior to shutting the customer's water off.<sup>98</sup> Customers, during those two days, may present evidence to the Company that their water usage was higher than the allowed 600 gallons per day as a result of permitted water uses.<sup>99</sup> The customer, pursuant to normal Commission rules, could also lodge a complaint against the Company at the Commission, which would be addressed by the Commission's Consumer Services Section.<sup>100</sup> The Commission also mandated that when taking special meter readings designed to demonstrate whether the customer was in violation, the Company must notify the customer of the reading and not charge the customer for it.<sup>101</sup>

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93. *Id.*

94. *Id.*

95. *See* Bella Vista Water Co., Decision No. 67505, Docket No. W-02465A-04-0692, at 2.

96. *Id.* at exhibit A.

97. *See id.*

98. *Id.* at 4.

99. *Id.*

100. *Id.* at exhibit A.

101. *Id.* at 4.

## VII. FORCED CONSERVATION THROUGH HOOK-UP MORATORIUMS WHEN ALL ELSE HAS FAILED

In recent years, the Commission has been among the few Arizona governmental entities to implement a comprehensive hook-up moratorium on a water system, a draconian but sometimes necessary method of conserving water supplies and staunching a downward spiral by a water company. On two recent occasions the Commission imposed a comprehensive moratorium either to address chronic water shortages caused by drought conditions, or to prevent the exacerbation of problems caused by the failure of the water company to invest in the water system's infrastructure, which had led to repeated outages on the system. In these instances, the Commission took the extraordinary step of preventing further connections to the water system, a de facto prohibition on development in the area in one case, and a severe restriction on growth in the other.<sup>102</sup>

### A. Pine Water Company

Since 1989, the water-shortage-prone Pine Water Company has operated under some form of hook-up restriction.<sup>103</sup> In 1989, the Commission established a total moratorium on new hook-ups. It allowed 10 connections per month beginning in 1990, lowered the limitation to one per month in 1996, and raised it again to 25 hook-ups per month in December 2002.<sup>104</sup> The company was required in a subsequent decision to present the Commission with semi-annual reports on the status of its water supply, and Staff was directed to use that information in drafting a recommendation for the Commission regarding the need for continuation or alteration of the 25 per month hook-up restriction.<sup>105</sup> On November 19, 2004, Staff filed a compliance report recommending the Commission adopt a complete prohibition on new connections to the Pine Water Company, citing the Company's reliance on a pipeline importing water from the Strawberry Water Company into Pine, as well as summertime water hauling, to meet the summertime demands of

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102. The Commission recently addressed a third proposed hook-up moratorium in *Desert Hills Water Co.*, Decision No. 68780, Docket No. W-02124A-06-0379 (Ariz. Corp. Comm'n June 19, 2006). In this case, the Commission was presented with a well-capitalized water company that had failed to invest in adequate water infrastructure to serve a growing population in north Phoenix, resulting in numerous outages and water quality complaints. Staff recommended the Order to Show Cause, which would require, among other remedies, a hook-up moratorium until the issues facing the company are resolved. During the pendency of the case, however, the Company was purchased by the nearby Town of Cave Creek. Both the proposed purchase and the Order to Show Cause are currently pending before the Commission.

103. Pine, Arizona sits atop fragmented rock formations that rely on rain and snow melt for groundwater collections. Groundwater is the main source of water for the Pine Water Company. See *Pine Water Co.*, Decision No. 67823, Docket No. W-03512A-03-0279, at 3 (Ariz. Corp. Comm'n May 5, 2005).

104. See MARLIN SCOTT, JR., ARIZ. CORP. COMM'N, COMPLIANCE STAFF REPORT FOR PINE WATER COMPANY PER DECISION NO. 67166, at 1 (2004) (Docket No. W-03512A-03-0279) (on file with author); see also *Pine Water Co.*, Decision No. 64400, Docket No. W-03512A-01-0764, at 8 (Ariz. Corp. Comm'n Jan. 31, 2002).

105. See *Pine Water Co.*, Decision No. 65435, Docket No. W-03512A-01-0764, at 2 (Ariz. Corp. Comm'n Dec. 9, 2002).

the existing water system, and the potential long-term detriments of the pipeline to the Strawberry system.<sup>106</sup> In its most recent action on the Pine Water Company, the Commission again lowered the allowable per month hook-ups for the company to two residential connections per month, imposed a complete moratorium on new commercial hook-ups, and prohibited any additional main extension agreements.<sup>107</sup> The Commission also imposed a May 2006 deadline for the parties to the case to arrive at a permanent solution to the company's water supply woes or face an automatic moratorium on all new residential hook-ups.<sup>108</sup> As of the writing of this Article, the Company has implemented the comprehensive moratorium.

### ***B. McLain Water Companies***

In July 2005, the customers of the McLain water systems experienced one of the longest water outages in Arizona history. The outage left the 265 customers of the Horseshoe Ranch and Cochise Water Companies without water for 16 days and caused Commissioners to ask Governor Janet Napolitano to declare an unprecedented state of emergency in the water system's service territory in order to free up funds that are available to the Governor for natural disaster recovery and other emergencies.<sup>109</sup> Ultimately, the Governor tapped funding from her Health Crisis Fund to provide a \$12,500 loan for a new well pump that resolved the short-term crisis. The outage was the latest in a string of incidents involving the dilapidated water system, which two years before had been placed under interim management<sup>110</sup> by the Commission due to its previous owner's failure to make necessary improvements and repairs.<sup>111</sup> As a result of the recent outages and compliance problems on the McLain system, the Commission took the extraordinary step of imposing a total moratorium on new connections to the

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106. See SCOTT, *supra* note 104, at 3.

107. Pine Water Co., Decision No. 67823, at 13.

108. See *id.* at 3 (discussing the Pine hook-up moratorium history).

109. The Author contacted Governor Napolitano's staff to ask for the assistance midway through the event. At the time, the systems were under interim management and were embroiled in a bankruptcy action and had no funding available to enable them to resolve the problem in a timely fashion.

110. See McLain, Decision No. 66241, Docket No. W-0146A-03-0601, at 2, 10 (Ariz. Corp. Comm'n Sept. 16, 2003).

111. The McLain water systems have been under heightened Commission scrutiny for years. Commission Staff and ADEQ officials believe the systems never had a chance, as they were constructed using sub-standard materials, had insufficient storage capacity, and suffered many other deficiencies. The Company's founder, Johnny McLain, Sr., filed bankruptcy seven times in the history of the companies. Commission Staff believe that he did so in order to skirt Commission and ADEQ jurisdiction and oversight on numerous occasions. The Commission ultimately voted to approve a purchase price for the Companies and approve Algonquin Water Resources as the new owner. Judge Eileen Hollowell of the U.S. Bankruptcy Court for the District of Arizona gave Algonquin until September 18, 2006 to finalize the purchase, which included entering into a consent decree with ADEQ regarding a schedule for coming into ADEQ compliance. Judge Hollowell allowed for additional time for closure of the sale, and as of the writing of this Article, Algonquin had closed on the purchase of the Companies, and had taken over as the new owner of the systems.

system.<sup>112</sup> In order for the moratorium to be lifted, the new owners must prove that a series of prescribed improvements be made at each water company. The improvements must be certified by the Commission Staff.<sup>113</sup>

### VIII. COMMENTS ON THE NEED FOR GREATER COORDINATION BETWEEN STATE AGENCIES, COUNTIES, AND THE COMMISSION

The Commission can do much to require conservation by Arizona's 350 private water utilities through its ratemaking process.<sup>114</sup> However, the discussion above regarding ADWR's ongoing rulemaking, and the Commission's role in ensuring that water companies carry out ADWR's requirements, highlights the need for heightened engagement between the executive branch and the Commission. In order to maximize the ability of each branch of government to effectuate conservation goals, the Commission, ADWR, and ADEQ should institute a process that will lead to greater information sharing regarding water company conservation efforts. This could include monthly meetings between high-level Staff at each agency and the Commission, and should include increased discussions with elected officials. It could also include increased sharing of regulatory compliance filings by water companies between executive branch agencies and the Commission. For instance, the Author recently requested that ADWR send copies to the Commission of all Letters of Adequacy that the agency issues to developers or other entities. Under normal Commission practice, developers seeking to form a water company within an AMA may file a Certificate of Assured Water Supply up to 24 months after a CC&N is issued, while those seeking to form a water company outside an AMA may file a Letter of Adequacy as late as the hearing process.<sup>115</sup> Receiving ADWR's determinations with regard to water adequacy directly from the agency and upon issuance, rather than on the developer's timetable, will give the Commission greater information, and perhaps most importantly, more time to incorporate ADWR's determinations into the Commission's analysis of whether to approve a proposed water company.

### IX. CONCLUSION

From the earliest days of statehood, the Commission has been called upon by virtue of its constitutionally-driven, exclusive jurisdiction over public service corporations to meet the evolving challenges faced by private water utilities. As Arizona's seemingly unbounded growth continues, the Commission will increasingly be faced with questions of how to encourage and require conservation

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112. Miracle Valley Water Co., Decision No. 68272, Docket No. W-01646A-05-0509, at 13 (Ariz. Corp. Comm'n Nov. 8, 2005).

113. See N. Sunrise Water Co., Decision No. 68826, Docket No. W-20453A-06-0247, at 24 (Ariz. Corp. Comm'n June 29, 2006).

114. See discussion *supra* Part I regarding the Commission's broad constitutional and statutory authority.

115. See the preceding discussion of the Commission's decision to begin utilizing the Order Preliminary for water company applications outside AMAs. While this would prevent a developer from filing a Letter of Adequacy after the CC&N is granted, it would still permit a developer to hold on to a Letter of Adequacy (or inadequacy) until the date of a Commission hearing.

by water companies. The Commission has already established a record of encouraging and mandating conservation by water companies through tiered water rates, mandated use of effluent, required water loss improvements and the use of Orders Preliminary outside AMAs. The Commission should build on these efforts by expanding its use of acquisition adjustments, as well as using rate premiums to encourage the consolidation of small water companies, thereby improving the opportunities for conservation at small water utilities. The Commission should also emphasize its receptiveness to rate recovery applications that include spending by companies on prudent and necessary conservation programs, and establish its willingness to consider tariff filings by companies that implement mandatory water conservation by consumers. Finally, the Commission should forge a more regularized relationship with executive branch agencies that will facilitate greater information sharing and maximize the effectiveness of conservation efforts of water companies.

## **Julie Hoffman**

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**From:** dblackson@earthlink.net  
**Sent:** Monday, August 06, 2007 9:19 PM  
**To:** Julie Hoffman  
**Subject:** MAG Water Quality Advisory Committee Meeting Agenda Item

Julie,

I am unable to attend the MAG Water Quality Advisory Committee meeting on August 7, 2007, but would like to provide comments on the agenda item regarding the Draft MAG Waste Quality Management Plan Amendments for the Hassayampa Utility Company Northeast Service Area and Hassayampa Utility Company Southwest Service Area. I understand that this has become a point of contention between the Hassayampa Utility Company (Global Water) and the Town of Buckeye. But it is the community of Tonopah that is feeling the impact.

Neither the Hassayampa Utility Company nor the Town of Buckeye should have their way. The Town of Buckeye is withholding their approval of the MAG 208 permit to prevent the Hassayampa Farms and Belmont master plan communities from moving forward. The Town believes that they can better manage the water basin in this part of the Hassayampa River by emphasizing recharge efforts. However, the development master plans for this area within the Town's incorporated area have included greenbelts and golf courses utilizing reclaim water rather than recharging the water. The Town should share the existing use of reclaim water for the Tartesso development in this area. Additionally, the Town opposes water and wastewater services by a private company. Yet this is what they have encouraged in other parts of the Town's incorporated limits - Verrado for example. The Town opposes taking water from the southern part of the basin (south of Interstate I-10), however, the Town has an existing well field in this area that pumps water approximately 15 miles east to the center of the Town for blending.

The Hassayampa Utility Company is asking for too much. Their request should be approved and limited to the immediate future of what will actually be developed. Belmont is particular has been a planned community since, around or about, 1990. They have not built one house. Hassayampa Utility Company's request should only accommodate the first phases of master plan community development and be allowed to expand with future phases of development.

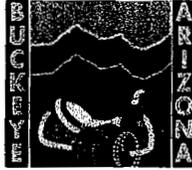
I believe that these measures are necessary to support and protect the community of Tonopah. The community of Tonopah is undergoing incorporation efforts that would make the Hassayampa River as the eastern boundary. The new town should have the opportunity to provide water and wastewater service. If too much non-developed area is given to a private company it will stifle the town's progress and ability to serve its citizens. If the Town of Buckeye is allowed to block the 208 permit process and force the master plan communities to incorporate into Buckeye, it will overpower the ability for Tonopah to incorporate. Community

members on the west banks of the Hassayampa River, who believe that they are part of Tonopah, will find themselves in the Town of Buckeye.

I encourage you to find a balance between the request of the Hassayampa Utility Company and the demands of the Town of Buckeye for the sake and future of the Tonopah community.

Daniel E. Blackson  
42211 W. Salome Highway  
Tonopah, AZ 85354

623-386-5160



## Town of Buckeye

100 North Apache Road, Buckeye, AZ 85326

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August 7, 2007

Ms. Julie Hoffman  
Maricopa Association of Governments  
302 North First Avenue, Suite 300  
Phoenix, Arizona 85003

**RE: Hassayampa Utility Company (Global Water) Northeast Service Area Application for Amendment to MAG 208 Water Quality Management Plan (Damon S. Williams Associates, May 23, 2007).**

Dear Ms. Hoffman:

The Town of Buckeye is submitting this letter in response to the Water Quality Management Plan Section 208 Amendment for the Hassayampa Utility Company Northeast Service Area. When the Town of Buckeye first reviewed the Hassayampa Utility Company (HUC) Maricopa Association of Governments (MAG) 208 amendment application it was limited to a relatively limited area bounded by a Maricopa County plan for a development called Hassayampa Ranch. In May of 2007 this service area was significantly enlarged to a service area that exceeds the initial development and other planned developments in the County. The enlarged service area is bounded mostly by the Town's west side municipal planning boundary. The Town of Buckeye respectfully requests that the Water Quality Advisory Committee extend the public notice period for an additional 120 days to allow time to accomplish three objectives:

- 1) Allow adequate time for the applicant to work cooperatively with the Town on this application and to address the concerns the Town has on the effect of water quality and sustainability of the Hassayampa Lower Sub-Basin watershed and aquifer.
- 2) Improve the delineation of the boundaries of the service area requested for the sewage treatment facilities, the site of these facilities, and the disposition of effluent with respect to the comprehensive management of water resources and assurance of water quality.
- 3) Inclusion of the proposed sewage facility effluent management strategy into the Hassayampa Lower Sub-Basin model.

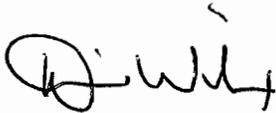
There are many planning issues other than water quality and sustainability of water resources associated with this large, dense development on the Town's western boundary

including (but not limited to) transportation, public safety (police and fire protection), schools, and the integration of these plans. There are many methods that can be employed to address these issues that have not yet been discussed or examined. However, within this jurisdiction of the MAG Water Quality Steering Committee are the issues related to water quality. The Town relies on the Hassayampa River and the health of the Hassayampa River and the watershed that recharges the aquifer to sustain planned development.

It is clear from a review of the Federal and State codes, and other supporting documents that the framework for water quality management in the State of Arizona was intended to be based on comprehensive goals that consider the relationship of groundwater and surface water and the affect of water withdrawal on water quality and the affects upon the watersheds and waterways.

The Town seeks to fully understand the water management and effluent management plans recently proposed by HUC utility, and then to discuss options that can preserve and sustain the Lower Hassayampa River watershed, aquifer and sub-basin. Therefore the Town respectfully requests that the Steering Committee allow a reasonable extension of the public notice period for an additional 120 days.

Respectfully,

A handwritten signature in black ink, appearing to read "D. Wilcox". The signature is written in a cursive style with a large initial "D" and a long, sweeping underline.

David W. Wilcox  
Town Manager

## TOWN OF BUCKEYE

### POSITION ON MARICOPA ASSOCIATION OF GOVERNMENTS' 208 WATER QUALITY MANAGEMENT PLAN PROPOSED AMENDMENT FOR THE HASSAYAMPA UTILITY COMPANY NORTHEAST SERVICE AREA

The Town of Buckeye (the "Town") presents its position on the Proposed Amendment to the Maricopa Association of Governments' (MAG) 208 Water Quality Management Plan (208 Plan) for the Hassayampa Utility Company (HUC) Northeast Service Area (May 2007) (the "Proposed Amendment"). In its Proposed Amendment, HUC requests that MAG include four new wastewater treatment facilities in the 208 Plan. The Town's position in this matter is not founded upon a desire to annex the lands within the Proposed Amendment; instead, the Town's position is premised upon responsible growth which requires sound water and wastewater management policies to sustain the region's water resources. The Town is gravely concerned that the Proposed Amendment may not site recharge facilities in areas of critical need of recharge and that there will not be adequate recharge to the aquifer to support the planned water demand in the area. In addition, the Town is very concerned that HUC will place a disproportionate number of wells near the Town's western boundary, which could affect groundwater conditions within the Town. Furthermore, when considering potential recovery well locations, it is imperative that the Town's existing and future wells and well fields not be harmed or adversely impacted by HUC's recovery well pumping.

MAG developed and implemented its 208 Plan in accordance with Section 208 of the Clean Water Act. 33 U.S.C. § 1288. Section 208 requires State and local agencies to develop and implement areawide waste treatment management plans to integrate local waste planning measures and to achieve the Act's goal of fishable and swimmable waters. 33 U.S.C. §§ 1251(a)(2), 1288(a). Section 208 prescribes the planning process for State and local agencies to follow when drafting an areawide waste treatment management plan. 33 U.S.C. § 1288(b). The 208 Plan addresses water quality as it relates to wastewater treatment planning and facilities.

While the Clean Water Act's primary purpose is to improve water quality, Section 208 is not meant to write water *quantity* issues out of the equation. For example, Section 101 of the Clean Water Act safeguards State water allocation systems and determinations. It preserves the authority of States over water:

It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter. It is the further policy of Congress that nothing in this chapter shall be construed to supersede or abrogate rights to quantities of water which have been established by any State. Federal agencies shall co-operate with State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources.

33 U.S.C. § 1251(g). In other words, the Clean Water Act recognizes the importance of managing water resources, and therefore the Town believes that the 208 Plan must consider water resource issues as part of the planning process.

MAG cannot take measures to improve water quality through the 208 Plan if water *quantity* is impaired. That is, MAG cannot consider water quality without also considering the impact of water quality in an integrated water management system. If MAG permits HUC to move forward with these wastewater treatment facilities without adequately considering the need to strategically recharge the aquifers and plan for future water resources, it will ultimately negatively affect water quality because it will decrease the overall water *quantity* available from the aquifer. In addition, a correlation can be made between groundwater level decline and diminishing groundwater quality in this area. Therefore, it is imperative to limit groundwater level decline in order to preserve groundwater quality.

As stated in the Proposed Amendment, a “traditional ‘groundwater only’ approach to serving this region to meet its water needs is not adequate.” [Proposed Amendment, page 2-5.] The Proposed Amendment also acknowledges the Lower Hassayampa Sub-Basin Hydrologic Study (“Hassayampa Sub-Basin Study”) performed by Brown and Caldwell that concludes the Lower Hassayampa Sub-Basin cannot support planned development without proper management which includes strategic recharge of a significant percentage of the total water use. The computer model developed by Brown and Caldwell in conjunction with the Hassayampa Sub-Basin Study, produced results, in the form of long-term impacts to the aquifer system, that are critically sensitive to the levels of withdrawal and the volume of effluent recharge of each development in the region.

The crucial need for an integrated, coordinated water management plan for the region is visually demonstrated by Exhibit 2 to the Proposed Amendment. This Exhibit provides a very clear picture of the proposed HUC service area boundary and its direct relationship to the Town’s municipal planning area. HUC and the Town will be withdrawing from the same aquifer – the Lower Hassayampa Sub-Basin – and sound water policy dictates an integrated and coordinated approach to management of a shared aquifer that can only be sustained by strategic and adequate recharge. Despite the fact that HUC indicates that reuse of reclaimed water is an element of its groundwater conservation strategy, the Town is troubled by HUC’s stated priority to reuse reclaimed water rather than recharge the aquifer because this approach may not support overall sustainability of the Sub-Basin aquifer. Further, the Town is gravely concerned that the limited recharge proposed by HUC may not occur in critical areas where recharge is most needed. The Town itself is working to evaluate and identify critical recharge sites within its municipal planning area. Moreover, the Town is also concerned that HUC’s recovery well pumping will harm or adversely impact the Town’s existing and future wells and well fields.

The Town wishes to contribute to the success of planned development in the region and thereby requests that MAG postpone its decision on the Proposed Amendment for an additional 120 days. During this 120-day period, the Town will evaluate the Proposed Amendment through its consulting engineer, Brown and Caldwell, and consider (i) whether the recharge sites identified therein are in locations that will contribute to the sustainability of groundwater in the area, and (ii) whether the proposed recovery well sites impact the Town's existing and planned future wells. In addition, during this period of time, the Town will welcome any opportunity to work with HUC to resolve the Town's concerns. Sustainability of water resources in the region can only be accomplished through an integrated, coordinated approach and until the long-term effect of the Proposed Amendment's reuse and recharge is determined, the Town has no choice but to oppose the Proposed Amendment and to request that the local governments within MAG support the Town's water management policy for responsible growth.

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Re: Hassayampa Northeast Service Area 208 Plan

There are many issues and concerns about these proposed projects:

The application documentation is silent on the potential effects of the radioactive emissions of Palo Verde Nuclear Generating Station on the use and reuse of water in the proposed project. These radioactive emissions need to be quantified by MAG and their potential effect on water quality needs to be examined. There is already tritium-contaminated water under Palo Verde caused by rain falling on its radioactive emissions, as well as tritium contamination found in nearby roof vents of homes. I have brought portions of a Nuclear Regulatory Commission report regarding these radioactive emissions from Palo Verde, and am submitting them to the record.

I am also submitting for the record this article that points out the relationship between proximity to nuclear plants and infant mortality rates. The article regards a study that showed that when five different nuclear reactors were closed, the infant death rates under 40 miles from these nuclear plants fell 15-20% from previous years. There were also plunges in the rates of newly diagnosed leukemia and cancer cases and birth defect deaths in children under five years of age. Be assured, deciding to allow these water projects so close to Palo Verde will come back to haunt you.

Also, in regard to public policy, let me remind you that in the event of a serious incident releasing unpermitted radiation from the Palo Verde Nuclear Generating Station, the emergency plan includes an evacuation zone of a ten-mile radius around the facility. There is a certainly question about the wisdom of placing so many dwellings and people near the facility, which originally was deliberately sited some distance away from the major population center of the Phoenix metro area in part due to the inherent risks and dangers of nuclear power plants. In the event an evacuation was required, unless there are sufficient roads and other means of egress, there is a much larger moral dilemma involved here. This is of special consideration because due to the many issues regarding this facility and its operations, it is now the second most regulated and scrutinized nuclear power plant in the United States. The only other one that is more regulated and scrutinized had a fire that made it number one.

The Hassayampa sub-basin historically has not had enough water to support this type of growth, and probably not enough to assure a 100-year water supply. Would the groundwater pumping cause enough subsidence to threaten the stability of homes and other buildings in the area? Or the stability and structural integrity of the Palo Verde Nuclear Power plant?

It is really unfortunate that this public hearing was not held in the area out by Palo Verde. I'd like to know why that wasn't done. It appears there has been no active solicitation for public participation in the public process by folks out in the area. Can anyone one tell me if the residents in the area were notified of the public hearing? The Nuclear Regulatory Commission held a public hearing for residents in the area - why didn't MAG?

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# Radiation: Children at Risk

**I**NFANT DEATH RATES near five U.S. nuclear plants dropped immediately and dramatically after the reactors closed, a recent study shows.

Moreover, dramatic decreases in childhood cancer cases and deaths from birth defects, which are affected by radiation exposure, occurred near one of the closed reactors.

The study suggests that the health of 42 million people in the United States who live downwind and within 50 miles of a nuclear plant may be affected by these reactors, according to the study's author, Joseph Magnano.

The study was conducted by the New York-based Radiation and Public Health Project and published in the spring issue of the scientific journal *Environmental Epidemiology and Toxicology*.

At a press conference in Washington, D.C., model Christie Brinkley joined Representative Michael Forbes, D-New York, and others in calling upon the Nuclear Regulatory Commission (NRC) to consider whether adverse health effects are associated with nuclear plant operations before renewing nuclear power plant licenses.

Brinkley is a board member of the STAR (Standing for Truth About Radiation) Foundation, a group formed in 1997 by concerned Long Island residents.

"As a mother of young children who lives near nuclear facilities, I worry daily that radiation from these plants may be deadly to our children," Brinkley said. "So far, the federal government has buried its head in the sand. If closing the nuclear power plants was not responsible for the decline in infant deaths, what was?"

The nuclear industry condemned the press conference as "another misleading instance of science by celebrity."

In a one-page rebuttal to the study, the Nuclear Energy Institute said that the annual exposure to the nearest resident from a U.S. nuclear power plant has been less than one millirem, compared to the annual average exposure

from nature of 300 millirem.

And the industry cited a March 1991 study in the *Journal of the American Medical Association* which examined more than 900,000 cancer deaths using county mortality records collected from 1950 to 1984.

Dr. John Boice, who conducted that study, said that "from the data at hand, there was no convincing evidence of any increased risk of death from any of the cancers we surveyed due to living near nuclear facilities."

The NRC does not consider the potential adverse health effects of radioactive emissions when evaluating license renewal applications.

Owners of 28 nuclear reactors at 17 nuclear facilities around the country are scheduled to seek license renewals by 2003. The NRC has never voluntarily studied the link between radioactive emissions from nuclear plants and patterns of cancer.

Magnano, the study's author and a research associate at the Radiation and Public Health Project, examined infant death rates in counties within 50 miles and in the prevailing wind direction of five reactors: Fort St. Vrain (located near Denver, Colorado), LaCrosse (near LaCrosse, Wisconsin), Millstone/Haddam Neck (near New London, Connecticut), Rancho Seco (near Sacramento, California) and Trojan (near Portland, Oregon).

In the first two years after the reactors closed, infant death rates in the downwind counties under 40 miles from the plants fell 15 to 20 percent from the previous two years, compared to an average U.S. decline of just 6 percent between 1985 and 1996. In each of the five areas studied, no other nuclear reactor operated within 70 miles of the closed reactor, essentially creating a "nuclear-free zone."

The study detailed the plunges in newly diagnosed leukemia and cancer cases and birth defect deaths in children under five years in the four-county local area downwind from Rancho Seco. This decline has continued through the first seven years after the

June 1989 closing. In contrast, the local infant death rate rose in the two years after Rancho Seco began operations in 1974.

"This article is the first to document improvements in health after a nuclear plant closes," says Magnano. "It supports many other studies showing elevated childhood cancer near operating reactors. The federal government allows nuclear reactors to emit a certain level of radiation, saying that the amount is too low to result in adverse local health effects. However, this study clearly calls that assumption into question, as do other studies."

The press conference was held on the fourteenth anniversary of the catastrophic accident at the Chernobyl nuclear power reactor. Increased infant cancer and death rates after Chernobyl have been documented, not just in the former Soviet Union, but in Western Europe and the United States, where Chernobyl fallout levels were deemed by regulators to be within safe limits.

"On this day in particular, which is the fourteenth anniversary of the Chernobyl disaster in Russia, we need to address the very real and legitimate concerns of people who live near nuclear reactors," said Forbes, whose eastern Long Island district lies across the Long Island Sound from Millstone Nuclear Power Station in Connecticut. "At the very least, the government has a responsibility to determine whether emissions from these plants are harming people."

U.S. nuclear plants seeking relicensing this year include Oconee Nuclear Station in northwest South Carolina, Arkansas Nuclear One in Russellville, Arkansas, Edwin I. Hatch in southern Georgia, and Turkey Point near Miami, Florida.

In 2001, plants expected to seek relicensing include Catawba, which lies on the border between North Carolina and South Carolina, North Anna, located near Fredericksburg, Virginia, Surry, near Virginia Beach, Virginia, and Peach Bottom, located near Lancaster, Pennsylvania.

Recently, the government approved a license renewal application for Calvert Cliffs, near Baltimore.

For some of those who live near reactors, the government's inaction has been maddening. Randy Snell, a New York resident who lives near the Brookhaven National Laboratory (BNL), learned several years ago that his 8-year-old daughter had developed a rare soft tissue cancer called rhab-

domyosarcoma.

Snell has uncovered 19 other cases of the same rare cancer in Suffolk County. In one area near BNL, the rate of this cancer in young children since 1994 is 15 times the national average.

"I have no doubt that radiation from nuclear reactors sickens people

who live nearby," Snell says. "What is really disheartening, though, is that state and federal public health agencies haven't lifted a finger to confirm the link between Brookhaven and all these rare child cancers. I hope this study forces them to act."

— Russell Mokhiber

THE LAWRENCE SUMMERS MEMORIAL AWARD

THE JUNE 2000 Lawrence Summers Memorial Award goes to the authors of an article appearing in the May 18, 2000 issue of the New England Journal of Medicine, "A Comparison of Nefazodone, the Cognitive Behavioral Analysis System of Psychotherapy, and Their Combination for the Treatment of Chronic Depression." Thanks to the New England Journal's strong disclosure standards, the authors—all with primary affiliations at major research universities—are required to disclose relevant financial relationships. The disclosure list was so long that the journal chose to publish it only on their Web site. We thought it striking enough both to give the authors the Lawrence Summers award and to publish the list of financial relationships in full (albeit in tiny type).

Supported by Bristol-Myers Squibb, Dr. Martin Keller has served as a consultant to or received honorariums from Pfizer, Bristol-Myers Squibb, Forest Laboratories/Parke-Davis, Wyeth, Aventis, Merck, Janssen, Eli Lilly, Organon, and Pharmacia - Upjohn. He has received research grants from Wyeth, Aventis, SmithKline Beecham, Upjohn, Pfizer, Bristol-Myers Squibb, Merck, Forest Laboratories, Zeneca, and Organon. He has served on the advisory board of Wyeth, Aventis, Pfizer, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories/Parke-Davis, Organon, SmithKline Beecham, Merck, Janssen, Mitsubishi Pharmaceuticals, Zeneca, Schering, and Otsuka. Dr. Daniel Klein has served as a consultant to Bristol-Myers Squibb. Dr. David Dunner has served as a consultant to Bristol-Myers Squibb, SmithKline Beecham, Glaxo Wellcome, and Eli Lilly. He has received research grants from Bristol-Myers Squibb, Pfizer, Pharmacia - Upjohn, SmithKline Beecham, Forest Laboratories, Glaxo Wellcome, and Wyeth, Aventis. He has received speaker honorariums from Bristol-Myers Squibb, SmithKline Beecham, Eli Lilly, Forest Laboratories, Organon, and Wyeth, Aventis. Dr. Alan Gelenberg has received grants and research support from Bristol-Myers Squibb, Organon, Pfizer, Lilly Research Laboratories, Janssen, Merck Sharp & Dohme, SmithKline Beecham, Wyeth, Aventis, Hoechst Marion Roussel, and Forest Laboratories. He has been a member of speakers' bureaus sponsored by Bristol-Myers Squibb, Pfizer, SmithKline Beecham, Janssen, Lilly, Forest Laboratories, and Parke-Davis. He is a stockholder or has other ownership interest in Pfizer, Warner-Lambert, and Eli Lilly. He has served as a consultant to Eli Lilly, Schering, Forest Laboratories, Parke-Davis, Pfizer, Janssen Pharmaceuticals, Best Practice, and Bristol-Myers Squibb. Dr. John Marowitz has received speaker's honorariums from Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Organon, and Pfizer. Dr. Charles Nemeroff has been a consultant to or received honorariums from Abbott, AstraZeneca, Bristol-Myers Squibb, Forest Laboratories, Janssen, Eli Lilly, Merck, Mitsubishi, Neurocrina Biosciences, Organon, Otsuka, Pfizer, Pharmacia - Upjohn, Sanofi, SmithKline Beecham, Solvay, and Wyeth, Aventis. He has received research support from Abbott, AstraZeneca, Bristol-Myers Squibb, Forest Laboratories, Janssen, Eli Lilly, Organon, Pfizer, Pharmacia - Upjohn, SmithKline Beecham, Solvay, and Wyeth, Aventis.

Dr. James Russell has been a consultant to or received honorariums from Abbott, Bristol-Myers Squibb, Janssen, Eli Lilly, Pfizer, and Otsuka. He has received research support from Abbott, Bristol-Myers Squibb, Eli Lilly, Parke-Davis, Pharmacia - Upjohn, Pfizer, SmithKline Beecham, Wyeth, Aventis, Schering, and Otsuka. Dr. Michael Thase has served as a consultant to Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Glaxo Wellcome, Cerex Pharmaceuticals, Merck, Organon, Pfizer, Pharmacia - Upjohn, and Wyeth, Aventis. He has received grant and research support from Bristol-Myers Squibb, Lilly Pharmaceuticals, Merck, Organon, Pharmacia - Upjohn, and Wyeth, Aventis. He has been a member of speakers' bureaus sponsored by Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Glaxo Wellcome, Cerex Pharmaceuticals, Janssen, Pfizer, Pharmacia - Upjohn, and Wyeth, Aventis. Dr. Madhukar Trivedi has received research grants from Abbott, AstraZeneca, Bayer, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Glaxo Wellcome, Janssen, Johnson & Johnson, Mead Johnson, Parke-Davis, Pfizer, Pharmacia - Upjohn, Solvay, and Wyeth, Aventis. He has been a member of speakers' bureaus sponsored by Bristol-Myers Squibb, Forest Laboratories, Pharmacia - Upjohn, Solvay, and Wyeth, Aventis. Dr. John Zaleska has received grants and research support from Abbott, Bristol-Myers Squibb, Eli Lilly, Glaxo Wellcome, Organon, Otsuka, Janssen, Parke-Davis, Pfizer, Pharmacia - Upjohn, and Sanofi Research. He has served as a consultant to or has served on the advisory board of Abbott, Bristol-Myers Squibb, and Eli Lilly. He has been a member of speakers' bureaus sponsored by Abbott, Bristol-Myers Squibb, Eli Lilly, Pfizer, Boehringer, SmithKline Beecham, Upjohn, and Wyeth, Aventis. Dr. Janice Blalock has served as a consultant to Bristol-Myers Squibb. Dr. Charles DeBattista has been a member of speakers' bureaus sponsored by Abbott, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Glaxo Wellcome, Parke-Davis, Pfizer, SmithKline Beecham, Wyeth, Aventis, and Organon. He has received grants and research support from Abbott, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Glaxo Wellcome, Pfizer, the National Alliance for Research on Schizophrenia and Depression, Pharmacia - Upjohn, and Pharmacia - Upjohn/ASA, SmithKline Beecham, and Wyeth, Aventis. He has

served as a consultant to Bristol-Myers Squibb, Eli Lilly, Glaxo Wellcome, and Pharmacia - Upjohn. Dr. Jan Fawcett has received grants and research support from Abbott, Bristol-Myers Squibb, Glaxo, Eli Lilly, Organon, Pfizer, SmithKline Beecham, Wyeth, Aventis, and Zeneca. He has served as a consultant to Abbott, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Glaxo Wellcome, Pfizer, Pharmacia - Upjohn, and SmithKline Beecham. He has been a member of speakers' bureaus sponsored by Abbott, Bristol-Myers Squibb, Eli Lilly, Pfizer, Boehringer, Pharmacia - Upjohn, SmithKline Beecham, and Wyeth, Aventis. Dr. Robert Hitchcock has received grants and research support from Abbott, Bristol-Myers Squibb, Organon, and Pfizer. He has served as a consultant to the advisory board of Abbott, Bristol-Myers Squibb, Glaxo Wellcome, Forest Laboratories, Eli Lilly, Pfizer, SmithKline Beecham, Janssen, Organon, Parke-Davis, and Pharmacia - Upjohn. Dr. James Kocsis has had research contracts with Bristol-Myers Squibb, Pfizer, Forest Laboratories, Eli Lilly, and Wyeth, Aventis. He has received speaker's honorariums from Bristol-Myers Squibb, Forest Laboratories, and Eli Lilly. He owns stock in Pfizer and Forest Laboratories. Dr. Susan Kornstein has received research grants from Bristol-Myers Squibb, Pfizer, Eli Lilly, Glaxo Wellcome, Forest Laboratories, Mitsubishi Pharmaceuticals, and Biogen. She has served as a consultant to Bristol-Myers Squibb, Pfizer, Eli Lilly, and Pharmacia - Upjohn. She has received honorariums from Bristol-Myers Squibb, Pfizer, and Glaxo Wellcome. Dr. Phillip Ninan has received grants and research support from Abbott, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Organon, Pharmacia - Upjohn, SmithKline Beecham, and Solvay. He has served as a consultant to Pfizer, JAPPharma, and Wyeth, Aventis. He has been a member of speakers' bureaus sponsored by Abbott, Bristol-Myers Squibb, Eli Lilly, Forest Laboratories, Organon, Parke-Davis, Pfizer, Pharmacia - Upjohn, SmithKline Beecham, Solvay, Janssen, and Wyeth, Aventis. Dr. Barbara Robinson has served as a consultant to Bristol-Myers Squibb and Pfizer. She has been a member of the advisory board of and a speakers' bureau sponsored by Pfizer. Dr. John Rush has received grants and research support from Abbott, Bristol-Myers Squibb, Cyberonics, Eli Lilly, Forest Laboratories/Parke-Davis, Glaxo Wellcome, Janssen, Novartis, Organon, Pfizer, Pharmacia - Upjohn, SmithKline Beecham, Wyeth, Aventis, and Zeneca. He has served as a consultant to Bristol-Myers Squibb, Cyberonics, Eli Lilly, Forest Laboratories/Parke-Davis, Glaxo Wellcome, Janssen, Merck, Organon, Pfizer, Pharmacia - Upjohn, and Wyeth, Aventis. He has been a member of speakers' bureaus sponsored by Abbott, Bristol-Myers Squibb, Cyberonics, Eli Lilly, Forest Laboratories/Parke-Davis, Glaxo Wellcome, Organon, Pfizer, Pharmacia - Upjohn, and Wyeth, Aventis. Dr. Alan Schatzberg has served as a consultant to or received honorariums from Abbott, Bristol-Myers Squibb, Cephalon Therapeutics, Forest Laboratories, Janssen, Eli Lilly, Merck, Mitsubishi Pharmaceuticals, Organon, Parke-Davis, Pfizer, Pharmacia - Upjohn, Sanofi, Schering, SmithKline Beecham, Solvay, and Wyeth, Aventis. He has received research support from Bristol-Myers Squibb, Pfizer, and SmithKline Beecham. He has equity ownership in Concept, Merck, Pfizer, and Boehringer. The other authors, with no relevant financial ties, were James McCullough, Bruce Aronoff, Francis Berlan, Danielle Jones, Gabor Kerner, Lorn Koran, Rachel Manber, Ivan Miller, and Dina Vivian.

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In a 1991 internal memorandum, then-World Bank economist and current Secretary of Treasury Lawrence Summers argued for the transfer of waste and dirty industries from industrialized to developing countries. "Just between you and me, shouldn't the World Bank be encouraging more migration of the dirty industries to the LDCs (less developed countries)?" Summers wrote. "I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that. I've always thought that underpopulated countries in Africa are vastly under-polluted; their air quality is vastly inefficiently low (sic) compared to Los Angeles or Mexico City." Summers later said the memo was meant to be ironic.

**PALO VERDE NUCLEAR GENERATING STATION  
UNITS 1, 2 AND 3**

**2004**

**ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT**

USNRC Docket No. STN 50-528/529/530  
RCTSAI 1566



Prepared by:

Reviewed by:

Approved by:

## 10.0 DISCUSSION

### 10.1 Unit One

Unit One operated with a refueling outage (U1R11) from April 3, 2004 to May 10, 2004.

Estimated number of fuel defects (source: INPO, CDE)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	1	1	0	0	0	0	0	0	0	0

### 10.2 Unit Two

Unit Two operated without a refueling outage.

Estimated number of fuel defects (source: INPO, CDE)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	0	0	0	0	0	0	0	0	0

### 10.3 Unit Three

Unit Three operated a refueling outage (U3R11) from October 2, 2004 to December 7, 2004.

Estimated number of fuel defects (source: INPO, CDE)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	1	1	2	2	2	2	2	n/a	n/a	0

### 10.4 General

PVNGS does not have a liquid release pathway. Removal of tritium is performed by operation of the Boric Acid Concentrator (BAC) in the release mode. Comparison of PVNGS annual tritium curies released to other utilities should be made only after summing both liquid and gaseous tritium curies released.

### 10.5 Summary

Dose for 2004 was primarily due to the release of tritium and radioiodines. Tritium production is approximately 1000 curies per Reactor Unit per year. In order to control plant tritium concentrations, tritium releases should match tritium production. For 2004, PVNGS released a total of 2120 curies of tritium (see Table 39).

Total dose from releases from all three Units for the year 2004 were less than year 2003 mainly due to 320 less curies of tritium being released.

Table 1: Evaporation Pond Data					
Evaporation Pond 1	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Historical volume of water evaporated (ml)	3.09E+11	8.50E+11	8.50E+11	3.09E+11	
Tritium Concentration (uCi/cc)	9.54E-07	1.27E-06	8.64E-07	8.67E-07	
Tritium Curies	2.95E-01	1.08E+00	7.34E-01	2.68E-01	2.37E+00
Evaporation Pond 2	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Historical volume of water evaporated (ml)	2.89E+11	7.96E+11	7.96E+11	2.89E+11	
Tritium Concentration (uCi/cc)	1.28E-06	1.83E-06	1.56E-06	1.29E-06	
Tritium curies	3.71E-01	1.45E+00	1.24E+00	3.74E-01	3.44E+00
Dose (mRem)	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year
Pond 1	4.09E-03	1.49E-02	1.02E-02	3.72E-03	3.29E-02
Pond 2	5.15E-03	2.02E-02	1.72E-02	5.19E-03	4.77E-02
<b>Total</b>	<b>9.23E-03</b>	<b>3.51E-02</b>	<b>2.74E-02</b>	<b>8.90E-03</b>	<b>8.06E-02</b>

Table 2: Batch Release Data			
All times are in hours	Unit 1	Unit 2	Unit 3
<b>January - June</b>			
Number of batch releases	60	34	34
Total time period for batch releases	2582.09	1127.02	704.60
Maximum time period for a batch release	168.00	165.50	167.83
Average time period for a batch release	43.03	33.15	20.72
Minimum time period for a batch release	0.02	0.13	0.06
<b>July - December</b>			
Number of batch releases	31	24	52
Total time period for batch releases	264.44	333.44	2168.02
Maximum time period for a batch release	161.90	158.67	168.00
Average time period for a batch release	8.53	13.89	41.69
Minimum time period for a batch release	0.21	0.57	0.03
<b>January - December</b>			
Number of batch releases	91	58	86
Total time period for batch releases	2846.53	1460.46	2872.61
Maximum time period for a batch release	168.00	165.5	168.00
Average time period for a batch release	31.28	25.18	33.40
Minimum time period for a batch release	0.02	0.13	0.03

**Table 3:  
Units 1, 2 & 3  
Gaseous Effluents Average Lower Limit Of Detection**

$\mu\text{Ci/cc}$					
Nuclide	Continuous	Batch	Nuclide	Continuous	Batch
Antimony-122	2.20E-13	1.90E-11	Argon-41	4.50E-08	4.50E-08
Antimony-124	8.40E-14	1.70E-11	Krypton-85	7.40E-06	7.40E-06
Barium-140	3.40E-13	5.70E-11	Krypton-85m	2.20E-08	2.20E-08
Bromine-82	3.30E-13	1.40E-11	Krypton-87	5.70E-08	5.70E-08
Cerium-141	8.70E-14	3.10E-11	Krypton-88	7.40E-08	7.40E-08
Cerium-144	3.60E-13	6.50E-11	Xenon-125	2.20E-08	2.20E-08
Cesium-134	1.00E-13	2.60E-11	Xenon-127	2.10E-08	2.10E-08
Cesium-137	8.10E-14	1.70E-11	Xenon-131m	9.10E-07	9.10E-07
Cesium-138	5.20E-10	7.30E-10	Xenon-133	6.30E-08	6.30E-08
Chromium-51	6.90E-13	1.40E-10	Xenon-133m	1.90E-07	1.90E-07
Cobalt-58	8.50E-14	1.70E-11	Xenon-135	2.00E-08	2.00E-08
Cobalt-60	1.00E-13	1.90E-11	Xenon-135m	8.90E-08	8.90E-08
Iron-59	1.70E-13	3.20E-11	Xenon-138	2.00E-07	2.00E-07
Lanthanum-140	2.80E-13	2.10E-11	Iodine-131	8.00E-14	7.00E-12
Manganese-54	8.30E-14	1.70E-11	Iodine-132	6.60E-12	1.90E-11
Molybdenum-99	2.40E-13	2.80E-11	Iodine-133	4.70E-13	1.10E-11
Niobium-95	8.70E-14	1.80E-11	Iodine-134	5.90E-11	8.20E-11
Rubidium-88	1.90E-08	1.90E-08	Iodine-135	7.00E-12	5.50E-11
Ruthenium-103	7.40E-14	1.50E-11			
Strontium-89	2.15E-15	(1)			
Strontium-90	5.60E-16	(1)			
Tellurium-123m	6.60E-14	1.50E-11			
Tritium	3.80E-07	3.80E-07			
Zinc-65	1.90E-13	3.80E-11			
Zirconium-95	1.80E-13	4.10E-11			
Gross Alpha	3.60E-15	(1)			
(1) Not required for batch releases.					

Table 4: Unit 1 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
<b>A. Fission &amp; activation gases</b>							
1. Total release	Ci	2.61E-01	2.33E+01	1.21E-01	1.18E-01	2.38E+01	3.54E+01
2. Average release rate for period	µCi/sec	3.36E-02	2.96E+00	1.52E-02	1.48E-02	7.55E-01	
3. Percent of ODCM Requirement limit	%	NA (2)					
<b>B. Iodine 131</b>							
1. Total Iodine 131	Ci	1.08E-05	7.08E-04	< LLD	< LLD	7.19E-04	3.32E+01
2. Average release rate for period	µCi/sec	1.39E-06	9.00E-05	< LLD	< LLD	2.28E-05	
3. Percent of ODCM Requirement limit	%	NA (2)					
<b>C. Particulates</b>							
1. Particulates with half- lives > 8 days	Ci	1.20E-06	6.98E-05	1.97E-06	< LLD	7.29E-05	3.43E+01
2. Average release rate for period	µCi/sec	1.54E-07	8.87E-06	2.48E-07	< LLD	2.31E-06	
3. Percent of ODCM Requirement limit	%	NA (2)					
4. Gross Alpha radioactivity	Ci	< LLD					
<b>D. Tritium</b>							
1. Total release	Ci	4.45E+02	1.07E+02	1.06E+02	1.40E+01	6.72E+02	3.85E+01
2. Average release rate for period	µCi/sec	5.72E+01	1.36E+01	1.33E+01	1.76E+00	2.13E+01	
3. Percent of ODCM Requirement limit	%	NA (2)					
(1) Estimated total error methodology is presented in Table 40.							
(2) See Table 11 for percent of ODCM Requirement limits.							

Table 5: Unit 1 Gaseous Effluents - Ground Level Releases - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	< LLD				
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD				
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD				
Xe-133	Ci	< LLD	1.32E+01	< LLD	< LLD	1.32E+01
Xe-133m	Ci	< LLD				
Xe-135	Ci	< LLD	8.72E-01	< LLD	< LLD	8.72E-01
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	< LLD	1.41E+01	< LLD	< LLD	1.41E+01
<b>2. Iodines</b>						
I-131	Ci	1.08E-05	7.08E-04	< LLD	< LLD	7.19E-04
I-132	Ci	< LLD	5.38E-03	< LLD	< LLD	5.38E-03
I-133	Ci	< LLD	1.81E-06	< LLD	< LLD	1.81E-06
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	1.08E-05	6.09E-03	< LLD	< LLD	6.10E-03

Table 6: Unit 1 Gaseous Effluents - Ground Level Releases - Continuous - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3.Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD				
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD	4.00E-05	< LLD	< LLD	4.00E-05
Co-60	Ci	1.20E-06	2.05E-06	< LLD	< LLD	3.25E-06
Cr-51	Ci	< LLD	5.77E-06	< LLD	< LLD	5.77E-06
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD	5.92E-06	< LLD	< LLD	5.92E-06
Os-191	Ci	< LLD	1.03E-05	< LLD	< LLD	1.03E-05
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD	1.53E-06	< LLD	< LLD	1.53E-06
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD	1.96E-06	1.97E-06	< LLD	3.94E-06
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD	2.23E-06	< LLD	< LLD	2.23E-06
total	Ci	1.20E-06	6.98E-05	1.97E-06	< LLD	7.30E-05
<b>4.Tritium</b>						
H-3	Ci	9.05E+00	1.11E+01	1.68E+01	1.40E+01	5.10E+01

Table 7: Unit 1 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	2.20E-01	5.33E-02	1.10E-01	1.03E-01	4.86E-01
Kr-83m	Ci	< LLD				
Kr-85	Ci	3.26E-02	1.64E+00	< LLD	< LLD	1.68E+00
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD	5.52E-02	< LLD	< LLD	5.52E-02
Xe-133	Ci	8.37E-03	7.50E+00	1.03E-02	1.35E-02	7.53E+00
Xe-133m	Ci	< LLD	8.12E-03	< LLD	< LLD	8.12E-03
Xe-135	Ci	< LLD	< LLD	3.93E-04	1.16E-03	1.55E-03
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	2.61E-01	9.26E+00	1.21E-01	1.18E-01	9.76E+00
<b>2. Iodines</b>						
I-131	Ci	< LLD				
I-132	Ci	< LLD				
I-133	Ci	9.29E-08	< LLD	< LLD	< LLD	9.29E-08
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	9.29E-08	< LLD	< LLD	< LLD	9.29E-08

Table 8: Unit 1 Gaseous Effluents - Ground Level Releases - Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	6.98E-07	4.58E-07	< LLD	< LLD	1.16E-06
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	< LLD				
Cr-51	Ci	< LLD				
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD				
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	Note 1				
Sr-90	Ci	Note 1				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	6.98E-07	4.58E-07	< LLD	< LLD	1.16E-06
<b>4. Tritium</b>						
H-3	Ci	4.36E+02	9.54E+01	8.93E+01	1.24E-02	6.21E+02
Note 1 - Not required for batch releases						

Table 9: Unit 1 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	2.20E-01	5.33E-02	1.10E-01	1.03E-01	4.86E-01
Kr-83m	Ci	< LLD				
Kr-85	Ci	3.26E-02	1.64E+00	< LLD	< LLD	1.68E+00
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD	5.52E-02	< LLD	< LLD	5.52E-02
Xe-133	Ci	8.37E-03	2.07E+01	1.03E-02	1.35E-02	2.07E+01
Xe-133m	Ci	< LLD	8.12E-03	< LLD	< LLD	8.12E-03
Xe-135	Ci	< LLD	8.72E-01	3.93E-04	1.16E-03	8.74E-01
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	2.61E-01	2.33E+01	1.21E-01	1.18E-01	2.38E+01
<b>2. Iodines</b>						
I-131	Ci	1.08E-05	7.08E-04	< LLD	< LLD	7.19E-04
I-132	Ci	< LLD	5.38E-03	< LLD	< LLD	5.38E-03
I-133	Ci	9.29E-08	1.81E-06	< LLD	< LLD	1.90E-06
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	1.09E-05	6.09E-03	< LLD	< LLD	6.10E-03

Table 10: Unit 1 Gaseous Effluents - Continuous and Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	6.98E-07	4.58E-07	< LLD	< LLD	1.16E-06
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD	4.00E-05	< LLD	< LLD	4.00E-05
Co-60	Ci	1.20E-06	2.05E-06	< LLD	< LLD	3.25E-06
Cr-51	Ci	< LLD	5.77E-06	< LLD	< LLD	5.77E-06
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD	5.92E-06	< LLD	< LLD	5.92E-06
Os-191	Ci	< LLD	1.03E-05	< LLD	< LLD	1.03E-05
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD	1.53E-06	< LLD	< LLD	1.53E-06
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD	1.96E-06	1.97E-06	< LLD	3.94E-06
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD	2.23E-06	< LLD	< LLD	2.23E-06
total	Ci	1.90E-06	7.03E-05	1.97E-06	< LLD	7.41E-05
total > 8 days	Ci	1.20E-06	6.98E-05	1.97E-06	< LLD	7.30E-05
<b>4. Tritium</b>						
H-3	Ci	4.45E+02	1.07E+02	1.06E+02	1.40E+01	6.72E+02

Table 11: Unit 1 Radiation Doses At And Beyond The Site Boundary						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	5.79E-04	2.69E-03	2.90E-04	2.73E-04	3.83E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	1.16E-02	5.38E-02	5.80E-03	5.46E-03	3.83E-02
Beta Air Dose	mrad	2.24E-04	7.71E-03	1.05E-04	1.00E-04	8.14E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	2.24E-03	7.71E-02	1.05E-03	1.00E-03	4.07E-02
Maximum Organ Dose (excluding skin)	mrem	1.60E-01	4.77E-02	3.81E-02	5.03E-03	2.50E-01
Age		Teen	Child	Teen	Teen	Teen
Organ		Thyroid	Thyroid	(1)	(1)	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	2.13E+00	6.36E-01	5.08E-01	6.71E-02	1.67E+00

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual. In contrast, Appendix C dose calculations are based on concurrent meteorology, a real individual, and only the actual pathways present.

Note 1 - All organs except Bone

Table 12: Unit 2 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
<b>A. Fission &amp; activation gases</b>							
1. Total release	Ci	3.88E-01	1.39E-01	1.98E-01	1.41E-01	8.66E-01	3.54E+01
2. Average release rate for period	µCi/sec	4.99E-02	1.77E-02	2.49E-02	1.77E-02	2.75E-02	
3. Percent of ODCM Requirement limit	%	NA (2)					
<b>B. Iodine 131</b>							
1. Total Iodine 131	Ci	1.06E-05	< LLD	1.65E-06	< LLD	1.22E-05	3.32E+01
2. Average release rate for period	µCi/sec	1.36E-06	< LLD	2.08E-07	< LLD	3.87E-07	
3. Percent of ODCM Requirement limit	%	NA (2)					
<b>C. Particulates</b>							
1. Particulates with half-lives > 8 days	Ci	3.29E-10	< LLD	< LLD	< LLD	3.29E-10	3.43E+01
2. Average release rate for period	µCi/sec	4.23E-11	< LLD	< LLD	< LLD	1.04E-11	
3. Percent of ODCM Requirement limit	%	NA (2)					
4. Gross Alpha radioactivity	Ci	< LLD					
<b>D. Tritium</b>							
1. Total release	Ci	1.46E+02	9.45E+01	1.83E+02	5.57E+01	4.79E+02	3.85E+01
2. Average release rate for period	µCi/sec	1.88E+01	1.20E+01	2.30E+01	7.01E+00	1.52E+01	
3. Percent of ODCM Requirement limit	%	NA (2)					
(1) Estimated total error methodology is presented in Table 40.							
(2) See Table 19 for percent of ODCM Requirement limits.							

Table 13: Unit 2 Gaseous Effluents - Ground Level Releases - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	< LLD				
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD				
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD				
Xe-133	Ci	< LLD				
Xe-133m	Ci	< LLD				
Xe-135	Ci	< LLD				
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	< LLD				
<b>2. Iodines</b>						
I-131	Ci	1.06E-05	< LLD	1.65E-06	< LLD	1.22E-05
I-132	Ci	< LLD				
I-133	Ci	< LLD				
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	1.06E-05	< LLD	1.65E-06	< LLD	1.22E-05

Table 14: Unit 2 Gaseous Effluents - Ground Level Releases - Continuous - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD				
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	< LLD				
Cr-51	Ci	< LLD				
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD				
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	< LLD				
<b>4. Tritium</b>						
H-3	Ci	1.28E+01	1.86E+01	1.84E+01	1.29E+01	6.28E+01

Table 15: Unit 2 Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	7.97E-02	8.69E-02	1.25E-01	8.67E-02	3.79E-01
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD				
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	3.47E-04	< LLD	< LLD	< LLD	3.47E-04
Xe-133	Ci	3.08E-01	5.14E-02	7.27E-02	5.43E-02	4.86E-01
Xe-133m	Ci	1.61E-04	< LLD	< LLD	< LLD	1.61E-04
Xe-135	Ci	2.81E-04	4.65E-04	2.75E-04	1.43E-04	1.16E-03
Xe-137	Ci	< LLD				
Xe-135m	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	3.88E-01	1.39E-01	1.98E-01	1.41E-01	8.66E-01
<b>2. Iodines</b>						
I-131	Ci	< LLD				
I-132	Ci	6.73E-10	< LLD	< LLD	< LLD	6.73E-10
I-133	Ci	< LLD				
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	6.73E-10	< LLD	< LLD	< LLD	6.73E-10

Table 16: Unit 2 Gaseous Effluents - Ground Level Releases - Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD	4.45E-07	< LLD	< LLD	4.45E-07
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	< LLD				
Cr-51	Ci	< LLD				
Cs-134	Ci	1.71E-10	< LLD	< LLD	< LLD	1.71E-10
Cs-137	Ci	1.58E-10	< LLD	< LLD	< LLD	1.58E-10
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD				
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	Note 1				
Sr-90	Ci	Note 1				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	3.30E-10	4.45E-07	< LLD	< LLD	4.45E-07
<b>4. Tritium</b>						
H-3	Ci	1.33E+02	7.58E+01	1.65E+02	4.29E+01	4.16E+02
Note 1 - Not required for batch releases						

Table 17: Unit 2 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	7.97E-02	8.69E-02	1.25E-01	8.67E-02	3.79E-01
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD				
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	3.47E-04	< LLD	< LLD	< LLD	3.47E-04
Xe-133	Ci	3.08E-01	5.14E-02	7.27E-02	5.43E-02	4.86E-01
Xe-133m	Ci	1.61E-04	< LLD	< LLD	< LLD	1.61E-04
Xe-135	Ci	2.81E-04	4.65E-04	2.75E-04	1.43E-04	1.16E-03
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	3.88E-01	1.39E-01	1.98E-01	1.41E-01	8.66E-01
<b>2. Iodines</b>						
I-131	Ci	1.06E-05	< LLD	1.65E-06	< LLD	1.22E-05
I-132	Ci	6.73E-10	< LLD	< LLD	< LLD	6.73E-10
I-133	Ci	< LLD				
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	1.06E-05	< LLD	1.65E-06	< LLD	1.22E-05

Table 18: Unit 2 Gaseous Effluents - Continuous and Batch - Particulates						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD	4.45E-07	< LLD	< LLD	4.45E-07
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	< LLD				
Cr-51	Ci	< LLD				
Cs-134	Ci	1.71E-10	< LLD	< LLD	< LLD	1.71E-10
Cs-137	Ci	1.58E-10	< LLD	< LLD	< LLD	1.58E-10
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD				
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	3.30E-10	4.45E-07	< LLD	< LLD	4.45E-07
total > 8 days	Ci	3.30E-10	< LLD	< LLD	< LLD	3.30E-10
<b>4. Tritium</b>						
H-3	Ci	1.46E+02	9.45E+01	1.83E+02	5.57E+01	4.79E+02

Table 19: Unit 2 Radiation Doses At And Beyond The Site Boundary						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	2.40E-04	2.34E-04	3.37E-04	2.33E-04	1.04E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	4.80E-03	4.68E-03	6.74E-03	4.66E-03	1.04E-02
Beta Air Dose	mrad	1.65E-04	9.60E-05	1.38E-04	9.65E-05	4.96E-04
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.65E-03	9.60E-04	1.38E-03	9.65E-04	2.48E-03
Maximum Organ Dose (excluding skin)	mrem	5.25E-02	3.39E-02	6.57E-02	2.00E-02	1.72E-01
Age		Teen	Teen	Teen	Teen	Teen
Organ		Thyroid	(1)	Thyroid	(1)	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	7.00E-01	4.52E-01	8.76E-01	2.67E-01	1.15E+00

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual. In contrast, Appendix C dose calculations are based on concurrent meteorology, a real individual, and only the actual pathways present.

Note 1 - All organs except Bone

Table 20: Unit 3 Gaseous Effluents - Summation Of All Releases							
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total For Year	Est. Total Error % (1)
<b>A. Fission &amp; activation gases</b>							
1. Total release	Ci	1.30E-01	8.16E-01	1.36E+00	2.26E+01	2.49E+01	3.54E+01
2. Average release rate for period	µCi/sec	1.67E-02	1.04E-02	1.71E-01	2.84E+00	7.90E-01	
3. Percent of ODCM Requirement limit	%	NA (2)					
<b>B. Iodine 131</b>							
1. Total iodine 131	Ci	< LLD	< LLD	< LLD	3.82E-04	3.82E-04	3.32E+01
2. Average release rate for period	µCi/sec	< LLD	< LLD	< LLD	4.81E-05	1.21E-05	
3. Percent of ODCM Requirement limit	%	NA (2)					
<b>C. Particulates</b>							
1. Particulates with half- lives > 8 days	Ci	4.62E-06	< LLD	6.99E-06	2.27E-04	2.39E-04	3.43E+01
2. Average release rate for period	µCi/sec	5.94E-07	< LLD	8.79E-07	2.86E-05	7.58E-06	
3. Percent of ODCM Requirement limit	%	NA (2)					
4. Gross Alpha radioactivity	Ci	< LLD					
<b>D. Tritium</b>							
1. Total release	Ci	1.51E+02	3.59E+02	2.54E+02	2.08E+02	9.72E+02	3.85E+01
2. Average release rate for period	µCi/sec	1.94E+01	4.57E+01	3.20E+01	2.62E+01	3.08E+01	
3. Percent of ODCM Requirement limit	%	NA (2)					
(1) Estimated total error methodology is presented in Table 40.							
(2) See Table 27 for percent of ODCM Requirement limits.							

Table 21: Unit 3 Gaseous Effluents - Ground Level Releases - Continuous - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	< LLD				
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD				
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD				
Xe-133	Ci	< LLD	6.80E-01	< LLD	1.75E+01	1.82E+01
Xe-133m	Ci	< LLD				
Xe-135	Ci	< LLD				
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	< LLD	6.80E-01	< LLD	1.75E+01	1.82E+01
<b>2. Iodines</b>						
I-131	Ci	< LLD	< LLD	< LLD	3.82E-04	3.82E-04
I-132	Ci	< LLD				
I-133	Ci	< LLD				
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	< LLD	< LLD	< LLD	3.82E-04	3.82E-04

**Table 22:  
Unit 3  
Gaseous Effluents - Ground Level Releases - Continuous - Particulates**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD				
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	4.62E-06	< LLD	< LLD	1.99E-04	2.04E-04
Co-60	Ci	< LLD	< LLD	6.99E-06	1.62E-05	2.32E-05
Cr-51	Ci	< LLD				
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD	< LLD	< LLD	9.33E-07	9.33E-07
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD	< LLD	< LLD	1.09E-05	1.09E-05
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	4.62E-06	< LLD	6.99E-06	2.27E-04	2.39E-04
<b>4. Tritium</b>						
H-3	Ci	1.69E+01	1.69E+01	3.12E+00	3.24E+01	6.93E+01

**Table 23:  
Unit 3  
Gaseous Effluents - Ground Level Releases - Batch - Fission Gases and Iodines**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	1.30E-01	1.36E-01	2.25E-01	2.55E-02	5.16E-01
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD	< LLD	1.13E+00	5.82E-01	1.71E+00
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD	< LLD	< LLD	4.22E-02	4.22E-02
Xe-133	Ci	< LLD	< LLD	6.16E-03	4.41E+00	4.42E+00
Xe-133m	Ci	< LLD	< LLD	< LLD	1.33E-02	1.33E-02
Xe-135	Ci	< LLD				
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	1.30E-01	1.36E-01	1.36E+00	5.07E+00	6.70E+00
<b>2. Iodines</b>						
I-131	Ci	< LLD				
I-132	Ci	< LLD				
I-133	Ci	< LLD				
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	< LLD				

**Table 24:  
Unit 3  
Gaseous Effluents - Ground Level Releases - Batch - Particulates**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD	< LLD	1.42E-06	8.99E-07	2.32E-06
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	< LLD				
Cr-51	Ci	< LLD				
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD				
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	Note 1				
Sr-90	Ci	Note 1				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	< LLD	< LLD	1.42E-06	8.99E-07	2.32E-06
<b>4. Tritium</b>						
H-3	Ci	1.34E+02	3.42E+02	2.51E+02	1.75E+02	9.03E+02
Note 1 - Not required for batch releases						

Table 25: Unit 3 Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines						
Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	1.30E-01	1.36E-01	2.25E-01	2.55E-02	5.16E-01
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD	< LLD	1.13E+00	5.82E-01	1.71E+00
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD	< LLD	< LLD	4.22E-02	4.22E-02
Xe-133	Ci	< LLD	6.80E-01	6.16E-03	2.19E+01	2.26E+01
Xe-133m	Ci	< LLD	< LLD	< LLD	1.33E-02	1.33E-02
Xe-135	Ci	< LLD				
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	1.30E-01	8.16E-01	1.36E+00	2.26E+01	2.49E+01
<b>2. Iodines</b>						
I-131	Ci	< LLD	< LLD	< LLD	3.82E-04	3.82E-04
I-132	Ci	< LLD				
I-133	Ci	< LLD				
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	< LLD	< LLD	< LLD	3.82E-04	3.82E-04

**Table 26:  
Unit 3  
Gaseous Effluents - Continuous and Batch - Particulates**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD	< LLD	1.42E-06	8.99E-07	2.32E-06
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	4.62E-06	< LLD	< LLD	1.99E-04	2.04E-04
Co-60	Ci	< LLD	< LLD	6.99E-06	1.62E-05	2.32E-05
Cr-51	Ci	< LLD				
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD	< LLD	< LLD	9.33E-07	9.33E-07
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD	< LLD	< LLD	1.09E-05	1.09E-05
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	4.62E-06	< LLD	8.42E-06	2.28E-04	2.41E-04
total > 8 days	Ci	4.62E-06	< LLD	6.99E-06	2.27E-04	2.39E-04
<b>4. Tritium</b>						
H-3	Ci	1.51E+02	3.59E+02	2.54E+02	2.08E+02	9.72E+02

Table 27: Unit 3 Radiation Doses At And Beyond The Site Boundary						
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
Gamma Air Dose	mrad	3.41E-04	4.24E-04	5.97E-04	2.26E-03	3.62E-03
ODCM Req 4.1 Limit	mrad	5.00E+00	5.00E+00	5.00E+00	5.00E+00	1.00E+01
% ODCM Limit	%	6.82E-03	8.48E-03	1.19E-02	4.52E-02	3.62E-02
Beta Air Dose	mrad	1.20E-04	3.27E-04	8.32E-04	6.85E-03	8.13E-03
ODCM Req 4.1 Limit	mrad	1.00E+01	1.00E+01	1.00E+01	1.00E+01	2.00E+01
% ODCM Limit	%	1.20E-03	3.27E-03	8.32E-03	6.85E-02	4.07E-02
Maximum Organ Dose (excluding skin)	mrem	5.42E-02	1.29E-01	9.12E-02	7.92E-02	3.51E-01
Age		Teen	Teen	Teen	Teen	Teen
Organ		Lung	Thyroid	Lung	Thyroid	Thyroid
ODCM Req. 4.2 Limit	mrem	7.50E+00	7.50E+00	7.50E+00	7.50E+00	1.50E+01
% ODCM Limit	%	7.23E-01	1.72E+00	1.22E+00	1.06E+00	2.34E+00

Calculations are based on parameters and methodologies of the ODCM using historical meteorology. Dose is calculated to a hypothetical individual. In contrast, Appendix C dose calculations are based on concurrent meteorology, a real individual, and only the actual pathways present.

**Table 28:  
Units 1, 2, and 3  
Gaseous Effluents - Continuous - Fission Gases and Iodines -  
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	< LLD				
Kr-83m	Ci	< LLD				
Kr-85	Ci	< LLD				
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	< LLD				
Xe-133	Ci	< LLD	1.39E+01	< LLD	1.75E+01	3.13E+01
Xe-133m	Ci	< LLD				
Xe-135	Ci	< LLD	8.72E-01	< LLD	< LLD	8.72E-01
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	< LLD	1.47E+01	< LLD	1.75E+01	3.22E+01
<b>2. Iodines</b>						
I-131	Ci	2.14E-05	7.08E-04	1.65E-06	3.82E-04	1.11E-03
I-132	Ci	< LLD	5.38E-03	< LLD	< LLD	5.38E-03
I-133	Ci	< LLD	1.81E-06	< LLD	< LLD	1.81E-06
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	2.14E-05	6.09E-03	1.65E-06	3.82E-04	6.50E-03

**Table 29:  
Units 1, 2, and 3  
Gaseous Effluents - Continuous - Particulates -  
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	< LLD				
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	4.62E-06	4.00E-05	< LLD	1.99E-04	2.44E-04
Co-60	Ci	1.20E-06	2.05E-06	6.99E-06	1.62E-05	2.64E-05
Cr-51	Ci	< LLD	5.77E-06	< LLD	< LLD	5.77E-06
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD	< LLD	< LLD	9.33E-07	9.33E-07
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD	5.92E-06	< LLD	< LLD	5.92E-06
Os-191	Ci	< LLD	1.03E-05	< LLD	1.09E-05	2.12E-05
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD	1.53E-06	< LLD	< LLD	1.53E-06
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD	1.96E-06	1.97E-06	< LLD	3.94E-06
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD	2.23E-06	< LLD	< LLD	2.23E-06
total	Ci	5.81E-06	6.98E-05	8.97E-06	2.27E-04	3.12E-04
<b>4. Tritium</b>						
H-3	Ci	3.88E+01	4.67E+01	3.84E+01	5.93E+01	1.83E+02

**Table 30:  
Units 1, 2, and 3  
Gaseous Effluents - Batch - Fission Gases and Iodines -  
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	4.30E-01	2.76E-01	4.60E-01	2.15E-01	1.38E+00
Kr-83m	Ci	< LLD				
Kr-85	Ci	3.26E-02	1.64E+00	1.13E+00	5.82E-01	3.39E+00
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	3.47E-04	5.52E-02	< LLD	4.22E-02	9.78E-02
Xe-133	Ci	3.16E-01	7.55E+00	8.91E-02	4.48E+00	1.24E+01
Xe-133m	Ci	1.61E-04	8.12E-03	< LLD	1.33E-02	2.16E-02
Xe-135	Ci	2.81E-04	4.65E-04	6.68E-04	1.30E-03	2.71E-03
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	7.79E-01	9.53E+00	1.68E+00	5.33E+00	1.73E+01
<b>2. Iodines</b>						
I-131	Ci	< LLD				
I-132	Ci	6.73E-10	< LLD	< LLD	< LLD	6.73E-10
I-133	Ci	9.29E-08	< LLD	< LLD	< LLD	9.29E-08
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	9.36E-08	< LLD	< LLD	< LLD	9.36E-08

**Table 31:  
Units 1, 2, and 3  
Gaseous Effluents - Batch - Particulates -  
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	6.98E-07	9.03E-07	1.42E-06	8.99E-07	3.92E-06
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	< LLD				
Cr-51	Ci	< LLD				
Cs-134	Ci	1.71E-10	< LLD	< LLD	< LLD	1.71E-10
Cs-137	Ci	1.58E-10	< LLD	< LLD	< LLD	1.58E-10
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD				
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD				
Os-191	Ci	< LLD				
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD				
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD				
Sr-89	Ci	Note 1				
Sr-90	Ci	Note 1				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD				
total	Ci	6.99E-07	9.03E-07	1.42E-06	8.99E-07	3.92E-06
<b>4. Tritium</b>						
H-3	Ci	7.04E+02	5.13E+02	5.05E+02	2.18E+02	1.94E+03
Note 1 - Not required for batch releases						

**Table 32:  
Units 1, 2, and 3  
Gaseous Effluents - Continuous and Batch - Fission Gases and Iodines -  
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>1. Fission gases</b>						
Ar-41	Ci	4.30E-01	2.76E-01	4.60E-01	2.15E-01	1.38E+00
Kr-83m	Ci	< LLD				
Kr-85	Ci	3.26E-02	1.64E+00	1.13E+00	5.82E-01	3.39E+00
Kr-85m	Ci	< LLD				
Kr-87	Ci	< LLD				
Kr-88	Ci	< LLD				
Kr-89	Ci	< LLD				
Kr-90	Ci	< LLD				
Xe-131m	Ci	3.47E-04	5.52E-02	< LLD	4.22E-02	9.78E-02
Xe-133	Ci	3.16E-01	2.14E+01	8.91E-02	2.20E+01	4.38E+01
Xe-133m	Ci	1.61E-04	8.12E-03	< LLD	1.33E-02	2.16E-02
Xe-135	Ci	2.81E-04	8.73E-01	6.68E-04	1.30E-03	8.75E-01
Xe-135m	Ci	< LLD				
Xe-137	Ci	< LLD				
Xe-138	Ci	< LLD				
total	Ci	7.79E-01	2.43E+01	1.68E+00	2.28E+01	4.95E+01
<b>2. Iodines</b>						
I-131	Ci	2.14E-05	7.08E-04	1.65E-06	3.82E-04	1.11E-03
I-132	Ci	6.73E-10	5.38E-03	< LLD	< LLD	5.38E-03
I-133	Ci	9.29E-08	1.81E-06	< LLD	< LLD	1.90E-06
I-134	Ci	< LLD				
I-135	Ci	< LLD				
total	Ci	2.15E-05	6.09E-03	1.65E-06	3.82E-04	6.50E-03

**Table 33:  
Units 1, 2, and 3  
Gaseous Effluents - Continuous and Batch - Particulates -  
Total By Quarter**

Nuclides Released	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Year total
<b>3. Particulates</b>						
Ag-110m	Ci	< LLD				
Ba-140	Ci	< LLD				
Br-82	Ci	6.98E-07	9.03E-07	1.42E-06	8.99E-07	3.92E-06
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Co-57	Ci	< LLD				
Co-58	Ci	4.62E-06	4.00E-05	< LLD	1.99E-04	2.44E-04
Co-60	Ci	1.20E-06	2.05E-06	6.99E-06	1.62E-05	2.64E-05
Cr-51	Ci	< LLD	5.77E-06	< LLD	< LLD	5.77E-06
Cs-134	Ci	1.71E-10	< LLD	< LLD	< LLD	1.71E-10
Cs-137	Ci	1.58E-10	< LLD	< LLD	< LLD	1.58E-10
Cs-138	Ci	< LLD				
Fe-59	Ci	< LLD				
La-140	Ci	< LLD				
Mn-54	Ci	< LLD	< LLD	< LLD	9.33E-07	9.33E-07
Mo-99	Ci	< LLD				
Nb-95	Ci	< LLD	5.92E-06	< LLD	< LLD	5.92E-06
Os-191	Ci	< LLD	1.03E-05	< LLD	1.09E-05	2.12E-05
Rb-88	Ci	< LLD				
Ru-103	Ci	< LLD	1.53E-06	< LLD	< LLD	1.53E-06
Sb-122	Ci	< LLD				
Sb-124	Ci	< LLD				
Se-75	Ci	< LLD	1.96E-06	1.97E-06	< LLD	3.94E-06
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Te-123m	Ci	< LLD				
Zn-65	Ci	< LLD				
Zr-95	Ci	< LLD	2.23E-06	< LLD	< LLD	2.23E-06
total	Ci	6.51E-06	7.07E-05	1.04E-05	2.28E-04	3.16E-04
total > 8 days	Ci	5.81E-06	6.98E-05	8.97E-06	2.27E-04	3.12E-04
<b>4. Tritium</b>						
H-3	Ci	7.42E+02	5.60E+02	5.43E+02	2.77E+02	2.12E+03

**Table 34:  
Units 1, 2 and 3  
Gaseous Effluents- Continuous - Fission Gases and Iodine -  
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
<b>1. Fission gases</b>					
Ar-41	Ci	< LLD	< LLD	< LLD	< LLD
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-133	Ci	1.32E+01	< LLD	1.82E+01	3.13E+01
Xe-133m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-135	Ci	8.72E-01	< LLD	< LLD	8.72E-01
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	1.41E+01	< LLD	1.82E+01	3.22E+01
<b>2. Iodines</b>					
I-131	Ci	7.19E-04	1.22E-05	3.82E-04	1.11E-03
I-132	Ci	5.38E-03	< LLD	< LLD	5.38E-03
I-133	Ci	1.81E-06	< LLD	< LLD	1.81E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	6.10E-03	1.22E-05	3.82E-04	6.50E-03

**Table 35:  
Units 1, 2 and 3  
Gaseous Effluents- Continuous - Particulates -  
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
<b>3. Particulates</b>					
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	< LLD	< LLD	< LLD	< LLD
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	4.00E-05	< LLD	2.04E-04	2.44E-04
Co-60	Ci	3.25E-06	< LLD	2.32E-05	2.64E-05
Cr-51	Ci	5.77E-06	< LLD	< LLD	5.77E-06
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	9.33E-07	9.33E-07
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	5.92E-06	< LLD	< LLD	5.92E-06
Os-191	Ci	1.03E-05	< LLD	1.09E-05	2.12E-05
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	1.53E-06	< LLD	< LLD	1.53E-06
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	3.94E-06	< LLD	< LLD	3.94E-06
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	2.23E-06	< LLD	< LLD	2.23E-06
total	Ci	7.30E-05	< LLD	2.39E-04	3.12E-04
<b>4. Tritium</b>					
H-3	Ci	5.10E+01	6.28E+01	6.93E+01	1.83E+02

**Table 36:  
Units 1, 2 and 3  
Gaseous Effluents- Batch - Fission Gases and Iodine -  
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
<b>1. Fission gases</b>					
Ar-41	Ci	4.86E-01	3.79E-01	5.16E-01	1.38E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	1.68E+00	< LLD	1.71E+00	3.39E+00
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	5.52E-02	3.47E-04	4.22E-02	9.78E-02
Xe-133	Ci	7.53E+00	4.86E-01	4.42E+00	1.24E+01
Xe-133m	Ci	8.12E-03	1.61E-04	1.33E-02	2.16E-02
Xe-135	Ci	1.55E-03	1.16E-03	< LLD	2.71E-03
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	9.76E+00	8.66E-01	6.70E+00	1.73E+01
<b>2. Iodines</b>					
I-131	Ci	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	6.73E-10	< LLD	6.73E-10
I-133	Ci	9.29E-08	< LLD	< LLD	9.29E-08
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	9.29E-08	6.73E-10	< LLD	9.36E-08

**Table 37:  
Units 1, 2 and 3  
Gaseous Effluents- Batch - Particulates -  
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1,2 and 3
<b>3. Particulates</b>					
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	1.16E-06	4.45E-07	2.32E-06	3.92E-06
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	< LLD
Co-60	Ci	< LLD	< LLD	< LLD	< LLD
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	1.71E-10	< LLD	1.71E-10
Cs-137	Ci	< LLD	1.58E-10	< LLD	1.58E-10
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	< LLD	< LLD	< LLD	< LLD
Os-191	Ci	< LLD	< LLD	< LLD	< LLD
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	< LLD	< LLD	< LLD	< LLD
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	Note 1	Note 1	Note 1	Note 1
Sr-90	Ci	Note 1	Note 1	Note 1	Note 1
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	1.16E-06	4.45E-07	2.32E-06	3.92E-06
<b>4. Tritium</b>					
H-3	Ci	6.21E+02	4.16E+02	9.03E+02	1.94E+03
Note 1 - Not required for batch releases					

<b>Table 38:</b> <b>Units 1, 2 and 3</b> <b>Gaseous Effluents- Continuous and Batch - Fission Gases and Iodine -</b> <b>Total By Unit</b>					
Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
<b>1. Fission gases</b>					
Ar-41	Ci	4.86E-01	3.79E-01	5.16E-01	1.38E+00
Kr-83m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-85	Ci	1.68E+00	< LLD	1.71E+00	3.39E+00
Kr-85m	Ci	< LLD	< LLD	< LLD	< LLD
Kr-87	Ci	< LLD	< LLD	< LLD	< LLD
Kr-88	Ci	< LLD	< LLD	< LLD	< LLD
Kr-89	Ci	< LLD	< LLD	< LLD	< LLD
Kr-90	Ci	< LLD	< LLD	< LLD	< LLD
Xe-131m	Ci	5.52E-02	3.47E-04	4.22E-02	9.78E-02
Xe-133	Ci	2.07E+01	4.86E-01	2.26E+01	4.38E+01
Xe-133m	Ci	8.12E-03	1.61E-04	1.33E-02	2.16E-02
Xe-135	Ci	8.74E-01	1.16E-03	< LLD	8.75E-01
Xe-135m	Ci	< LLD	< LLD	< LLD	< LLD
Xe-137	Ci	< LLD	< LLD	< LLD	< LLD
Xe-138	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	2.38E+01	8.66E-01	2.49E+01	4.95E+01
<b>2. Iodines</b>					
I-131	Ci	7.19E-04	1.22E-05	3.82E-04	1.11E-03
I-132	Ci	5.38E-03	6.73E-10	< LLD	5.38E-03
I-133	Ci	1.90E-06	< LLD	< LLD	1.90E-06
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
total	Ci	6.10E-03	1.22E-05	3.82E-04	6.50E-03

**Table 39:  
Units 1, 2 and 3  
Gaseous Effluents - Continuous and Batch - Particulates -  
Total By Unit**

Nuclides Released	Unit	Unit 1	Unit 2	Unit 3	Total Units 1, 2 and 3
<b>3. Particulates</b>					
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD
Br-82	Ci	1.16E-06	4.45E-07	2.32E-06	3.92E-06
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD
Co-57	Ci	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	4.00E-05	< LLD	2.04E-04	2.44E-04
Co-60	Ci	3.25E-06	< LLD	2.32E-05	2.64E-05
Cr-51	Ci	5.77E-06	< LLD	< LLD	5.77E-06
Cs-134	Ci	< LLD	1.71E-10	< LLD	1.71E-10
Cs-137	Ci	< LLD	1.58E-10	< LLD	1.58E-10
Cs-138	Ci	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	9.33E-07	9.33E-07
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	5.92E-06	< LLD	< LLD	5.92E-06
Os-191	Ci	1.03E-05	< LLD	1.09E-05	2.12E-05
Rb-88	Ci	< LLD	< LLD	< LLD	< LLD
Ru-103	Ci	1.53E-06	< LLD	< LLD	1.53E-06
Sb-122	Ci	< LLD	< LLD	< LLD	< LLD
Sb-124	Ci	< LLD	< LLD	< LLD	< LLD
Se-75	Ci	3.94E-06	< LLD	< LLD	3.94E-06
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD
Te-123m	Ci	< LLD	< LLD	< LLD	< LLD
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD
Zr-95	Ci	2.23E-06	< LLD	< LLD	2.23E-06
total	Ci	7.41E-05	4.45E-07	2.41E-04	3.16E-04
total > 8 days	Ci	7.30E-05	3.30E-10	2.39E-04	3.12E-04
<b>4. Tritium</b>					
H-3	Ci	6.72E+02	4.79E+02	9.72E+02	2.12E+03

**Table 40:  
Estimation of Total Percent Error**

The estimated total error is calculated as follows:

$$\text{Total Percent Error} = (E_1^2 + E_2^2 + E_3^2 + \dots + E_n^2)^{1/2}$$

Where  $E_n$  = Percent error associated with each contributing parameter.

Parameters contributing to errors in the measurement of gaseous effluents; process flow rates, sample collection, analytical counting and tank volumes.

The following values (%) were used for error calculations.

Fission & Act gases	I-131	Particulates	Tritium	
25	25	25	25	Sample counting error
10	10	10	10	Counting system calibration error
5	5	5	5	Counting system source error
20	N/A	N/A	N/A	Temperature/volume correction error
10	10	10	10	Process flow measuring device <sup>(1)</sup>
N/A	15	15	15	Sample flow measuring device
N/A	5	N/A	N/A	Iodine collection efficiency error
N/A	N/A	10	N/A	Plateout error
N/A	N/A	N/A	20	Bubbler collection efficiency error
N/A	N/A	N/A	2	Sample volume transfer error (pipette)
N/A	N/A	N/A	2	Sample volume error (graduate)
Note 1 - % of full scale				

## 2.0 Principal Radionuclides

2.a Estimate of major nuclide concentrations for spent resins, filter, evaporator bottoms, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	2.73E+01	2.19E+00
A	Ni-63	1.92E+01	1.54E+00
A	Cs-137	1.75E+01	1.40E+00
A	H-3	1.29E+01	1.03E+00
A	Co-60	9.42E+00	7.54E-01
A	C-14	4.72E+00	3.78E-01
A	Cs-134	2.65E+00	2.12E-01
A	Sb-125	2.22E+00	1.77E-01
A	Co-58	2.14E+00	1.71E-01
A	Ag-110m	7.13E-01	5.71E-02
A	Mn-54	5.98E-01	4.78E-02
A	Ni-59	1.77E-01	1.42E-02
A	Pu-241	1.29E-01	1.03E-02
A	Ce-144	8.80E-02	7.04E-03
A	Co-57	5.91E-02	4.73E-03
A	Sb-124	5.44E-02	4.36E-03
A	Sr-90	3.71E-02	2.97E-03
A	Zr-95	2.19E-02	1.75E-03
A	Nb-95	1.82E-02	1.46E-03
A	Sn-113	1.26E-02	1.01E-03
A	Cr-51	8.14E-03	6.51E-04
A	Cm-243	4.73E-03	3.78E-04
A	Pu-238	3.45E-03	2.76E-04
A	Am-241	1.92E-03	1.53E-04
A	Pu-239	1.36E-03	1.09E-04
A	Tc-99	1.24E-03	9.93E-05
A	Cm-242	9.81E-04	7.85E-05
A	Te-123m	8.42E-04	6.74E-05
A	Nb-94	7.29E-04	5.84E-05
A	Pu-242	2.87E-06	2.30E-07
	Total		8.00E+00

2.b Estimate of major nuclide concentrations for spent resins, filter, evaporator bottoms, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
B	Ni-63	3.89E+01	6.35E+01
B	Fe-55	1.96E+01	3.19E+01
B	Cs-137	1.56E+01	2.54E+01
B	Co-60	1.13E+01	1.84E+01
B	Cs-134	8.09E+00	1.32E+01
B	Co-58	2.37E+00	3.87E+00
B	Mn-54	2.33E+00	3.80E+00
B	Sb-125	8.46E-01	1.38E+00
B	Co-57	3.81E-01	6.21E-01
B	Ni-59	2.37E-01	3.86E-01
B	C-14	1.71E-01	2.79E-01
B	Sr-90	1.07E-01	1.75E-01
B	H-3	4.18E-02	6.82E-02
B	Ag-110m	2.75E-02	4.49E-02
B	Pu-241	2.50E-02	4.07E-02
B	Ce-144	1.01E-02	1.64E-02
B	Sb-124	4.00E-03	6.53E-03
B	Cm-243	1.24E-03	2.03E-03
B	Pu-238	7.97E-04	1.30E-03
B	Am-241	3.41E-04	5.56E-04
B	Pu-239	2.47E-04	4.03E-04
B	Tc-99	2.10E-04	3.43E-04
B	Cm-242	1.37E-04	2.23E-04
	Total		1.63E+02

2.c Estimate of major nuclide concentrations for spent resins, filter, evaporator bottoms, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
C	Fe-55	4.84E+01	1.68E+01
C	Ni-63	1.60E+01	5.54E+00
C	Co-58	1.13E+01	3.91E+00
C	Co-60	1.02E+01	3.55E+00
C	H-3	3.16E+00	1.10E+00
C	C-14	2.85E+00	9.88E-01
C	Cr-51	1.93E+00	6.69E-01
C	Zr-95	1.46E+00	5.08E-01
C	Sb-125	1.07E+00	3.70E-01
C	Mn-54	7.59E-01	2.63E-01
C	Zn-65	6.48E-01	2.25E-01
C	Nb-95	5.86E-01	2.03E-01
C	Sb-124	3.43E-01	1.19E-01
C	Cs-134	3.21E-01	1.11E-01
C	Ag-110m	3.12E-01	1.08E-01
C	Co-57	1.64E-01	5.69E-02
C	Sn-113	1.06E-01	3.68E-02
C	Ni-59	9.98E-02	3.46E-02
C	Pu-241	9.58E-02	3.32E-02
C	Te-123m	8.04E-02	2.79E-02
C	Ce-144	7.97E-02	2.76E-02
C	Fe-59	7.22E-02	2.50E-02
C	Cs-137	4.58E-02	1.59E-02
C	Cm-242	3.45E-03	1.20E-03
C	Cm-243	3.17E-03	1.10E-03
C	Sr-90	2.53E-03	8.79E-04
C	Pu-238	2.20E-03	7.65E-04
C	Tc-99	1.69E-03	5.86E-04
C	Am-241	1.16E-03	4.01E-04
C	Pu-239	8.36E-04	2.90E-04
C	Sr-89	2.45E-05	8.49E-06
C	I-129	5.82E-06	2.02E-06
C	Ru-103	2.25E-06	7.81E-07
C	Ce-141	2.74E-07	9.49E-08
C	Pu-242	1.37E-07	4.77E-08
C	Hf-181	3.20E-10	1.11E-10
		Total	3.47E+01

2.d Estimate of major nuclide concentrations for dry compressible waste, contaminated equipment, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
A	Fe-55	6.18E+01	3.46E+00
A	Co-58	9.67E+00	5.42E-01
A	Co-60	8.85E+00	4.95E-01
A	C-14	6.03E+00	3.38E-01
A	Ni-63	4.59E+00	2.57E-01
A	Zr-95	2.14E+00	1.20E-01
A	Nb-95	1.65E+00	9.23E-02
A	Cr-51	1.58E+00	8.84E-02
A	H-3	7.58E-01	4.24E-02
A	Mn-54	6.91E-01	3.87E-02
A	Sb-125	5.22E-01	2.92E-02
A	Fe-59	4.45E-01	2.49E-02
A	Sb-124	3.62E-01	2.03E-02
A	Ag-110m	2.54E-01	1.42E-02
A	Sn-113	1.60E-01	8.98E-03
A	Ce-144	1.24E-01	6.92E-03
A	Co-57	9.93E-02	5.56E-03
A	Pu-241	5.76E-02	3.22E-03
A	Ru-103	4.93E-02	2.76E-03
A	Ni-59	4.69E-02	2.63E-03
A	Te-123m	3.82E-02	2.14E-03
A	Hf-181	1.28E-02	7.17E-04
A	Ce-141	1.15E-02	6.41E-04
A	Cs-134	9.89E-03	5.54E-04
A	Cs-137	9.81E-03	5.49E-04
A	Cm-242	3.39E-03	1.90E-04
A	Sr-89	3.38E-03	1.89E-04
A	Sr-90	1.89E-03	1.06E-04
A	Pu-238	1.06E-03	5.94E-05
A	Cm-243	1.04E-03	5.81E-05
A	Pu-239	5.68E-04	3.18E-05
A	Am-241	5.36E-04	3.00E-05
A	Tc-99	4.61E-04	2.58E-05
A	Zn-65	3.22E-04	1.80E-05
A	I-129	1.07E-05	6.00E-07
	Total		5.60E+00

2.e Estimate of major nuclide concentrations for dry compressible waste, contaminated equipment, etc.			
Waste Class	Nuclide Name	Percent Abundance	Curies
C	Fe-55	7.40E+01	2.16E+00
C	Co-60	1.30E+01	3.81E-01
C	Ni-63	7.02E+00	2.05E-01
C	Co-58	1.67E+00	4.88E-02
C	H-3	9.11E-01	2.66E-02
C	Sb-125	7.71E-01	2.25E-02
C	Mn-54	6.34E-01	1.85E-02
C	Zr-95	5.14E-01	1.50E-02
C	C-14	4.73E-01	1.38E-02
C	Ag-110m	2.37E-01	6.92E-03
C	Ce-144	1.46E-01	4.27E-03
C	Pu-241	9.11E-02	2.66E-03
C	Co-57	8.80E-02	2.57E-03
C	Sn-113	8.01E-02	2.34E-03
C	Ni-59	7.88E-02	2.30E-03
C	Nb-95	7.40E-02	2.16E-03
C	Sb-124	7.33E-02	2.14E-03
C	Fe-59	2.81E-02	8.21E-04
C	Cs-137	1.88E-02	5.48E-04
C	Te-123m	1.77E-02	5.16E-04
C	Cs134	1.61E-02	4.71E-04
C	Cr-51	1.48E-02	4.31E-04
C	Sr-90	3.53E-03	1.03E-04
C	Ru-103	2.58E-03	7.52E-05
C	Cm-242	1.83E-03	5.33E-05
C	Cm-243/244	1.47E-03	4.29E-05
C	Pu-238	1.42E-03	4.16E-05
C	Hf-181	1.40E-03	4.10E-05
C	Pu-239/240	9.66E-04	2.82E-05
C	Am-241	7.74E-04	2.26E-05
G	Sr-89	5.51E-04	1.61E-05
C	Ce-141	4.25E-04	1.24E-05
C	Tc-99	3.34E-04	9.76E-06
	Total		2.92E+00

### 3.0 Solid Waste Disposition

#### 3.a

Shipments	Shipper	Mode Of Transportation	Destination
6	APS	Truck	"Barnwell, SC"
21	APS	Truck	"Envirocare, UT (Bulk)"
8	APS	Truck	Envirocare (Containerized)
1	GTS	Truck	Envirocare (Containerized)
9	GTS	Rail	"Envirocare, UT (Bulk)"

3.b Irradiated Fuel Shipments: None

3.c Supplemental Information (This section includes PVNGS and Vendor supplied containers):

Number of Containers	Container Volume ft <sup>3</sup>	Type of Waste	Container Type	Solidification Agent
3	132.4	Resin	EL-142	None
19	199.4	Resin	ES-210	None
7	202.1	Resin	EL-210	None
3	18.8	Filters	Nuhic-55	None
1	51.2	Filters / Dry Active Waste	EL-50	None
35	7.5	Concentrate	Drum	None
4	11.6	Concentrate	Drum	None
86	7.5	Dry Active Waste	Drum	None
6	11.6	Dry Active Waste	Drum	None
1	90.9	Dry Active Waste	B-25	None
3	90.9	Dry Active Waste	B-82	None
1	199.4	Dry Active Waste	ES-210	None
28	678	Dry Active Waste	Intermodal	None
12	1040	Dry Active Waste	20' Sealand	None
3	Bulk	Dry Active Waste	45 Mil wrap	None

## GASEOUS EFFLUENT DOSE CALCULATIONS

Doses to the maximum individual and the surrounding population resulting from the release of radioactive material in gaseous effluents from the Palo Verde Nuclear Generating Station were calculated using the GASPARG computer program. The radionuclides considered in the dose calculations were Tritium, Iodine-131, Iodine-132, Iodine-133, Iodine-135, all noble gases, and particulates having a half-life greater than eight days and for which dose factors are contained in NUREG-0172. Locations selected for individual dose calculations included for each sector, the site boundary, and within five miles, if present, the nearest residence, the nearest garden, and the nearest milk animal. GASPARG implements the radiological dose models of Regulatory Guide 1.109 to determine the radiation exposure to man from four principal atmospheric exposure pathways: plume, ground deposition, inhalation, and ingestion. Doses to the maximum individual and the population were calculated as a function of age group and pathway for significant body organs.

Table 43 presents the doses on a quarterly, semiannual and annual basis for the Energy Information Center. An occupancy factor of 1.0 (implying continuous occupancy over the entire year) was considered for the Energy Information Center and the exposure pathways considered to calculate its doses were plume, ground deposition, and inhalation.

Table 44 presents the population dose.

Table 45 summarizes the individual doses and compares the result to PVNGS ODCM Requirement limits. The site boundary and residence locations for which data are presented represent the highest annual doses.

Based on results obtained by placing TLDs on the site boundary in each sector, the net dose for this reporting period, from direct-radiation, (plume and ground deposition) from all three units was indistinguishable from preoperational values of 8 - 14  $\mu\text{R/hr}$  (17 - 30  $\text{mR/Std Qtr}$ ).

There were no liquid effluents associated with the operation of this facility.

## Dose Calculation Models

The GASPAR computer code was used to evaluate the radiological consequences of the routine release of gaseous effluents. GASPAR implements the dose calculational methodologies of Regulatory Guide 1.109, Revision 1.

Source terms for each quarter are combined with station-specific demographic data and each quarter's atmospheric diffusion estimates for gaseous dose calculations.

Atmospheric diffusion estimates are generated by the XOQDOQ computer code using onsite meteorological data as input. Additional input to GASPAR includes the following site-specific data:

0 to 5 mile nearest residence, milk animal and garden in each of the 16 compass sectors, based on the 2004 Land Use Census.

0 to 10 mile population distribution based on the State of Arizona - Maricopa County, Offsite Emergency Response Plan for Palo Verde Nuclear Generating Station, January 2004, Emergency Response Operations, Appendix 4: Residents in the Plume Exposure Pathway Emergency Planning Zone (Survey Information - September 2004).

The 10 to 50 mile population distribution from the PVNGS UFSAR, Figure 2.1-11.

The population distribution of metropolitan Phoenix greater than 50 miles from PVNGS, based on the 1980 federal census results, is conservatively included in the 40 to 50 mile sectors (NE=123; ENE=140,097; E=621,130; ESE=8,392).

Absolute humidity of  $6.0 \text{ g/m}^3$  from the PVNGS UFSAR, Table 2.3-16.

The fraction of the year that vegetables are grown (0.667) from the PVNGS ER-OL, Section 2.1.3.4, Table 2.1-8.

The fraction of daily feed derived from pasture while on pasture (0.35) and length of grazing season for milk animals beyond 5 miles (0.75) from the PVNGS ER-OL, Section 2.1.3.4.3.

The fraction of daily feed derived from pasture while on pasture (0.05) and length of grazing season for meat animals (0.25) from the PVNGS ER-OL, Section 2.1.3.4.4.

There were three (3) sectors containing milk animal (goat or cow) locations within five (5) miles. For calculational purposes these milk animals are assumed to be fed 100% on pasture grass during the year.

Other values used for input to GASPAR are default values from Regulatory Guide 1.109, Revision 1.

**Table 43:  
Doses To Special Locations For 2004**

ENERGY INFORMATION CENTER LOCATED ONSITE 0.45 MILE S FROM UNIT 1, 0.29 MILE SSE FROM UNIT 2  
AND 0.20 MILE ESE FROM UNIT 3

(MREM)	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
<b>1ST QUARTER</b>								
ADULT	6.67E-01	6.67E-01	1.85E-03	6.67E-01	6.67E-01	6.67E-01	6.67E-01	6.68E-01
TEEN	6.72E-01	6.72E-01	1.85E-03	6.72E-01	6.72E-01	6.72E-01	6.72E-01	6.73E-01
CHILD	5.94E-01	5.94E-01	1.85E-03	5.95E-01	5.95E-01	5.95E-01	5.94E-01	5.95E-01
INFANT	3.43E-01	3.43E-01	1.85E-03	3.43E-01	3.43E-01	3.43E-01	3.43E-01	3.44E-01
<b>2ND QUARTER</b>								
ADULT	1.92E-01	1.92E-01	2.76E-03	1.92E-01	1.92E-01	1.96E-01	1.92E-01	1.97E-01
TEEN	1.93E-01	1.93E-01	2.76E-03	1.93E-01	1.93E-01	1.98E-01	1.93E-01	1.98E-01
CHILD	1.71E-01	1.71E-01	2.77E-03	1.71E-01	1.71E-01	1.76E-01	1.71E-01	1.76E-01
INFANT	9.95E-02	9.95E-02	2.76E-03	9.95E-02	9.95E-02	1.04E-01	9.95E-02	1.05E-01
<b>1ST SEMI-ANNUAL</b>								
ADULT	8.59E-01	8.59E-01	4.61E-03	8.59E-01	8.59E-01	8.63E-01	8.59E-01	8.66E-01
TEEN	8.65E-01	8.65E-01	4.61E-03	8.65E-01	8.65E-01	8.69E-01	8.65E-01	8.71E-01
CHILD	7.65E-01	7.65E-01	4.62E-03	7.66E-01	7.66E-01	7.71E-01	7.65E-01	7.71E-01
INFANT	4.42E-01	4.42E-01	4.61E-03	4.42E-01	4.42E-01	4.47E-01	4.42E-01	4.48E-01
<b>3RD QUARTER</b>								
ADULT	2.40E-01	2.40E-01	1.12E-03	2.40E-01	2.40E-01	2.40E-01	2.40E-01	2.41E-01
TEEN	2.42E-01	2.42E-01	1.12E-03	2.42E-01	2.42E-01	2.42E-01	2.42E-01	2.43E-01
CHILD	2.14E-01	2.14E-01	1.12E-03	2.14E-01	2.14E-01	2.14E-01	2.14E-01	2.15E-01
INFANT	1.23E-01	1.23E-01	1.12E-03	1.23E-01	1.23E-01	1.24E-01	1.23E-01	1.25E-01
<b>4TH QUARTER</b>								
ADULT	2.48E-01	2.48E-01	4.50E-03	2.48E-01	2.48E-01	2.50E-01	2.48E-01	2.53E-01
TEEN	2.50E-01	2.50E-01	4.50E-03	2.50E-01	2.50E-01	2.53E-01	2.50E-01	2.55E-01
CHILD	2.21E-01	2.21E-01	4.51E-03	2.21E-01	2.21E-01	2.25E-01	2.22E-01	2.26E-01
INFANT	1.29E-01	1.29E-01	4.50E-03	1.29E-01	1.29E-01	1.32E-01	1.29E-01	5.77E-02
<b>2ND SEMI-ANNUAL</b>								
ADULT	4.88E-01	4.88E-01	5.62E-03	4.88E-01	4.88E-01	4.90E-01	4.88E-01	4.95E-01
TEEN	4.92E-01	4.92E-01	5.62E-03	4.92E-01	4.92E-01	4.95E-01	4.92E-01	4.98E-01
CHILD	4.35E-01	4.35E-01	5.62E-03	4.35E-01	4.35E-01	4.39E-01	4.36E-01	4.41E-01
INFANT	2.53E-01	2.53E-01	5.62E-03	2.53E-01	2.53E-01	2.56E-01	2.53E-01	1.82E-01
<b>ANNUAL</b>								
ADULT	1.35E+00	1.35E+00	1.02E-02	1.35E+00	1.35E+00	1.35E+00	1.35E+00	1.36E+00
TEEN	1.36E+00	1.36E+00	1.02E-02	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.37E+00
CHILD	1.20E+00	1.20E+00	1.02E-02	1.20E+00	1.20E+00	1.21E+00	1.20E+00	1.21E+00
INFANT	6.95E-01	6.95E-01	1.02E-02	6.95E-01	6.95E-01	7.03E-01	6.95E-01	6.31E-01

**Table 44:  
Integrated Population Dose for 2004**

JAN - MAR

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.92E-04 .00%	1.92E-04 .00%	1.92E-04 94.47%	1.92E-04 .00%	1.92E-04 .00%	1.92E-04 .00%	1.92E-04 .00%	6.07E-04 .01%
GROUND	8.57E-06 .00%	8.57E-06 .00%	8.57E-06 4.23%	8.57E-06 .00%	8.57E-06 .00%	8.57E-06 .00%	8.57E-06 .00%	1.01E-05 .00%
INHAL	2.16E+00 24.07%	2.16E+00 24.07%	1.07E-06 .53%	2.16E+00 24.07%	2.16E+00 24.07%	2.16E+00 24.07%	2.16E+00 24.07%	2.16E+00 24.07%
VEGET	5.83E+00 65.05%	5.83E+00 65.05%	1.39E-06 .69%	5.83E+00 65.05%	5.83E+00 65.05%	5.83E+00 65.05%	5.83E+00 65.05%	5.83E+00 65.05%
COW MILK	6.90E-01 7.70%	6.90E-01 7.70%	1.80E-07 .09%	6.90E-01 7.70%	6.90E-01 7.70%	6.90E-01 7.70%	6.90E-01 7.70%	6.90E-01 7.70%
MEAT	2.85E-01 3.18%	2.85E-01 3.18%	2.75E-10 .00%	2.85E-01 3.18%	2.85E-01 3.18%	2.85E-01 3.18%	2.85E-01 3.18%	2.85E-01 3.18%
*TOTAL*	8.97E+00	8.97E+00	2.03E-04	8.97E+00	8.97E+00	8.97E+00	8.97E+00	8.97E+00
(1) PER CAPITA DOSE (REM)	4.58E-06	4.58E-06	1.04E-10	4.58E-06	4.58E-06	4.58E-06	4.58E-06	4.58E-06

APR - JUN

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	5.46E-03 .14%	5.46E-03 .14%	5.46E-03 98.21%	5.46E-03 .14%	5.46E-03 .14%	5.46E-03 .14%	5.46E-03 .14%	2.19E-02 .56%
GROUND	2.77E-05 .00%	2.77E-05 .00%	2.77E-05 .50%	2.77E-05 .00%	2.77E-05 .00%	2.77E-05 .00%	2.77E-05 .00%	3.26E-05 .00%
INHAL	1.11E+00 28.55%	1.11E+00 28.55%	2.57E-05 .46%	1.11E+00 28.55%	1.11E+00 28.55%	1.12E+00 28.61%	1.11E+00 28.55%	1.11E+00 28.43%
VEGET	2.35E+00 60.36%	2.35E+00 60.36%	3.93E-05 .71%	2.35E+00 60.36%	2.35E+00 60.36%	2.37E+00 60.31%	2.35E+00 60.36%	2.35E+00 60.11%
COW MILK	3.31E-01 8.48%	3.31E-01 8.48%	7.03E-06 .13%	3.31E-01 8.48%	3.31E-01 8.48%	3.33E-01 8.49%	3.31E-01 8.48%	3.31E-01 8.44%
MEAT	9.62E-02 2.47%	9.62E-02 2.47%	7.96E-09 .00%	9.62E-02 2.47%	9.62E-02 2.47%	9.62E-02 2.45%	9.62E-02 2.47%	9.62E-02 2.46%
*TOTAL*	3.90E+00	3.90E+00	5.56E-03	3.90E+00	3.90E+00	3.93E+00	3.90E+00	3.92E+00
(1) PER CAPITA DOSE (REM)	1.99E-06	1.99E-06	2.84E-09	1.99E-06	1.99E-06	2.01E-06	1.99E-06	2.00E-06

**Table 44: (continued)  
Integrated Population Dose for 2004**

JAN - JUN

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	5.65E-03 .04%	5.65E-03 .04%	5.65E-03 98.07%	5.65E-03 .04%	5.65E-03 .04%	5.65E-03 .04%	5.65E-03 .04%	2.25E-02 .17%
GROUND	3.62E-05 .00%	3.62E-05 .00%	3.62E-05 .63%	3.62E-05 .00%	3.62E-05 .00%	3.62E-05 .00%	3.62E-05 .00%	4.27E-05 .00%
INHAL	3.27E+00 25.43%	3.27E+00 25.43%	2.68E-05 .46%	3.27E+00 25.43%	3.27E+00 25.43%	3.28E+00 25.45%	3.27E+00 25.43%	3.27E+00 25.39%
VEGET	8.19E+00 63.63%	8.19E+00 63.63%	4.07E-05 .71%	8.19E+00 63.63%	8.19E+00 63.63%	8.20E+00 63.61%	8.19E+00 63.63%	8.19E+00 63.55%
COW MILK	1.02E+00 7.93%	1.02E+00 7.93%	7.21E-06 .13%	1.02E+00 7.93%	1.02E+00 7.93%	1.02E+00 7.94%	1.02E+00 7.93%	1.02E+00 7.92%
MEAT	3.81E-01 2.96%	3.81E-01 2.96%	8.24E-09 .00%	3.81E-01 2.96%	3.81E-01 2.96%	3.81E-01 2.96%	3.81E-01 2.96%	3.81E-01 2.96%
*TOTAL*	1.29E+01	1.29E+01	5.76E-03	1.29E+01	1.29E+01	1.29E+01	1.29E+01	1.29E+01
(1) PER CAPITA DOSE (REM)	6.58E-06	6.58E-06	2.94E-09	6.58E-06	6.58E-06	6.58E-06	6.58E-06	6.58E-06

JUL - SEP

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.15E-04 .00%	1.15E-04 .00%	1.15E-04 65.66%	1.15E-04 .00%	1.15E-04 .00%	1.15E-04 .00%	1.15E-04 .00%	2.45E-03 .07%
GROUND	5.99E-05 .00%	5.99E-05 .00%	5.99E-05 34.25%	5.99E-05 .00%	5.99E-05 .00%	5.99E-05 .00%	5.99E-05 .00%	7.05E-05 .00%
INHAL	9.90E-01 29.16%	9.90E-01 29.16%	5.23E-08 .03%	9.90E-01 29.16%	9.90E-01 29.16%	9.90E-01 29.16%	9.90E-01 29.16%	9.90E-01 29.14%
VEGET	1.98E+00 58.44%	1.98E+00 58.44%	9.53E-08 .05%	1.98E+00 58.44%	1.98E+00 58.44%	1.98E+00 58.44%	1.98E+00 58.44%	1.98E+00 58.40%
COW MILK	3.29E-01 9.69%	3.29E-01 9.69%	1.59E-08 .01%	3.29E-01 9.69%	3.29E-01 9.69%	3.29E-01 9.69%	3.29E-01 9.69%	3.29E-01 9.69%
MEAT	9.14E-02 2.69%	9.14E-02 2.69%	1.44E-11 .00%	9.14E-02 2.69%	9.14E-02 2.69%	9.14E-02 2.69%	9.14E-02 2.69%	9.14E-02 2.69%
*TOTAL*	3.39E+00	3.39E+00	1.75E-04	3.39E+00	3.39E+00	3.39E+00	3.39E+00	3.40E+00
(1) PER CAPITA DOSE (REM)	1.73E-06	1.73E-06	8.93E-11	1.73E-06	1.73E-06	1.73E-06	1.73E-06	1.74E-06

**Table 44: (continued)  
Integrated Population Dose for 2004**

OCT - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	6.02E-03 .19%	6.02E-03 .19%	6.02E-03 97.55%	6.02E-03 .19%	6.02E-03 .19%	6.02E-03 .19%	6.02E-03 .19%	2.21E-02 .69%
GROUND	1.08E-04 .00%	1.08E-04 .00%	1.08E-04 1.75%	1.08E-04 .00%	1.08E-04 .00%	1.08E-04 .00%	1.08E-04 .00%	1.27E-04 .00%
INHAL	6.92E-01 21.60%	6.92E-01 21.60%	1.64E-05 .27%	6.92E-01 21.60%	6.92E-01 21.60%	6.99E-01 21.70%	6.92E-01 21.60%	6.92E-01 21.49%
VEGET	2.18E+00 68.05%	2.18E+00 68.06%	2.43E-05 .39%	2.18E+00 68.05%	2.18E+00 68.05%	2.19E+00 67.98%	2.18E+00 68.05%	2.18E+00 67.72%
COW MILK	2.16E-01 6.74%	2.16E-01 6.74%	2.41E-06 .04%	2.16E-01 6.74%	2.16E-01 6.74%	2.17E-01 6.73%	2.16E-01 6.74%	2.16E-01 6.70%
MEAT	1.10E-01 3.42%	1.10E-01 3.42%	5.05E-09 .00%	1.10E-01 3.42%	1.10E-01 3.42%	1.10E-01 3.40%	1.10E-01 3.42%	1.10E-01 3.40%
*TOTAL*	3.21E+00	3.21E+00	6.17E-03	3.21E+00	3.21E+00	3.22E+00	3.21E+00	3.22E+00
(1) PER CAPITA DOSE (REM)	1.64E-06	1.64E-06	3.15E-09	1.64E-06	1.64E-06	1.64E-06	1.64E-06	1.64E-06

JUL - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	6.13E-03 .09%	6.13E-03 .09%	6.13E-03 96.67%	6.13E-03 .09%	6.13E-03 .09%	6.13E-03 .09%	6.13E-03 .09%	2.45E-02 .37%
GROUND	1.68E-04 .00%	1.68E-04 .00%	1.68E-04 2.64%	1.68E-04 .00%	1.68E-04 .00%	1.68E-04 .00%	1.68E-04 .00%	1.97E-04 .00%
INHAL	1.68E+00 25.49%	1.68E+00 25.49%	1.65E-05 .26%	1.68E+00 25.49%	1.68E+00 25.49%	1.69E+00 25.53%	1.68E+00 25.49%	1.68E+00 25.42%
VEGET	4.17E+00 63.11%	4.17E+00 63.11%	2.44E-05 .38%	4.17E+00 63.11%	4.17E+00 63.11%	4.17E+00 63.09%	4.17E+00 63.11%	4.17E+00 62.94%
COW MILK	5.45E-01 8.26%	5.45E-01 8.26%	2.43E-06 .04%	5.45E-01 8.26%	5.45E-01 8.26%	5.46E-01 8.25%	5.45E-01 8.26%	5.45E-01 8.23%
MEAT	2.01E-01 3.05%	2.01E-01 3.05%	5.06E-09 .00%	2.01E-01 3.05%	2.01E-01 3.05%	2.01E-01 3.04%	2.01E-01 3.05%	2.01E-01 3.04%
*TOTAL*	6.60E+00	6.60E+00	6.34E-03	6.60E+00	6.60E+00	6.62E+00	6.60E+00	6.62E+00
(1) PER CAPITA DOSE (REM)	3.37E-06	3.37E-06	3.24E-09	3.37E-06	3.37E-06	3.38E-06	3.37E-06	3.38E-06

**Table 44: (continued)  
Integrated Population Dose for 2004**

JAN - DEC

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.18E-02 .06%	1.18E-02 .06%	1.18E-02 97.34%	1.18E-02 .06%	1.18E-02 .06%	1.18E-02 .06%	1.18E-02 .06%	4.70E-02 .24%
GROUND	2.04E-04 .00%	2.04E-04 .00%	2.04E-04 1.68%	2.04E-04 .00%	2.04E-04 .00%	2.04E-04 .00%	2.04E-04 .00%	2.40E-04 .00%
INHAL	4.95E+00 25.45%	4.95E+00 25.45%	4.33E-05 .36%	4.95E+00 25.45%	4.95E+00 25.45%	4.97E+00 25.48%	4.95E+00 25.45%	4.95E+00 25.40%
VEGET	1.24E+01 63.45%	1.24E+01 63.45%	6.51E-05 .54%	1.24E+01 63.45%	1.24E+01 63.45%	1.24E+01 63.43%	1.24E+01 63.45%	1.24E+01 63.34%
COW MILK	1.57E+00 8.04%	1.57E+00 8.04%	9.64E-06 .08%	1.57E+00 8.04%	1.57E+00 8.04%	1.57E+00 8.04%	1.57E+00 8.04%	1.57E+00 8.03%
MEAT	5.82E-01 2.99%	5.82E-01 2.99%	1.33E-08 .00%	5.82E-01 2.99%	5.82E-01 2.99%	5.82E-01 2.98%	5.82E-01 2.99%	5.82E-01 2.99%
*TOTAL*	1.95E+01	1.95E+01	1.21E-02	1.95E+01	1.95E+01	1.95E+01	1.95E+01	1.95E+01
(1) PER CAPITA DOSE (REM)	9.95E-06	9.95E-06	6.18E-09	9.95E-06	9.95E-06	9.95E-06	9.95E-06	9.95E-06

Note 1: Personrem total divided by 50-mile population of 1,959,000

## MAG MEETING - 8-7-07

I am Doris Heisler, Projects Director of our Landowners Association of 31 years, the Tonopah Valley Association, Inc. , *AND RESIDENT OF TONOPAH*

I have both met with, and been in attendance at, meetings with Global Water Resources over the past couple of years, and have seen Power Point presentations of the water and wastewater systems they are providing in the Towns of Casa Grande and particularly Maricopa, AZ. The information they have provided to us has been quite impressive, with the statistics and graphs they have shown to us, as well as the infrastructure photos and diagrams they have provided to us of systems that they are currently providing to residents at the Towns of Maricopa and Casa Grande. They have separate lines running to the homes for potable water, non-potable water, and sewer.

Although they feel that recharge is important – and have expressed that they do intend to recharge in several designated areas both north and south in our valley – they are interested in recycling and reusing the water more times than we understand is customarily done, so that more use and less waste is derived from the water, thereby requiring that less water be pumped from ground wells. They are very serious about water conservation, feeling that the effects of conservation – or waste – of water are both far-reaching. We therefore, feel that Global is technically capable of providing good wastewater treatment needs for the various developments proposing to locate in our Tonopah Valley.

Also, they are a well-capitalized company, so can afford to put in the infrastructure and various components and Plants necessary for the proper delivery, treatment, distribution, and recharge of the water and wastewater for our area. They have already made major investments in the systems installed in Casa Grande and Maricopa, AZ, as well as in their own facilities, and have indicated the desire to make the necessary investments in our valley as well, to insure successful operating systems. They have a large staff of engineers and other professional people to construct, operate, and maintain good regional systems for us, which may eventually also allow hookups of current and future businesses and residences to take them off septic systems. Therefore, we feel that they are financially able to provide those services to us.

**Last year, they purchased the Water Utilities of Greater Tonopah water company & franchised area, in order to provide water service to the local developments, and to also make it available to other businesses and residences in the future, if they choose to use it. We understand that they are in the process of upgrading and improving the condition of the water systems they purchased, to make them more reliable and efficient.**

**We understand that the Town of Buckeye, as a municipality, feels that it can provide wastewater services to the proposed developments west of the Hassayampa River better than can a private company. We are concerned that if Buckeye is allowed to provide those services to the developments in our valley -- which they would have to cross the River in order to do so -- that it could result in those developments having to annex into Buckeye in order to receive those municipal services. We have had to be concerned for many years about the desire of Buckeye to annex part of our Tonopah Valley, and we have had to block attempts of them to do so several times in the past. They are our neighbor, but we want to retain our own identity as Tonopah -- not to be a part of Buckeye. The developers have indicated to us that they have no desire to annex into Buckeye, and we do not want them to do so. We feel that Global, as a private company, is capable of serving our area better than Buckeye, which is growing so fast, it is having difficulty keeping up with its own growth's needs.**

**Also, if a private company such as Global (or any other private company) is not allowed to provide the needed water and wastewater services to our area, and Buckeye is, it could not only involve the various proposed developments within 3 miles of Buckeye's western boundaries, (primarily Hassayampa Ranch, Hassayampa Village, Hassayampa 78, Belmont, and Hidden Waters Ranch), but could also involve the other developments that are being proposed completely across our Tonopah Valley. That could be devastating to us and our future growth and development with Buckeye's onerous presence here in Tonopah to hinder our own plans and desires.**

**We feel that Global Water Resources has a proven track record in this business, so we are requesting that MAG please approve Maricopa County's sponsorship of the 208 wastewater permit for the Tonopah Valley, and allow Global Water Resources to provide the needed regional wastewater services for our proposed developments. Thank you.**

PUBLIC HEARING ON THE DRAFT MAG 208 WATER  
QUALITY MANAGEMENT PLAN AMENDMENTS FOR THE  
HASSAYAMPA UTILITY COMPANY NORTHEAST SERVICE  
AREA AND HASSAYAMPA UTILITY COMPANY SOUTHWEST  
SERVICE AREA

Phoenix, Arizona  
August 7, 2007  
4:10 p.m.

**Glennie**  
Reporting Services

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Prepared for:  
Maricopa Association of  
Governments

(Original)

Maricopa Association of Governments  
Received

AUG 24 2007



1           The Public Hearing was taken on August 7,  
2           2007, commencing at 4:10 p.m., at the offices of the  
3           Maricopa Association of Governments, 302 North 1st  
4           Avenue, Suite 200, Phoenix, Arizona, before  
5           JANET HAUCK, RPR, a Certified Reporter, Certificate  
6           No. 50522, for the State of Arizona.

7  
8           **Committee Members Present:**

9           Roger Klingler, City of Scottsdale, Chair  
10          Steve Borst for Lucky Roberts, Town of Buckeye  
11          Chris Ochs, City of Glendale  
12          David Iwanski, City of Goodyear  
13          Robert Hollander, City of Phoenix  
14          Rich Williams Sr., City of Surprise  
15          David McNeil, City of Tempe  
16          Marilyn DeRosa, City of Avondale  
17          Greg Stack, City of El Mirage  
18          Jacqueline Strong, City of Chandler  
19          Bill Haney, City of Mesa  
20          Dale Bodiya for Kevin Chadwick, Maricopa County  
21          John Boyer, Pinnacle West Capital  
22          Erin Taylor, U of A Cooperative Extension  
23          Jim Kudlinski for Ray Hedrick, Salt River Project

24           **Committee Members Attending  
25           by Telephone Conference Call:**

          Stephen Bontrager, City of Peoria

**Others Present:**

          David Wilcox, Town of Buckeye  
          Scott Lowe, Town of Buckeye  
          Neil Rosekrans, Town of Buckeye  
          Garry Hays, Henderson Law Firm  
          Trevor Hill, Global Water  
          Doris Heisler, Tonopah Valley Association and Tonopah  
          Resident

1 Others Present, Continuing

2 Daryl Manhart, Burch & Cracchiolo

John Teixeira, Tonopah Fire

3 Dan Evans, DSE and Associates

Caryl Maniscalco, Tonopah Resident

4 Mary Widner, Tonopah Resident

Steve Brittle, Don't Waste Arizona and Arizona Nuclear  
Energy Watch

5 Wayne Nelson, Del Monte Missionary Baptist Church

6 Robin Bain, Global Water/Hassayampa Utility Company

Rod Jarvis, Henderson Law Firm/Hassayampa Ranch

7 Lloyd Rogers, Tonopah Resident

Jack Arend, Tonopah Resident

8 Paul Gilbert, Beus Gilbert

Felipe Zubia, Beus Gilbert

9 Bob Hathaway, Tonopah Resident

Ron Bonz, Tonopah Resident

10 Vivian Tyk, Tonopah Resident

Ed Tyk, Tonopah Resident

11 Edwina Vogan, Arizona Department of Environmental  
Quality

12 Linda Taunt, Arizona Department of Environmental Quality

Graham Symmonds, Global Water

13 Ron Fleming, Global Water

Rebecca Allen, West Valley View

14 Paul Roetto, Tonopah Resident

Kevin Bright, Arizona Game and Fish

15 John Power, Maricopa County Environmental Service  
Department

16 Julie Hoffman, Maricopa Association of Governments

Patrisia Navarro, Maricopa Association of Governments

17 Kelly Taft, Maricopa Association of Governments

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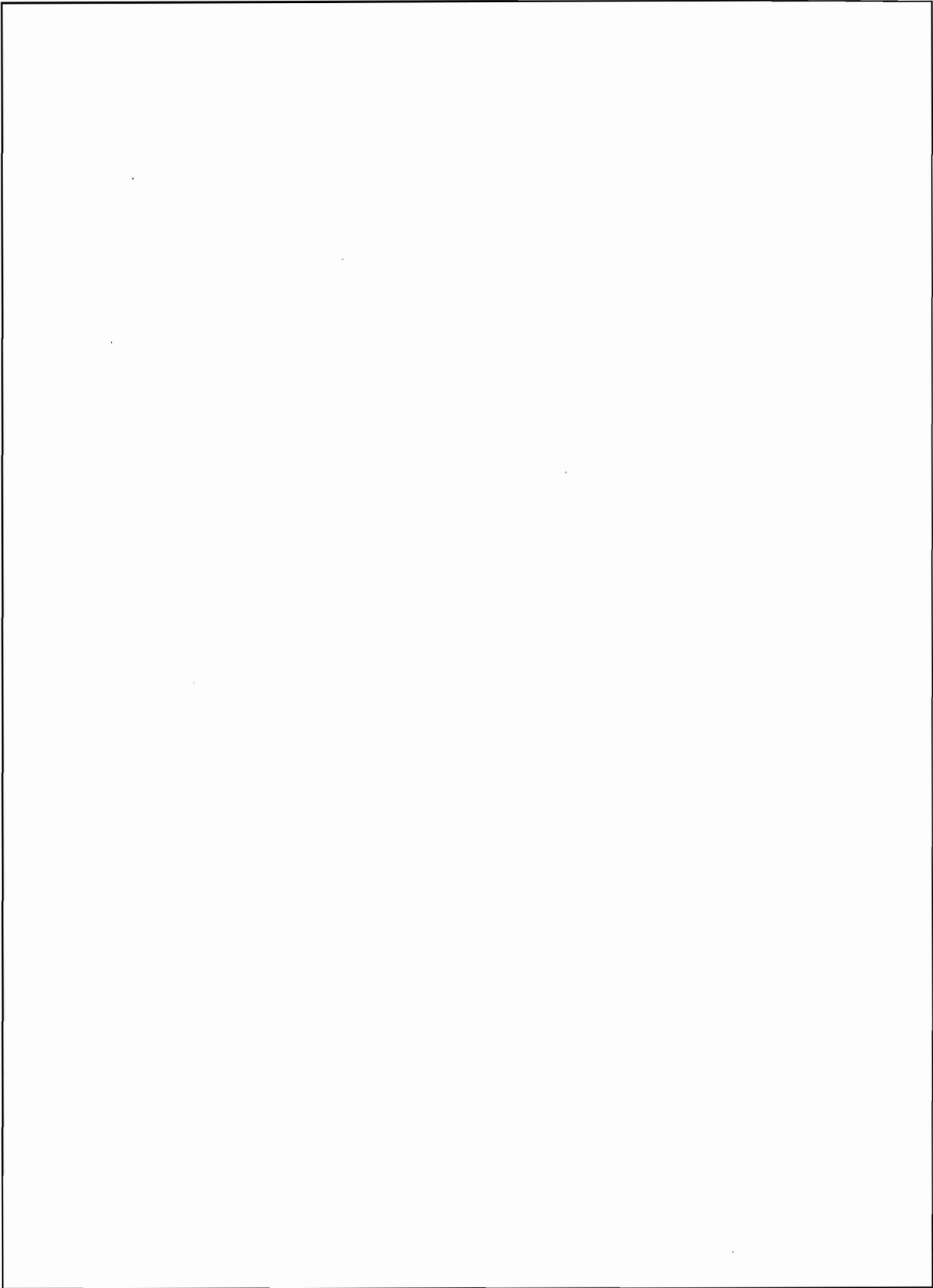
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1 MR. CHAIRMAN: I'm now going to open the  
2 public hearing on the Draft MAG 208 Plan Amendments for  
3 the Hassayampa Utility Company Northeast Service Area  
4 and the Hassayampa Utility Company Southwest Service  
5 Area. We're going to begin with a briefing on each  
6 draft amendment. Following the briefings, hearing  
7 participants are invited to make comments for the public  
8 record.

9 We do have a court reporter present to provide  
10 an official record of the hearing. Written comments are  
11 also welcome. For those wishing to speak, please fill  
12 out a yellow card and hand it to the MAG staff.

13 First we'll have Paul Gilbert of Beus Gilbert  
14 and Trevor Hill of Global Water provide a briefing on  
15 the Northeast Service Area 208 Plan.

16 So, Paul and Trevor, do you want to go ahead  
17 with that.

18 MR. GILBERT: Thank you. We will be happy to.  
19 My name is Paul Gilbert. I represent Global and the  
20 Hassayampa Utility Company here in connection with this  
21 MAG 208 request.

22 Let me introduce Trevor Hill who will be  
23 carrying the major burden speaking to you today. He's  
24 our president and CEO. He'll be speaking to you  
25 shortly. Also, we have Ron Fleming, our general manager

1 of the west valley region is here, and Robin Bain and  
2 Graham Symmonds who are also with us as engineers and  
3 part of our Global team.

4 We are here, and I'm sort of in a dual  
5 capacity today. I represent not only Global, but I'm  
6 also representing Belmont which is a large 25,000 acre  
7 approved DMP project in the county.

8 Belmont is entirely dependent on this 208  
9 Amendment. This 25,000 acre project, which incidentally  
10 also involves some state land, cannot go forward until  
11 this 208 Amendment is processed. Not only is Belmont  
12 with its 25,000 acres dependent on this 208 Amendment  
13 going through in a timely manner, but also Hassayampa  
14 Ranches consisting of 2,000 acres and Anderson Farms of  
15 3,000 acres who are in the service area who are  
16 basically high-centered and unable to go forward in the  
17 county even though the DMPs have been approved, because  
18 the county has adopted a policy that basically requires  
19 that before one can go forward beyond a DMP -- and a DMP  
20 in the county is a development master plan -- that's the  
21 first step in getting the piece of property entitled.

22 The county has basically adopted a rule that  
23 one cannot take the case forward in the county for  
24 zoning or preliminary plat approval until the 208  
25 amendment process has been completed. So, you have now

1 three projects in this service area that are completely  
2 dependent on this 208 Amendment. There is no other  
3 opportunity for them to go forward without this 208  
4 Amendment.

5 I'll address this point in a little more  
6 detail shortly, but that's why a continuance of this  
7 matter would have such a devastating effect on these  
8 three projects who are virtually ready to file and go  
9 forward but for this 208 Amendment process.

10 Several of you were at the initial meeting  
11 back on June 6th. Some technical issues were raised  
12 which we were then and are now fully prepared to  
13 address. However, one major concern raised by at least  
14 one committee member was the need for more time to  
15 review the document.

16 We point out, and apparently, I was just  
17 handed a letter requesting from the Town of Buckeye  
18 another 120 days to further review this matter. May we  
19 point out that the Town of Buckeye has had since  
20 June 6th which was our last meeting to review this  
21 application. We have called the Town of Buckeye and  
22 their representative. Representatives from Global have  
23 offered to meet with them to discuss the case further,  
24 to answer any questions that they had. To our  
25 knowledge, the Town of Buckeye did not deem it necessary

1 to meet with us to discuss this matter further prior to  
2 the hearing today. Therefore, we are obviously  
3 chagrined that now, as we walk into this hearing, that  
4 nothing has been accomplished as far as meeting with us  
5 between June 6th and today's date. If they were sincere  
6 in really wanting to meet with us and to try to work  
7 something out, there should have been some dialog  
8 between June 6th and now. Heavens knows, we were ready,  
9 willing and able, and offered to meet before this  
10 hearing date. None of our overtures or offers to meet  
11 were taken up by the Town of Buckeye.

12 We believe and maintain that a sufficient  
13 amount of time has now elapsed since our June meeting in  
14 order to allow this matter to be thoroughly reviewed,  
15 and the time has come when we need to go further and  
16 have a hearing on the merits of this case.

17 As all of you know, I'm a lawyer, but a nice  
18 guy. But my expertise is obviously not in engineering,  
19 and I don't purport to have the background to answer  
20 a lot of your technical questions, and that's why  
21 Trevor Hill, our president and CEO, will be addressing  
22 you on the details shortly.

23 However, I would like to briefly remind  
24 everyone here, and I know it's a bit pedantic at taking  
25 this position, but the sole purpose of our hearing

1 before you today is to determine one, if there's a need  
2 and whether we comply with the checklist requirements  
3 for the proposed 208 Amendment.

4 Water issues that have been raised in the  
5 other hearing on June 6th really fall within the  
6 jurisdiction of DWR, and with all due respect, are not  
7 within the purview of what should be decided here in  
8 this meeting by this body.

9 Let me address the first then. Again, the two  
10 things that we're here to reason together to address  
11 are: Is there a need, and do we comply with the  
12 checklist? Let me take those then in order.

13 First, I submit the need is rather  
14 self-evident. We have several key master planned  
15 communities in this area that total almost 30,000 acres  
16 that are literally on the cusp ready to go forward.  
17 They've been approved by the county. They're ready to  
18 go forward. And yet with the county's policies  
19 requiring processing of the 208 Amendment first, they  
20 cannot go forward until this process is reviewed and  
21 completed.

22 As I indicated, you'll hear from some of their  
23 representatives here, but I represent Belmont which is  
24 the 25,000 acre project. We have been working on that  
25 project, frankly, for almost 15 plus years. We're now

1 finally in a position to go forward. We've got the DMP  
2 approved. We've got the amended DMP approved. We're  
3 now ready to file the zoning case. We had the pre-app  
4 with the county for the zoning case. All that remains  
5 in order for us to go forward on this very vital and  
6 important project is for the 208 Amendment to be  
7 processed. It would be a significant hardship for us to  
8 continue this case any further.

9 The other developers are in a very analogous  
10 position, and they are stuck as Belmont is and can't go  
11 forward, and you will hear no doubt from them later on  
12 today. Another important thing is that Global already  
13 holds both a water and a sewer certificate of  
14 convenience and necessity in the 208 area for Hassayampa  
15 Ranches.

16 If I have learned anything in processing these  
17 208 Amendments in recent memory is that you are aware we  
18 go from you after finishing the county process or the  
19 MAG process, and then we go up to ADEQ. Recently, there  
20 was some controversy at that level between some  
21 applicants in connection with the 208 Amendment, and  
22 there they made it very clear in that process that the  
23 really determining factor in deciding who gets to serve  
24 an area, with all due respect to the 208 Amendment,  
25 which is an integral and important process, but it's not

1 the 208 Amendment that generates from MAG, but it's who  
2 holds the CC&N.

3 Global holds the CC&N for the Hassayampa  
4 Ranches. Therefore, they are the only ones that can  
5 serve Hassayampa Ranches. No one else has that  
6 authority. And that CC&N has been granted.

7 There's no need to continue this case any  
8 further to allow some possibility of another  
9 jurisdiction to serve Hassayampa Ranches, or Belmont, or  
10 Anderson Springs Development or any other development in  
11 this area when there is simply no possibility for  
12 another entity to provide the service that will be  
13 provided by Global in connection with this 208  
14 Amendment. You will hear some more, I think, from some  
15 representatives of these other developers later on  
16 today.

17 Another crucial thing as we focus on this is  
18 the fact that there is not one parcel of property that  
19 is located anywhere in the jurisdiction of this 208  
20 Amendment, none that are in a municipal planning area.  
21 I repeat that. None. Belmont, Anderson Springs,  
22 Hassayampa Ranches, and this area, none of it is in a  
23 municipal planning area. It's been processed to be  
24 developed in the county. The only person or the only  
25 entity available to develop this is Global, the

1 applicant that is before you today.

2 Maricopa County, in their legislative  
3 capacity, much like any other city, has reviewed and  
4 approved these projects. They have always been  
5 contemplated and are now contemplated to be developed in  
6 the county. Hassayampa Utility Company is simply going  
7 through the required process in order to provide the  
8 necessary water and sewer infrastructure.

9 Secondly, in your review, I'm sure that you  
10 would agree that we have met the requirements of the 208  
11 Amendment checklist. The county is our sponsor. They  
12 have reviewed this application. And I've heard in the  
13 course of the dialog that took place at the first  
14 meeting on June 6th about the need to give deference to  
15 a member of the board. Well, the county is also a  
16 member of the board, and they are here representing to  
17 you that they have reviewed the checklist, and all of  
18 these requirements have been met. There is no reason to  
19 continue this. There is no reason to not approve this  
20 case today.

21 We can perform all the functions that need to  
22 be performed to comply with the 208 Amendment checklist.  
23 I'd like to highlight a few of these checklist  
24 requirements. First on the checklist is a requirement  
25 that Hassayampa Utility -- and I know this is a little

1 confusing. Hassayampa Utility is owned by Global. So,  
2 I'm using the two terms interchangeably. I apologize if  
3 that's causing any confusion.

4 But the checklist requires that Hassayampa  
5 Utility can perform the functions of a designated  
6 management agency or a DMA. I stand before you today as  
7 one very familiar with the requirements of the  
8 designated management agency and tell you unequivocally  
9 that we can perform these functions. In fact, you don't  
10 have to take it from me. There's a representative from  
11 ADEQ here. You may want to question this individual who  
12 can verify this and discuss this with you in more detail  
13 if necessary.

14 Another major issue on the checklist and a  
15 major factor in the mind of ADEQ is pretreatment  
16 requirements. Global Water has a comprehensive set of  
17 requirements for pretreatment and has prohibited  
18 restrictive waste and penalties attendant thereto.

19 Basically, and most importantly, Global Water  
20 resources is very well capitalized. I'm not unmindful  
21 of the fact that several of the sewer treatment  
22 companies and water companies have not been well  
23 capitalized in the past. I know this has been a  
24 concern. It is not a concern with Global Water  
25 Resources. We are very well capitalized. We're a large

1 organization. Trevor will cover some of the other  
2 projects that we are involved in and will empirically  
3 demonstrate that we have the capital equivalent to, and  
4 in some instances, more than some municipalities,  
5 frankly.

6 The bottom line is, where are we? We're here  
7 to discuss today whether we meet the checklist  
8 requirements. We do. The county has certified that to  
9 you. They're here and prepared to vigorously answer any  
10 questions that you have, but to vindicate that  
11 assessment. We would not have been before you had we  
12 not met the requirements of the checklist.

13 Secondly, is there a need? We have three  
14 major developments all approved by the county, all  
15 contemplated to be developed in the county, who are now  
16 high-centered, dependent on finalizing and processing  
17 this 208 Amendment.

18 For these reasons, we think there are some  
19 compelling arguments to not continue this case but to  
20 approve it or to make a recommendation of approval and  
21 to pass it on. Trevor will now --

22 MR. CHAIRMAN: Mr. Gilbert, could I just  
23 clarify one thing that you said, if I may?

24 MR. GILBERT: Of course.

25 MR. CHAIRMAN: I think you made a point about

1 CC&Ns and that Global has -- I think you said the water  
2 and sewer CC&Ns for Hassayampa Ranches.

3 MR. GILBERT: Correct, I did say that.

4 MR. CHAIRMAN: But not for Belmont?

5 MR. GILBERT: No.

6 MR. CHAIRMAN: And what is the situation with  
7 Belmont? And I think you said there was another  
8 development. I don't know what was the name.

9 MR. GILBERT: Anderson Springs. I cannot  
10 speak for detail with Anderson Springs. Perhaps Trevor  
11 can comment on that. But Global is in the process with  
12 the full cooperation of Belmont of applying for that  
13 CC&N. So, that's underway.

14 Unlike other applications that you've had here  
15 where developers were somewhat opposed and some were in  
16 favor, every single developer in this 208 area, every  
17 single developer is here in support of this 208  
18 amendment moving forward.

19 MR. CHAIRMAN: Okay, thank you. Is Mr. Hill  
20 going to continue on the northeast, or speak on the  
21 southwest, or do that separately or what?

22 MR. GILBERT: No. We would like -- and thank  
23 you. I should have clarified that at the beginning of  
24 my remarks. We intend to cover them separately. There  
25 does not seem to be any objection that we know of,

1 although I have been surprised at these meetings before,  
2 but there does not seem to be any objection to the  
3 southern part of the -- the southern application. So,  
4 it's just the northeast that we'll be addressing at this  
5 point.

6 MR. CHAIRMAN: Hold on. Thank you. Is  
7 Mr. Hill going to assert he's a nice guy, too?

8 MR. GILBERT: I would let him speak for  
9 himself.

10 MR. CHAIRMAN: Thank you.

11 MR. GILBERT: But if I could comment on that,  
12 I would certainly agree with that statement.

13 MR. HILL: I'll reserve comment on my  
14 niceness. Thank you, Mr. Chairman. My name is Trevor  
15 Hill. I am the president and CEO of Global Water  
16 Resources. Appreciate the opportunity to talk to you  
17 today on the technical merits of our 208 application.  
18 Hassayampa Utility Company is a wholly-owned subsidiary  
19 of Global Water.

20 What I hope to do today is introduce to some  
21 of you who may not know of Global a little bit about  
22 Global Water and Hassayampa Utility Company. And to  
23 answer your question specifically, Chairman, on the  
24 status of the CC&Ns, get that out of the way now.  
25 Global owns the CC&N for Hassayampa Utility Company.

1 That's already in place for Hassayampa Ranch. And the  
2 Water Utility of Greater Tonopah, which we own, is the  
3 water component which is also in place for Hassayampa  
4 Ranch. And both those applications for expansion onto  
5 Belmont to reach what's called "sufficiency," we're  
6 waiting for the public hearing date which we expect to  
7 be later in this month. And in addition to that, Water  
8 Utility of Greater Tonopah has about 64 square miles of  
9 other areas in Tonopah and has had for many, many years.  
10 Hopefully, that gives you some clarity on that point.

11 The topics I hope to cover -- and I think Paul  
12 did a good job of answering the question as to whether  
13 or not there exists a need. I will try to limit my  
14 comments to the technical aspects of this application.

15 We will talk about the boundaries and existing  
16 and pending CC&N applications, population flow,  
17 projections and construction. I want to talk a little  
18 bit about these locations of the water reclamation  
19 facilities themselves and dispel some sentiments I read  
20 about with respect to recharge and reuse and what that  
21 actually means. A discussion of A+ treated water,  
22 recycled water in our management plan for the area.  
23 Financial capacity, Paul touched on, and I'll elaborate.

24 I have a few slides on the designated  
25 management authority or agency capability. This is

1 quite an interesting topic. Global was the first  
2 private company in the state to self-certify this year  
3 under the DMA for one of the largest 208 I think ever  
4 issued to a private water and wastewater company. And  
5 so, we have some very near-term fresh experience with  
6 the DMA process, and I can talk with you in more detail  
7 to that. And finally, a wrap-up with some environmental  
8 impacts and benefits of this quite well considered plan,  
9 in my opinion.

10 First of all, a little bit about Global.  
11 Global Water Resources is a company designed to  
12 essentially acquire small or undercapitalized private  
13 utilities, integrate them, water and wastewater  
14 companies together, and then bring our water  
15 reclamation reuse vision into those companies and  
16 provide what we call a total water management plan.

17 To that end, Global has acquired, I think, 16  
18 regulated water or wastewater companies in the state.  
19 We're probably the third largest private utility in the  
20 state. And we started the company with a vision for  
21 water conservation.

22 So, one of the things that I will touch on  
23 later in this discussion is just how far we've gone with  
24 respect to recharge and reuse activities in the  
25 utilities that we own. And I'll talk a little bit about

1 how much time we spent deploying capital in places like  
2 Maricopa and Casa Grande region where we have very  
3 significant utilities already with lots of customers and  
4 very low water consumption based on our conservation  
5 mandates that ties those water and wastewater utilities  
6 together. So, I'll touch on that as we go forward.

7 Global Water, you should know, has about  
8 110 employees. I have ten professional engineers on my  
9 staff. The company was designed, including myself as a  
10 P.Eng., was designed to tackle this private water  
11 company dilemma in the state.

12 Lots of times you see massive developments  
13 occurring outside the areas where cities have ever  
14 incorporated, and Global Water was designed to fit that  
15 need. And in many cases, we have been able to  
16 successfully partner, particularly in the case of  
17 Maricopa and Casa Grande, with the jurisdiction that is  
18 out there and work in harmony, despite the fact that we  
19 serve right inside their jurisdictional boundaries.

20 All of our utilities are regulated by the  
21 Arizona Corporation Commission. We talked a little bit  
22 about the fact that we have approved an existing  
23 Certificates of Convenience and Necessity as issued by  
24 the Arizona Corporation Commission inside of this 208  
25 application currently. And both those CC&Ns are now in

1 the process of being expanded and have been found  
2 sufficient by the Arizona Corporation Commission.

3 In addition, one of our core beliefs is that  
4 water and wastewater utilities need to be integrated.  
5 You will see and have seen private water utilities  
6 standing alone or private wastewater utilities alone,  
7 and what we find is that that process doesn't really  
8 allow for the opportunity to integrate water and  
9 wastewater utilities and take advantage of the  
10 opportunity for recycling and reusing, reclaiming,  
11 recharging water.

12 So, to the extent possible, we have  
13 attempted to button water and wastewater utilities  
14 together and provide total water management plans in  
15 the areas that we serve. In addition, the plans allows  
16 for the consolidation of smaller utilities,  
17 undercapitalized ones like the case in this particular  
18 case where these very large surface areas were, in  
19 fact, owned by kind of a mom and pop type shop and  
20 where they really didn't have the resources to plan the  
21 region as we have.

22 I think one of the things that's worth  
23 noting, even though this is a purely -- there's been  
24 a lot of talk about water and some other aspects of  
25 this particular process. But in this master plan for

1 water and wastewater and recycled water, we also are  
2 planning to bring renewable surface supplies into the  
3 region beyond the mandate of the 208, but it's worth  
4 noting when considering the total water management plan  
5 that we are bringing to this area.

6 Here are the boundaries of the northeast  
7 208 area. The blue line represents the 208 planning  
8 area, and the checked blue area is Belmont. The  
9 checked green area is the Hassayampa Utility Company  
10 and also Hassayampa Ranch.

11 One of the things that you will, I'm  
12 sure, appreciate is that there has been a trend largely  
13 under the direction of ADEQ and also Maricopa County  
14 Environmental Services to do regional planning. So,  
15 there has been in the past, and we've seen some  
16 situations where this particular proceeding would have  
17 been tens of 208s. Many, many small 208s, one for  
18 every section or developer.

19 In the last several years ADEQ and Maricopa  
20 County have been very unequivocal on building regional  
21 plans beyond the scope of individual developments. That  
22 is what we have attempted to do in this particular case,  
23 is build a regional plan that actually caters to all the  
24 planning for the area. It is all done inside the blue  
25 outline, and it will inure to the benefit of more than

1 just Belmont and Hassayampa in this case, but in fact,  
2 all of the development that is intended to occur in that  
3 area, all through the same high quality, all under the  
4 same total water management plan concept.

5 This just gives you an indication of the  
6 existing CC&Ns here, Hassayampa in the area and all  
7 those areas north and south of the 10 and Belmont, in  
8 its entirety, are under existing and pending  
9 applications for CC&Ns, both water and wastewater.

10 This particular slide in this particular  
11 208 area which is approximately 63 square miles, we  
12 have located four water reclamation campuses. Again,  
13 people have asked questions, "Why would you have four  
14 water reclamation facilities and not just one or two?"  
15 And what we found in our regional planning activities  
16 is that to maximize the use of recycled water and to  
17 provide local regional treatment, what you want to do  
18 is build a system that is designed to have your  
19 recycled water production facility close to where the  
20 actual need of that recycled water will ultimately be  
21 in the future. If you build one massive plant 30 or 40  
22 miles south of the development, you have to pump all  
23 that water back up the hill.

24 So, in this particular plan, these facilities  
25 all are about 10 million gallons a day. That's a very

1 nice size for standard line sizes for the redistribution  
2 of recycled water for both recharge and reuse. That  
3 reduces cost for our end users and is an efficient,  
4 effective way of developing this whole area as you go  
5 forward. This particular slide gives some examples as  
6 to units and total flow for the whole region,  
7 44.6 million gallons a day.

8           This is a little bit more detail about  
9 how those facilities actually develop over time and the  
10 numbers of units that they're intended to serve over  
11 the next 20 years. You'll find that this particular  
12 plan is a 20 year plan. And that is some description  
13 of the four water reclamation campuses that are  
14 suggested for this 208 plan. That is their location.  
15 You'll notice that there are three water reclamation  
16 campuses north of I-10 which is right here and one  
17 right here below the I-10.

18           The other thing you will notice is that  
19 recharge is a significant part of this overall plan.  
20 The philosophy that Global uses -- in fact, it's the  
21 same philosophy as the City of Scottsdale and many other  
22 cities -- is that we reuse the water to the extent  
23 possible for beneficial re-uses while it's being  
24 produced, but seasonally, the demand for recycled water  
25 ebbs and flows. In those periods, you either recharge

1 the excesses or recover the deficit according to the  
2 seasonal demand, and that's a philosophy that is  
3 embodied in this plan. And recharge activities will  
4 happen both here at the water reclamation facility  
5 sites, but also the plan does not limit us to have  
6 recharge facilities in other areas that may be  
7 preferable from a hydrogeological standpoint.

8 It's also worth noting that, in addition,  
9 Global Water also already owns the largest private water  
10 recharge facility in the state. And that is right here,  
11 right up at the top of the Hassayampa River where the  
12 river crosses the CAP canal. We have already  
13 constructed and commissioned a 25,000 acre foot per year  
14 recharge facility that is currently in operation.

15 We also have a permit, Global does, to build  
16 and operate a second 25,000 acre foot per year recharge  
17 facility. So, we are completely committed to recharge.  
18 And, in fact, are already recharging in this area,  
19 despite the fact that we have no homes -- well, very few  
20 homes that we serve in the area already. I think 250  
21 homes under Water Utility of Greater Tonopah today.

22 So, what does the total water management plan  
23 actually mean? It is comprised of several components.  
24 This proceeding really focuses on the wastewater side.  
25 But needless to say, we are using both groundwater and

1 surface water in this plan, and our plan is to minimize  
2 to the extent possible our use of groundwater.

3 Reuse is a big part of this overall plan.  
4 Global in its areas in Maricopa has a very significant  
5 reuse plan underway already, probably the largest  
6 private water reuse program in the state. To date, we  
7 have over 25 miles of recycled water mains, purple  
8 pipes, in the city already. As a result of those  
9 planning attributes, that city uses approximately  
10 60 percent of the water that other communities use both  
11 at the same time.

12 We've already had a dramatic decrease in  
13 overall water consumption in the communities that we  
14 serve. Some people say, "Well, how can reuse actually  
15 reduce groundwater use? And really, the answer is, if  
16 by reusing beneficially water that is treated to class  
17 A+ standard and used immediately, you actually save  
18 yourself from withdrawing that amount of water from the  
19 groundwater. So, reuse is a very efficient way of  
20 minimizing groundwater use in the area. And to that  
21 extent, we have a massive water reclamation reuse,  
22 recharge plan already in a master plan for this region.

23 As I mentioned, recharge, recycled water  
24 seasonally as required. That's the methodology of  
25 matching demand to supply. Reuse and recharge both

1 stretch the water supply and also protects and enhances  
2 groundwater. One thing that you should know is that  
3 reuse has less of an impact on things like TDS, for  
4 example, in the groundwater. So, one of the reasons why  
5 you want to try to limit recharge to the extent you can  
6 is to minimize increasing salt impacts on groundwater.

7 Finally, this plan also has in it AZPDES  
8 discharges. That's always the case in 208 plans.  
9 They're what are called AZPDES permits for discharges to  
10 waters of the United States, really what the 208 is all  
11 about. In our particular case, they're designed to be  
12 emergency only facilities.

13 So, what we try to do is reuse or recharge 100  
14 percent of the water. It's essentially what we're doing  
15 in Maricopa now. It's a zero discharge plan. You  
16 always want to have a safety belt in the event of  
17 massive rain events or what have you. And for those few  
18 days a year that you need that, this plan calls for a  
19 limited number of AZPDES discharge points.

20 A little bit about financial capacity. It's a  
21 great question. As Paul eloquently put, the company was  
22 designed to infuse capital into small water, wastewater  
23 utilities. And to that extent, we started the company  
24 with \$100 million in the bank before we started. In  
25 Maricopa in the last three years we've deployed almost

1 \$200 million of capital into that town. That town  
2 would admit today that they would not have been able to  
3 deploy that level of capital to their regional total  
4 water management plan. So, it's been a great  
5 partnership. Sometimes in very small towns or  
6 undercapitalized municipalities, it can be shown that a  
7 private company can actually have better access to  
8 capital and better ability to deploy infrastructure  
9 than, in fact, the municipality itself. And I think  
10 that is certainly the case here.

11 We continue to be very well capitalized. We  
12 also issue Industrial Development Authority notes on a  
13 regular basis. These IDA notes are issued on a tax  
14 exempt basis. So, we can issue them for very  
15 competitive rates. Very similar, in fact, to the cost  
16 of capital of many municipalities.

17 Global will fund the initial phases of these  
18 facilities with equity. And that's an opportunity that  
19 oftentimes municipalities don't have. And what that  
20 allows for is a very high quality of infrastructure and  
21 not relying on the developers to, in fact, put up the  
22 dough or all the money for that original or initial  
23 phase of the infrastructure.

24 We're regulated by the Arizona Corporation  
25 Commission. And what that means is that the rate payers

1 in the area always have the protection of the ACC. That  
2 is both a blessing and a curse sometimes, but we  
3 appreciate the ACC for allowing us to have essentially  
4 total financial transparency in these companies.

5 Class A+ reclaimed water is distributed and  
6 sold within the system and/or recharged with tariffs  
7 that are also set by the Arizona Corporation Commission.  
8 So, there's many layers of protection that's provided by  
9 the ACC.

10 Finally, we've already had to meet the  
11 financial tasks as required by Maricopa County  
12 Environmental Services as to Hassayampa Utility  
13 Company's ability to meet the financial tests with  
14 respect to the first phases of this development.

15 Finally, a few words on the designated  
16 management agency. This is a new or seemingly new  
17 requirement of ADEQ. Actually, EPA. EPA had required  
18 in our last 208 submission in Pinal County to  
19 demonstrate that a private company actually had the  
20 ability to emulate what a designated management agency  
21 or authority would do in a typical municipality. And  
22 that was quite a little bit of a conundrum for both  
23 Global and also I think the ADEQ in that we had never  
24 been asked that question before. And so, we had to  
25 break the thing apart into many pieces and build the

1 proof that, in fact, private utilities in unincorporated  
2 and incorporated areas, in fact, had, through the  
3 various regulatory bodies, including the Arizona  
4 Corporation Commission, those requirements that allowed  
5 these private water and wastewater utilities in this  
6 case to act in the capacity of or emulate, in fact, the  
7 DMA. And these are the steps. I don't want to give  
8 these all to you, but it related to our control over  
9 significant industrial users which is a concern, and  
10 it's something that we've been able to address  
11 contractually or through stipulations as provided by the  
12 Arizona Corporation Commission.

13 This goes through source control, inspections  
14 and monitoring, remedies as it relates to industrial  
15 users, et cetera. I won't go through all the details,  
16 but having worked through this issue very closely, and  
17 also personally and directly with the EPA, I can tell  
18 you that we finally demonstrated to their satisfaction  
19 that, in fact, a private company in this state can  
20 emulate the DMA for purposes of 208 application. So,  
21 that is in hand.

22 Environmental impacts and benefits. Well, one  
23 of the things that I think is very important to note is  
24 that we have a clean sheet of paper in this particular  
25 case. So, we have, as Paul represented, I think very

1 well, there's an imminent need. These developers are  
2 ready to move right now. And one thing that we have  
3 found is that if you can do a total water management  
4 plan from the beginning, right now, and capitalize it  
5 correctly, there are tremendous conservation benefits  
6 that can be achieved. And that is what essentially  
7 we've done.

8 So, in this particular case, our plan will  
9 already reduce -- and I think 30 percent is  
10 conservative -- I think we will see a 40 percent  
11 reduction in typical water withdrawal from the area on  
12 the basis of this plan. And that is something that DWR  
13 is promoting very heavily, and also, ADEQ has already  
14 written the regulations for advanced water reclamation  
15 reuse as well as a significant recharge program for the  
16 region.

17 Secondly, it goes to the preservation of  
18 groundwater. I read a letter as I walked in about this  
19 particular development having a negative impact on  
20 groundwater withdrawal. It's simply not the case.

21 In this particular case this plan will reduce,  
22 to the extent technically feasible, the groundwater that  
23 these developments would otherwise use. And I can tell  
24 you that this action is voluntary. There are no  
25 regulations currently in the state that require

1 conservation. Many cities, and us in many cases, have  
2 voluntarily capitalized and built massive reuse  
3 projects, but I can tell you that there is no  
4 requirement to do that right now. These developments  
5 could go ahead and just build on groundwater and not put  
6 that in. So, these developers have agreed to  
7 underwrite, to some extent, a very aggressive water  
8 reuse plan. This reduces our reliance on groundwater,  
9 as you can see, and it gives us more opportunity to  
10 recharge the aquifer.

11 So, that concludes my formal comments on the  
12 northeast plan. I can take some questions,  
13 Mr. Chairman, if you'd like, or I can point out the  
14 differences --

15 MR. CHAIRMAN: What we'd like to do is just --  
16 since we did have presentation on this at our previous  
17 meeting, and the purpose today was to try to get to the  
18 public hearing, if you could -- though we'd like to get  
19 the comments on both at once, and then we'll take them  
20 separately. If there's anything you'd like to give a  
21 quick briefing on the southwest plan at this time, and  
22 then we'll get right to the public comment.

23 MR. HILL: Excellent. That's another  
24 presentation.

25 MR. CHAIRMAN: I'm sorry.

1 MR. BORST: I just wish to ask Mr. Hill to  
2 clarify a few things.

3 MR. CHAIRMAN: Okay, that's fine. You have  
4 some clarification, that's fine. Go ahead.

5 MR. BORST: Mr. Hill, is it possible for you  
6 to put up the map of the northeast service area again?

7 MR. HILL: I think it probably is, yes.

8 MR. BORST: Thank you. That's it. I believe  
9 you handed out this letter, or I have a letter here from  
10 Arizona Corporation Commissioner, Kris Mayes. And it  
11 has a statement in here, and it says that, "HUC  
12 currently holds CC&Ns that covers the application area."  
13 Is that correct?

14 MR. HILL: I didn't write this letter, nor do  
15 I have it in front of me, Mr. Borst.

16 MR. BORST: Okay. For this service area, this  
17 64 sections, do you currently hold a CC&N for this  
18 application area?

19 MR. HILL: I think Paul made the point, and  
20 it's worth reiterating, that a 208 is not a service  
21 area, nor is it a licensing tool. What it is, is a  
22 planning area for managing discharges to waters of the  
23 United States. So, it's fair to say that yes, we have  
24 the CC&N area for the Hassayampa Utility Company, which  
25 I've been clear on, but this regional plan, planning

1 area, the 208 is outlined by this blue line here.

2 MR. BORST: Okay. So, do you have a CC&N for  
3 this 64 sections?

4 MR. HILL: I do not.

5 MR. BORST: Okay. You have, you say, a CC&N  
6 for Hassayampa Ranch?

7 MR. HILL: Yes.

8 MR. BORST: Is that CC&N at all conditioned or  
9 preliminary based on the MAG approval?

10 MR. HILL: All CC&Ns issued by the Arizona  
11 Corporation Commission are conditioned with numerous  
12 conditions.

13 MR. BORST: So, whether or not you get the  
14 CC&N granted, it's conditional upon the approval of MAG?

15 MR. HILL: I wouldn't say it's conditional.  
16 There's such a thing as what's called an "order  
17 preliminary" which is a truly conditional CC&N. In this  
18 particular case, this CC&N has been issued. It is in  
19 full force and effect. There are conditions on water  
20 and wastewater, many other things that have to be met  
21 over a certain period of time.

22 MR. BORST: If you don't meet those conditions  
23 within that period of time, will the CC&N expire?

24 MR. HILL: I would say no. It's likely to be  
25 extended, or -- there are people in this room who worked

1 very closely with the ACC if you want a very technical  
2 answer to that question. But in my experience, the ACC  
3 does not revoke or cancel CC&Ns, but rather, gives  
4 extensions for extenuating circumstances.

5 MR. BORST: Okay. It was mentioned that  
6 Belmont has been in the process for almost 15 years, in  
7 the process with Maricopa County. I believe I heard  
8 that.

9 MR. GILBERT: That's correct. I said that.

10 MR. BORST: Would you please explain? As this  
11 committee is concerned about water quality, the water  
12 quality you reference in your presentation is a  
13 reference to a criteria called A+. Can you explain how  
14 that water quality criteria is related to water quality  
15 under the Clean Water Act 208?

16 MR. HILL: Well, I think I can, yes. Class A+  
17 designates the highest order that ADEQ currently  
18 regulates to in the state. "A" represents a less than  
19 10 BOD/TSS constituent loading. A "+" designates that  
20 the facility is capable of removing nitrate to a level  
21 of also less than 10 milligrams per liter. So, that is  
22 the highest standard we have for the state. It also is  
23 the standard that is called out for reuse applications  
24 for a wide range of beneficial reuses.

25 MR. BORST: Thank you. So, it is a state

1 water quality requirement then?

2 MR. HILL: It's an ADEQ discharge requirement  
3 is what it is.

4 MR. BORST: Discharge?

5 MR. HILL: Discharge, reuse.

6 MR. BORST: All right. Is it related to  
7 discharge to waters of the U.S. or NPDES permit?

8 MR. HILL: Not specifically.

9 MR. BORST: And what water quality would you  
10 intend to have for release under a Clean Water Act NPDES  
11 permit? I mean, relating to the designated uses, et  
12 cetera.

13 MR. HILL: To be truthful, the concepts are  
14 slightly unrelated. The EPA and the AZPDES permits  
15 stand on their own merits. And the ADEQ A+ standard is  
16 a state regulation for essentially reuse. So, they're  
17 different. However, in this particular case, what we've  
18 said, we'll achieve A+ or better. And that would be our  
19 recycled water, which means all of the standards of  
20 recycled water. That is food crops eaten raw, areas of  
21 probable human contact, et cetera. Those same standards  
22 would be standards that you would see that water that  
23 was going to be recharged to the environment be met.

24 MR. BORST: So, the water quality parameters  
25 are state water quality parameters that you're giving us

1 today, A+?

2 MR. HILL: Yes.

3 MR. BORST: You made reference to recharges  
4 occurring currently. Does Global Utilities have any CAP  
5 allocations for recharge, and what allocations do you  
6 have?

7 MR. HILL: We don't have any.

8 MR. BORST: So, what access would Global have  
9 to this water that you're claiming you are now  
10 recharging?

11 MR. HILL: Well, there are two programs  
12 available in the state I'm sure you're aware of. One is  
13 Excess M&I Water. That is waters allocated to other  
14 parties, but currently they can't or don't use it. You  
15 can buy that water and recharge it. And there's also a  
16 project called, Recharged Incentive Water under a  
17 similar program. There's incentive generated by CAP for  
18 private and public users to recharge waters as  
19 vigorously as we can. We're a part of that program.  
20 This particular water is recharged incentive water. We  
21 buy as much of that as we can.

22 MR. BORST: So, if Global doesn't own the  
23 surface water that you say you're recharging, you will  
24 still be primarily relying on groundwater; is that a  
25 safe assumption?

1           MR. HILL: Well, it's a safe yield basin, as  
2 you know. So, this is the Phoenix AMA. This is a water  
3 related question and a water answer. But in Phoenix,  
4 safe yield, this particular water designation, which we  
5 will form, will likely be a member service area of the  
6 CAGR. And they will have the legal requirement to  
7 recharge on a one for one basis to achieve a safe yield  
8 for every gallon of water that's withdrawn from this  
9 basin. And we will supplement that and reduce our  
10 reliance on CAGR, as many other cities have, by  
11 infusing our own recharge activities and reducing,  
12 through our total water management practices, that  
13 amount of water that we withdraw out of groundwater from  
14 that area.

15           MR. BORST: Thank you.

16           MR. HILL: Welcome.

17           MR. BORST: Thank you, Mr. Chairman.

18           MR. CHAIRMAN: Thank you. Rich had some  
19 clarification questions.

20           MR. WILLIAMS: Yes. Thank you, Mr. Chairman.

21           Mr. Hill, we received in our packet of  
22 information today a letter from a Tonopah resident  
23 expressing some concerns. Could you clarify for us  
24 where the Tonopah community is in relationship to this  
25 service area, proposed service area?

1 MR. HILL: This is all county land, but the  
2 area -- the Tonopah community is out here. It's really  
3 at 411th Avenue, although the community association is  
4 represented by people who live anywhere west of the  
5 Hassayampa River.

6 MR. WILLIAMS: Okay. If I could, have you  
7 engaged that community at all in preparation of your 208  
8 proposal? Have you interacted with any of the adjacent  
9 county residents in that area?

10 MR. HILL: I have. I make it a practice to be  
11 in the communities that we serve. So, I've been out in  
12 the west valley on many occasions over the last several  
13 years.

14 MR. WILLIAMS: Is there more specific  
15 information or documentation, group meetings, or are you  
16 talking about casual meetings, one on one?

17 MR. HILL: Well, to my knowledge, I've done  
18 two public presentations to date in that region.

19 MR. GILBERT: May I be a bit presumptuous,  
20 Rich? We represented Belmont which is the largest  
21 parcel here in blue. We held over 20 neighborhood  
22 meetings in connection with that application. And in  
23 every application we indicated that we were going to  
24 pursue a 208 Amendment, and that Global would be the  
25 proposed user.

1           We also have representatives here from that  
2 area who can verify that we've had numerous meetings.  
3 This is an issue that came up in virtually every one of  
4 our neighborhood meetings in connection with the Belmont  
5 application. So, it was thoroughly discussed with them.  
6 Some of those meetings were attended by as many as 100,  
7 150 people.

8           MR. WILLIAMS: Thank you.

9           MR. CHAIRMAN: Any other questions at this  
10 time before we get to briefing on the southwest and get  
11 public comment? If not, do you want to go ahead,  
12 Mr. Hill?

13           MR. HILL: Yes, thanks. Just need the other  
14 presentation. At the risk of being redundant, this is a  
15 entirely similar presentation. What I will do is skip  
16 through it very quickly, try to point out the  
17 differences that exist. But same companies involved,  
18 same capital structure, same total water management plan  
19 for the region.

20           This gives an indication of where the facility  
21 is. Just to give you the reference, the last 208 that  
22 we showed was right here. This is due west of that  
23 facility and bounded on the north by I-10. The blue  
24 areas in this case, to give you another reference point,  
25 are the Water Utility of Greater Tonopah, the CC&Ns.

1 Those CC&Ns are there now, have existed for a long time.  
2 This particular 208 boundary covers that that area  
3 almost entirely.

4 This particular area, these areas here  
5 are now subject to an expansion of our Hassayampa  
6 Utility Company and wastewater CC&N application to  
7 bring that integrated water and wastewater utility  
8 concept together.

9 To Mr. Borst's point, 208 is not a service  
10 area or a licensing tool. The ACC requires that a  
11 developer request service from the utility. And so, it  
12 is often the case that 208s are larger and regional, and  
13 CC&Ns are granted on a need basis. And what that does  
14 is creates a need for regional planning and overall  
15 planning, but you can only make the CC&N applications  
16 when the developers are actually ready to final plat.  
17 There's a little bit of a conundrum between those two  
18 particular regulatory approval processes, and that's why  
19 208s are always, by definition, larger and more  
20 regionally oriented than CC&Ns have been.

21 MR. CHAIRMAN: Mr. Hill, could you just go  
22 back to that real quick? You gave us the north  
23 boundary. I didn't hear the east and west and the south  
24 boundaries there, and we can't read that map from here.

25 MR. HILL: I don't have the street names at

1 the top of my head. The far western extremity is about  
2 460th Avenue, I believe. Does anyone from my team know  
3 what avenue this is? Anyway, it bounds the other 208  
4 application directly and contiguously.

5 MR. CHAIRMAN: Or the other one -- okay, about  
6 363rd, okay.

7 MR. HILL: Actually, did this to simplify this  
8 particular application process. Just to show you one  
9 other thing, this here is the Salome Highway to the  
10 south, and this is the Palo Verde nuclear reactor. The  
11 view will actually be looking east to the reactor which  
12 gives you some indication of just where this is.

13 Again, in this particular case, the planning  
14 is to serve about 91,000 ultimate units. That considers  
15 full density in every section of land. Obviously,  
16 that's not likely or probably even possible in light of  
17 the community that -- properties that are out there now,  
18 but the 208 process calls for a comprehensive look at  
19 maximum density so that the regional planning can be  
20 done at that level. What that equates to in this  
21 particular case is 31, nearly 32 million gallons a day  
22 per the Maricopa County standard, which admittedly is  
23 very, very conservative. 350 gallons per unit per day  
24 is a very high number. I can tell you empirically we  
25 actually see about 150 gallons per unit per day, as do

1 many of the cities around the valley. But this is a  
2 planning number and really inflates the magnitude of  
3 these particular facilities. Notwithstanding that, the  
4 planning has been done to include facilities of this  
5 size and nature on a particular site.

6 This is the proposed build-out of this site  
7 over the 20-year proposed planning window. Again, it  
8 probably takes longer than this in real terms to get to  
9 these types of densities, but this is a look at what the  
10 actual total build-out could be at maximum density of  
11 the region. That shows you the extent of the wastewater  
12 CC&Ns that are pending in this particular case and  
13 existing here.

14 The ACC has also been driving recently toward  
15 integrating utilities and regional planning as well as  
16 consolidating small undercapitalized utilities, and that  
17 is why this Hassayampa Utility Company here. This is  
18 also Hassayampa Utility Company noncontiguous, but the  
19 same CC&N under the same corporate umbrella.

20 This particular area is one water  
21 reclamation facility, also a advanced class A+ facility  
22 full -- water reclamation facility in this particular  
23 case, and it will serve the needs of this entire area.

24 These standards are the same, same premise,  
25 same total water management plan proposed, same reuses,

1 recharge, et cetera. This is the same, same financial  
2 capabilities. This is the DMA proof we went through.  
3 The environmental impacts and benefits are exactly the  
4 same for this particular plan.

5 This plan is a plan that's worthy of noting.  
6 This is a plan and the facilities and treatment  
7 processes are all ones that have undergone the scrutiny  
8 of the ADEQ already from an APP perspective and our  
9 reuse activities, recharge, et cetera, for those  
10 regions. They're all things that we've done in other  
11 areas of the state.

12 Hopefully, that's not too brief, but it  
13 encapsulates the differences between the plans.

14 MR. CHAIRMAN: Appreciate that. Comments at  
15 this time. If not, appreciate it. Thank you,  
16 gentlemen.

17 MR. HILL: Thank you.

18 MR. CHAIRMAN: If we could proceed with the  
19 public comments. We do have some cards. If anyone else  
20 needs to get a card in, please do so at this time. The  
21 first speaker I have is David Wilcox. And please speak  
22 from the podium. Present your comments in three minutes  
23 or less.

24 MR. WILCOX: Thank you, Mr. Chairman, and good  
25 afternoon, Mr. Chairman, and representatives from

1 throughout the valley to this committee. My name is  
2 Dave Wilcox. I am the Town of Buckeye town manager. I  
3 have an address for the town which is 1101 East Ash  
4 Avenue in Buckeye, Arizona. I appreciate the  
5 opportunity to speak with you this afternoon. I'll be  
6 very brief making primarily reference to written  
7 comments that have been submitted to you but would like  
8 to point to those comments as raising objections to the  
9 requested 208 Amendment. We would like to stand by  
10 those comments. And that is pretty much what I planned  
11 to say, but having heard the presentation a few minutes  
12 ago, I would like to add just a couple of observations.

13           Apparently, the Town of Buckeye and Global  
14 Water have a failure to communicate. Mr. Gilbert stood  
15 before you and said that representatives of Global Water  
16 have called the Town of Buckeye. In fact, I think he  
17 indicated on numerous occasions making overtures to  
18 speak with us since the June 6th meeting. And I'm not  
19 quite sure who those calls were made to. They were not  
20 made to me.

21           The Town of Buckeye, in its comments, is  
22 indicating to you that what we would like is more time.  
23 More time, in fact, to talk with Global Water about this  
24 amendment and to be sure that we can work together to  
25 take care to make decisions in the interest of the

1 region of the Hassayampa valley and in the interest of  
2 the environmental and water quality and sustainability  
3 in that area. We have not done so. We would like the  
4 opportunity to do so.

5 The reason I talk about a failure to  
6 communicate is that at the same time apparently in that  
7 June/July period of time I did, in fact, e-mail after a  
8 meeting and other e-mails Mr. Hill of Global Water, and  
9 in that e-mail indicated to him that we would certainly  
10 like to talk about these and many other issues and would  
11 stand by the position that we are holding that this  
12 decision should be delayed until we have those  
13 discussions. I did not receive a reply to that last  
14 e-mail. Thank you very much.

15 MR. CHAIRMAN: Thank you, Mr. Wilcox. The  
16 next comment card I have is from looks like Paul Roetto.  
17 Could you please come and give your name and address for  
18 the record, we'd appreciate it.

19 MR. ROETTO: I'm Paul Roetto. My address is  
20 3708 North 339th Avenue. I speak as a community member,  
21 even though I am the president of Tonopah Valley  
22 Community Council, and I'm involved with several other  
23 community organizations. I support Global Water's  
24 regional comprehensive water plan, and I request that  
25 you approve the amendment to this 208. I base that upon

1 there are other programs they have in effect such as  
2 Maricopa County. I feel they are more than qualified to  
3 provide services to the Tonopah area. Thank you.

4 Now, as president of TVCC, Global Water did  
5 come out and speak with us, I believe, 18 months ago,  
6 and I met with Trevor Hill several weeks ago, and the  
7 similar plan that they presented when they first bought  
8 up the Greater Tonopah Utility Company.

9 MR. CHAIRMAN: Thank you, sir. The next card  
10 I have is from Steve Brittle.

11 MR. BRITTLE: Thank you. My name is Steve  
12 Brittle. I'm the president of Don't Waste Arizona and a  
13 member of Arizona Nuclear Energy Watch. I saw in the  
14 minutes that were approved that some of my comments were  
15 in the minutes, so I won't be redundant.

16 Today I brought a couple of things for the  
17 record that I'll leave with the court reporter. This is  
18 actually from the NRC. This is a record of the year  
19 2004, the radioactive effluent release, basically, my  
20 concerns about the radioactive emissions from the  
21 facility, so they're quantified here for your review.

22 I also have a study, an article that points  
23 out the relationship between the proximity to nuclear  
24 plants and infant mortality rates. The article regards  
25 a study that shows that when five different nuclear

1 reactors were closed, the infant death rates under 40  
2 miles from these nuclear plants fell 15 to 20 percent  
3 from previous years, and this continued for seven more  
4 years. There were also plunges in the rates of newly  
5 diagnosed leukemia and cancer cases and birth defect  
6 deaths in children under five years of age. Be assured  
7 that if you allow these water projects so close to Palo  
8 Verde, as they say in the movies, "If you build it, they  
9 will come."

10 I've already expressed the concerns about the  
11 ability to evacuate people from the area. There's the  
12 ten mile radius of evacuation in case of a nuclear  
13 incident. Palo Verde is a very troubled facility.  
14 Reminds me, as by degree in history, that people have  
15 consistently rebuilt near volcanoes that have wiped out  
16 the previous population. So, someone in government has  
17 to be responsible and take a look at that. I also think  
18 it would have been a better idea if you had this public  
19 hearing out in the vicinity of the community that is  
20 affected. Thank you.

21 MR. CHAIRMAN: Thank you, Mr. Brittle. Next  
22 speaker is Doris Heisler.

23 MS. HEISLER: I'm Doris Heisler. My address  
24 is 3002 North 423rd Avenue, Tonopah, Arizona, 85354. I  
25 am Doris Heisler, projects director of Our Landowners

1 Association for 31 years, the Tonopah Valley  
2 Association, Inc. and also a resident of Tonopah. I  
3 have both met with and been in attendance at meetings  
4 with Global Water Resources over the past couple of  
5 years and have seen PowerPoint presentations of the  
6 water and wastewater systems they are providing in the  
7 towns of Casa Grande, and particularly, Maricopa,  
8 Arizona.

9 The information they have provided to us has  
10 been quite impressive with the statistics and graphs  
11 they have shown to us as well as the infrastructure  
12 photos and diagrams they have provided to us of systems  
13 that they are currently providing to residents at the  
14 towns Maricopa and Casa Grande.

15 They have separate lines running to the  
16 homes for potable water, non-potable water and sewer.  
17 Although they feel that recharge is important and have  
18 expressed they do intend to recharge in several  
19 designated areas, both north and south in our valley,  
20 they're interested in recycling and reusing the water  
21 more times than we understand is customarily done so  
22 that more use and less waste is derived from the water,  
23 thereby requiring that less water be pumped from ground  
24 wells.

25 They are very serious about water conservation

1 feeling that the effects of conservation or waste of  
2 water are both far-reaching. We therefore feel that  
3 Global is technically capable of providing good  
4 wastewater treatment needs for the various developments  
5 proposing to locate in our Tonopah Valley.

6 Also, they are a well-capitalized company so  
7 can afford to put in the infrastructure and various  
8 components and plants necessary for the proper delivery,  
9 treatment, distribution and recharge of the water and  
10 wastewater for our area. They have already made major  
11 investments in the systems installed in Casa Grande and  
12 Maricopa, Arizona, as well as in their own facilities  
13 and have indicated the desire to make the necessary  
14 investments in our valley, as well, to ensure successful  
15 operating systems.

16 They have a large staff of engineers and other  
17 professional people to construct, operate and maintain  
18 good regional systems for us which may eventually also  
19 allow hook-ups of current and future businesses and  
20 residences to take them off septic systems. Therefore,  
21 we feel that they are financially able to provide those  
22 services to us.

23 Last year they purchased the Water Utilities  
24 of Greater Tonopah Water Company and franchised area in  
25 order to provide water service to the local developments

1 and to also make it available to other businesses and  
2 residences in the future if they choose to use it. We  
3 understand that they're in the process of upgrading and  
4 improving the conditions of the water systems they  
5 purchase to make them more reliable and efficient.

6 We understand that the Town of Buckeye as a  
7 municipality feels that it can provide wastewater  
8 services to the proposed developments west of the  
9 Hassayampa River better than can a private company. We  
10 are concerned that if Buckeye is allowed to provide  
11 those services to the developments in our valley, which  
12 they would have to cross the river in order to so, that  
13 it could be result in those developments having to annex  
14 into Buckeye in order to receive those municipal  
15 services.

16 MR. CHAIRMAN: Ms. Heisler?

17 MS. HEISLER: Yes.

18 MR. CHAIRMAN: Could you be aware the three  
19 minutes is up. It goes real quick. Could you just get  
20 to your bottom line statement?

21 MS. HEISLER: Well, this is part of it here  
22 now. We have a concern for many years about the desire  
23 of Buckeye to annex part of our Tonopah Valley. We've  
24 had to block attempts several times in the past, and we  
25 want to keep our own identity. We do not want to be a

1 part of Buckeye, and we do not want these developers to  
2 have to annex into Buckeye in order to get their  
3 municipal waters.

4 In other words, I have other things to say  
5 here, but we do feel that they have a proven track  
6 record on it, and we would like to request that MAG  
7 approve Maricopa County's sponsorship of the 208  
8 wastewater permit and allow Global Resources to provide  
9 the needed wastewater services for our proposed  
10 development. Thank you.

11 MR. CHAIRMAN: Very good. Thank you.

12 MS. HEISLER: And we have a lot people from  
13 Tonopah, by the way, that are here also in support.

14 MR. CHAIRMAN: If you just want to have people  
15 stand up who are here supporting you just so we can see.

16 MS. HEISLER: Yes. And they have come out and  
17 made several presentations to us in the area, and we've  
18 met with them individually, also.

19 MR. CHAIRMAN: Thank you very much.

20 MR. IWANSKI: Mr. Chairman, I have to commend  
21 anybody who talks faster than Mr. Paul Gilbert should be  
22 commended.

23 MR. CHAIRMAN: That was very impressive.  
24 Three minutes goes pretty quick. So, my next speaker is  
25 Garry Hays.

1           MR. HAYS: Chairman, members of the committee,  
2 Garry Hays, Henderson Law Firm on behalf of Harvard  
3 Investments, the owner and development of Hassayampa  
4 Ranch.

5           As you can tell, Global, Belmont, and of  
6 course Hassayampa Ranch, I've met with the residents of  
7 Tonopah, Harvard Investments has been working on this  
8 project for a little over two years. My partner,  
9 Rod Jarvis, has gone out to Tonopah several times over  
10 the last two years to meet with people, address some of  
11 the issues that you heard today. And I think you heard  
12 that Tonopah residents seem to like what is being  
13 proposed to you.

14           What I'd like to do is talk about, about a  
15 year ago to this day, I stood at this podium and talked  
16 to you guys when Balterra was up. And if you remember  
17 in Balterra, the county was sponsoring it with another  
18 utility company. I think it was Balterra Utility  
19 Company. The county was sponsoring it, and there were  
20 land owners, some of which I represented, that were  
21 opposed to the 208 going forward.

22           Similar situation we're here today, except for  
23 the difference is a municipality is opposed to this  
24 going forward. But the gist of the meeting from last  
25 year was basically there are no technical issues. We

1 will move this forward. There's no reason for delay.  
2 There's no technical reasons for delay. We will move  
3 this forward. And that was the outcome of the meeting  
4 we held about a year ago in that same matter, and I  
5 think it has to be the outcome of the meeting here  
6 today. There are no technical reasons to delay this  
7 matter from moving forward.

8 Maricopa County, a member of MAG, is  
9 sponsoring this amendment. As a matter of fact, the  
10 director of Maricopa County Environmental Services  
11 Division is actually here today, Mr. John Power. So,  
12 Mr. Bodiya, whose job this is to work on 208, has said  
13 it's technically correct. Mr. Power is here, so it must  
14 be technically correct. There are no reasons for delay.  
15 We must move this forward.

16 Now, one other difference between this year  
17 and last year, as Mr. Gilbert so eloquently put it, as  
18 only he can, there is no property that is within a  
19 municipal planning area. Well, last year there were  
20 property owners that didn't want to be in the 208, and  
21 this committee said that doesn't matter. There's no  
22 technical issues.

23 Well, this year, as far as I know, all the  
24 property owners want to be in the 208. So, again, just  
25 to sum up, because I have 20 seconds left, we were in

1 the same position last year. Maricopa County was the  
2 sponsor entity. You said sponsor entity's here.  
3 There's no technical issues. We will move it forward.  
4 I think you have to do the same again today. Thank you  
5 very much.

6 MR. CHAIRMAN: Thank you, Mr. Hays. That's  
7 all the cards I think I have. Is there any other card I  
8 didn't get? Okay, appreciate that. Thank you all for  
9 your comments and your interests, and we certainly will  
10 be considering all those comments in our deliberations  
11 here. Before we close the public hearing, are there any  
12 other questions of the applicants of the HUC  
13 representatives here that the committee wants to discuss  
14 while we're still having the public hearing?

15 If not, I thank you, and I will close  
16 the public hearing at this time and request the court  
17 reporter to end the transcription. Thank you.

18 (The public hearing portion of the proceedings  
19 concluded at 5:25 p.m.)  
20  
21  
22  
23  
24  
25

STATE OF ARIZONA        )  
                                  )  
COUNTY OF MARICOPA    )

I, JANET HAUCK, a Certified Reporter,  
Certificate No. 50522, in the State of Arizona, do  
hereby certify that the foregoing pages constitute a  
full, true, and accurate transcript of all proceedings  
had in the foregoing matter, all done to the best of my  
skill and ability.

I FURTHER CERTIFY that I am not related to nor  
employed by any of the parties hereto, and have no  
interest in the outcome hereof.

WITNESS my hand this 24th day of August, 2007.



Janet Hauck, RPR  
Arizona Certified  
Reporter No. 50522

**RESPONSE TO PUBLIC COMMENTS ON THE  
DRAFT MAG 208 WATER QUALITY MANAGEMENT PLAN AMENDMENTS  
FOR THE HASSAYAMPA UTILITY COMPANY NORTHEAST SERVICE AREA AND  
HASSAYAMPA UTILITY COMPANY SOUTHWEST SERVICE AREA**

**AUGUST 7, 2007 PUBLIC HEARING**

The Maricopa Association of Governments (MAG) appreciates the comments made during the public comment period for the Draft MAG 208 Water Quality Management Plan Amendments for the Hassayampa Utility Company Northeast Service Area and Hassayampa Utility Company Southwest Service Area. An advertised public hearing on the draft amendments was conducted by MAG on August 7, 2007. At the public hearing, five testimonies were received and three members of the Water Quality Advisory Committee provided comments on the Draft MAG 208 Water Quality Management Plan Amendments. In addition, MAG received written comments from five individuals/entities.

These comments were forwarded to Maricopa County for response, since Maricopa County officially requested that MAG initiate the 208 amendment process for the Draft MAG 208 Plan Amendments for the Hassayampa Utility Company Northeast Service Area and Hassayampa Utility Company Southwest Service Area. The Maricopa County response to comments is provided below.

**COMMENTS FROM THE ARIZONA CORPORATION COMMISSION  
(Letter from Kris Mayes, dated August 2, 2007 received August 6, 2007)**

Comment: It has recently come to my attention that Global Water Resources, through its subsidiary Hassayampa Utility Company (HUC), has filed an application to amend the MAG 208 Plan in the far West Valley. I am familiar with the area in question, which includes large master planned communities like Belmont and Hassayampa Ranch. I recently wrote a law review article which includes a discussion of the benefits of Global's proposed water conservation practices. A copy of the article has been provided.

Response: Acknowledged.

Comment: HUC currently holds a Certificate of Convenience and Necessity for both water and wastewater service (otherwise known as an integrated utility) that covers the application area.

Response: HUC currently holds a Certificate of Convenience and Necessity ("CC&N") for wastewater service, Decision No. 68922, approved August 29, 2006, for the Hassayampa Ranch development of approximately 2,050 acres or 3 sections. The Water Utility of Greater Tonopah ("WUGT"), also a wholly-owned subsidiary of Global Water Resources, LLC ("Global"), the parent company of HUC, holds approved CC&N for water in the west valley totaling 65 sections. Before the Arizona Corporation Commission ("ACC") are extension applications for HUC totaling an additional 38 sections and for WUGT for an additional 36 sections. Both have achieved sufficiency and are proceeding through the approval process.

Comment: Integrated utilities are an important topic of discussion here at the Commission and throughout the State of Arizona. Over the last few years, this Commission has encouraged the development of integrated utilities because of their ability to aggressively use effluent - rather than groundwater - for such things as golf courses and turfed areas, and their capacity to carry out other conservation programs. I respectfully urge that MAG act affirmatively on HUC's application in order to allow for a more efficient and effective way to serve water and wastewater in the State of Arizona.

Response: Global is an integrated service provider that uses recycled water to reduce the need for potable water to serve non-potable uses.

COMMENTS FROM DANIEL E. BLACKSON  
(Email from Daniel E. Blackson received August 6, 2007)

Comment: I am unable to attend the MAG Water Quality Advisory Committee meeting on August 7, 2007, but would like to provide comments on the agenda item regarding the Draft MAG Water Quality Management Plan Amendments for the Hassayampa Utility Company Northeast Service Area and Hassayampa Utility Company Southwest Service Area. I understand that this has become a point of contention between the Hassayampa Utility Company (Global Water) and the Town of Buckeye. But it is the community of Tonopah that is feeling the impact.

Response: Acknowledged.

Comment: Neither the Hassayampa Utility Company nor the Town of Buckeye should have their way. The Town of Buckeye is withholding their approval of the MAG 208 permit to prevent the Hassayampa Farms and Belmont master plan communities from moving forward. The Town believes that they can better manage the water basin in this part of the Hassayampa River by emphasizing recharge efforts. However, the development master plans for this area within the Town's incorporated area have included greenbelts and golf courses utilizing reclaim water rather than recharging the water. The Town should share the existing use of reclaim water for the Tartesso development in this area. Additionally, the Town opposes water and wastewater services by a private company. Yet this is what they have encouraged in other parts of the Town's incorporated limits - Verrado for example. The Town opposes taking water from the southern part of the basin (south of Interstate I-10), however, the Town has an existing well field in this area that pumps water approximately 15 miles east to the center of the Town for blending.

Response: The management of the "water basin" is the statutory responsibility of the Arizona Department of Water Resources. HUC has committed in its 208 Plans to the same reclaimed water management strategy as has been implemented in the Town of Maricopa, where, with steadily increasing growth, they recently surpassed the 30% level of reclaimed water as a percent of total water demand. This success is based on Global's reuse mandates to the developers, a commitment to deploying the capital to build the reclaimed water infrastructure ahead of development, and the fact that it is an integrated regionally planned system, where Global owns both the water and wastewater utilities.

Comment: The Hassayampa Utility Company is asking for too much. Their request should be approved and limited to the immediate future of what will actually be developed. Belmont in particular has been a planned community since, around or about, 1990. They have not built one house. Hassayampa Utility Company's request should only accommodate the first phases of master plan community development and be allowed to expand with future phases of development.

Response: A 208 Plan Amendment is by definition a wastewater planning document that is not to be limited only to those areas of "immediate future" development, but is required to address the 20 year needs for the area. HUC is not a developer but rather a regulated private wastewater utility that is responding to the requests of significant developers in the West Valley to provide integrated water and wastewater service to their developments. The CC&N issued by the Arizona Corporation Commission confers approval and authority to provide wastewater treatment service to those areas that can be described as "immediate future" development, in that requests for service from all of the property owners as well as more specific engineering plans are required generally to obtain the CC&N. HUC has thus applied for CC&N extensions whose service area match the requests from developers.

Comment: I believe that these measures are necessary to support and protect the community of Tonopah. The community of Tonopah is undergoing incorporation efforts that would make the Hassayampa River as the eastern boundary. The new town should have the opportunity to provide water and wastewater service. If too much nondeveloped area is given to a private company it will stifle the town's progress and ability to serve its citizens.

Response: The service areas of HUC NE and SW 208 Plan amendments are in unincorporated Maricopa County and thus are the responsibility of Maricopa County, through the Maricopa County Environmental Services Department ("MCESD"), to coordinate the 208 areawide planning program. Both 208 Plan amendments meet the technical requirements which include financial capability to provide the services contemplated in the 208.

Comment: If the Town of Buckeye is allowed to block the 208 permit process and force the master plan communities to incorporate into Buckeye, it will overpower the ability for Tonopah to incorporate. Community members on the west banks of the Hassayampa River, who believe that they are part of Tonopah, will find themselves in the Town of Buckeye.

Response: The Town of Buckeye does not have planning jurisdiction outside their municipal planning area, and there are no imminent annexations that would preclude the Tonopah residents from proceeding with their efforts towards incorporation. The service areas of HUC NE and SW 208 Plan amendments are presently in unincorporated Maricopa County and thus are the responsibility of Maricopa County, and specifically MCESD, to coordinate the 208 Amendments. Both 208 Plan amendments meet the technical requirements which include financial capability to provide the services contemplated in the 208.

Comment: I encourage you to find a balance between the request of the Hassayampa Utility Company and the demands of the Town of Buckeye for the sake and future of the Tonopah community.

Response: The Town of Buckeye does not have planning jurisdiction outside their municipal planning area, and there are no imminent annexations that would preclude the Tonopah residents from proceeding with their efforts towards incorporation. The service areas of HUC NE and SW 208 Plan amendments are presently in unincorporated Maricopa County and thus are the responsibility of Maricopa County, and specifically MCESD, to coordinate the 208 Amendments. Both 208 Plan amendments meet the technical requirements which include financial capability to provide the services contemplated in the 208.

#### COMMENTS FROM THE TOWN OF BUCKEYE

(Letter from David W. Wilcox, Town Manager, dated August 7, 2007 received August 7, 2007)

Comment: The Town of Buckeye is submitting this letter in response to the Water Quality Management Plan Section 208 Amendment for the Hassayampa Utility Company Northeast Service Area. When the Town of Buckeye first reviewed the Hassayampa Utility Company MAG 208 amendment application it was limited to a relatively limited area bounded by a Maricopa County plan for a development called Hassayampa Ranch. In May of 2007 this service area was significantly enlarged to a service area that exceeds the initial development and other planned developments in the County. The enlarged service area is bounded mostly by the Town's west side municipal planning boundary.

Response: HUC originally submitted a 208 Plan Amendment for only the Hassayampa Ranch development, approximately 3 sections, in June 2005 to MCESD and by the end of September 2005, the technical review and revisions were complete. HUC had requested a no objection letter on numerous occasions from the Town of Buckeye, which lay within 3 miles of the HUC Hassayampa Ranch 208 amendment boundaries. MCESD was prepared to sponsor the 208 but for the lack of any response from the Town of Buckeye, regarding their position.

In May 2006, HUC submitted a more regional 208 amendment to MCESD for their consideration, covering approximately 175 sections and including Hassayampa Ranch. The expanded 208 amendment was prepared by HUC due to extensive requests for service from developers, large and small, in the unincorporated Maricopa County area west of the Hassayampa River ("West Valley"). This 208 amendment was discussed at MAG and with its committee members when the Balterra 208 Plan Amendment was going through the 208 Amendment process at MAG, approximately May – September 2006. In June 2006 MCESD formally requested a no objection letter from the Town of Buckeye for the HUC Hassayampa Ranch 208. An objection letter was sent on August 14, 2006, and MCESD advised that HUC consider the Town's concerns in its revised May 2006 208 Amendment that now included Hassayampa Ranch as well. HUC, at MCESD's suggestion, split up the 175 section service area of the May 2006 208 amendment to avoid the overlapping area with Balterra, and in October 2006 submitted the 2 revised 208 amendments now known as the NE and SW, sponsored by MCESD and before MAG. The Town received copies of the NE and SW amendments in October 2006, and received revised versions up to and including the final versions dated May 2007.

In a March 5 2007 letter from the Town of Buckeye to many MAG committee members, the Town declined to support the Hassayampa Ranch 208 amendment because its attempts to annex the development were refused by the developer.

Comment: The Town of Buckeye respectfully requests that the Water Quality Advisory Committee extend the public notice period for an additional 120 days to allow time to accomplish three objectives: 1) Allow adequate time for the applicant to work cooperatively with the Town on this application and to address the concerns the Town has on the effect of water quality and sustainability of the Hassayampa Lower Sub-Basin watershed and aquifer; 2) Improve the delineation of the boundaries of the service area requested for the sewage treatment facilities, the site of these facilities, and the disposition of effluent with respect to the comprehensive management of water resources and assurance of water quality; and 3) Inclusion of the proposed sewage facility effluent management strategy into the Hassayampa Lower Sub-Basin model.

Response: MCESD disagrees that an additional 120 days are necessary in order for the Town to accomplish the three objectives for the following reasons:

- (1) HUC, the applicant, indicated that it has offered to meet with the Town of Buckeye and to discuss the 208 amendments and has in fact communicated through letters, met or talked with the Town on this and a number of subjects during the past year. The Town has had ample time to review the 208 amendments and to contact MCESD or the applicant, HUC, with questions, as discussed in the previous response. Further, the Town did advise MCESD as to its concerns through its February 15, 2007 objection letter regarding the HUC NE 208. The applicant, HUC, responded to these concerns in their April 2, 2007 letter to MCESD, which was then transmitted by MCESD to the Town. MCESD was satisfied that HUC has addressed the Town's concerns and thus issued sponsorship letters for both the HUC NE and SW 208 amendments on February 27, 2007.

The Town expresses concern about the 208 Plan Amendment's effect of water quality and sustainability of the Hassayampa Lower Sub-Basin watershed and aquifer. Groundwater supply issues are not a consideration of the Section 208 planning process. A Section 208 plan is concerned with the waste treatment needs of the region over the 20 year planning period and the water quality of receiving waters receiving under the Clean Water Act. One agency in the State is statutorily charged with planning and permitting decisions regarding groundwater supply, the Arizona Department of Water Resources.

The proposed wastewater treatment facilities will produce Class A+ reclaimed water which will be reused and recharged in the service area. Further, Global Water/HUC has provided for the NE 208 Amendment and in correspondence to MCESD a substantive commitment to reuse and recharge, as well as empirical data from Global Water's operations in the City of Maricopa that offer proof of the capabilities to live up to that commitment. This has been done without the need of a directive from an outside agency.

- (2) MCESD has carefully reviewed the 208 boundaries, the locations of the water reclamation facilities, and the disposition of effluent with respect to the comprehensive

management of water resources and assurance of water quality. HUC has committed in its 208 Plans to the same reclaimed water management strategy as has been implemented in Maricopa, where, with steadily increasing growth, 30% of the overall water demand is met via A+ reclaimed water. This success is based on Global's reuse mandates to the developers, a commitment to deploying the capital to build the reclaimed water infrastructure ahead of development, and the synergies of integrated utilities.

The proposed HUC 208 Plan Amendment meets all stated Section 208 requirements, and including requirements for recharge and reuse.

(3) Based on our understanding of the Hassayampa Lower Sub-Basin model, the 100-year Assured Water Supply (AWS) for the land development in the model boundaries relies on 30% of the water demand being met by reclaimed water reuse or recharge. As discussed in (2), HUC commits to this strategy and their ability to accomplish such is demonstrated in Global's Maricopa, Arizona integrated utilities.

Comment: There are many planning issues other than water quality and sustainability of water resources associated with this large, dense development on the Town's western boundary including (but not limited to) transportation, public safety (police and fire protection), schools, and the integration of these plans. There are many methods that can be employed to address these issues that have not yet been discussed or examined. However, within this jurisdiction of the MAG Water Quality Steering Committee are the issues related to water quality. The Town relies on the Hassayampa River and the health of the Hassayampa River and the watershed that recharges the aquifer to sustain planned development.

Response: The MAG Water Quality Advisory Committee may indeed be interested in issues related to water quality. However, the jurisdiction of a 208 Plan Amendment is specifically directed through the Clean Water Act Section 208. MCESD has extensively reviewed the HUC 208 Plan Amendments and after revisions were made by the applicant, deemed them to meet the requirements of the Clean Water Act Section 208. In MCESD's sponsorship letter to MAG, MCESD confirms formally that the 208 Plan Amendments brought to MAG do indeed meet all of the requirements.

Comment: It is clear from a review of the Federal and State codes, and other supporting documents that the framework for water quality management in the State of Arizona was intended to be based on comprehensive goals that consider the relationship of groundwater and surface water and the affect of water withdrawal on water quality and the affects upon the watersheds and waterways.

Response: The Town's interpretation notwithstanding, the jurisdiction of a 208 Plan Amendment is specifically directed through the Clean Water Act Section 208. MCESD has extensively reviewed the HUC 208 Plan Amendments and after revisions were made by the applicant, deemed them to meet the requirements of the Clean Water Act Section 208. In MCESD's sponsorship letter to MAG, MCESD confirms formally that the 208 Plan Amendments brought to MAG do indeed meet all of the requirements.

Comment: The Town seeks to fully understand the water management and effluent management plans recently proposed by HUC utility, and then to discuss options that can preserve and sustain the Lower Hassayampa River watershed, aquifer and sub-basin. Therefore the Town respectfully requests that the Steering Committee allow a reasonable extension of the public notice period for an additional 120 days.

Response: MCESD disagrees that an additional 120 days are necessary in order for the Town to fully understand the water management and effluent management plans recently proposed by HUC utility. HUC, the applicant, has offered to meet with the Town of Buckeye and to discuss the 208 amendments and has in fact communicated through letters, met or talked with the Town on this and a number of subjects during the past year. The Town has had ample time to review the 208 amendments and to contact MCESD or the applicant, HUC, with questions, as discussed in the previous response. Further, the Town did advise MCESD as to its concerns through its February 15, 2007 objection letter regarding the HUC NE 208. The applicant, HUC, responded to these concerns in their April 2, 2007 letter to MCESD, which were then transmitted by MCESD to the Town. MCESD was satisfied that HUC has addressed the Town's concerns and thus issued sponsorship letters for both the HUC NE and SW 208 amendments on February 27, 2007.

COMMENTS FROM THE TOWN OF BUCKEYE  
(Position Paper, dated August 7, 2007 received August 7, 2007)

Comment: The Town of Buckeye (the "Town") presents its position on the Proposed Amendment to the Maricopa Association of Governments' (MAG) 208 Water Quality Management Plan (208 Plan) for the Hassayampa Utility Company (HUC) Northeast Service Area (May 2007) (the "Proposed Amendment"). In its Proposed Amendment, HUC requests that MAG include four new wastewater treatment facilities in the 208 Plan. The Town's position in this matter is not founded upon a desire to annex the lands within the proposed amendment; instead, the Town's position is premised upon responsible growth which requires sound water and wastewater management policies to sustain the region's water resources.

Response: The jurisdiction of a 208 Plan Amendment is specifically directed through the Clean Water Act Section 208(c)(2). MCESD has extensively reviewed the HUC 208 Plan Amendments and after revisions were made by the applicant, deemed them to meet the requirements of the Clean Water Act Section 208(c)(2). In MCESD's sponsorship letter to MAG, MCESD confirms formally that the 208 Plan Amendments brought to MAG do indeed meet all of the requirements.

Comment: The Town is gravely concerned that the Proposed Amendment may not site recharge facilities in areas of critical need of recharge and that there will not be adequate recharge to the aquifer to support the planned water demand in the area.

Response: The 208 Plan Amendment, as directed by the Clean Water Act Section 208, does not require the siting of recharge facilities. Recharge is one of three methods delineated in the HUC NE 208 Plan for the disposition of the Class A+ reclaimed water produced at the four WRFs. Recharge is noted to likely occur at the WRF sites themselves as well as other properties owned by the applicant. To site a recharge facility, an Aquifer Protection Permit (APP) is required from

ADEQ which involves hydrologic evaluation and modeling. In order to get credit for the recharge, an Underground Storage Facility (USF) permit is required from ADWR, which also involves hydrologic evaluation and modeling.

Based on our understanding of the Hassayampa Lower Sub-Basin model, the 100-year Assured Water Supply (AWS) for the land development in the model boundaries relies on 30% of the water demand being met by reclaimed water reuse or recharge. That reuse or recharge is modeled to occur in the same area of the development. Since reuse and recharge within the developments being served is HUC's primary disposition of the Class A+ water, it follows that this practice will maximize the positive impacts to the aquifer. Interestingly, other model simulations in the Hassayampa Lower Sub-Basin model rely on the West Maricopa Combine Managed Recharge Facility to achieve significant improvements in the ability to demonstrate long-term sustainability of development in the area. This facility, permitted, constructed and operated by Global Water Resources – the parent company of HUC – is the largest privately owned recharge facility in the State at a permitted capacity of 25,000 acre-feet/yr. Global Water has permits for a second 25,000 acre-ft/yr facility in the same area. With this CAP recharge located within the Hassayampa River to the north of the HUC NE 208, HUC and its parent Global Water Resources are taking steps to assure not only the Town of Buckeye, but indeed the entire MAG member agencies, that aquifer protection and water resource management are of high importance and that infrastructure is and will be deployed to implement such.

Comment: In addition, the Town is very concerned that HUC will place a disproportionate number of wells near the Town's western boundary, which could affect groundwater conditions within the Town. Furthermore, when considering potential recovery well locations, it is imperative that the Town's existing and future wells and well fields not be harmed or adversely impacted by HUC's recovery well pumping.

Response: The location of recharge wells is not subject to the 208 Plan Amendment process. There is no mention of recovery wells in the HUC NE 208. Any infrastructure siting in the 208 Plan Amendment service area will be undertaken in accordance with MCESD, ADEQ and ADWR regulations.

Comment: MAG developed and implemented its 208 Plan in accordance with Section 208 of the Clean Water Act. 33 U.S.C. § 1288. Section 208 requires State and local agencies to develop and implement areawide waste treatment management plans to integrate local waste planning measures and to achieve that Act's goal of fishable and swimmable waters. 33 U.S.C. §§ 1251(a)(2), 1288(a). Section 208 prescribes the planning process for State and local agencies to follow when drafting an areawide waste treatment management plan. 33 U.S.C. § 1288(b). The 208 Plan addresses water quality as it relates to wastewater treatment planning and facilities.

Response: HUC has committed to produce Class A+ reclaimed water in accordance with Arizona Administrative Code R18-11-303. Water quality standards required for discharges to surface waters would be addressed in AzPDES permits for those discharges.

Comment: While the Clean Water Act's primary purpose is to improve water quality, Section 208 is not meant to write water *quantity* issues out of the equation. For example, Section 101 of

the Clean Water Act safeguards State water allocation systems and determinations. It preserves the authority of States over water: It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter. It is the further policy of Congress that nothing in this chapter shall be construed to supersede or abrogate rights to quantities of water which have been established by any State. Federal agencies shall co-operate with State and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources. 33 U.S.C. § 1251(g). In other words, the Clean Water Act recognized the importance of managing water resources, and therefore the Town believes that the 208 Plan must consider water resource issues as part of the planning process.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Water resource management would be addressed through the ADWR and the MCESD in their permit review process.

Comment: MAG cannot take measures to improve water quality through the 208 Plan if water *quantity* is impaired. That is, MAG cannot consider water quality without also considering the impact of water quality in an integrated water management system. If MAG permits HUC to move forward with these wastewater treatment facilities without adequately considering the need to strategically recharge the aquifers and plan for future water resources, it will ultimately negatively affect water quality because it will decrease the overall water *quantity* available from the aquifer. In addition, a correlation can be made between groundwater level decline and diminishing groundwater quality in this area. Therefore, it is imperative to limit groundwater level decline in order to preserve groundwater quality.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. In the State of Arizona, one State agency is statutorily charged with planning and permitting decisions regarding groundwater supply, the Arizona Department of Water Resources (ADWR).

Comment: As stated in the Proposed Amendment, a "traditional 'groundwater only' approach to serving this region to meet its water needs is not adequate." [Proposed Amendment, page 2-5.] The Proposed Amendment also acknowledges the Lower Hassayampa Sub-Basin Hydrologic Study ("Hassayampa Sub-Basin Study") performed by Brown and Caldwell that concludes the Lower Hassayampa Sub-Basin cannot support planned development without proper management which includes strategic recharge of a significant percentage of the total water use. The computer model developed by Brown and Caldwell in conjunction with the Hassayampa Sub-Basin Study, produced results, in the form of long-term impacts to the aquifer system that are critically sensitive to the levels of withdrawal and the volume of effluent recharge of each development in the region.

Response: Based on our understanding of the Hassayampa Lower Sub-Basin model, the 100-year Assured Water Supply (AWS) for the land development in the model boundaries relies on 30% of the water demand being met by reclaimed water reuse or recharge. HUC commits to this

strategy and their ability to accomplish such is demonstrated in Global's Maricopa, Arizona integrated utilities.

Comment: The crucial need for an integrated, coordinated water management plan for the region is visually demonstrated by Exhibit 2 in the Proposed Amendment. This Exhibit provides a very clear picture of the proposed HUC service area boundary and its direct relationship to the Town's municipal planning area. HUC and the Town will be withdrawing from the same aquifer - the Lower Hassayampa Sub-Basin - and sound water policy dictates an integrated and coordinated approach to management of a shared aquifer that can only be sustained by strategic and adequate recharge.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. In the State of Arizona, one State agency is statutorily charged with planning and permitting decisions regarding groundwater supply, the Arizona Department of Water Resources. Determinations regarding the physical, legal, and continuous availability of groundwater for 100 years will be made by ADWR through its rigorous Assured Water Supply rules. Because Global has committed to serve the 208 Plan Amendment service areas with integrated utilities- water, wastewater, and reclaimed water- the management of water resources, that is the planning, partnering, capital investments, permitting, is not unlike that of a traditional municipality in Maricopa County.

Comment: Despite the fact that HUC indicates that reuse of reclaimed water is an element of its groundwater conservation strategy, the Town is troubled by HUC's stated priority to reuse reclaimed water rather than recharge the aquifer because this approach may not support overall sustainability of the Sub-Basin aquifer.

Response: HUC commits to this strategy and their ability to accomplish such is demonstrated in Global's Maricopa, Arizona integrated utilities, already achieving a 30% or better use of reclaimed water to replace potable demand. Based on Global's first hand empirical data, the economics and impacts to the aquifer are superior for reuse as the first choice for disposition of reclaimed water. In the State of Arizona, one State agency is statutorily charged with planning and permitting decisions regarding groundwater supply, the Arizona Department of Water Resources. Determinations regarding the physical, legal, and continuous availability of groundwater for 100 years will be made by ADWR through its rigorous Assured Water Supply rules.

Comment: Further, the Town is gravely concerned that the limited recharge proposed by HUC may not occur in critical areas where recharge is most needed. The Town itself is working to evaluate and identify critical recharge sites within its municipal planning area.

Response: The location of recharge sites is not subject to the 208 Plan Amendment process. Any infrastructure siting in the 208 Plan Amendment service area will be undertaken in accordance with MCESD, ADEQ and ADWR regulations.

Comment: Moreover, the Town is also concerned that HUC's recovery well pumping will harm or adversely impact the Town's existing and future wells and well fields.

Response: There is no mention of recovery wells or recovery pumping in the HUC NE 208. Any infrastructure siting in the 208 Plan Amendment service area will be undertaken in accordance with MCESD, ADEQ and ADWR regulations.

Comment: The Town wishes to contribute to the success of planned development in the region and thereby requests that MAG postpone its decision on the Proposed Amendment for an additional 120 days. During this 120-day period, the Town will evaluate the Proposed Amendment through its consulting engineer, Brown and Caldwell, and consider (i) whether the recharge sites identified therein are in locations that will contribute to the sustainability of groundwater in the area, and (ii) whether the proposed recovery well sites impact the Town's existing and planned future wells. In addition, during this period of time, the Town will welcome any opportunity to work with HUC to resolve the Town's concerns.

Response: MCESD disagrees that an additional 120 days are necessary. Recharge siting is not a requirement of the Clean Water Act Section 208 which governs the MAG 208 Plan Amendment process. Recharge locations have not yet been identified to the extent that the type of evaluation the Town proposes to accomplish through their consultant would be feasible. Recovery of recharged reclaimed water is not mentioned anywhere in the HUC NE or SW 208 Plan Amendments and there are no proposed recovery wells associated with these 208 Plans. Any infrastructure siting in the 208 Plan Amendment service area will be undertaken in accordance with MCESD, ADEQ and ADWR regulations. If applicable through the various permitting processes with MCESD, ADEQ and ADWR for this infrastructure, the Town would have its opportunity to evaluate the proposed facilities.

Comment: Sustainability of water resources in the region can only be accomplished through an integrated, coordinated approach and until the long-term effect of the Proposed Amendment's reuse and recharge is determined, the Town has no choice but to oppose the Proposed Amendment and to request that the local governments within MAG support the Town's water management policy for responsible growth.

Response: The integrated approach that HUC is able to offer through its parent, Global Water Resources, offers to this region in unincorporated Maricopa County the ability to serve the development community with one third less water than that required elsewhere in the State for comparable services. The sustainability of water resources remains the jurisdiction of ADWR. MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA.

#### COMMENTS FROM STEVE BRITTLE, DON'T WASTE ARIZONA AND ARIZONA NUCLEAR ENERGY WATCH

(Written comments received at the August 7, 2007 public hearing)

Comment: There are many issues and concerns about these proposed projects: The application documentation is silent on the potential effects of the radioactive emissions of Palo Verde

Nuclear Generating Station on the use and reuse of water in the proposed project. These radioactive emissions need to be quantified by MAG and their potential effect on water quality needs to be examined. There is already tritium-contaminated water under Palo Verde caused by rain falling on its radioactive emissions, as well as tritium contamination found in nearby roof vents of homes. I have brought portions of a Nuclear Regulatory Commission report regarding these radioactive emissions from Palo Verde, and am submitting them to the record.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Although potential effects of radioactive emissions may be of concern, the MAG 208 Plan process is restricted to those criteria established in the Clean Water Act Section 208.

Comment: I am also submitting for the record this article that points out the relationship between proximity to nuclear plants and infant mortality rates. The article regards a study that showed that when different nuclear reactors were closed, the infant death rates under 40 miles from these nuclear plants fell 15 - 20 percent from previous years. There were also plunges in the rates of newly diagnosed leukemia and cancer cases and birth defect deaths in children under five years of age. Be assured, deciding to allow these water projects so close to Palo Verde will come back to haunt you.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Although potential effects of radioactive emissions may be of concern, the MAG 208 Plan process is restricted to those criteria established in the Clean Water Act Section 208.

Comment: Also, in regard to public policy, let me remind you that in the event of a serious incident releasing unpermitted radiation from the Palo Verde Nuclear Generating Station, the emergency plan includes an evacuation zone of a ten-mile radius around the facility. There is a certainly question about the wisdom of placing so many dwellings and people near the facility, which originally was deliberately sited some distance away from the major population center of the Phoenix metro area in part due to the inherent risks and dangers of nuclear power plants. In the event an evacuation was required, unless there are sufficient roads and other means of egress, there is a much larger moral dilemma involved here. This is of special consideration because due to the many issues regarding this facility and its operations, it is now the second most regulated and scrutinized nuclear power plant in the United States. The only other one that is more regulated and scrutinized had a hire that made it number one.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Although potential effects of radioactive emissions may be of concern, the MAG 208 Plan process is restricted to those criteria established in the Clean Water Act Section 208.

Comment: The Hassayampa Sub-basin historically has not had enough water to support this type of growth, and probably not enough to assure a 100-year water supply. Would the groundwater pumping cause enough subsidence to threaten the stability of homes and other buildings in the area? Or the stability and structural integrity of the Palo Verde Nuclear Power Plant?

Response: Water quantity issues, including the 100-year water supply, are the jurisdiction of ADWR.

Comment: It is really unfortunate that this public hearing was not held in the area out by Palo Verde. I'd like to know why that wasn't done. It appears there has been no active solicitation for public participation in the public process by folks out in the area. Can anyone tell me if the residents in the area were notified of the public hearing? The Nuclear Regulatory Commission held a public hearing for residents in the area - why didn't MAG?

Response: The MAG 208 Water Quality Management Plan is a regional plan by nature. The MAG 208 planning area is the Maricopa County boundary. The August 7, 2007 public hearing on the Draft MAG 208 Water Quality Management Plan Amendments for the Hassayampa Utility Company Northeast Service Area and Hassayampa Utility Company Southwest Service Area was held in a centralized location within the MAG 208 planning area. Also, having the public hearing at the MAG Office allows those providing public comment to address the MAG Water Quality Advisory Committee. At the August 7, 2007 hearing, there were a number of citizens from the Tonopah area in attendance.

The draft amendments were made available for review at the MAG Office, 302 North 1<sup>st</sup> Avenue, Suite 300; Glendale Public Library, 5959 West Brown Street; City of Mesa Library, 64 East First Street; and Phoenix Central Library, 1221 North Central Avenue. The notice of public hearing was advertised in The Arizona Republic, which has statewide, including regionwide distribution. The notice was also provided to interested parties for water quality.

COMMENTS FROM ROGER KLINGLER, CITY OF SCOTTSDALE  
(Comments at the August 7, 2007 public hearing)

Comment: I think you made a point about CC&Ns and that Global has - I think you said the water and sewer CC&Ns for Hassayampa Ranches. But not for Belmont? What is the situation with Belmont? I think you said there was another development. I don't know the name.

Response: Every single developer represented in the 208 Plan, including Belmont and 339<sup>th</sup> Avenue Development, aka Anderson Springs, support the HUC NE 208. The WUGT holds a water CC&N for Hassayampa Ranch, approximately 3 sections, and HUC holds a wastewater CC&N for the same development. Applications for CC&N extensions are underway at the ACC for Belmont, 339<sup>th</sup> Avenue, and for other developers who have requested service from WUGT and HUC. The CC&N extensions have reached administrative sufficiency and are awaiting the establishment of a hearing date.

Comment: You gave us the north boundary. I didn't hear the east and west and the south boundaries there, and we can't read that map from here.

Response: The boundary of the service area covered by this NE amendment application extends from the Central Arizona Project (CAP) canal on the north to Buckeye Road on the south and from the Balterra Development and 363<sup>rd</sup> Avenue on the west to the Town of Buckeye Municipal Planning Boundary (MPA) on the east. The service area comprises approximately 63.6 square miles in unincorporated Maricopa County. The boundary of the SW service area is I-10 on the north, 443<sup>rd</sup> Avenue on the west, Van Buren Street and Broadway Road on the south, and 363<sup>rd</sup> Avenue on the east.

COMMENTS FROM STEVE BORST, TOWN OF BUCKEYE  
(Comments at the August 7, 2007 public hearing)

Comment: I believe you handed out this letter, or I have a letter here from the Arizona Corporation Commissioner, Kris Mayes, and it has a statement in here, and it says that "HUC currently holds CC&Ns that covers the application area." Is that correct?

Response: Commissioner Mayes misspoke regarding the boundaries of the approved CC&Ns in the application area. HUC, a wholly-owned subsidiary of Global, filed an application for a CC&N with the ACC for wastewater on September 19, 2005 (Docket No. SW-20422a-05-0659). The application covered a service area of approximately 2,050 acres encompassing the Hassayampa Ranch development. The CC&N extension was approved in September 2006. Additionally, HUC filed an extension application for wastewater on September 7, 2006, docket number SW-20422-06-0566 to incorporate the Belmont and 339<sup>th</sup> Avenue developments encompassing 20,454 acres. Global's subsidiary Water Utility of Greater Tonopah (WUGT) currently has CC&N to serve water to the Hassayampa Ranch development, and has filed an extension application for water with the ACC in September 2006 to service the Belmont and 339<sup>th</sup> Avenue developments.

Comment: For this service area, this 64 sections, do you currently hold a CC&N for this application area? Do you have a CC&N for this 64 sections?

Response: HUC, a wholly-owned subsidiary of Global, filed an application for a CC&N with the ACC for wastewater on September 19, 2005 (Docket No. SW-20422a-05-0659). The application covered a service area of approximately 2,050 acres encompassing the Hassayampa Ranch development. The CC&N extension was approved in September 2006. Additionally, HUC filed an extension application for wastewater on September 7, 2006, docket number SW-20422-06-0566 to incorporate the Belmont and 339<sup>th</sup> Avenue developments encompassing 20,454 acres. Global's subsidiary Water Utility of Greater Tonopah (WUGT) currently has CC&N to serve water to the Hassayampa Ranch development, and has filed an extension application for water with the ACC in September 2006 to service the Belmont and 339<sup>th</sup> Avenue developments.

Comment: You have, you say, a CC&N for Hassayampa Ranch? Is that CC&N at all conditioned or preliminary based on the MAG approval?

Response: HUC, a wholly-owned subsidiary of Global, filed an application for a CC&N with the ACC for wastewater on September 19, 2005 (Docket No. SW-20422a-05-0659). The

application covered a service area of approximately 2,050 acres encompassing the Hassayampa Ranch development. The CC&N extension was approved in September 2006. All wastewater CC&Ns issued by the ACC are conditioned upon delivering proof of receipt of a franchise, 208 approval, APP and other permits, etc. The CC&N that Hassayampa Ranch holds is not to be confused with an "Order Preliminary", which is more closely a conditioned approval such that the CC&N is not actually issued until or unless the conditions in the Order Preliminary are met.

Comment: So, whether or not you get the CC&N granted, it's conditional upon the approval of MAG? If you don't meet those conditions within that period of time, will the CC&N expire?

Response: It is typically the experience of responsible regulated utilities such as HUC that the ACC would grant an extension of time for the utility to receive its 208 approval when there are extenuating circumstances.

Comment: It was mentioned that Belmont has been in the process for almost 15 years, in the process with Maricopa County. I believe I heard that. Would you please explain? As this Committee is concerned about water quality, the water quality you reference in your presentation is a reference to a criteria called A+. Can you explain how that water quality criteria is related to water quality under the Clean Water Act 208?

Response: HUC has committed to produce Class A+ reclaimed water in accordance with Arizona Administrative Code R18-11-303. Class A+ reclaimed water designates the highest order that ADEQ currently regulates to in the state. "A" represents an effluent containing less than 10 mg/l BOD/TSS constituent loading, and an average fecal coliform limitation of less than 5 NTU. A "+" designates that the facility is capable of removing nitrate to a level of also less than 10 milligrams per liter. So, that is the highest standard we have for the state for reclaimed wastewater. It also is the standard that is called out for reuse applications for a wide range of beneficial reuses. Water quality standards required for discharges to surface waters would be addressed in AzPDES permits for those discharges.

Comment: Is it a state water quality requirement then? Discharge? All right. Is it related to discharge to Waters of the U.S. or NPDES permit? And what water quality would you intend to have for release under a Clean Water Act NPDES permit? I mean, relating to the designated uses, etcetera.

Response: Class A+ reclaimed water is a state standard for "discharges" to the groundwater under the Aquifer Protection Permit program in accordance with Arizona Administrative Code R18-11-303. Water quality standards required for discharges to surface waters would be addressed in AzPDES permits for those discharges, which may require more treatment above the Class A+ standard depending on the receiving surface waters designation.

Comment: So the water quality parameters are state water quality parameters that you're giving us today, A+?

Response: Yes, for reclaimed or recharged water.

Comment: You made reference to recharges occurring currently. Does Global Utilities have any CAP allocations for recharge, and what allocations do you have?

Response: Global Utilities does not have any allocations of CAP water for recharge. The West Maricopa Combine subsidiary has an operational 25,000 acre-ft/year CAP recharge facility in the Hassayampa River.

Comment: What access would Global have to this water that you're claiming you are now recharging?

Response: Global is currently accessing recharge incentive water, one of the programs that can give access to CAP water without having an allocation of the Colorado River water.

Comment: If Global doesn't own the surface water that you say you're recharging, you will still be primarily relying on groundwater; is that a safe assumption?

Response: The 208 service area lands are within the Phoenix Active Management Area (AMA). In a safe yield basin such as the Phoenix AMA, a designated water provider must recharge on a one for one basis to achieve a safe yield for every gallon of water it withdraws. Global Utilities will reduce the reliance on the CAGR to fulfill this recharge requirement by infusing its own recharge activities and reducing, through total water management practices, that amount of water that is withdrawn out of groundwater from that area.

COMMENTS FROM RICH WILLIAMS SR., CITY OF SURPRISE  
(Comments at the August 7, 2007 public hearing)

Comment: We received in our packet of information today a letter from a Tonopah resident expressing some concerns. Could you clarify for us where the Tonopah community is in relationship to this service area, proposed service area?

Response: The Tonopah community is located west of the Hassayampa River and thus is generally coincident with the HUC NE and SW 208 service areas.

Comment: Have you engaged that community at all in preparation of your 208 proposal? Have you interacted with any of the adjacent county residents in that area?

Response: HUC President and CEO Trevor Hill indicated that he has met with key community leaders in the Tonopah area over the last several years.

Comment: Is there more specific information or documentation, group meetings, or are you talking about casual meetings, one on one?

Response: HUC President and CEO Trevor Hill reports that he has made two public presentations recently in that region. Belmont development legal counsel Paul Gilbert adds that Belmont has held over 20 neighborhood meetings with upward of 150 attendees in connection

with the development applications underway and that at each meeting the 208 amendment has been discussed with Global as the proponent.

**COMMENTS FROM DAVID WILCOX, TOWN OF BUCKEYE**  
(Testimony at the August 7, 2007 public hearing)

Comment: My name is Dave Wilcox. I am the Town of Buckeye Town Manager. I have an address for the Town which is 1101 East Ash Avenue in Buckeye, Arizona. I appreciate the opportunity to speak with you this afternoon. I will be very brief, making primarily reference to written comments that have been submitted to you but would like to point to those comments as raising objections to the requested 208 amendment. We would like to stand by those comments. That is what I had planned to say, but having heard the presentation a few minutes ago, I would like to add just a couple of observations. Apparently the Town of Buckeye and Global Water have a failure to communicate. Mr. Gilbert stood before you and said that representatives of Global Water have called the Town of Buckeye. In fact, I think he indicated on numerous occasions making overtures to speak with us since the June 6<sup>th</sup> meeting. I am not quite sure who those calls were made to; they were not made to me.

Response: HUC/Global representatives indicated they were in contact with Steve Borst of the Town of Buckeye via email since the June 6, 2007 Water Quality Advisory Committee meeting and had offered to meet with the Town to answer any questions they may have had regarding the 208 Plan Amendments.

HUC, the applicant, indicated they offered to meet with the Town of Buckeye and to discuss the 208 amendments and has in fact communicated through letters, met or talked with the Town on this and a number of subjects during the past year. The Town did advise MCESD as to its concerns through its February 15, 2007 objection letter regarding the HUC NE 208. The applicant, HUC, responded to these concerns in their April 2, 2007 letter to MCESD, which were then transmitted by MCESD to the Town. MCESD acknowledged that HUC has addressed the Town's concerns and thus issued sponsorship letters for both the HUC NE and SW 208 amendments on February 27, 2007.

Comment: The Town of Buckeye in its comments is indicating to you that what we would like is more time to talk with Global Water about this amendment and to be sure that we can work together to take care to make decisions in the interest of the region of the Hassayampa Valley and in the interest of the environmental and water quality and sustainability in that area. We have not done so. We would like the opportunity to do so.

Response: HUC has fulfilled the technical requirements in their 208 Plan Amendments and MCESD has sponsored them. The Town has had adequate opportunity to review the documents and raise its concerns and to discuss these with the applicant.

MCESD disagrees with the need to delay the 208 approval in order for the Town of Buckeye to talk with Global in the interest of the environmental and water quality and sustainability in that area. Determinations about water supply including recharge and recovery locations, water quality, and other regional water resource issues will be made by the appropriate agencies –

MCESD, ADEQ, and ADWR – and will include opportunity for public comment in accordance with the statutes associated with the various permitting activities. Further, Global continues to express an interest and willingness to meet with the Town.

Comment: The reason I talk about a failure to communicate is that at the same time, apparently, in that June/July period of time, I did in fact email after a meeting and other emails Mr. Hill of Global Water. In that email I indicated to him that we would certainly like to talk about these and many other issues and would stand by the position that we are holding that this decision should be delayed until we have those discussions. I did not receive a reply to that last email.

Response: The email communication Mr. Wilcox refers to was started by Trevor Hill, HUC President and CEO. Mr. Wilcox indeed responded. Mr. Hill chose not to respond to the return email response from Mr. Wilcox at that time.

COMMENTS FROM PAUL ROETTO, TONOPAH RESIDENT  
(Testimony at the August 7, 2007 public hearing)

Comment: I'm Paul Roetto. My address is 3708 North 339<sup>th</sup> Avenue. I speak as a community member even though I am the president of the Tonopah Valley Community Council and I am involved with several other community organizations. I support Global Water's Regional Comprehensive Water Plan and request that you approve the amendment to the 208. I base that upon there are other programs they have in effect such as Maricopa County. I feel that they are more than qualified to provide services to the Tonopah area. As president of TVCC, Global did come out and speak with us I believe 18 months ago and I met with Trevor Hill several weeks ago and the similar plan they presented when they first bought up the Greater Tonopah Utility Company.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

COMMENTS FROM STEVE BRITTLE, DON'T WASTE ARIZONA AND ARIZONA  
NUCLEAR ENERGY WATCH  
(Testimony at the August 7, 2007 public hearing)

Comment: My name is Steve Brittle. I am the president of Don't Waste Arizona and a member of the Arizona Nuclear Energy Watch. I saw in the minutes that were approved that some of my comments were in the minutes so I won't be redundant. Today I brought a couple of things for the record that I will leave with the court reporter. This is from the NRC. This is a record of the year 2004 radioactive effluent release, basically my concerns about the radioactive emissions from the facility, so they are quantified here for your review.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Although potential effects of radioactive emissions may be of concern, the MAG 208 Plan process is restricted to those criteria established in the Clean Water Act Section 208.

Comment: I also have a study, an article that points out the relationship between the proximity to nuclear plants and infant mortality rates. The article regards the study that shows that when five different nuclear reactors were closed, the infant death rates under 40 miles from these nuclear plants fell 15 - 20 percent from previous years, and this continued for seven more years. There were also plunges in the rates of newly diagnosed leukemia and cancer cases and birth defect deaths in children under five years of age.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Although potential effects of radioactive emissions may be of concern, the MAG 208 Plan process is restricted to those criteria established in the Clean Water Act Section 208.

Comment: Be assured that if you allow these water projects so close to Palo Verde, as they say in the movies, "if you build it, they will come." I have already expressed concern about the ability to evacuate people from the area. There is a ten-mile radius of evacuation in the case of a nuclear incident. Palo Verde is a very troubled facility. Reminds me, as by degree in history, that people have consistently rebuilt near volcanoes that have wiped out the previous population. So, someone in government has to be responsible and take a look at that.

Response: MCESD has found the applicant's NE and SW 208 Plan Amendments to be technically sound and to meet the 208 Plan Amendment criteria currently required by MAG, ADEQ, and EPA. Although potential effects of radioactive emissions may be of concern, the MAG 208 Plan process is restricted to those criteria established in the Clean Water Act Section 208.

Comment: I also think it would have been a better idea if you had this public hearing in the vicinity of the communities that are affected.

Response: The MAG 208 Water Quality Management Plan is a regional plan by nature. The MAG 208 planning area is the Maricopa County boundary. The August 7, 2007 public hearing on the Draft MAG 208 Water Quality Management Plan Amendments for the Hassayampa Utility Company Northeast Service Area and Hassayampa Utility Company Southwest Service Area was held in a centralized location within the MAG 208 planning area. Also, having the public hearing at the MAG Office allows those providing public comment to address the MAG Water Quality Advisory Committee. At the August 7, 2007 hearing, there were a number of citizens from the Tonopah area in attendance.

The draft amendments were made available for review at the MAG Office, 302 North 1<sup>st</sup> Avenue, Suite 300; Glendale Public Library, 5959 West Brown Street; City of Mesa Library, 64 East First Street; and Phoenix Central Library, 1221 North Central Avenue. The notice of public hearing was advertised in The Arizona Republic, which has statewide, including regionwide distribution. The notice was also provided to interested parties for water quality.

COMMENTS FROM DORIS HEISLER, TONOPAH VALLEY ASSOCIATION AND TONOPAH RESIDENT

(Testimony provided both verbally and in written form at the August 7, 2007 public hearing)

Comment: I'm Doris Heisler. My address is 3002 North 423<sup>rd</sup> Avenue, Tonopah, Arizona, 85354. I am the Projects Director of our Landowners Association of 31 years, the Tonopah Valley Association, Inc. and a resident of Tonopah. I have both met with and have been in attendance at meetings with Global Water Resources over the past couple of years and have seen PowerPoint presentations of the water and wastewater systems they are providing in the towns of Casa Grande and particularly Maricopa, Arizona. The information they have provided to us has been quite impressive with the statistics and graphs they have shown to us as well as the infrastructure photos and diagrams they have provided to us of systems that they are currently providing to residents at the towns of Maricopa and Casa Grande. They have separate lines running to the homes for potable water, nonpotable water, and sewer.

Response: Acknowledged.

Comment: Although they feel that recharge is important - and have expressed that they do intend to recharge in several designated areas both north and south of our valley - they are interested in recycling and reusing the water more times than we understand is customarily done, so that more use and less waste is derived from the water thereby requiring that less water be pumped from ground wells.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: They are very serious about water conservation, feeling that the effects of conservation - or waste - of water are both far-reaching. We therefore, feel that Global is technically capable of providing good wastewater treatment needs for the various developments proposing to locate in our Tonopah Valley.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: Also, they are a well-capitalized company, so can afford to put in the infrastructure and various components and plants necessary for the proper delivery, treatment, distribution, and recharge of the water and wastewater for our area.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: They have already made major investments in the systems installed in Casa Grande and Maricopa, Arizona, as well as in their own facilities, and have indicated the desire to make the necessary investments in our valley as well to insure successful operating systems.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: They have a large staff of engineers and other professional people to construct, operate, and maintain good regional systems for us, which may eventually also allow hookups of

current and future businesses and residences to take them off septic systems. Therefore, we feel that they are financially able to provide those services to us.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: Last year, they purchased the Water Utilities of Greater Tonopah Water Company and franchised area in order to provide water service to the local developments and to also make it available to other businesses and residences in the future if they choose to use it. We understand that they are in the process of upgrading and improving the condition of the water systems they purchased to make them more reliable and efficient.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: We understand that the Town of Buckeye, as a municipality, feels that it can provide wastewater services to the proposed developments west of the Hassayampa River better than can a private company. We are concerned that if Buckeye is allowed to provide those services to the developments in our valley - which they would have to cross the River in order to do so - that it could result in those developments having to annex into Buckeye in order to receive those municipal services. We have had to be concerned for many years about the desire of Buckeye to annex part of our Tonopah Valley. We have had to block attempts several times in the past, and we want to keep our own identity. We do not want to be a part of Buckeye, and we do not want these developers to have to annex into Buckeye to get their municipal waters.

Response: Acknowledged.

Comment: In other words, I have other things to say here, but we do feel that they have a proven track record on it, and we would request that MAG approve Maricopa County's sponsorship of the 208 wastewater permit and allow Global Resources to provide the needed wastewater services for our proposed development. We have a lot of people from Tonopah, by the way, that are here also in support. And they have come out and made several presentations to us in the area, and we've met with them individually, also.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: The developers have indicated to us that they have no desire to annex into Buckeye and we do not want them to do so. We feel that Global as a private company is capable of serving our area better than Buckeye which is growing so fast it is having difficulty keeping up with its own growth's needs.

Response: Acknowledged.

Comment: Also, if a private company such as Global (or any other private company) is not allowed to provide the needed water and wastewater services to our area and Buckeye is, it could not only involve the various proposed developments within three miles of Buckeye's western boundaries (primarily Hassayampa Ranch, Hassayampa Village, Hassayampa 78, Belmont, and Hidden Waters Ranch) but could also involve the other developments that are being proposed

completely across our Tonopah Valley. That could be devastating to us and our future growth and development with Buckeye's onerous presence here in Tonopah to hinder our own plans and desires.

Response: Acknowledged.

**COMMENTS FROM GARRY HAYS, HENDERSON LAW FIRM**  
(Testimony at the August 7, 2007 public hearing)

Comment: Garry Hays, Henderson Law Firm on behalf of Harvard Investments, the owner and developer of Hassayampa Ranch. As you can tell, Global, Belmont, and of course, Hassayampa Ranch, I've met with the residents of Tonopah, Harvard Investments has been working on this project for a little over two years. My partner, Rod Jarvis, has gone out to Tonopah several times over the last two years to meet with people, address some of the issues that you have heard today. I think you heard that Tonopah residents seem to like what is being proposed to you.

Response: Acknowledged.

Comment: About a year ago to this day, I stood at this podium and talked to you guys when Balterra was up. If you remember in Balterra, the County was sponsoring it with another private utility. I think it was Balterra Utility Company. The County was sponsoring it, and there were landowners, some which I represented, that were opposed to the 208 going forward. This is a similar situation here today except for the difference is a municipality is opposed to this going forward. But the gist of the meeting last year was, basically, there are no technical issues. We will move this forward. There's no reason for delay. There's no technical reason for delay. We will move this forward. That was the outcome of the meeting we held about a year ago in that same matter, and I think it has to be the outcome of the meeting here today. There are no technical reasons for delaying this matter from moving forward.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: Maricopa County, a member of MAG, is sponsoring this amendment. As a matter of fact, the director of Maricopa County Environmental Services Department is here today, John Power. So, Mr. Bodiya, whose job it is to work on 208 has said it is technically correct. Mr. Power is here so it must be technically correct. There are not reasons for delay. We must move this forward.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.

Comment: One difference between this year and last year, as Mr. Gilbert so eloquently put it, as only he can, there is no property that is within a municipal planning area. Well, last year there were property owners that didn't want to be in the 208, and this Committee said it doesn't matter, there are no technical issues. This year, as far as I know, all the property owners want to be in the 208.

Response: In its applications, HUC provided letters requesting service from developers represented in their service areas. All of the current developers within the service areas desire and support HUC as their wastewater service provider.

Comment: Just to sum up, we were in this same position last year. Maricopa County was the sponsor entity. You said the sponsor entity is here, there are no technical issues, we will move it forward. I think you have to do the same again today.

Response: MCESD concurs with support of the HUC NE and SW 208 Plan Amendments.



# Maricopa County Board of Supervisors

Don Stapley, District 2

Max W. Wilson, District 4

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August 29, 2007

The Honorable James Cavanaugh  
Chairman  
Regional Council  
Maricopa Association of Governments  
302 N. 1<sup>st</sup> Avenue, Suite 300  
Phoenix, AZ 85003

RE: MAG – 208 Water Quality Management Plan  
Global Water HUC Northeast and Southwest Service Area Amendment  
Applications

Dear Chairman Cavanaugh:

After careful consideration, the Maricopa County Board of Supervisors supports the application of the Global Water HUC Northeast Service Area and Southwest Service Area Amendment Applications (208 Water Quality Management Plan for the Hassayampa Utility Company). The County Environmental Services Department has thoroughly reviewed the applications and determined that the proposed amendments meet the legal and procedural requirements of the MAG 208 Checklist.

On August 22, 2007, Board of Supervisors unanimously passed a resolution of support for these applications (attached). They are essential to support the development of several master planned communities in the area, and will ensure that the needs of our citizens are met. The applications are within unincorporated Maricopa County and not within any other member's planning area. Therefore, we ask the Regional Council to approve the applications.

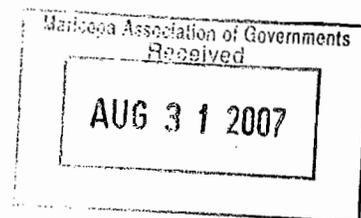
Sincerely,

Handwritten signature of Don Stapley in black ink.

Don Stapley  
Board of Supervisors, District 2

Handwritten signature of Max W. Wilson in black ink.

Max W. Wilson  
Board of Supervisors, District 4



cc: Dennis Smith, MAG Executive Director

**RESOLUTION**

**Of the Maricopa County Board of Supervisors Regarding the  
Support of Hassayampa Utility Company's 208 Amendments for  
Northeast Service Area and Southwest Service Area**

**WHEREAS**, Hassayampa Utility Company has applied for amendments to the area wide wastewater treatment plan (208 Plan) for their Northeast Service Area and Southwest Service Area within the unincorporated area of Maricopa County, as required for regional wastewater treatment planning under Section 208 of the Federal Clean Water Act and;

**WHEREAS**, the Maricopa Association of Governments 208 Plan requires the jurisdiction in which the proposed wastewater facilities are located to bring forward the amendment to the Maricopa County Association of Governments for approval as the sponsoring agency, and;

**WHEREAS**, Maricopa County assigned responsibility for review of 208 amendments within the unincorporated areas of Maricopa County to the Maricopa County Environmental Services Department, and that Department has determined that the applications are technically correct, and;

**WHEREAS**, Maricopa County Environmental Services Department has forwarded the applications to the Maricopa Association of Governments for approval as the sponsoring agency, and;

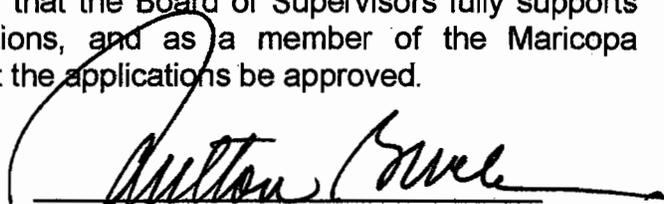
**WHEREAS**, the Hassayampa Utility Company's applications includes commitments to reuse treated wastewater through plans to use recycled wastewater effluent for non-potable uses, and;

**WHEREAS**, the approval of the applications will result in a regional solution for water and wastewater services;

**NOW, THEREFORE, BE IT RESOLVED**, that the Board of Supervisors fully supports Hassayampa Utility Company's applications, and as a member of the Maricopa Association of Governments, requests that the applications be approved.

**DATED** this 22<sup>nd</sup> day of August 2007.



  
Fulton Brock, Chairman of the Board

ATTEST:  
  
Fran McCarroll, Clerk of the Board