FREEPORT-McMoRan
COPPER & GOLD

Freeport-McMoRan Sierrita Inc.
6200 W. Duval Mine Rd.
PO Box 527
Green Valley, Arizona 85622-0527

September 29, 2008

**Via Certified Mail # 7002 1000 0005 6776 3169**
**Return Receipt Requested**

Ms. Cynthia S. Campbell
Arizona Department of Environmental Quality
Water Quality Compliance Section
1110 West Washington Street
Phoenix, Arizona 85007-2935

**Re: Mitigation Order on Consent Docket No. P-50-06**
**Response to ADEQ's September 5, 2008 Comments**

Dear Ms. Campbell:

On August 25, 2008, Freeport-McMoRan Sierrita Inc. (Sierrita) submitted a letter to the Arizona Department of Environmental Quality (ADEQ) requesting an extension of time for Sierrita to submit the Feasibility Study (FS) required by Mitigation Order on Consent Docket No. P-50-06. ADEQ approved the requested extension in a letter dated September 5, 2008 and requested that Sierrita address three comments. ADEQ's September 5, 2008 comments are presented below in italics, followed by Sierrita's responses.

ADEQ Comment No. 1: *In its August 25, 2008 letter, Freeport references new data it has received from the Upper Santa Cruz Providers and Users Group (USC/PUG) in April 2008 relating to water use and additional information it received from the Bureau of Reclamation in August 2008, relating to the Central Arizona Project (CAP) recharge proposals. Freeport states that this information was incorporated into its groundwater flow and transport model (PDSIM) and that it will use this revised model in conducting the Feasibility Study. ADEQ would like to see the information Freeport incorporated into the model and a description of how the PDSIM was revised based on this information prior to receiving the Feasibility Study. Please provide this information to ADEQ on or before October 1, 2008.*

**Sierrita Response:**

The PDSIRM, as described in the Aquifer Characterization Report (HGC, 2007)[1] was calibrated to simulate historic groundwater flow and sulfate transport in the vicinity of the Sierrita Tailing Impoundment (STI) through the year 2006. Preparing the calibrated model to simulate future conditions required specifying future rates and locations of groundwater withdrawals and recharge. Originally, the model was prepared to simulate future conditions using water system plans submitted by water companies to the Arizona Department of Water Resources (ADWR)[2], communications with water providers[3], and the numerical model

[1] Hydro Geo Chem, Inc. 2007. Aquifer Characterization Report: Task 5 of Aquifer Characterization Plan, Mitigation Order in Consent Docket No. P-50-06, Pima County, Arizona. December 28, 2007.
[2] Water system plans obtained from ADWR for Farmers Investment Co. (FICO), Farmers Water Co., Green Valley Water Improvement District, Las Quintas Serenas Water Company, and Quail Creek Water Company.
[3] Communications with Community Water Company of Green Valley and Sahuarita Water Company.

developed by ADWR for the Tucson Active Management Area (Mason and Bota, 2006)[4]. In April, 2008 the Upper Santa Cruz Providers and Users Group (PUG) issued a report of water use projections for the southern Tucson Active Management Area (Hedden et al, 2008)[5]. Revising the future projections in the numerical model to incorporate the estimates in the PUG report was considered important for the following reasons:

- The PUG report estimates are comprehensive and included reliable and recent information on future withdrawal and recharge sources for which information was previously unavailable.
- The PUG report estimates were developed by a committee of water providers and users in the Green Valley area, and are therefore more coordinated and more regional in focus than estimates made by individual users.
- The PUG report estimates were determined to be reliable and completed as part of a public process, and likely to be considered relevant by the community.

Issues not specifically addressed in the PUG report were the location of future (i.e., not currently existing) wells anticipated in the PUG report to be necessary, and the allocation of pumping among wells for water providers with multiple wells. In some cases the information previously provided by individual water users was helpful in resolving these issues.

A remaining question was the location of the recharge facility being proposed by the Rosemont Copper Mine. In August, 2008, the Bureau of Reclamation issued a public memorandum on the future use of Central Arizona Project Water (Erwin, 2008)[6]. This memorandum located the proposed recharge site within a 20-acre parcel in Section 29, Township 17 South, Range 14 East, approximately 1.5 miles east of Old Nogales Highway along the extended alignment of El Corto Road.

A summary of the future pumping rates used in the numerical model, and the sources on which these estimates are based, is provided as Attachment A. The PUG report and the Bureau of Reclamation memorandum are provided as Attachment B and Attachment C, respectively. Using the PUG report, in combination with other resources, the recharge rates were modified as follows:

- Agricultural recharge was estimated to decrease by 2,250 acre-feet per year between 2010 and 2030[5].

[4] Mason, Dale E. and Bota, Liciniu. 2006. Regional Groundwater Flow Model of the Tucson Active Management Area; Tucson, Arizona: Simulation and Application. Modeling Report No. 13; Arizona Department of Water Resources, Hydrology Division; Phoenix, Arizona.

[5] Hedden, Bob; Metz, Harold; Miller, Tom; Taylor, Ken; Thomson, Frank. 2008. Estimated Water Usage for USC/PUG Geographical Area, Years 2006-2030. Upper Santa Cruz Providers and Users Group. April 7, 2008. See Attachment B.

[6] Erwin, Carol Lynn. 2008. Memorandum: Notice of Public Scoping for Preparation of Environmental Assessment (EA) on the Proposed Community Water Company of Green Valley (CWC) Central Arizona Project (CAP) Water Distribution System and Recharge Facility (Action by September 12, 2008). United State Department of Interior, Bureau of Reclamation, Phoenix Area Office. August 11, 2008. See Attachment C.

- Artificial recharge of wastewater effluent generally increased throughout the model domain. The Robson Ranch/Quail Creek Recharge Facility was assumed to be recharging its full allotment of 2,240 acre-feet per year by the year 2010[7], and recharge from the Sahuarita wastewater treatment facility, which was permitted to recharge up to 896 acre-feet per year at the end of 2007, was assumed to be recharging in 2008[8].

- Future recharge rates for the eight golf courses in the Green Valley area were specified to be constant in time[2].

- Modeled seepage rates from the Sierrita Tailing Impoundment were based on projected mining activity, measurements of tailing properties, and on simulations of tailing drain down after the end of mining operations.

- Recharge of CAP water by the Rosemont Copper Mine was based on the mine's commitment to offset 105 percent of its total pumping volume with recharge of Central Arizona Project (CAP) water[9]. The PUG report estimates that the Rosemont Mine recharge of CAP water be approximately 7,000 acre-feet per year at a new recharge facility.

ADEQ Comment No. 2: *Freeport should include a meeting of the Community Action Group (CAG) in September 2008 or early October 2008 for the purpose of giving the CAG an update and explanation of the necessity for an extension of time to submit the Feasibility Study. As you know, the Mitigation Order requires at least four (4) meeting of the CAG each year. In order to meet that requirement, Freeport should conduct the next meeting in the near future so at least one additional meeting can be held before the end of the calendar year.*

**Sierrita Response:**

On September 22, 2008, ADEQ was notified by electronic mail that the next Community Advisory (not Action) Group meeting will be held on October 7, 2008 from 1:00 to 3:00 pm at the Joyner Green Valley Public Library in Green Valley, Arizona. As requested by ADEQ, Sierrita will update and explain to the CAG the necessity for an extension of time to submit the Feasibility Study.

ADEQ Comment No. 3: *In approving the Aquifer Characterization Report (ACR), ADEQ endorsed Freeport's suggestion to install a nested sentinel well on the southeastern portion of the sulfate plume, west of Community Water Company's Well #10. If that well has not already been installed, ADEQ believes the well should be installed and sampled during this quarter for inclusion in the quarterly groundwater sampling.*

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[7] Arizona Department of Water Resources (ADWR). 2006. Semi-Annual Status Report: Underground Water Storage, Savings, and Replenishment (Recharge) Program. ADWR Water Management Division. December 30, 2006.

[8] ADWR. 2007. Semi-Annual Status Report: Underground Water Storage, Savings, and Replenishment (Recharge) Program. ADWR Water Management Division. December 31, 2007.

[9] Westland Resources, Inc (WRI). 2007. Rosemont Project Electrical Power Supply and Water Supply Supplement. Prepared for Augusta Resource Corporation. July 25, 2007

**Sierrita Response:**

Sierrita has initiated the process of identifying potential locations for the monitoring well and determining property ownership. As soon as a preferred location is identified, Sierrita will initiate access negotiations. Sierrita is also in the process of scheduling and contracting drilling services with the intent of installing the monitoring well during the fourth quarter of 2008. Once the monitoring well is installed, it will be included in the ongoing groundwater monitoring program.

Please do not hesitate to contact Mr. Stuart Brown at (503) 675-5252 or myself at (520) 648-8857 if you have any question regarding this submittal.

Sincerely,

Ned Hall

E. L. (Ned) Hall
Chief Environmental Engineer

ELH:ms
20080929_002

xc: Joan Card, Arizona Department of Environmental Quality
John Broderick, Sierrita
Chad Fretz, Sierrita
Ray Lazuk, Freeport-McMoRan Copper & Gold Inc.
Stuart Brown, Bridgewater Group, Inc.
Jim Norris, Hydro Geo Chem, Inc.

**ATTACHMENT A**

**PUMPING WELLS AND RATES**

## Attachment A
## Pumping Wells and Rates

| Well ID | Water Right Owner | ADWR Registration | UTM East | UTM North | Annual Withdrawal (acre-feet) 2010 | 2020 | 2030 | 2040 | Basis for Estimate |
|---|---|---|---|---|---|---|---|---|---|
| **Agriculture** | | | | | | | | | |
| Farmers Water Company and Farmers Insurance Company[1] | | | | | | | | | |
| C1 | FICO Continental | 624008 | 503353 | 3529320 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| C4 | FICO Continental | 624010 | 501760 | 3525384 | 1472 | 1330 | 1057 | 1057 | PUG report. Allocation based on system water plan and/or historical pumping |
| E10A | FICO Continental | 086931 | 502452 | 3523995 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| E11A | FICO Continental | 624018 | 502092 | 3527822 | 537 | 485 | 386 | 386 | PUG report. Allocation based on system water plan and/or historical pumping |
| E12 | FICO Continental | 624019 | 500635 | 3520347 | 378 | 342 | 272 | 272 | PUG report. Allocation based on system water plan and/or historical pumping |
| E13 | FICO Continental | 624020 | 503122 | 3526403 | 1092 | 987 | 785 | 785 | PUG report. Allocation based on system water plan and/or historical pumping |
| E15 | FICO Continental | 624022 | 500333 | 3518794 | 586 | 530 | 421 | 421 | PUG report. Allocation based on system water plan and/or historical pumping |
| E16 | FICO Continental | 624023 | 503328 | 3525727 | 726 | 656 | 522 | 522 | PUG report. Allocation based on system water plan and/or historical pumping |
| E3A | FWC/FICO Continental | 624011 | 502198 | 3523933 | 936 | 1005 | 874 | 874 | PUG report. Allocation based on system water plan and/or historical pumping |
| E5A | FWC/FICO Continental | 624012 | 502184 | 3524332 | 514 | 626 | 577 | 577 | PUG report. Allocation based on system water plan and/or historical pumping |
| E6 | FICO Continental | 624013 | 502425 | 3525169 | 530 | 479 | 381 | 381 | PUG report. Allocation based on system water plan and/or historical pumping |
| E7 | FICO Continental | 624014 | 503086 | 3525553 | 7 | 7 | 6 | 5 | PUG report. Allocation based on system water plan and/or historical pumping |
| E8 | FICO Continental | 624015 | 502374 | 3525166 | 314 | 284 | 225 | 225 | PUG report. Allocation based on system water plan and/or historical pumping |
| E9 | FICO Continental | 624016 | 500862 | 3521222 | 286 | 259 | 206 | 206 | PUG report. Allocation based on system water plan and/or historical pumping |
| NP2 | FICO Continental | 624028 | 500929 | 3519541 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| W11 | FWC/FICO Continental | 624025 | 499969 | 3520085 | 359 | 487 | 468 | 468 | PUG report. Allocation based on system water plan and/or historical pumping |
| W12 | FICO Continental | 624026 | 500156 | 3521299 | 1001 | 905 | 719 | 719 | PUG report. Allocation based on system water plan and/or historical pumping |
| W9 | FICO Continental | 624024 | 501271 | 3524132 | 956 | 863 | 686 | 686 | PUG report. Allocation based on system water plan and/or historical pumping |
| FICO623990 | FICO Sahuarita | 623990 | 505931 | 3536661 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| S12 | FWC/FICO Sahuarita | 623981 | 505183 | 3535660 | 1137 | 1186 | 1015 | 1015 | PUG report. Allocation based on system water plan and/or historical pumping |
| S19 | FICO Sahuarita | 623982 | 504841 | 3532023 | 1369 | 1237 | 983 | 983 | PUG report. Allocation based on system water plan and/or historical pumping |
| S22 | FICO Sahuarita | 623983 | 503660 | 3531621 | 563 | 509 | 405 | 405 | PUG report. Allocation based on system water plan and/or historical pumping |
| S25 | FICO Sahuarita | 623985 | 503037 | 3533248 | 1261 | 1139 | 906 | 906 | PUG report. Allocation based on system water plan and/or historical pumping |
| S29 | FICO Sahuarita | 623986 | 503806 | 3535671 | 496 | 448 | 357 | 357 | PUG report. Allocation based on system water plan and/or historical pumping |
| S31 | FICO Sahuarita | 623987 | 505995 | 3537476 | 356 | 322 | 256 | 256 | PUG report. Allocation based on system water plan and/or historical pumping |
| S33 | FICO Sahuarita | 623988 | 503859 | 3532226 | 585 | 529 | 420 | 420 | PUG report. Allocation based on system water plan and/or historical pumping |
| S40 | FICO Sahuarita | 623991 | 505004 | 3534851 | 1318 | 1191 | 947 | 947 | PUG report. Allocation based on system water plan and/or historical pumping |
| S43 | FICO Sahuarita | 623993 | 503813 | 3537068 | 852 | 770 | 612 | 612 | PUG report. Allocation based on system water plan and/or historical pumping |
| S44 | FICO Sahuarita | 623994 | 503859 | 3530811 | 1593 | 1439 | 1144 | 1144 | PUG report. Allocation based on system water plan and/or historical pumping |
| S45 | FICO Sahuarita | 623995 | 504834 | 3532831 | 1769 | 1598 | 1271 | 1271 | PUG report. Allocation based on system water plan and/or historical pumping |
| S46 | FICO Sahuarita | 623996 | 502647 | 3532239 | 1047 | 946 | 752 | 752 | PUG report. Allocation based on system water plan and/or historical pumping |
| S48 | FICO Sahuarita | 623997 | 504987 | 3537067 | 688 | 622 | 494 | 494 | PUG report. Allocation based on system water plan and/or historical pumping |
| S49 | FICO Sahuarita | 623998 | 504793 | 3538083 | 477 | 431 | 343 | 343 | PUG report. Allocation based on system water plan and/or historical pumping |
| S50 | FICO Sahuarita | 623999 | 504991 | 3538695 | 38 | 35 | 28 | 28 | PUG report. Allocation based on system water plan and/or historical pumping |
| S51 | FICO Sahuarita | 624000 | 503017 | 3535471 | 1268 | 1146 | 911 | 911 | PUG report. Allocation based on system water plan and/or historical pumping |
| S52 | FWC/FICO Sahuarita | 624001 | 504790 | 3535663 | 540 | 649 | 595 | 595 | PUG report. Allocation based on system water plan and/or historical pumping |
| S52A | FWC/FICO Sahuarita | 534992 | 504806 | 3534853 | 107 | 259 | 289 | 289 | PUG report. Allocation based on system water plan and/or historical pumping |
| S53 | FICO Sahuarita | 624002 | 503453 | 3532635 | 1650 | 1491 | 1185 | 1185 | PUG report. Allocation based on system water plan and/or historical pumping |
| S54 | FICO Sahuarita | 624003 | 503069 | 3531047 | 1321 | 1194 | 949 | 949 | PUG report. Allocation based on system water plan and/or historical pumping |
| S55 | FICO Sahuarita | 624004 | 502062 | 3531858 | 1904 | 1721 | 1368 | 1368 | PUG report. Allocation based on system water plan and/or historical pumping |
| S56 | FICO Sahuarita | 624005 | 505213 | 3534443 | 455 | 411 | 327 | 327 | PUG report. Allocation based on system water plan and/or historical pumping |
| 201058 | Farmers Water Co | 201058 | 506980 | 3532009 | 10 | 10 | 10 | 10 | PUG report. Allocation based on system water plan and/or historical pumping |
| FICO543409 | FICO | 543409 | 500252 | 3521313 | 520 | 470 | 374 | 374 | PUG report. Allocation based on system water plan and/or historical pumping |
| FICO624008 | FICO | 624008 | 500844 | 3522312 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| FICO624017 | FICO | 624017 | 502434 | 3523937 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| FICO624042 | FICO | 624042 | 502790 | 3531624 | 0 | 0 | 0 | 0 | PUG report. Allocation based on system water plan and/or historical pumping |
| | | | | **Model Total** | **31,021** | **28,999** | **23,523** | **23,522** | |
| | | | | **PUG Total** | **31,020** | **28,995** | **23,510** | **--** | |
| **Municipal Water Providers** | | | | | | | | | |
| Community Water Company | | | | | | | | | |
| CW3 | Community Water Company | 627483 | 500048 | 3523810 | 0 | 0 | 0 | 0 | Rates and allocation estimates provided by Community Water Company |
| CW5 | Community Water Company | 627484 | 501234 | 3522497 | 0 | 0 | 0 | 0 | Rates and allocation estimates provided by Community Water Company |
| CW6 | Community Water Company | 627485 | 500891 | 3525794 | 0 | 0 | 0 | 0 | Rates and allocation estimates provided by Community Water Company |
| CW7 | Community Water Company | 502546 | 499660 | 3528094 | 0 | 0 | 0 | 0 | Rates and allocation estimates provided by Community Water Company |
| CW8 | Community Water Company | 543600 | 499799 | 3525661 | 0 | 0 | 0 | 0 | Rates and allocation estimates provided by Community Water Company |
| CW9 | Community Water Company | 588121 | 501072 | 3528741 | 0 | 0 | 0 | 0 | Rates and allocation estimates provided by Community Water Company |
| CW10 | Community Water Company | 207982 | 500975 | 3523255 | 1349 | 1540 | 1724 | 1724 | Rates and allocation estimates provided by Community Water Company |

## Attachment A
## Pumping Wells and Rates

| Well ID | Water Right Owner | ADWR Registration | UTM East | UTM North | Annual Withdrawal (acre-feet) 2010 | 2020 | 2030 | 2040 | Basis for Estimate |
|---|---|---|---|---|---|---|---|---|---|
| CW11 | Community Water Company | 608518 | 502442 | 3530984 | 1349 | 1540 | 1724 | 1724 | Rates and allocation estimates provided by Community Water Company |
| CW6r | Community Water Company | future | 501123 | 3526046 | 781 | 876 | 981 | 981 | Rates and allocation estimates provided by Community Water Company |
| CW9r | Community Water Company | future | 501233 | 3528673 | 781 | 876 | 981 | 981 | Rates and allocation estimates provided by Community Water Company |
| CW12 | Community Water Company | future | 500249 | 3523080 | 0 | 697 | 781 | 781 | Rates and allocation estimates provided by Community Water Company |
| | | | | **Model Total** | **4,259** | **5,529** | **6,191** | **6,191** | |
| | | | | **PUG Total** | **3,200** | **3,500** | **3,900** | **--** | |
| Green Valley Water Improvement District | | | | | | | | | |
| GV1 | Green Valley Water | 603428 | 499813 | 3522254 | 1455 | 1548 | 1597 | 1597 | PUG report (including water supplied to golf courses[2]). Allocation based on system water plan. |
| GV2 | Green Valley Water | 603429 | 499786 | 3521654 | 1660 | 1767 | 1823 | 1823 | PUG report (including water supplied to golf courses[2]). Allocation based on system water plan. |
| | | | | **Model Total** | **3,115** | **3,315** | **3,420** | **3,420** | |
| | | | | **PUG Total** | **3,115** | **3,315** | **3,420** | **--** | |
| Las Quintas Serenas | | | | | | | | | |
| ST5 | Las Quintas Serenas | 608531 | 500619 | 3531941 | 90 | 102 | 102 | 102 | PUG report. Allocation based on system water plan. |
| ST6 | Las Quintas Serenas | 608530 | 501248 | 3531353 | 203 | 228 | 228 | 228 | PUG report. Allocation based on system water plan. |
| ST7 | Las Quintas Serenas | 566940 | 500778 | 3531036 | 316 | 355 | 355 | 355 | PUG report. Allocation based on system water plan. |
| | | | | **Model Total** | **610** | **685** | **685** | **685** | |
| | | | | **PUG Total** | **610** | **685** | **685** | **--** | |
| Quail Creek Water Company[2] | | | | | | | | | |
| AN-2(RRQC2) | Quail Creek Water Company | 608519 | 503457 | 3529250 | 0 | 0 | 0 | 0 | PUG report. Allocation of rates based on historic rates and system water plan. |
| AN-4(RRQC1) | Quail Creek Water Company | 608521 | 503457 | 3527990 | 460 | 460 | 460 | 460 | PUG report. Allocation of rates based on historic rates and system water plan. |
| QCWC_No11 | Quail Creek Water Company | 608597 | 505964 | 3526918 | 0 | 0 | 0 | 0 | PUG report. Allocation of rates based on historic rates and system water plan. |
| QCWC_No13 | Quail Creek Water Company | 608522 | 504788 | 3528380 | 510 | 746 | 1046 | 1046 | PUG report. Allocation of rates based on historic rates and system water plan. |
| QCWC_No16 | Quail Creek Water Company | 608598 | 506962 | 3526858 | 0 | 4 | 4 | 4 | PUG report. Allocation of rates based on historic rates and system water plan. |
| | | | | **Model Total** | **970** | **1,210** | **1,510** | **1,510** | |
| | | | | **PUG Total** | **970** | **1,210** | **1,510** | **--** | |
| Sahuarita Water Company[3,4] | | | | | | | | | |
| SWC_1 | Sahuarita Water Company | 611144 | 502752 | 3537471 | 2210 | 2583 | 2583 | 2583 | PUG report. Allocation of rates based on historic rates and estimates provided by Sahuarita Water Company. Locations of future wells uncertain |
| SWC_2 | Sahuarita Water Company | 562962 | 501558 | 3535872 | 0 | 0 | 0 | 0 | PUG report. Allocation of rates based on historic rates and estimates provided by Sahuarita Water Company. Locations of future wells uncertain |
| SWC_3 | Sahuarita Water Company | future | 501134 | 3537343 | 50 | 1614 | 1614 | 1614 | PUG report. Allocation of rates based on historic rates and estimates provided by Sahuarita Water Company. Locations of future wells uncertain |
| SWC_4 | Sahuarita Water Company | future | 501983 | 3534401 | 0 | 1144 | 1571 | 1571 | PUG report. Allocation of rates based on historic rates and estimates provided by Sahuarita Water Company. Locations of future wells uncertain |
| SWC_5 | Sahuarita Water Company | future | 501134 | 3534401 | 0 | 1144 | 1571 | 1571 | PUG report. Allocation of rates based on historic rates and estimates provided by Sahuarita Water Company. Locations of future wells uncertain |
| SWC_5 | Sahuarita Water Company | future | 501558 | 3537343 | 0 | 0 | 1571 | 1571 | PUG report. Allocation of rates based on historic rates and estimates provided by Sahuarita Water Company. Locations of future wells uncertain |
| | | | | **Model Total** | **2,260** | **6,485** | **8,910** | **8,910** | |
| | | | | **PUG Total** | **2,260** | **6,485** | **8,910** | **--** | |
| **Metal Mining** | | | | | | | | | |
| Freeport McMoRan Sierrita | | | | | | | | | |
| IW1 | Freeport McMoRan Sierrita | 623129 | 496905.893 | 3521277.779 | 558 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW10 | Freeport McMoRan Sierrita | 508237 | 497370.367 | 3523122.199 | 491 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW11 | Freeport McMoRan Sierrita | 508235 | 497371.414 | 3523428.954 | 537 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW12 | Freeport McMoRan Sierrita | 545555 | 497364.911 | 3523969.869 | 242 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW13 | Freeport McMoRan Sierrita | 545556 | 497363.82 | 3524166.673 | 0 | 0 | 0 | 0 | No anticipated use |
| IW14 | Freeport McMoRan Sierrita | 545557 | 497367.126 | 3524373.123 | 144 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW15 | Freeport McMoRan Sierrita | 545558 | 497372.873 | 3524567.261 | 70 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW16 | Freeport McMoRan Sierrita | 545559 | 497370.651 | 3524782.868 | 0 | 0 | 0 | 0 | No anticipated use |
| IW17 | Freeport McMoRan Sierrita | 545560 | 497373.717 | 3525002.869 | 0 | 0 | 0 | 0 | No anticipated use |
| IW18 | Freeport McMoRan Sierrita | 545561 | 497374.056 | 3525169.771 | 0 | 0 | 0 | 0 | No anticipated use |
| IW19 | Freeport McMoRan Sierrita | 545562 | 497373.63 | 3525343.392 | 271 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW2 | Freeport McMoRan Sierrita | 623130 | 497485.462 | 3521360.552 | 861 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW20 | Freeport McMoRan Sierrita | 545563 | 497364.739 | 3525568.77 | 225 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW21 | Freeport McMoRan Sierrita | 545564 | 497374.585 | 3525773.267 | 255 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW22 | Freeport McMoRan Sierrita | 200554 | 497369.59 | 3523273.592 | 644 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW23 | Freeport McMoRan Sierrita | 200555 | 497369.238 | 3522970.788 | 327 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW24 | Freeport McMoRan Sierrita | 200556 | 497371.67 | 3522633.594 | 397 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW3 | Freeport McMoRan Sierrita | 623131 | 497366.194 | 3521722.609 | 0 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW3A | Freeport McMoRan Sierrita | 201732 | 497366.22 | 3521722.64 | 923 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |

## Attachment A
## Pumping Wells and Rates

| Well ID | Water Right Owner | ADWR Registration | UTM East | UTM North | Annual Withdrawal (acre-feet) 2010 | 2020 | 2030 | 2040 | Basis for Estimate |
|---|---|---|---|---|---|---|---|---|---|
| IW4 | Freeport McMoRan Sierrita | 623132 | 497371.699 | 3522465.879 | 371 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW5 | Freeport McMoRan Sierrita | 623133 | 497369.528 | 3522814.85 | 186 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW6A | Freeport McMoRan Sierrita | 545565 | 497381.226 | 3523708.756 | 206 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW7 | Freeport McMoRan Sierrita | 623135 | 496427.52 | 3521306.55 | 0 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW8 | Freeport McMoRan Sierrita | 508238 | 497368.253 | 3522020.52 | 729 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| IW9 | Freeport McMoRan Sierrita | 508236 | 497369.791 | 3522207.639 | 409 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| S1 | Freeport McMoRan Sierrita | 623111 | 499930.800 | 3518792.700 | 2335 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| S2 | Freeport McMoRan Sierrita | 623112 | 499133.300 | 3517458.800 | 2169 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| S3 | Freeport McMoRan Sierrita | 623113 | 498136.200 | 3516036.900 | 2779 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| S4 | Freeport McMoRan Sierrita | 623114 | 497344.100 | 3514807.400 | 3623 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| S5 | Freeport McMoRan Sierrita | 623115 | 496560.800 | 3513400.500 | 4416 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| S6 | Freeport McMoRan Sierrita | 623116 | 496371.300 | 3511991.700 | 4005 | TBD | TBD | TBD | Pumping for 2010 is average of 2006-2007 pumping. Pumping for others years to be determined in Feasibility Study |
| ESP1 | Freeport McMoRan Sierrita | 623102 | 499969.682 | 3526448.677 | 0 | 0 | 0 | 0 | No anticipated use |
| ESP2 | Freeport McMoRan Sierrita | 623103 | 500241.637 | 3526924.656 | 0 | 0 | 0 | 0 | No anticipated use |
| ESP3 | Freeport McMoRan Sierrita | 623104 | 500234.067 | 3527377.239 | 0 | 0 | 0 | 0 | No anticipated use |
| ESP4 | Freeport McMoRan Sierrita | 623105 | 499916.831 | 3526132.758 | 0 | 0 | 0 | 0 | No anticipated use |
| | | | | **Model Total** | **27,173** | **TBD** | **TBD** | **TBD** | |
| | | | | **PUG Total** | **29,800** | **26,800** | **20,800** | **--** | |
| Rosemont Mine | | | | | | | | | |
| Rosemont1 | Augusta Resources | 214277 | 508428 | 3533489 | 0 | 1500 | 1500 | 1500 | PUG report |
| Rosemont2 | Augusta Resources | future | 507818 | 3533390 | 0 | 1500 | 1500 | 1500 | PUG report |
| Rosemont3 | Augusta Resources | future | 507818 | 3533590 | 0 | 1500 | 1500 | 1500 | PUG report |
| Rosemont4 | Augusta Resources | future | 508123 | 3533490 | 0 | 1500 | 1500 | 1500 | PUG report |
| | | | | **Model Total** | **0** | **6,000** | **6,000** | **6,000** | |
| | | | | **PUG Total** | **0** | **6,000** | **6,000** | **--** | |
| **Golf Courses**[4] | | | | | | | | | |
| Haven | Haven Golf | 515867 | 501609 | 3526344 | 765 | 765 | 765 | 765 | PUG report |
| TorresBlancas | Torres Blancas Golf | 543409 | 502409 | 3521313 | 560 | 560 | 560 | 560 | PUG report |
| CCofGV | Country Club of Green Valley | 501760 | 501635 | 3527876 | 700 | 700 | 700 | 700 | PUG report |
| | | | | **Model Total** | **2,025** | **2,025** | **2,025** | **2,025** | |
| | | | | **PUG Total** | **2,025** | **2,025** | **2,025** | **--** | |
| **Other Users** | | | | | | | | | |
| TwinButtes | Twin Butters Properties | future | 500455 | 3530824 | 150 | 500 | 1500 | 1500 | PUG report |
| StateLand | future developer | future | 506015 | 3533579 | 0 | 500 | 1325 | 1325 | PUG report |
| | | | | **Model Total** | **150** | **1,000** | **2,825** | **2,825** | |
| | | | | **PUG Total** | **150** | **1,000** | **2,825** | **--** | |
| ContSD39 | Continental School District 39 | 601769 | 504049 | 3522942 | 4 | 4 | 4 | 4 | Average pumping rate |
| Cox | Cox, W | 604432 | 508795 | 3534015 | 3 | 3 | 3 | 3 | Average pumping rate |
| Grant | Grant, M | 801401 | 496059 | 3518416 | 2 | 2 | 2 | 2 | Average pumping rate |
| GVINV_625711 | Green Valley Investors | 625711 | 501568 | 3526181 | 370 | 370 | 370 | 370 | Average rate from 1990 -2007 |
| GVINV_625712 | Green Valley Investors | 625712 | 501600 | 3526400 | 301 | 301 | 301 | 301 | Average rate from 1990 -2007 |
| Lamb | Lamb, V | 628534 | 505340 | 3535044 | 4 | 4 | 4 | 4 | 10-yr average rate |
| LosArboles | Los Arboles MHP | 524178 | 502573 | 3533448 | 53 | 53 | 53 | 53 | 10-yr average rate |
| OcotilloCommunity | Ocotillo Community | 801309 | 498963 | 3511412 | 17 | 17 | 17 | 17 | Pumping rate for 2001 |
| Olivas | Olivas, Eugene | 801154 | 503396 | 3531213 | 1 | 1 | 1 | 1 | Average pumping rate |
| | | | | **Model Total** | **755** | **755** | **755** | **755** | |
| | | | | **PUG Total** | **--** | **--** | **--** | **--** | |

*Notes:*

[1] *Includes groundwater withdrawal for both municipal and agricultural uses by Farmers Insurance Company and Farmers Water Company*

[2] *Withdrawals for Desert Hills, Canoa Hills, San Ingacio golf courses included in pumping from Green Valley Water Improvement District Wells Withdrawals for Quail Creek Golf Course included in pumping from Robson Ranch/Quail Creek wells*

[3] *Listed as Rancho Sahuarita Water Company in PUG report*

[4] *Withdrawals for the proposed Mission Peaks development including in pumping from Rancho Sahuarita wells*

**ATTACHMENT B**

**ESTIMATED WATER USAGE FOR UPPER SANTA CRUZ PROVIDERS AND USERS GROUP**

# ESTIMATED WATER USAGE

FOR

# USC/PUG GEOGRAPHICAL AREA

## YEARS: 2006 - 2030

Prepared By:

Bob Hedden
Harold Metz
Tom Miller
Ken Taylor
Frank Thomson

April 7, 2008

The Upper Santa Cruz Providers and Users Group (USC/PUG or PUG) was formed in November, 2007 to discuss the long-term future of the aquifer serving the southern part of the Tucson AMA as shown in Attachments #1A & #1B. PUG members who are representatives from the major water users and water providers located within the indicated area became concerned about the long term water supply sustainability based on both current and future groundwater pumping rates. After the initial meeting, the PUG members developed the following goal for the organization:

> " USC/PUG desires to bring Central Arizona Project (CAP) water and other renewable water resources to the greater Green Valley/Sahuarita region to meet the long-term Demands on the local aquifer supporting growth, lifestyle, and the environment"

It was determined by the PUG members that in order to assess and evaluate the status of water usage within the PUG area, data needed to be collected for both current and future demands on the aquifer. A "Data and Fact Finding" sub-committee was formed to develop a "base" of data the PUG could use to formulate and implement an operational plan to attain the group's stated goal.

The Fact Finding sub-committee determined a significant amount of data/information was already available from the following sources:

A. Malcolm Pirnie Engineering Report dated October, 1997
B. Pima County "Long-term Green Valley Water Supply" report dated October, 2007
C. Arizona Department of Water Resources

After reviewing the information from the above sources, the Fact Finding Committee determined up-dating the Annual Water Usage as outlined in the Malcolm Pirnie report would provide the best base from which to estimate future water requirements. Actual water usage by major water user and major water provider was collected from the Arizona Department of Water Resources (ADWR) data bank for the years 2000 – 2006 (Attachment #2). Since it had been determined residential and commercial growth was

going to have the impact on future water usage, the actual number of residential hook-ups and commercial water usage in 2006 was developed from ADWR data and than verified by the individual water provider. Picking 2006 as the base year, the Fact Finding Committee developed a summary by major water user and water provider depicting an estimate of the net aquifer impact (over-draft) for that year. (Attachment #3) Where the Fact Finding Committee deviated from Malcolm Pirnie Report and the Pima County Report was the recognition of water recovery using the Tucson AMA and ADWR criteria. Waste water recovery and natural recovery (run-off and recharge) rates used by ADWR and Tucson AMA were included to calculate the "net impact" on the aquifer.

From the 2006 base year, estimates of water usage and recovery by major water users and water providers was developed for the years 2010, 2020, and 2030. Since the mines and golf courses were not expecting any growth during these periods, 2006 usage was used for the three periods indicated. Growth was expected primarily in residential construction both within existing locations plus potentially new areas of development (State Trust Land) within the PUG geographical area. Residential growth estimates were developed in conjunction with the major water provider and/or developer. (Attachments #4 & #5)

The Fact Finding Committee also developed data pertaining to the possible availability of CAP water at the Pima Mine Road Recharge Facility for recharge in the PUG geographical area. (Attachment #6)

From the data collected and estimates developed for future water usage, the Fact Finding Committee has developed a list of "Findings" and "Recommendations" we are including in this report for PUG consideration and action.

FINDINGS:

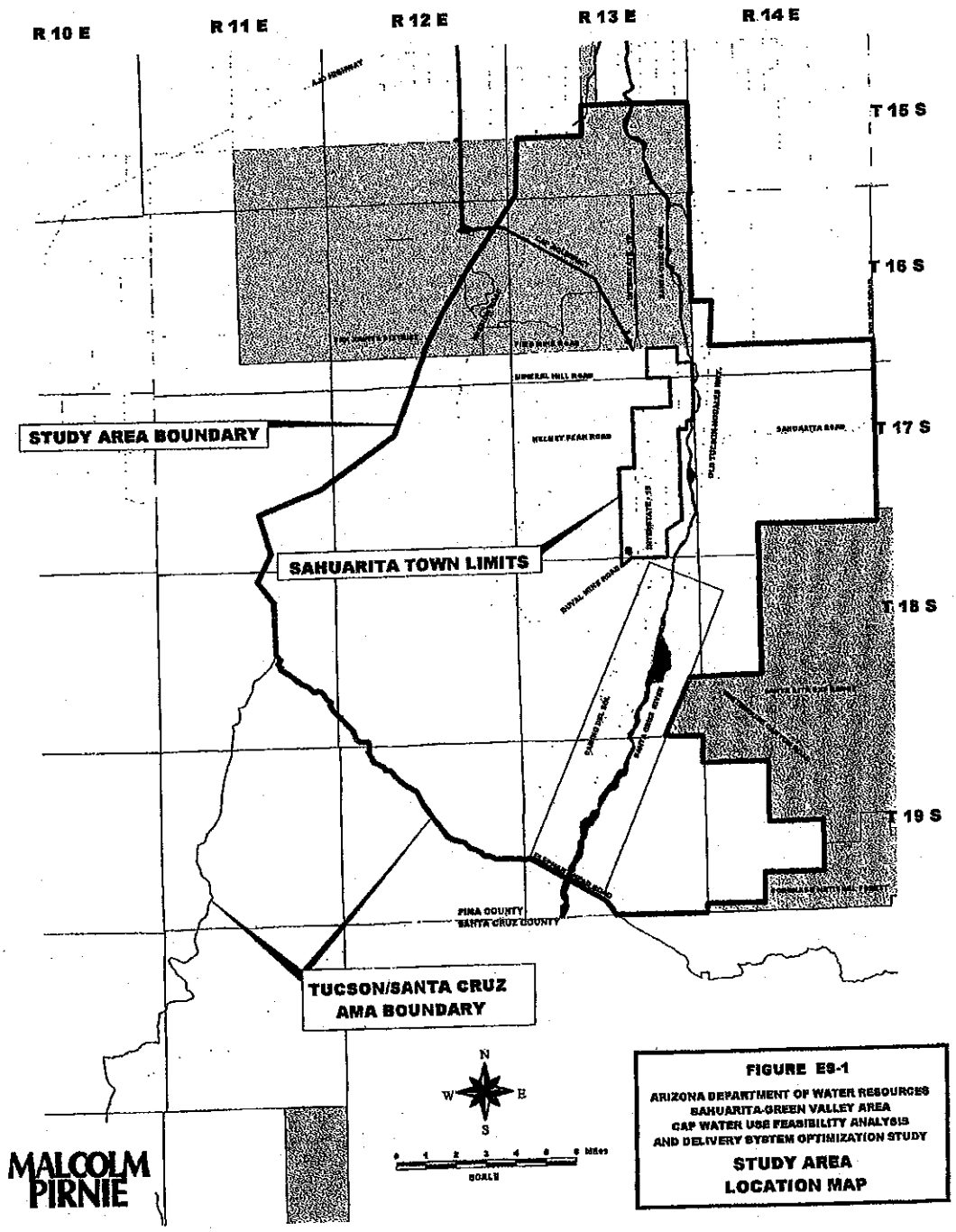
1. Water usage pertaining to the mines and golf courses was kept constant from 2006 – 2030 since neither entity expected any growth or significant water usage reduction during that period.
2. The number of residential hook-ups in 2006 (24635 units) double by 2020 (50130 units) and increase an additional 40% by 2030 to 70230 units
3. Net residential water usage grows from 3100 af in 2006 to 9000 af by 2030.
4. The Annual aquifer overdraft of 39100 af in 2006 continues to be reduced to an estimated 32255 af in 2030.
5. CAGRD recharge commitments within PUG geographical area increase from 1875 af in 2006 to 15100 af in 2030.
6. Possible available (non-committed) CAP water at the Pima Mine Road Recharge Facility equals about 30000 af.
7. The proposed pipeline routes in the Malcolm Pirnie Report are still valid. The evaluation/rationale for suggesting the route along The Old Nogales Highway as the best and lowest cost route is also valid.

RECOMMENDATIONS:

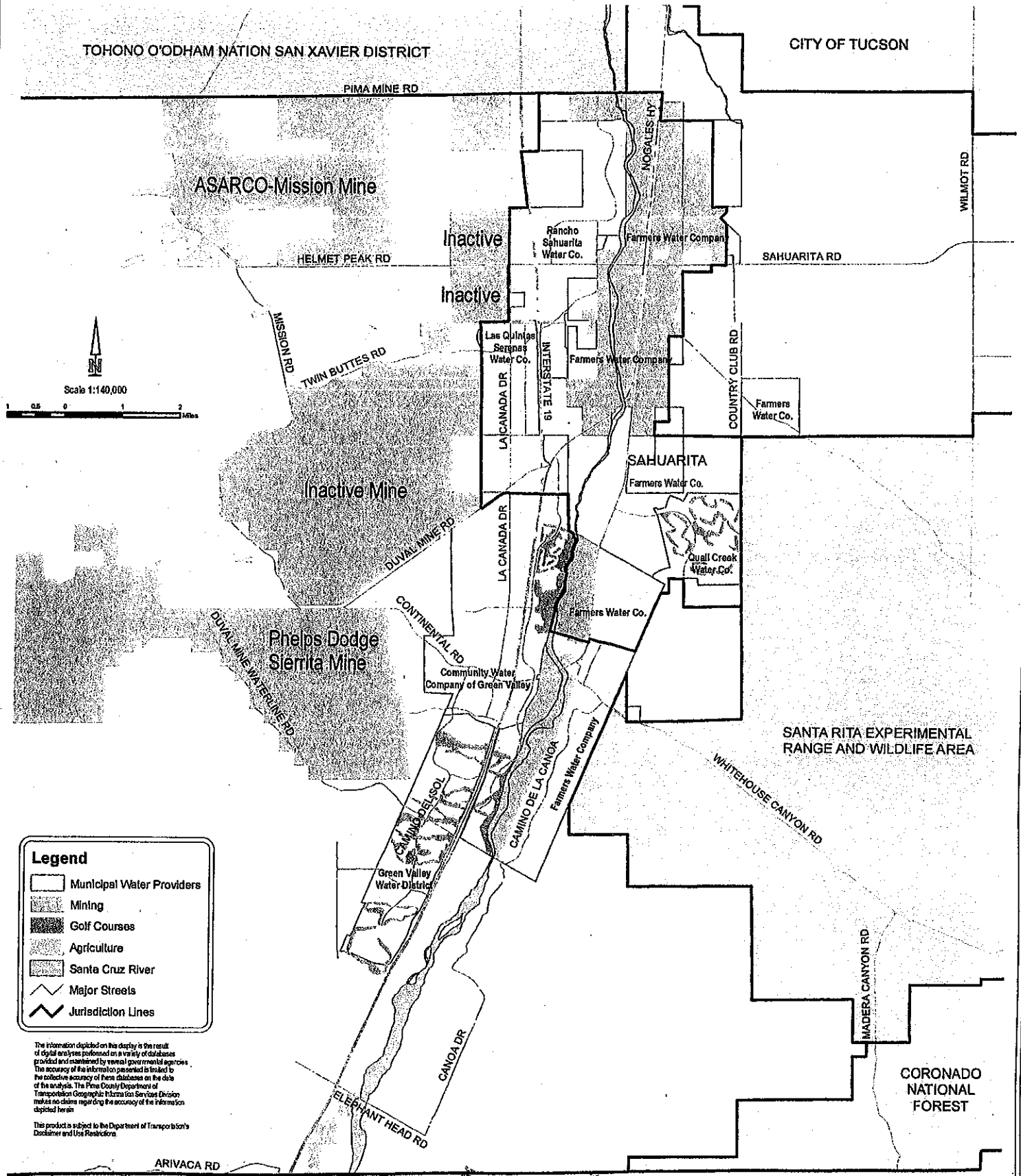
1. The Fact Finding Committee estimated Water Usage and Recovery Report from 2006 – 2030 should be accepted by the PUG Core Group.
2. PUG should proceed with the evaluation of installing a 36" pipeline from the Pima Mine Road Recharge Facility to the Green Valley/Sahuarita area.
3. Evaluate and design possible recharge locations including associated delivery systems within the PUG geographical area. This would include a hydrological impact evaluation on the aquifer. We are recommending having several recharge locations.
4. Evaluate the quality of the CAP water including possible treatment options required for use in either residential or non-residential instances.

5. Have Pima County conduct a study to increase the recovery of both natural and designed surface water run-off including identifying possible locations and methodology for this type of recovery.
6. Meet with CAGRD to establish parameters and guidelines for recharging their commitments within the PUG geographical area.
7. Meet with both Pima County Waste Water Reclamation and Sahuarita Waste Water Treatment personnel to discuss current effluent discharge parameters and long range plans for increased effluent discharge associated with residential expansion.

ATTACHMENT #1-A



ATTACHMENT #1-B




The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the collective accuracy of these databases on the date of the analysis. The Pima County Department of Transportation Geographic Information Services Division makes no claims regarding the accuracy of the information depicted herein.

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# Green Valley Area - Major Water Users - Figure 2

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9/25/2007

ATTACHMENT #2

**Sahuarita/Green Valley Water Use for 2006**

| | | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Percentage in 06 |
|---|---|---|---|---|---|---|---|---|---|
| **Ag Sector** | | | | | | | | | |
| FICO | | 28,145 | 27,174 | 25,624 | 28,431 | 31,166 | 29,394 | 29,800 | |
| | **Ag Total** | **28,145** | **27,174** | **25,624** | **28,431** | **31,166** | **29,394** | **29,800** | **39%** |
| **Muni** | | | | | | | | | |
| Farmer's Water Company | | 538 | 555 | 668 | 662 | 740 | 669 | 859 | |
| Green Valley DWID (excluding golf, see below) | | 874 | 891 | 1,003 | 1,033 | 1,139 | 1,121 | 1075 ~~1,000~~ | |
| Community WC | | 2,448 | 2,275 | 2,495 | 2,525 | 2,572 | 2,854 | 2,871 | |
| Rancho Sahuarita | | 16 | 139 | 259 | 433 | 497 | 840 | 984 | |
| Las Quintas WC | | 442 | 433 | 496 | 484 | 482 | 508 | 588 | |
| Quail Creek WC | | 95 | 83 | 136 | 216 | 238 | 354 | 413 | |
| | **Muni Total** | **4,413** | **4,376** | **5,057** | **5,353** | **5,668** | **6,346** | 6790 ~~7345~~ | **10%** |
| **Metal Mining** | | | | | | | | | |
| Phelps Dodge (Sierrita) | | 26,156 | 24,247 | 18,229 | 19,256 | 26,483 | 28,492 | 26,690 | |
| ASARCO (Mission) | | 12,498 | 8,899 | 6,750 | 4,627 | 5,877 | 5,056 | 7,893 | |
| | **Mining Total** | **38,654** | **33,146** | **24,979** | **23,883** | **32,360** | **33,548** | **34,583** | **45%** |
| **Golf** | | | | | | | | | |
| Quail Creek GC | | 447 | 425 | 429 | 530 | 508 | 499 | 460 | |
| Country Club of Green Valley | | 615 | 609 | 711 | 657 | 652 | 710 | 701 | |
| Haven GC | | 712 | 640 | 684 | 665 | 606 | 639 | 765 | |
| Desert Hills GC* | | 479 | 449 | 496 | 460 | 474 | 497 | 485 | |
| Torres Blancas GC | | 494 | 453 | 451 | 405 | 391 | 533 | 561 | |
| Canoa Hills GC* | | 436 | 485 | 501 | 509 | 537 | 511 | 446 | |
| San Ignacio GC* | | 436 | 454 | 508 | 495 | 496 | 533 | 452 | |
| Canoa Ranch GC* | | 0 | 0 | 244 | 552 | 528 | 565 | 504 | |
| | **Golf Total** | **3,619** | **3,515** | **4,024** | **4,273** | **4,192** | **4,487** | **4,374** | **6%** |
| **Sand and Gravel** | | | | | | | | | |
| Cemex (Pima Mine) | | 404 | 530 | 121 | 116 | 327 | 184 | 177 | |
| Rinker (Green Valley) | | 0 | 123 | 135 | 204 | 303 | 163 | 288 | |
| | **S&G Total** | **404** | **653** | **256** | **320** | **630** | **347** | **465** | **1%** |
| | **TOTAL** | **75,234** | **68,864** | **59,940** | **62,260** | **74,016** | **74,122** | 76012 ~~76,537~~ | **100%** |

Note, golf courses served by Green Valley DWID have an (*) next to them, Canoa Ranch is served through annual recovery of CAP.

Note, rounding of sector percentages causes total percentage to exceed 100%.

ATTACHMENT # 3

| PUG BASE WATER USAGE & RECOVERY | | | |
|---|---|---|---|
| | 2006 | | |
| | | | |
| | | | |
| PROVIDERS/USERS | 2006 USAGE | RECOVERY | RECV. BASIS |
| | | | |
| FICO | 29800 af | 7450 af | 25% |
| | | | |
| FREEPORT/McMoRan | 26700 af * | 5340 af | 20% |
| ASARCO | 7900 af | 1580 af | 20% |
| | | | |
| WATER PROVIDERS | | | |
| Farmers Water Co. | 915 af | 550 af | |
| Green Valley DWID | 1075 af | 645 af | |
| Community Water Co. | 3100 af | 1860 af | |
| Sahuarita Water Co. | 1150 af | 690 af | |
| Las Quintas Water Co. | 590 af | 355 af | |
| Quail Creek Water Co. | 415 af | 250 af | |
| **Total Water Providers** | 7245 af | 4350 af | 60% |
| | | | |
| GOLF COURSES | | | |
| Quail Creek GC | 460 af | 90 af | |
| Country Club of Green Valley | 700 af | 140 af | |
| Haven GC | 765 af | 155 af | |
| Deaert Hills GC | 485 af | 95 af | |
| Torres Blancas GC | 560 af | 115 af | |
| Canoa Hills GC | 445 af | 90 af | |
| San Ignacio GC | 455 af | 90 af | |
| Canoa Ranch GC | 505 af | 100 af | |
| **Total Golf Courses** | 4375 af | 875 af | 20% |
| | | | |
| SAND/GRAVEL | 475 af | | |
| | | | |
| Individual Homeowner Wells | 330 af | 200 af | 60% |
| | | | |
| OTHER RECOVERY | | | |
| CAP - Canoa Ranch GC | | 505 af | Total |
| Natural Recharge/Recovery | | 17500 af | ADWR |
| | | | |
| SUB - TOTAL | 76825 af | 37725 af | |
| | | | |
| SHORTFALL | | 39100 af | |
| | | | |
| TOTAL | 76825 af | 76825 af | |

ATTACHMENT #4

PUG ESTIMATED WATER USAGE & REVOVERY ( 2006 - 2030)

| | 2006 BASE YEAR | | 2010 ESTIMATE | | 2020 ESTIMATE | | 2030 ESTIMATE | |
|---|---|---|---|---|---|---|---|---|
| MAJOR USERS & PROVIDERS | USAGE | RECOVERY | USAGE | RECOVERY | USAGE | RECOVERY | USAGE | RECOVERY |
| FICO | 29800 af | 7450 af | 29800 af | 7450 af | 26800 af | 6700 af | 20800 af | 5200 af |
| FREEPORT/McMoRan | 26700 af | 5340 af | 28000 af | 5600 af | 28000 af | 5600 af | 28000 af | 5600 af |
| ASARCO | 7900 af | 1580 af | 8000 af | | 8000 af | | 8000 af | |
| WATER PROVIDERS | | | | | | | | |
| Farmers Water Co. | 915 af | 515 af | 1220 af | 730 af | 2195 af | 1315 af | 2710 af | 1625 af |
| Green Valley DWID | 1075 af | 620 af | 1225 af | 705 af | 1425 af | 830 af | 1530 af | 890 af |
| Community Water Co. | 3100 af | 1800 af | 3200 af | 1860 af | 3500 af | 2030 af | 3900 af | 2260 af |
| Sahaurita Water Co. | 1150 af | 740 af | 2210 af | 1325 af | 4160 af | 2500 af | 4220 af | 2535 af |
| Las Quintos Water Co. | 590 af | 355 af | 610 af | 365 af | 685 af | 410 af | 685 af | 410 af |
| Quail Creek Water Co. | 415 af | 250 af | 510 af | 265 af | 750 af | 400 af | 1050 af | 630 af |
| GOLF COURSES | 4375 af | 875 af | 4375 af | 875 af | 4375 af | 875 af | 4375 af | 875 af |
| SAND and GRAVEL | 475 af | | 550 af | | 750 af | | 750 af | |
| INDIVIDUAL HOMEOWNER WELL | 330 af | 200 af | 365 af | 220 af | 500 af | 300 af | 660 af | 400 af |
| POTENTIAL MAJOR USERS | | | | | | | | |
| Mission Peaks Dev. | | | 50 af | | 2325 af | 1425 af | 4690 af | 2815 af |
| Twin Buttes Properties | | | 150 af | | 500 af | 300 af | 1500 af | 900 af |
| State Trust Land Use | | | | | 500 af | 300 af | 1325 af | 800 af |
| Rosemont Mine | | | | | 6000 af | | 6000 af | |
| OTHER RECOVERY | | | | | | | | |
| Natural Recharge/Recovery | | 17500 af | | 17500 af | | 17500 af | | 17500 af |
| CAP: | | | | | | | | |
| ASARCO | | | | 8000 af | | 8000 af | | 8000 af |
| Canoa Ranch GC | | 500 af | | 500 af | | 500 af | | 500 af |
| Rosemont Mine | | | | | | 7000 af | | 7000 af |
| CAGRD | | | | | | | | |
| TOTALS | 76825 af | 37725 af | 80265 af | 45395 af | 90465 af | 55465 af | 90195 af | 57940 af |
| AQUIFER OVER-DRAFT | 39100 af | | 34870 af | | 34480 af | | 32255 af | |

ATTACHMENT #5

| | | | | |
|---|---|---|---|---|
| | **ESTIMATED RESIDENTIAL HOOK-UPS** | | | |
| | | **2006 - 2030** | | |
| WATER PROVIDERS/MAJOR USERS | 2006 | 2010 | 2020 | 2030 |
| FARMERS WATER CO. | 1870 | 2500 | 4500 | 8500 |
| GREEN VALLEY WATER DISTRICT | 4195 | 4500 | 5300 | 5700 |
| COMMUNITY WATER CO. | 11485 | 11900 | 13000 | 14500 |
| SAHAURITA WATER CO. | 3625 | 5885 | 11465 | 11665 |
| LAS QUINTAS WATER CO. | 1125 | 1175 | 1365 | 1365 |
| QUAIL CREEK WATER CO. | 1335 | 1850 | 2800 | 3800 |
| MISSION PEAKS DEVEL. | | 150 | 7200 | 14200 |
| TWIN BUTTES PROPERTIES | | | 1500 | 4500 |
| INDIVIDUAL RESIDENTIAL HOOK-UPS | 1000 | 1100 | 1500 | 2000 |
| STATE TRUST LAND | | | 1500 | 4000 |
| TOTAL EST. HOOK-UPS | **24635** | **29060** | **50130** | **70230** |

ATTACHMENT #6

# CAP Pima Mine Road Terminus

## *Available Water*

Acre-feet tabulations on a 10 month year basis to allow for maintenance and system interruptions

| | Case 1 | | Case 2 | |
|---|---|---|---|---|
| | ***CAP Capacity*** | ***CAP Capacity*** | ***CAP Capacity*** | ***CAP Capacity*** |
| | *cu ft/sec* | *acre-feet per year* | *cu ft/sec* | *acre-feet per year* |
| Indian Nations | | | | |
| Schuk Toak District | 0.0 | 0 | 26.5 | 16,000 |
| *(Upstream of Black Mountain)* | | | | |
| **Black Mountain Reservoir** | | | | |
| *(Feeds Pima Mine Road Terminus)* | | | | |
| Existing Black Mtn Pumps | 200.0 | 120,670 | 200.0 | 120,670 |
| **CAP Allocations and Commitments** | | | | |
| *(Upstream of Pima Mine Terminus)* | | | | |
| Indian Nations *Subtotal* | (110.2) | (66,500) | (83.7) | (50,500) |
| Pascua Yaqui | (0.8) | (500) | (0.8) | (500) |
| San Xavier 1 | (64.4) | (38,850) | (37.9) | (22,850) |
| San Xavier 2 | (30.0) | (18,100) | (30.0) | (18,100) |
| ASARCO | (15.0) | (9,050) | (15.0) | (9,050) |
| *(Downstream of Pima Mine Terminus)* | | | | |
| Pima Mine Road Recharge Facility | | | | |
| Existing facility | (49.7) | (29,990) | (49.7) | (29,990) |
| **CAP Pima Mine Terminus** | | | | |
| *(Downstream of Pima Mine Terminus)* | | | | |
| Net | 40.1 | **24,180** | 66.6 | **40,180** |

*1.0 = 724*

*161.5 = San Xavier 1 Design Capacity*

***Indian Nation Allocation = 66,500 acre feet per year***

# UPPER SANTA CRUZ PROVIDERS AND USERS GROUP

*Working Together for Long-Term, Regional Water Solutions*

## Press Release

**Thursday, April 17, 2008**

**For Immediate Release**

*Contact:* Dennis Skelton, Project Facilitator, (520) 625-8286
Bob Hedden, Data Committee Chairman, (520) 399-2832

# UPPER SANTA CRUZ PROVIDERS AND USERS GROUP RELEASES INITIAL DATA FINDINGS AND ACTION RECOMMENDATIONS



(*Green Valley/Sahuarita, Arizona*) – The Upper Santa Cruz Providers and Users Group (USCPUG), a group of water providers and major water users in the Upper Santa Cruz basin, has released its initial data findings and action recommendations to further its goal to create broad-based, long-term solutions to the region's water concerns.

USCPUG, formed in November 2007, appointed a "Data and Fact-Finding Committee", chaired by Bob Hedden, a Director of the Green Valley Domestic Water Improvement District. Other members of this committee are: Harold Metz of Twin Buttes Properties; Tom Miller of the Green Valley Community Coordinating Council; Ken Taylor of the Community Water Company of Green Valley; and Frank Thomson of Frank Thomson & Associates.

This committee was charged with assessing and evaluating the status of water usage within the Upper Santa Cruz water basin. This base data was accumulated from three primary sources: The Malcolm Pirnie Engineering Report (October 1997); The Pima County "Long-term Green Valley Water Supply" Report (October 2007); and the Arizona Department of Water Resources.

The committee's findings confirmed an estimated "overdraft" of groundwater in the Upper Santa Cruz water basin of 39,100 acre feet per year (AFY), decreasing to 32,255 AFY by the year 2030. The committee's recommendations include the evaluation of installing a 36-inch pipeline to deliver Central Arizona Project (CAP) water from the Pima Mine Road Recharge Facility to the Green Valley/Sahuarita Area. The committee also recommends the evaluation and design of possible recharge locations within the same area.

Information provided by the Community Water Company of Green Valley indicated that a 36-inch pipeline would be capable of delivering 30,000 AFY.

In addition to its core group of water providers and users, USC/PUG has sought input and advice from a broad spectrum of government, education and citizens groups.

###

# USC/PUG CORE GROUP MEETING April 11, 2008
# Time: 9:00 AM
# Place: Sahuarita Town Hall

**Agenda**

1. Presentation by Pima County Administrator Mr. Chuck Huckleberry

2. Presentation of Data Committee findings and recommendations - Bob Hedden
   Steering Committee recommends Core Group approval

3. Update on CWC pipeline project - Ken Taylor

**ATTACHMENT C**

**BUREAU OF RECLAMATION PUBLIC MEMORANDUM ON CAP WATER USAGE**

United States Department of the Interior
BUREAU OF RECLAMATION
Phoenix Area Ofiice
6150 West Thunderbird Road
Glendale, Arizona 85306-4001

IN REPLY REFER TO:

AUG 1 1 2008

PXAO-1500
ENV-6.00

MEMORANDUM

To: All Interested Parties, Organizations, and Agencies

From: Carol Lynn Erwin
Area Manager

Subject: Notice of Public Scoping for Preparation of an Environmental Assessment (EA) on the Proposed Community Water Company of Green Valley (CWC) Central Arizona Project (CAP) Water Distribution System and Recharge Facility (Action by September 12, 2008)

The Bureau of Reclamation has received CWC's final plans for taking and using its CAP water allocation. Pursuant to the National Environmental Policy Act, Reclamation is requiring preparation of an EA to describe the existing environment and anticipated environmental impacts from construction and operation of CWC's proposed CAP water system. Reclamation is inviting the public to provide input regarding issues and concerns that should be included in the EA.

**BACKGROUND**

On May 17, 1985, CWC entered into a CAP water service subcontract for 1,100 acre-feet (AF) of CAP water annually, with Reclamation and the Central Arizona Water Conservation District, which operates the CAP. This CAP water service subcontract was later amended in 1997 when New Pueblo Water Company transferred 337 AF annually to CWC. CWC also was allocated 1,521 AF annually as a result of the 2005 Arizona Water Settlements Act, making CWC's total CAP water allocation 2,858 AF annually.

Prior to entering into its initial subcontract, Reclamation reviewed CWC's conceptual plans for taking and using its CAP water allocation and determined they would not result in significant impacts. Because CWC did not plan to implement those plans in the reasonably foreseeable future, Reclamation indicated that CWC would need to submit final plans for taking and using its CAP water allocation to Reclamation for review and final environmental clearances prior to commencement of construction.

Recently, CWC provided Reclamation with final plans for taking and using its CAP water allocation. The prior conceptual plans indicated CWC would treat and directly use its CAP water. The final plans indicate CAP water would be recharged and CWC would continue to pump and serve ground water. Reclamation has determined an EA is needed due to the following: The final plans include construction and operation of a recharge facility; there has been a substantial amount of time that has gone by since Reclamation's original review; and,

the areas to be impacted and environmental conditions have changed. Based upon the EA, Reclamation will determine whether a Finding of No Significant Impact is appropriate or an environmental impact statement must be prepared prior to approving CWC's plans.

**COMMENTS AND PUBLIC SCOPING MEETING**

The purpose of the EA is to describe the proposed project and environmental impacts that are anticipated to result from its implementation. Brief descriptions of the proposed action and the No Action alternative to be included in the EA are provided in the attachment to this memorandum. The impacts we currently anticipate addressing in the EA include, but are not limited to, biological resources, cultural resources, land ownership and use, water quality and quantity, air quality, and socioeconomic resources.

Reclamation is interested in receiving your input regarding potential impacts of the proposed action, alternatives that should be considered, and/or other concerns and issues that should be addressed in the EA. We will be holding a public scoping meeting to solicit your comments. At this meeting you will have an opportunity to view our exhibits, listen to a short presentation regarding the proposed project, and provide verbal and/or written comments:

| | |
|---|---|
| Date and Time: | August 26, 2008, at 5:00 p.m. |
| Location: | Green Valley Recreation West Center, 520-625-0288 |
| Address: | 1111 South Villa Arco Iris, Green Valley, Arizona 85614 |

Hearing-impaired, visually impaired, and/or mobility-impaired persons planning to attend this meeting may arrange for necessary accommodations by calling CWC at 520-625-8409, by August 15, 2008.

Comments may also be sent by mail to Reclamation's Phoenix Area Office at the above address, Attention: PXAO-1500 (Ms. Sandra Eto). To be most helpful, comments should be as specific as possible and sent to Reclamation by September 12, 2008. Comments may also be submitted by faxogram to 623-773-6486. Before including your name, address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment--including your personal identifying information--may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

We anticipate a draft EA will be available for a 30-day public review and comment period in late 2008, at which time we will notify the public of its availability. Copies will be made available at that time; it also will be posted on PXAO's web site, http://www.usbr.gov/lc/phoenix/.

If you have any questions, please call Ms. Eto at Reclamation's Phoenix Area Office, 623-773-6254, or write to her at the above address, Attention: PXAO-1500. Thank you for your interest in this project.

ATTACHMENT TO SCOPING NOTICE

Brief Description of the Proposed Community Water Company of Green Valley
Central Arizona Project Water Delivery System Project

## BACKGROUND

On May 17, 1985, Community Water Company of Green Valley (CWC) entered into a Central Arizona Project (CAP) water service subcontract for 1,100 acre-feet (AF) of CAP water annually, with Reclamation and the Central Arizona Water Conservation District, which operates the CAP. This CAP water service subcontract was later amended in 1997 when New Pueblo Water Company transferred 337 AF annually to CWC. CWC also was allocated 1,521 AF annually as a result of the 2005 Arizona Water Settlements Act, making CWC's total CAP water allocation 2,858 AF annually.

Reclamation must comply with the requirements of the National Environmental Policy Act prior to approving CWC's plans for taking and using its CAP water allocation. Reclamation has determined an environmental assessment (EA) is necessary. Based upon the EA, Reclamation will determine whether a Finding of No Significant Impact is appropriate, or an environmental impact statement must be prepared prior to approving CWC's plans. The impacts currently anticipated to be addressed in the EA include, but are not limited to, biological resources, cultural resources, land ownership and use, water quality and quantity,[1] air quality, and socioeconomic resources.

### *Proposed Action - Pipeline and New Recharge Site*

CWC has been working for a number of years to ensure the future water supply for residents of the Green Valley area. The service area of CWC covers approximately 8-square miles (Figure 1). A 2007 report completed by Pima County states "the water table in Green Valley has been declining in past years and expected to continue to decline as water demands increase." Drawdown of the local aquifer has caused concerns regarding quantity of available water in the future. Despite the current slowdown in the economy, future residential development is likely to occur, as evidenced by the interest in large master-planned communities in this region in recent years. In addition, CWC is concerned about the presence of a sulfate plume from the Phelps Dodge Sierrita tailing impoundment (now owned by Freeport McMoRan Sierrita, Inc.) and its potential impact to CWC's operating wells, underscoring the need for an alternative water source.

CWC plans to construct and operate a raw water delivery pipeline and underground storage facility (recharge site) to deliver and recharge CAP water in the Green Valley area (Figure 2). Under the proposed project, the pipeline would be sized to provide additional flow capacity should other water users make arrangements with CWC to utilize the system for delivery of CAP water.

[1] Although the recharge location is distant from most existing wells and other development, the potential effects, if any, of underground mounding of the water to be recharged in this area will be evaluated.

A proposed 36-inch, raw water pipeline would begin at the existing CAP pipeline terminus, which is located at the southwest corner of the intersection of Interstate 19 and Pima Mine Road (Figure 2). It would proceed east along Pima Mine Road until turning south along Nogales Highway. At the intersection of the Nogales and Old Nogales Highways, the pipeline alignment would continue south along Old Nogales Highway approximately 0.9 miles. At this point, the pipeline size would be reduced to 20-inch pipe and would proceed easterly along the section line of Sections 31 and 32 of Township 17S, Range 14E (the extended alignment for El Corto Road) to a proposed 20-acre recharge site located in Section 29, T17S, R14E. Along this same alignment, a second 20-inch transmission pipeline from the recharge site would be constructed heading in a westerly direction along the section line to CWC's existing Well #11. Two booster stations would be constructed. The new pipeline would deliver up to 7,000 AF of CAP water per year to the recharge site for the first 15 years of operation (a total of 105,000 AF). After that, the rate of recharge may be reduced. Recovery wells would be constructed at the recharge site to recover CAP water after the first 15 years of operation, or sooner if the existing CWC wells become unusable due to sulfate contamination.

An agreement between CWC and Rosemont Copper Company (RCC) would provide the funding mechanism for the pipeline construction. The agreement would allow RCC to recharge CWC's CAP water allocation for a period of 15 years. RCC has made a commitment to the Green Valley community to recharge a total of 105% of any ground water withdrawn for the operation of its facilities. It is anticipated that this commitment, supplemented by additional sources, could result in a recharge volume of as much as 7,000 AF per year. Utilization of the CAP water supply for this recharge would help maintain the local aquifer and utilize renewable water sources.

### *No Action Alternative*

The No Action Alternative would mean that no pipeline would be constructed in the near future for water conveyance and recharge of the aquifer. CWC is a member of a regional water planning group, the Upper Santa Cruz/Providers and Users Group. This group, formed in October 2007, has been studying ways to bring CAP and other renewable water resources to the greater Green Valley/Sahuarita region to address long-term water supply needs. It is anticipated CWC would continue to investigate ways to deliver its CAP water allocation for use within its water service area, either as part of a regional system, or as a discrete system. In the foreseeable future, however, CWC would continue to rely solely on pumped ground water for delivery to its customers. CWC's annual CAP water allocation of 2,858 AF would continue to be available for purchase as excess CAP water.

Without the delivery and use of its CAP water allocation--either directly or by recharge and recovery--CWC would not have an alternative potable water supply should its existing wells become contaminated by the sulfate plume from the mine tailing impoundment. In addition, without introducing a renewable water supply to the area, ground-water levels would continue to decline.

Pinal County
Pima County

Marana
Tangerine Rd
Oro Valley
Catalina State Park
Coronado National Forest
La Canada Dr
Ina Rd
Saguaro National Park West
Sunrise Dr
Camino del Cerro
Tucson Mountain Park
Greasewood Rd
Grant Rd
Speedway Bl
Tanque Verde Rd
Tucson
Saguaro National Park East
Golf Links Rd
Sandario Rd
Irvington Rd
Houghton Rd
Valencia Rd
Hermans Rd
Tohono O'Odham Nation
Old Vail Connection Rd
Project Location
Pima Mine Rd
Wilmot Rd
Wentworth Rd
Sahuarita Rd
Helmet Peak Rd
Santa Rita Rd
CWC Service Area
Sahuarita
Coronado National Forest
Santa Rita Experimental Range
Duval Mine Rd
Green Valley
Whitehouse Canyon Rd
Pima
Pima County
Santa Cruz County

**Figure 1**
**Location Map**

# CWC CAP Water Delivery System

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Miles

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Stantec Consulting, Inc
201 North Bonita Avenue Suite 101
Tucson, AZ 85745-2999
www.stantec.com

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Proposed Pima Mine Road Booster Site
Pima Mine Rd
CAP Terminus
Nogales Hwy
19
Helmet Peak Rd
Sahuarita Rd
Proposed
36" Pipe
El Toro Rd
Camino de Las Quintas
La Canada Dr
Proposed
Recharge Site
To Recharge Site
From CAP
Duval Mine Rd
El Corto Rd
Well #11
Old Nogales Hwy
Proposed 20" Pipe
Proposed Staker Parson Booster Site
Proposed Future 20" Pipe
From Recharge Site to Well #11
CWC Service Area

# Figure 2
# Proposed Project Components

## CWC CAP Water Delivery System

Pima County Index Map

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Miles

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www.stantec.com

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