NOTICE OF PUBLIC INFORMATION
DEPARTMENT OF ENVIRONMENTAL QUALITY

1. **Title and its heading:** Title 49. The Environment
Chapter and its heading: Chapter 2. Water Quality Control
Article and its heading: Article 2.1. Total Maximum Daily Loads
Section: A.R.S. 49-232. Lists of Impaired Waters; data requirements; rules

2. **The public information relating to the listed statute**

Arizona Revised Statute (A.R.S.) 49-232(A) requires the Arizona Department of Environmental Quality (ADEQ) to prepare a list of impaired waters at least once every five years to comply with Section 303(d) of the Clean Water Act [33 U.S.C. 1313(d)]. ADEQ provides public notice and allows for comment on the draft 303(d) List of impaired waters prior to its submission to the United States Environmental Protection Agency (EPA). ADEQ published a draft 303(d) List in a document entitled *Draft 2012/14 Status of Ambient Water Quality in Arizona 305(b) Assessment and 303(d) Listing Report* (hereafter referred to as the "Integrated Report) and provided an opportunity for public comment on the Integrated Report from May 2, 2014 through June 16, 2014. ADEQ prepares written responses to public comments received on the draft 303(d) List of impaired waters and publishes a summary of ADEQ's responses to comments in the *Arizona Administrative Register* at least 45 days before submitting the list to EPA for their approval.

3. **Procedures for challenging an impaired water listing**

The publication of the 303(d) List of impaired waters in the *Arizona Administrative Register* is an appealable agency action. Any party that submitted written comments on ADEQ's draft 2012/14 303(d) List may challenge a listing of an impaired water by submitting a notice of appeal to the Department in accordance with A.R.S. 41-1092.03. A notice of appeal challenging a listing must be submitted within 45 days of the date of publication of this notice of public information in the *Arizona Administrative Register*. The submission of a timely notice of appeal "stays" ADEQ's initial submission of a challenged listing to EPA. ADEQ may subsequently submit a challenged listing to EPA if the challenged listing is upheld in a final administrative decision by the Director under A.R.S. 41-1092.08 or if the person who challenges a listing withdraws the appeal prior to a final administrative decision by the Director.

4. **305(b) and 303(d) of the Clean Water Act**

Section 305(b) of the Clean Water Act requires each state to prepare and submit to EPA a biennial report describing the water quality of all surface waters in the state. Each state must monitor water quality and review available data and information from various sources to determine if surface water quality standards are being met. From this 305(b) water quality assessment report and other sources of information, ADEQ creates the 303(d) List. The 303(d) List identifies Arizona surface waters that do not meet water quality standards. These waters are known as "water quality limited segments" or "impaired waters." Identifying a surface water as impaired may be based on an evaluation of physical, chemical, or biological data demonstrating evidence of a numeric standard exceedance, a narrative standard exceedance, designated use impairment, or a declining trend in water quality, such that the surface water would exceed a water quality standard before the next listing period.

Section 303(d) of the Clean Water Act requires each state to prepare several lists of surface water segments not meeting surface water quality standards, including those not expected to meet state surface water quality standards after implementation of technology-based controls. The draft 303(d) List is revised based on public input and finalized for submission to EPA. Arizona, like most states, prepares one list containing all of the waters meeting the criteria in section 303(d). At a minimum, ADEQ must consider the following sources of data:

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- Surface waters identified in the Section 305(b) Report, including Section 314 lakes assessment that do not meet water quality standards;
- Surface waters for which dilution calculations or predictive models indicate nonattainment of water quality standards;
- Surface waters for which problems have been reported by other agencies, institutions, and the public;
- Surface waters identified as impaired or threatened in the state's non-point assessments submitted to EPA under Section 319 of the Clean Water Act;
- Fish consumption advisories and restrictions on water sports and recreational contact;
- Reports of fish kills or abnormalities (cancers, lesions, tumors);
- Water quality management plans;
- The Safe Drinking Water Act 1453 source water assessments; and
- Superfund and Resource Conservation and Recovery Act (RCRA) reports and the Toxic Release Inventory.

ADEQ's 303(d) List and supporting documentation are submitted to EPA for review. The ADEQ submission to EPA will contain the 303(d) List, including the pollutants or suspected pollutants impairing water quality; the surface waters targeted for Total Maximum Daily Load (TMDL) development; a priority ranking and schedule for TMDL development; a description of the process used to develop the 303(d) List; the basis for listing decisions, including reasons for not including a surface water or segment on the list; and a summary of ADEQ responses to public comments received on the draft list. 40 CFR 130.7(b)(6)(iv) requires a state to demonstrate "good cause" for not listing a surface water where there are exceedances of water quality standards and places the burden of proof on the state to justify excluding a surface water from the list. "Good cause" factors include more recent or accurate data, flaws in the original analysis, more sophisticated water quality modeling, or changes in the conditions that demonstrate that the surface water is no longer impaired.

The 303(d) List was due to be submitted to the U.S. Environmental Protection Agency on or before April 1, 2012. State law requires that the initial 303(d) List be published in the *Arizona Administrative Register* at least 45 days before the list is submitted to the Regional Administrator. The list of impaired waters that ADEQ plans to submit to EPA is contained in the table titled "Arizona's 2012/14 303(d) List of Impaired Waters" published in Section 7 of this notice.

EPA has added impaired waters to Arizona's 303(d) List in previous assessment cycles. These EPA listings do not meet the requirements of A.R.S. 49-232 or impaired water identification criteria established in ADEQ's Impaired Water Identification Rules (A.A.C. R18-11-601 through R18-11-606) but do meet federal requirements.

5. Arizona laws governing ADEQ identification of impaired waters and preparation of the 303(d) List

The Arizona Legislature enacted laws governing ADEQ's development of the 303(d) List in 2000. A.R.S. 49-232(B) requires that ADEQ consider only "reasonably current, credible and scientifically defensible" data that the ADEQ has collected or received from another source in determining whether a water body is an impaired water. The results of water sampling or other assessments of water quality are considered credible and scientifically defensible data only if ADEQ has determined:

1. Appropriate quality assurance and quality control procedures were followed and documented in collecting and analyzing the data;
2. The samples or analyses are representative of water quality conditions at the time the data was collected;
3. The data consists of an adequate number of samples based on the water body in question and the parameters being analyzed; and
4. The method of sampling and analysis, including analytical, statistical and modeling methods, is generally accepted and validated in the scientific community as appropriate for use in assessing the condition of the water.

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ADEQ considered reasonable current, credible and scientifically defensible data in preparing 2012/14 draft 303(d) List (the Impaired Water Identification Rule (IWIR)). The water quality data and information that ADEQ considered are summarized in the 2012/14 Integrated Report.

In 2002 ADEQ adopted, by rule, the methodology used in identifying waters as impaired. These rules specify the following:

1. Minimum data requirements and quality assurance and quality control requirements consistent with the requirements of A.R.S. 49-232(B)(1-4).
2. Appropriate sampling, analytical and scientific techniques that may be used in assessing whether a water is impaired.
3. Any statistical or modeling techniques that ADEQ uses to assess or interpret data.
4. Criteria for including and removing waters from the list of impaired waters, including any implementation procedures used for identifying impaired waters on the basis of exceedances of narrative water quality standards.

ADEQ prepared the 2012/14 Integrated Report in accordance with its IWIR that ADEQ adopted in 2002 [*See* A.A.C. R18-11-601 through R18-11-606]. In addition, ADEQ prepared a guidance document that provides additional information on the assessment methods ADEQ uses to identify impaired waters. This guidance document is titled *Surface Water Assessment Methods and Technical Support* (May, 2014).

Under A.R.S. 49-232(D), ADEQ must consider available data in light of the nature of each water body being assessed (including whether a water body is an ephemeral water) when determining whether to include a water body on the 303(d) List of impaired waters.

ADEQ is prohibited by A.R.S. 49-232(F) from listing a water body as impaired based on a violation of a narrative or biological water quality standard prior to adopting implementation procedures identifying the objective bases for determining that a violation of the standard exists. None of the waters identified by ADEQ on the 2012/14 303(d) List are listed because of violations of narrative or biological water quality standards.

6. ADEQ response to comments on draft 303(d) List

Arizona's *Draft 2012/14 Status of Ambient Water Quality in Arizona 305(b) Assessment and 303(d) Listing Report* was made available for public review and comment from May 2, 2014 through June 16, 2014. Comments received by ADEQ are grouped by the commenter below. ADEQ responses to public comments relating to impaired waters on the 303(d) List are provided in this notice of public information.

Environmental Protection Agency (EPA) Region 9

EPA Comment #1- Data Assembly EPA requests that a list of all stakeholders contributing data, and the dates for any public solicitation be included in the 2012/14 integrated report.

Response #1- ADEQ has added a list of data contributors and the date of public solicitation in Chapter 3 of the Integrated Report.

EPA Comment #2- Priority Ranking EPA requests that priority ranking for TMDL development be added as required by CWA Section 303(d) and 40 CFR130.7

Response #2- ADEQ added Appendix G- Priority Ranking for TMDL Development to the Integrated Report and clarifying language to Chapter 4.

EPA Comment #3- De-listing Impairments, Appendix E

EPA Comment #3A- The Organochlorine Pesticide Delist Report should be included in the 2012/14 integrated report.

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Response #3A- ADEQ will provide a link to the delist reports on the 2012/14 Integrated Report webpage- http://www.azdeq.gov/environ/water/assessment/assess2012_2014.html.

EPA Comment #3B- EPA recommends that the Painted Rock Borrow Pit Lake (15070101-1010) remain on the State's 2012-2014 303(d) List based on four composite samples of fish tissue that exceeded the State screening value of 0.117 mg/kg total DDTr

Response #3B- ADEQ provided additional information and rationale to EPA supporting the delisting of the Painted Rock Borrow Pit Lake. Based upon its review, EPA has agreed to support the delisting of Painted Rock Barrow Pit Lake. The Organochlorine Pesticide Delist Report, referenced in EPA Comment #3A, has been updated to include this additional information.

EPA Comment #3C- For the Colorado River Selenium and East Verde Boron delistings a separate delist data summary should be added to the 2012/14 integrated report.

Response #3C- A separate delist report for the East Verde boron impairment has been developed and will be posted on the 2012/14 Integrated Report webpage-
http://www.azdeq.gov/environ/water/assessment/assess2012_2014.html
ADEQ did not complete a formal delist report for the Colorado River selenium as only USGS data was available to make the impairment and delisting determinations. The more recent data used in the 2012/14 Integrated Report meet the requirements to delist this reach. Additional language was added to the waterbody summary page for the Colorado River- Lake Powell to Paria River (14070006-001).

EPA Comment #4- Upper Santa Cruz River *E. coli* impairments ADEQ should review the data related to the Tetra Tech *Upper Santa Cruz River Watershed- Data Summary and Analysis* report dated July 10, 2013 and consider appropriate listings for *E. coli* impairments reaches 15050301-009 and 15050301-008A of the Santa Cruz River.

Response #4- ADEQ reviewed the data contained in the Tetra Tech *Upper Santa Cruz River Watershed- Data Summary and Analysis* report dated July 10, 2013 and determined that reach 15050301-009 is impaired for *E. coli*. Reach 008A was already included on the 2012/14 303(d) List for *E. coli*.; no change was required for this reach. In reviewing the Tetra Tech report ADEQ also determined that reach 009 is not attaining for dissolved cadmium. It is suspected that inconsistent pretreatment practices at metal plating facilities in Sonora, Mexico cause periodic cadmium exceedances to occur in the Nogales International Wastewater Treatment Plant effluent. Since this is related to a permitted discharge and efforts by the ADEQ and EPA border programs to remedy the problem are continuing, dissolved cadmium is being place in Category 4B along with chlorine and ammonia for reach 15050301-009.

Freeport Minerals Corporation (FMC)

FMC Comments on 2012/14 Integrated Report

Chapter 2 Comment #1 -Bill Williams Watershed: Bridle Creek (Headwaters to Santa Maria River). The designated uses identified on the summary page for this segment suggest that ADEQ considers Bridle Creek to be intermittent or perennial. The assessment summary should be revised to accurately reflect the ephemeral flow regime of Bridle Creek.

Response #1- ADEQ reviewed data collected from two sample sites located along Bridle Creek, current and historic aerial photographs and field observations made by ADEQ staff. While there appears to be intermittent flow near the mouth of Bridle Creek, the sample sites located along Arizona Highway 97 are nine miles upstream of this intermittent reach with no indication of intermittent or perennial flow observed at the sample site locations. ADEQ changed the designated uses of Bridle Creek to be consistent with A.A.C. R18-11-105. The waterbody summary has been updated to reflect the change in designated uses but remains inconclusive and place in Category 3.

Chapter 2 Comment #2- Bill Williams Watershed: Burro Creek (Francis Creek to Boulder Creek). The summary page identifies a single exceedance for cadmium based on a sample collected on December 4, 2007. This sample was not representative of normal flow conditions and should be removed. In fact, ADEQ already agreed to remove this exceedance from this reach of Burro Creek in response to comments submitted on the 2010 Integrated report (*see* 18

A.A.R. 1410 (June 22, 2012)). The summary page for this segment also identifies a biocriteria exceedance and refers to Appendix G for a discussion of the application of the biocriteria water quality standards. Appendix G is not yet listed on the ADEQ website page for the draft 2012/2014 Integrated report.

Response #2- ADEQ removed the chronic exceedance based on the elevated turbidity level measured at the time the sample was collected, indicating potentially unstable conditions. Appendix G which, in the 2010 Integrated Report, contained a discussion of ADEQ's Biocriteria Implementation Procedures and data was not included in the draft 2012/14 Integrated Report. The reference to Appendix G has been removed from this summary page. The biocriteria data have been included in the 2012/14 report to inform stakeholders where potential violations were observed based upon the current draft implementation procedures. No biocriteria impairment determinations were made in the 2012/14 Assessment. An Appendix G- TMDL Priority Ranking was added the 2012/14 Integrated Report in response to EPA Comment #1.

Chapter 2 Comment #3- Bill Williams Watershed: Coors Lake. The jurisdictional status of this surface feature is questionable because it is an isolated, man-made impoundment. Since only jurisdictional waters of the US can be identified as impaired waters under federal and state laws, Coors Lake should be removed from Category 5 and from the 2012/2014 Integrated report. At the very least, the high priority for TMDL development suggested in the summary page and elsewhere in the report should be changed to "low" given the suspect jurisdictional status of the impoundment and because naturally occurring conditions arguably would be the only contributor to the alleged impairment and no effective analytical tools exist to develop a TMDL for Coors Lake (*see* A.A.C. R18-11-606(B)(3)(h), (i)).

Response #3- Coors Lake is listed in A.A.C. R18-11 Appendix B and is assigned the fish consumption designated use. A fish tissue consumption advisory was issued in 2004 leading EPA to add the lake to the 2004 303(d) List. ADEQ is not aware of any jurisdictional determination being made for the lake. The high priority assigned to the lake is based upon the Impaired Waters Identification Rule (A.A.C. R 18-11, Article 6). However, ADEQ is not pursuing the development of a TMDL at this time. Appendix G lists the lake as a low priority for TMDL development..

Chapter 2 Comment #4- Salt Watershed: Bloody Tanks Wash (Schultze Ranch to Miami Wash). The summary page for this segment references one copper exceedance from a single sample collected on February 8, 2008. However, although this segment of Bloody Tanks is correctly identified on the summary page as ephemeral, the page lists an acute standard for copper that is not correct and a chronic standard that is not applicable. The summary page also recommends collection of more dissolved copper samples due to the exceedance. ADEQ should not be spending its limited resources attempting to collect water samples in ephemeral waters that are inherently not reliable, reproducible, or representative. The monitoring recommendation should be removed from the summary page for this segment.

Response #4: The commenter is correct that the numeric standards listed on the summary page are not correct and that there is no applicable chronic dissolved copper standard for ephemeral waters. Reference to an applicable dissolved chronic standard for this reach has been removed from the waterbody summary page. However, the correct acute ephemeral dissolved copper standard equals 14.83 ug/L at a hardness of 62 mg/L. The dissolved copper result of 46 ug/L on 2/5/2008 exceeds the applicable acute standard. The monitoring recommendations do not require ADEQ to conduct follow up monitoring. Rather the recommendations state what parameters should be included in the analytical suite if additional samples are collected by ADEQ or another entity.

Chapter 2 Comment #5- Salt Watershed: Pinal Creek (Lower Pinal Creek WTP discharge to Salt River). Much of the water quality data used for the assessment of Pinal Creek was collected by the Pinal Creek Project and submitted via letter dated June 30, 2009 (the June 30, 2009 letter included data for the period from January 1, 2007 to December 31, 2009). The June 30, 2009 letter identified the pH from 2007 and 2008 data as being of suspect data quality. As a result of this condition and its identification, the Pinal Creek Project revised the sampling and analysis procedures for field pH; placing greater emphasis on equipment maintenance and calibration.

Response #5- Additional data were submitted for this reach following the completion of the public comment period. The new dataset includes 9 exceedances in the 70 samples obtained during the 2012/14 assessment window.

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Therefore, this reach is considered 'attaining' the designated uses for pH following the binomial rule (A.A.C. R18-11-605). Overall the reach now assessed as "Attaining some uses", Category 2.

Chapter 2 Comment #6- San Pedro Watershed: Brewery Gulch and Mule Gulch (three separate segments). Given the improvements in the watershed implemented by Freeport and the fact that ADEQ previously recognized the need for a site-specific standard to account for natural background contributions of metals, these four water segments should be removed from Category 5 and placed in Category 3 consistent with the statutory language in A.R.S. § 49-232(D) (*see also* A.A.C. R18-11- 604(C)(1) or R18-11-605(E)(2)(a)(vi)). FMC also questions the continued listing of these waters in light of their ephemeral status and in light of their questionable jurisdictional status as potential "navigable waters."

Response #6- ADEQ does not agree with FMCs interpretation that A.R.S. 49-232(D) or the A.A.C. prohibit listing waters where natural background concentrations contribute to water quality exceedances along with anthropogenic sources. Where natural background contributions are the only source causing water quality standard exceedances ADEQ will not list waters as impaired. In the case of Brewery and Mulch Gulches historic mining disturbances, smelter operations and road cuts contribute to metal concentrations throughout the watershed in addition to natural background.

The most recent data (2007) indicate that FMC's remedial efforts have been effective at reducing pollutant loading in Mule Gulch. However, the complete delisting of Mule Gulch is not currently warranted, though a number of substantial water quality improvements have occurred. Exceedances continue to be measured for dissolved copper in the impaired reaches, though both the frequency and magnitude of those exceedances is reduced from former levels. Field pH readings show no exceedances after 2003 at any site on the main-stem of Mule Gulch. Likewise, dissolved cadmium and dissolved zinc show no exceedances after 2003 in reaches 15080301- 90B and 15080301-90C. ADEQ has delisted pH from reach 90B and pH, dissolved cadmium and dissolved zinc from Reach 90C. The 2012/14 305(b) Integrated Report and 303(d) List have been updated to reflect these changes and the Mule Gulch delist report is posted on the 2012/14 Integrated Report webpage-
http://www.azdeq.gov/environ/water/assessment/assess2012_2014.html

FMC Comments on Surface Water Assessment Methods and Technical Support

Methods Comment #1- Assessment of Ephemeral Drainages: Arizona's TMDL statute provides that "in assessing whether a water is impaired, the department shall consider the data available in light of the nature of the water in question, including whether the water is an ephemeral water." A.R.S. § 49-232(D). The legislature singled out ephemeral drainages or waters when requiring ADEQ to consider data available in light of the nature of the water in question. Ephemeral drainages flow only in direct and immediate response to storm events and therefore have highly variable and unpredictable water quality depending on the storm event characteristics, timing of the sampling, and other similar factors. Such drainages do not have a base flow condition and replicating the inherently variable conditions under which samples are collected is extremely difficult and near impossible outside of long duration studies, which the State does not currently conduct. Therefore data collected from an ephemeral drainage generally is not reproducible and reliable, as required by Arizona's TMDL statute and associated impaired water identification rule.

Response #1- Ephemeral drainages are the largest percentage of the stream miles in Arizona and they supply significant water, sediment and potentially pollutants to perennial and intermittent streams during their infrequent flows. ADEQ selectively targets ephemeral waters for data collection only when they are a suspected source contributing to water quality standards exceedances and are typically only sampled during TMDL development. ADEQ has determined that ephemeral drainage water quality data can meet A.A.C. R18-11 Article 6 requirements.

ADEQ assesses credible data from waterbodies that have applicable water quality standards. Ephemeral standards are expressed in A.A.C. R18-11and, therefore, making 305(b) and 303(d) determinations based upon those standards are justified and required in accordance with state and federal regulations.

Methods Comment#2- Consideration of Natural Background Conditions: Arizona's TMDL statute specifically instructs ADEQ that when there is evidence that natural occurring conditions alone are sufficient to cause a violation of applicable surface water quality standards in a surface water, such a water shall *not* be listed as impaired. *See* A.R.S. § 49-232(D); *see also* A.A.C. R18-11-604(C)(1) and A.A.C. R18-11-605(E)(2)(a)(vi). There is no statement

in the TMDL statute or implementing impaired water identification regulations that this statutory prohibition on listing will apply only when it is determined that there are no human-caused influences. Rather, based on the plain language of the statute, if there is evidence that pollutant loadings from naturally occurring conditions alone (*i.e.*, without consideration of human-caused influences) would be sufficient to cause a violation of applicable standards, such a water should not be listed as impaired regardless of the presence of human-caused conditions. In such instances, such a water should be a candidate for adoption of appropriate site-specific standards that account for naturally occurring conditions before any listing decisions are made. If this process is not followed, it can result in inappropriate permitting restrictions on potential and existing discharges even when the appropriate standards has not been adopted or evaluated.

Unfortunately, ADEQ's draft Assessment Methods document completely ignores the statutory prohibition on listing in A.R.S. § 49-232(D). Rather, the Assessment Methods document attempts to equate the statutory prohibition to language in Arizona's surface water quality standards on natural background that was adopted in 1992 several years before adoption of Arizona's TMDL statute. This language should be removed from the Assessment Methods document and replaced by language consistent with the statutory listing prohibition in A.R.S. § 49-232(D). Such revised language should clarify that if there is evidence that naturally occurring conditions alone would cause an exceedance of applicable standards in a particular surface water, the water will not be listed as impaired consistent with A.R.S. § 49-232(D) pending adoption of appropriate site-specific standards, which account for the contribution from such naturally occurring conditions.

Methods Response #2- ADEQ does not agree with FMC's interpretation of A.R.S. § 49-232(D) or that the Assessment Methods are inconsistent with the TMDL statute. Where natural conditions alone are the source of water quality standard exceedances impairment determinations are not made. Examples of this rationale can be seen in the 2010 Integrated Report (see JK Mountain and Ellis Ranch Tributaries in the Salt River watershed). As there are no anthropogenic sources within these watersheds, natural background alone caused the exceedances. Both of these waters were placed in Category 3, "inconclusive". These waters are not included in the 2012/14 Integrated Report as no water quality data are available within the data range used in the assessment.

In the two cases where ADEQ may pursue a site specific standard, Pinto Creek and Mule Gulch, the initial 303(d) listings were not made based on natural background exceedances rather exceedances measured at sampling points downstream of anthropogenic sources.

<u>Methods Comment #3- Use of Individual Grab Samples for Assessing Compliance with Chronic Criteria</u>: The draft Assessment Methods document (see Section 5, pages 30-32) attempts to justify use of individual grab samples for assessing compliance with chronic criteria. ADEQ's justification, however, is directly contradicted by preamble language from ADEQ's final impaired water identification rule and from preamble language explaining the use of the standards language in A.A.C. R18-11-120(C).

Based on ADEQ's response to comments on the IWIR preamble, FMC believes ADEQ intended that assessment of the chronic water quality standard under the impaired water identification rule would require multiple sampling events, consistent with the surface water quality standard for chronic criteria in A.A.C. R18-11-120(C), to amass the minimum number of samples to find even one exceedance of the standard. ADEQ's practice of using the results from one grab or discrete sample to find one exceedance is directly inconsistent with the clear explanation in the preamble of how the impaired water identification rule would be implemented for assessment of chronic water quality standards.

Consistent with ADEQ's on-point preamble language in the impaired water identification rule, Arizona's surface water quality standards provide that "[c]ompliance with chronic aquatic and wildlife criteria shall be determined from the geometric mean of the analytical results of the last four samples taken at least 24 hours apart." A.A.C. R18-11-120(C)). This regulatory language was amended during Arizona's 2002 triennial review of the state's surface water quality standards to remove the requirement that the samples for determining compliance with the chronic standard had to be collected over a period of four consecutive days.

Response #3- ADEQ does not make any impairment determinations based upon one exceedance of a water quality standard, instead the criteria for determining impairment are set forth in the IWIR (R18-11-605). The Assessment Methods document defines a chronic exceedance as, "1 grab sample exceeds a criterion and absence of contextual

information indicating unstable conditions; or the median value of at least 4 samples taken 24 hours apart exceeds a criterion" see Assessment Criteria Summary Table on page 20. When sufficient data are available a median value is calculated as indicated on page 31 of the Assessments Methods document, "If at least four days of data are available within a seven-day period, ADEQ uses the central tendency of the dataset to determine whether an exceedance has occurred." Page 30 continues with a discussion of when and how ADEQ will use grab samples in assessing chronic criteria.

ADEQ agrees that contradictions between the 2002 IWIR and its preamble language exist. However, ADEQ's use of grab sample results to assess attainment of chronic aquatic and wildlife standards along with the Department's use of available contextual information to determine whether stable conditions existed at the time of the exceedances is consistent with EPA recommendations in EPA's *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act (July 29, 2005).*

National Park Service (Tumacacori National Historical Park)

Comment #1- Santa Cruz River (15050301-008A): In the draft assessment report, this reach is assessed as impaired for ammonia and *E. coli* and inconclusive for chlorine. The report indicates that no new data for ammonia or *E. coli* are included in the assessment since the prior assessment of 2010, and the most recent data listed are from 2008.

Response: The water quality data used in developing the 2012/14 Assessment ranged from July 1, 2006 through June 30, 2011. Overall, data for reach 15050301- 008A were available from July 25, 2006 through May 11, 2011. Ammonia and *E. coli* exceedances were only noted to have been measured through mid-2008 as listed in the "Exceedances" table on the waterbody summary page. National Park Service (NPS) data included in the 2012/14 Assessment only extended through May 2008. ADEQ has subsequently received additional NPS data which will be incorporated into future assessments. Tetra Tech, an EPA contractor, developed a data summary report for the Upper Santa Cruz River in the summer of 2014 and incorporated all available data, including NPS and Friends of the Santa Cruz data. The summaries findings were consistent with the 2012/14 Assessment confirming the E. coli exceedances continue and that the Nogales International Wastewater Treatment Plant upgrades have lowered ammonia levels, with periodic chlorine exceedances. The 2016 Assessment will include additional monitoring data post plant upgrade.

Pima County Regional Wastewater Reclamation Department (PCRWRD)

Comment #1- Santa Cruz River Reaches- PCRWRD supports ADEQ's decision to place the three Santa Cruz River reaches 15050303-005A, 15050301-003B and 15050301-001 is in Category 4B.

Response #1- ADEQ appreciates PCRWRD's support and looks forward to tracking the water quality improvements that have been realized by the recent wastewater treatment plant upgrades completed by the County.

7. Arizona's 2012/14 303(d) List of Impaired Waters

This list contains assessment units that were assessed as impaired (Category 5) by ADEQ or EPA during the current and previous assessment listing cycles. The year each parameter was listed is located in parentheses after each parameter (2012/14 listings are in **bold**).

Assessment Unit	Size (acres/miles)	Cause(s) of Impairment (year first listed)
Bill Williams Watershed		
Alamo Lake 15030204-0040	1414 a	Ammonia (2004), mercury in fish tissue (2002- EPA), high pH (1996)
Bill Williams River Alamo Lake to Castaneda Wash 15030204-003	35.9 mi	Ammonia and high pH (2006)
Boulder Creek Tributary at 344114/1131800 to Wilder Creek 15030202-006B	14.4 mi	Beryllium (dissolved) (2010)
Coors Lake 15030202-5000	230 a	Mercury in fish tissue (2004- EPA)

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Assessment Unit	Size (acres/miles)	Cause(s) of Impairment (year first listed)
Colorado-Grand Canyon Watershed		
Colorado River Parashant Canyon to Diamond Creek 15010002-003	27.6 mi	Selenium (total) and suspended sediment concentration (2004)
Lake Powell 14070006-1130	9770 a	Mercury in fish tissue (2010- EPA)
Paria River Utah border to Colorado River 14070007-123	29.4 mi	Suspended sediment concentration (2004), *E. coli* (2006)
Virgin River Sullivan's Canyon to Beaver Dam Wash 15010010-004	9.7 mi	Selenium (total) (**2012**)
Virgin River Beaver Dam Wash to Big Bend Wash 15010010-003	10.1 mi	Selenium (total) and suspended sediment concentration (2004), *E. coli* (2010)
Colorado-Lower Gila Watershed		
Colorado River Hoover Dam to Lake Mohave 15030101-015	40.4 mi	Selenium (total) (2004)
Colorado River Bill Williams River to Osborne Wash 15030104-020	13.4 mi	Selenium (total) (2010)
Colorado River Main Canal to Mexico border 15030107-001	32.2 mi	Low dissolved oxygen and selenium (total) (2006)
Colorado River Imperial Dam to Gila River 15030107-003	15.3 mi	Selenium (total) (2010)
Gila River Coyote Wash to Fortuna Wash 15070201-003	28.3 mi	Selenium (total) and boron (total) (2004)
Lake Mohave 15030101-0960	27044 a	Selenium (total) (2010)
Painted Rock Borrow Pit Lake 15070201-1010	186 a	Low dissolved oxygen (1992)
Little Colorado Watershed		
Bear Canyon Lake 15020008-0130	55 a	Low pH (2004- EPA)
Black Canyon Lake 15020010-0180	37.4 a	Ammonia (2010)
Lyman Lake 15020001-0850	1308 a	Mercury in fish tissue (2004- EPA)
Pintail Lake 15020005-5000	25.7 a	Ammonia (2010)
Puerco River Dead Wash to Ninemile Wash 15020007-007	0.2 mi	Copper (dissolved) (2010), *E. coli* (**2012**)
Telephone Lake 15020005-1500	22.3 a	Ammonia (2010)
Middle Gila Watershed		
Agua Fria River Sycamore Creek to Bishop Creek 15070102-023	9.1 mi	*E. coli* (2010)
Alvord Lake 15060106B-0050	27 a	Ammonia (2004)
Arnett Creek Headwaters to Queen Creek 15050100-1818	11.1 mi	Copper (dissolved) (2010)
Chaparral Park Lake 15060106B-0300	12 a	Low dissolved oxygen and *E. coli* (2004)
Cortez Park Lake 15060106B-0410	2 a	Low dissolved oxygen and high pH (2004)

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Assessment Unit	Size (acres/miles)	Cause(s) of Impairment (year first listed)
Gila River San Pedro River to Mineral Creek 15050100-008	19.8 mi	Suspended sediment concentration (2006)
Gila River Centennial Wash - Gillespie Dam 15070101-008	5.3 mi	Selenium (total) (2004), boron (total) (1992)
Lake Pleasant 15070102-1100	8000 a	Mercury in fish tissue (2006- EPA)
Mineral Creek Devil's Canyon to Gila River 15050100-012B	19.6 mi	Copper (dissolved) (1992), selenium (total) (2004), low dissolved oxygen (2006)
Queen Creek Headwaters to Superior WWTP discharge 15050100-014A	8.8 mi	Copper (dissolved) (2002), lead (total) (2010), selenium (total) **(2012)**
Queen Creek Superior WWTP discharge to Potts Canyon 15050100-014B	5.9 mi	Copper (dissolved) (2004)
Queen Creek Potts Canyon to Whitlow Canyon 15050100-014C	8.0 mi	Copper (dissolved) (2010)
Tributary to Queen Creek Headwaters to Queen Creek 15050100-991	2.0 mi	Copper (dissolved) (2010)
Unnamed Tributary to Queen Creek Headwaters to Queen Creek 15050100-1843	1.7 mi	Copper (dissolved) (2010)
Unnamed Tributary to Queen Creek Headwaters to Queen Creek 15050100-1000	0.5 mi	Copper (dissolved) (2010)
Salt Watershed		
Apache Lake 15060106A-0070	2,190 a	Low dissolved oxygen (2006)
Canyon Lake 15060106A-0250	450 a	Low dissolved oxygen (2004)
Christopher Creek Headwaters to Tonto Creek 15060105-353 *Also on Not Attaining (4A) List	8 mi	Phosphorus (2006)
Crescent Lake 15060101-0420	157 a	High pH (2002- EPA)
Five Point Tributary Headwaters to Pinto Creek 15060103-885	2.9 mi	Copper (dissolved) (2006)
Pinto Creek West Fork Pinto Creek to Roosevelt Lake 15060103-018C *Also on Not Attaining (4A) List	17.8 mi	Selenium (total) (2004)
Roosevelt Lake 15060103-1240	18345 a	Mercury in fish tissue (2006- EPA)
Salt River Canyon Creek to Cherry Creek 15060103-007	19.6 mi	Selenium (total) **(2012)**
Salt River Pinal Creek to Roosevelt Lake 15060103-004	7.5 mi	Suspended sediment (2006), nitrogen, phosphorus and *E. coli* (2010)
Salt River Stewart Mountain Dam to Verde River 15060106A-003	10.1 mi	Low dissolved oxygen (2004)
Tonto Creek Headwaters to 341810/1110414 15060105-013A *Also on Not Attaining (4A) List	8.1 mi	Low dissolved oxygen (2006)

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Assessment Unit	Size (acres/miles)	Cause(s) of Impairment (year first listed)
Tonto Creek Tributary @ 341810/1110414 to Haigler Creek 15060105-013B *Also on Not Attaining (4A) List	8.5 mi	Mercury in Fish Tissue (2010- EPA)
Tonto Creek Haigler Creek to Spring Creek 15060105-011	7.8 mi	Mercury in fish tissue (2010-EPA)
Tonto Creek Spring Creek to Rye Creek 15060105-009	19.5 mi	Mercury in fish tissue (2010-EPA)
Tonto Creek Rye Creek to Gun Creek 15060105-008	4.7 mi	Mercury in fish tissue (2010-EPA)
Tonto Creek Gun Creek to Greenback Creek 15060105-006	18.6 mi	Mercury in fish tissue (2010-EPA)
Tonto Creek Greenback Creek to Roosevelt Lake 15060105-0004	2.6 mi	Mercury in fish tissue (2010-EPA)
San Pedro Watershed		
Brewery Gulch Headwaters to Mule Gulch 15080301-337	1 mi	Copper (dissolved) (2004)
Mule Gulch Headwaters to above Lavender Pit 15080301-090A	3 mi	Copper (dissolved) (1990)
Mule Gulch Above Lavender Pit to Bisbee WWTP discharge 15080301-090B	0.8 miles	Copper (dissolved) (1990)
Mule Gulch Bisbee WWTP discharge to Highway 80 bridge 15080301-090C	3.8 mi	Copper (total and dissolved) (1990)
San Pedro River Mexico border to Charleston 15050202-008	28.3 mi	*E. coli* and copper (dissolved) (2010)
San Pedro River Babocomari Creek to Dragoon Wash 15050202-003	17 mi	*E. coli* (2004)
Santa Cruz Watershed		
Nogales Wash Mexico border to Potrero Creek 15050301-011	6.2 mi	Ammonia (2004), chlorine (1996), copper (dissolved) (2004), *E. coli* (1998)
Parker Canyon Lake 15050301-1040	130 a	Mercury in fish tissue (2004- EPA)
Potrero Creek Interstate 19 to Santa Cruz River 15050301-500B	4.9 mi	Chlorine, low dissolved oxygen, and *E. coli* (2010)
Rose Canyon Lake 15050302-1260	7 a	Low pH (2004- EPA)
Santa Cruz River Josephine Canyon to Tubac Bridge 15050301-008A	4.8 mi	Ammonia and *E. coli* (2010)
Santa Cruz River Nogales WWTP to Josephine Canyon 15050301-009 *Also on Not Attaining (4B) List	9.1 mi	Cadmium (dissolved), *E. coli* **(2012)**
Sonoita Creek 1600 feet below Patagonia WWTP discharge to Patagonia Lake 15050301-013C	8.9 mi	Zinc (total) (2004), low dissolved oxygen (1998)
Upper Gila Watershed		
Blue River Strayhorse Creek to San Francisco River 15040004-025B	25.4 mi	*E. coli* (2006)

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Assessment Unit	Size (acres/miles)	Cause(s) of Impairment (year first listed)
Cave Creek Headwaters to South Fork Cave Creek 15040006-852A	7.5 mi	Selenium (total) (2004)
Gila River Apache Creek to Skully Creek 15040002-002	6.4 mi	*E. coli* (2010)
Gila River Bonita Creek to Yuma Wash 15040005-022 *Also on Not Attaining (4A) List	5.8 mi	Lead (total) (2010)
Gila River Skully Creek to San Francisco River 15040002-001	15.2 mi	*E. coli* (2010)
San Francisco River Blue River to Limestone Gulch 15040004-003	18.7 mi	*E. coli* (2006)
San Francisco River Limestone Gulch to Gila River 15040004-001	12.8 mi	*E. coli* (2010)
Verde Watershed		
Butte Creek Headwaters to Miller Creek 15060202-768	6..3 mi	*E. coli* (**2012**)
East Verde River American Gulch to Verde River 15060203-022C	25.8 mi	Arsenic (total) (2006)
East Verde River Ellison Creek to American Gulch 15060203-022B	20.3 mi	Selenium (total) (2004)
Granite Creek Headwaters to Willow Creek 15060202-059A	13.4 mi	Low dissolved oxygen (2004- EPA), *E. coli* (2010)
Manzanita Creek Headwaters to Granite Creek 15060202-772	2.8 mi	*E. coli* (**2012**)
Miller Creek Headwaters to Granite Creek 15060202-767	7.2 mi	*E. coli* (2010)
Verde River Bartlett Dam to Camp Creek 15060203-004	6.6 mi	Arsenic (total) (2010)
Watson Lake 15060202-1590	150 a	Nitrogen, low dissolved oxygen, high pH (2004- EPA)
Willow Creek Reservoir 15060202-1660	294 a	Ammonia (**2012**)

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