

Response to Comments Specific to Phoenix Production Company Rolff Lake WY-0024945

1. The permittee noted typographical and definition errors in the 3D and 3E tribal water quality descriptions included in the Statement of Basis.

Response: *EPA also notes the typographical errors in the 3D and 3E definitions in the Eastern Shoshone and Northern Arapaho Tribes' (Tribes') water quality requirements, which were reproduced in the Statement of Basis.*

2. The permittee stated that the statement of basis incorrectly provides a definition of Class 3B waters as those “that are known to support or have the potential to support populations of indigenous aquatic life other than fish that the Tribes have determined deserve special water quality protection measures.” This is actually the definition of a Class 3D water in the Tribal water quality requirements, and not a Class 3B water.

Response: *EPA acknowledges it included the incorrect definition of a 3B water in the statement of basis and updated the document to include the correct definition of a 3B water.*

3. The permittee noted that Dry Creek (Pasup Creek) flows to the main stem of the Wind River and not the Little Wind River.

Response: *EPA acknowledges the correction and updated the statement of basis.*

4. The permittee commented that the Statement of Basis incorrectly stated that effluent limits for conductance, chloride, sulfate, and total dissolved solids have been in effect since the facility has been covered under a National Pollutant Discharge Elimination System (NPDES) permit.

Response: *EPA concurs that this is an error and has removed the sentence.*

5. The permittee commented that after review of the Tribal water quality requirements, they could not determine if the unnamed ephemeral drainage which receives the discharge should actually be considered a Class 3B water. The comment suggested the receiving waterbody actually “fits” the definition of a Class 3E or possibly a 4B water.

Response: *EPA believes it correctly classified the unnamed ephemeral tributary as a Class 3B water. The following definition is from the Tribes' water quality law:*

(ii) Class 3B. Class 3B waters are tributary waters including adjacent wetlands that are not known to support fish populations or drinking water supplies and where those uses are not attainable. Class 3B waters are intermittent and ephemeral streams with sufficient hydrology to normally support and sustain communities of aquatic life including invertebrates, amphibians, or other flora and fauna which inhabit waters of the Reservation at some stage of their life cycles. In general, 3B waters are characterized by frequent linear wetland occurrences or impoundments within or adjacent to the stream channel over its entire length. Such characteristics will be a primary indicator used in identifying Class 3B waters.

The Tribes' water quality requirements have the following listings for Dry (Passup) Creek:

Wind River (above Boysen Res upstream to Red Creek) 2AB
Mission Cr (from confluence with Wind R upstream to Wyoming Canal) 2C
Mission Cr (upstream from Wyoming Canal) 2E
Dry (Pasup) Cr (from confluence with Wind River, upstream to perennial flow) 3B
Dry (Pasup) Cr (from perennial flow, upstream) 2C

Dry Creek is a Class 3B water from the confluence with the Wind River to the “perennial flow” and a Class 2C water from the “perennial flow” upstream. There is no current classification listed for the ephemeral tributary of Dry Creek which actually receives the discharge. Given the lack of stream classification in tribal law, the ephemeral characteristics of the majority of the stream reach, and its shared characteristics with Dry Creek, EPA has concluded that it is best characterized as a Class 3B water.

6. The permittee commented that if a fluoride limitation of 4 mg/L or less was placed in the permit, they would be out of compliance based on the one effluent sample collected for permit renewal in 2010. They also stated the use of a 2 mg/L fluoride value to evaluate reasonable potential (RP) for permit limitations was overly protective of requirements under Section 20 of the Tribal water quality requirements.

Response: *EPA is not proposing to place a fluoride limitation in the permit at the present time. EPA lacks sufficient effluent monitoring data to determine the variability of the discharge and thus require an effluent limitation. Permit monitoring requirements for fluoride will remain unchanged from the proposed permit.*

Fluoride has had a recommended safe concentration for livestock for the last 40 years (see EPA’s Water Quality Criteria 1972) the UW AES bulletin B-1183. After review of the comment provided, EPA did not find any additional compelling research to alter the recommended concentration of 2.0 mg/L fluoride referenced in the Statement of Basis. In addition, the numeric standards for fluoride in water for cattle consumption containing less than 2.0 mg/L of fluoride also assumes that this concentration should be safe for sheep, cervids, and horses. (1972 WQ criteria). EPA believes the 2.0 mg/L fluoride is an appropriate standard to evaluate for ensuring the discharge is of good enough quality for livestock consumption.

1972. Water Quality Criteria 1972. Section V. National Academy of Sciences. Washington D.C. Available through <http://www.epa.gov/nscep/index.html> verified 10 March 2014. (Note: Requires a search for the specific document by title.)

2008. M. F. Raisbeck, Riker S.L., Tate C.M., Jackson R., Smith M.A., Reddy K.J., Zygmunt J.R., Water Quality for Wyoming Livestock and Wildlife: A review of the literature pertaining to the health effects of inorganic contaminants. (UW AES bulletin B-1183). Available at <http://www.uwyo.edu/ces/pubs/b1183/> verified 10 March 2014.

7. The permittee commented on monitoring requirements for fluoride, selenium and zinc and agreed more monitoring data was needed to establish RP and notes that EPA will obtain the data via the toxic pollutant screen requirement.

Response: *EPA agrees. EPA has determined, based on the limited data currently provided, that fluoride, selenium and zinc are possible constituents of concern. The Toxic Pollutant Screen requirements will provide EPA with the necessary data points to make a RP determination for these pollutants.*

The proposed permit contained a Method Detection Limit table in Section 1.3.4 Toxic Pollutant Screen which implied the listed detection limits applied only to the Toxic Pollutant Screen requirements. The EPA intended to have a separate section designation for the Method Detection Limits table. As a result, EPA has revised the Statement of Basis and Permit to separate the Toxic Pollutant Screen requirements, and to reflect that the Method Detection Limit table applies to all monitoring requirements under Section 1.3 of the Permit.

8. The permittee argues that testing for many of the Acid and Base/Neutral Organic Compounds and Volatile Organic Compounds is unnecessary because either the pollutants are not expected to be present in the discharge (chlorinated and fluorinated compounds), they are not applicable to Class 3B (or 3E) classification, there are not aquatic life standards for the pollutants and the receiving water does not have a human health use (e.g. benzene, ethylbenzene, toluene, naphthalene, and xylene) and will result in unnecessary analytical costs.

Response: *As discussed in the statement of basis, EPA believes there is insufficient data to fully characterize the effluent. As a result, EPA cannot determine if the discharge has the RP and, thus, if effluent limitations are necessary for many pollutants expected to be present in the discharge. Although the presence of chlorinated or fluorinated compounds were not detected in the discharge during one historic monitoring event, the analytical method used for other pollutants of concern will include these compounds and EPA cannot modify the method for purposes of this individual permit.*

The new Toxic Pollutant Screen requirement for volatile and base/neutral organics, metals listed in 40 CFR Part 122 Appendix D, Tables II, III, and IV is necessary to provide supplemental data to EPA so that the variability of these pollutants in the discharge can be evaluated for purposes of assessing the reasonable potential of such pollutants to exceed the tribal water quality requirements. Such variability is required to be evaluated in accordance with 40 CFR § 122.44(d)(1)(ii) when assessing RP with respect to EPA-approved WQSs, and EPA thus considered such evaluation to also be appropriate for assessing RP with respect to tribally-adopted water quality requirements. EPA believes that sufficient data will be collected as part of the Toxic Pollutant Screen requirement along with future permit re-application requirements to evaluate RP for the list of pollutants.

The permittee identified several of the organic constituents, i.e. naphthalene, benzene, toluene, and ethyl benzene, as lacking aquatic life criteria. While EPA does not have recommended aquatic life criteria for these pollutants, the pollutants are known toxics which could contribute to whole effluent toxicity (WET) test failure and violate the Tribes' narrative standard for toxics.

9. The permittee requests that chloride and total recoverable radium 226 be removed from the Toxic Pollutants Screen. These two constituents are already required to be monitored on a quarterly basis, as per the Self-Monitoring Requirements. EPA can collect adequate data for these two constituents during regular quarterly monitoring and additional testing should not be required during the Toxic Pollutants Screen.

Response: *Chloride and total recoverable radium 226 were not included in the Toxic Pollutants Screen for this permit and were only included in the quarterly monitoring in the self-monitoring requirements in Section 1.3.2 of the permit. As noted above, the proposed permit contained a Method Detection Limit table in Section 1.3.4 Toxic Pollutant Screen, which may have caused confusion for readers. EPA recognizes this and has revised the Statement of Basis and Permit to separate the Toxic Pollutant Screen requirements, and to reflect that the Method Detection Limit table applies to all monitoring requirements under Section 1.3 of the Permit.*

10. The permittee commented that WET monitoring should not be included because they did not believe the test is appropriate for a Class 3B (or 3E) water. The permittee contends there are over 30 stream miles before the effluent reaches the Wind River and that complete natural attenuation of hydrogen sulfide will occur within a short reach of the Rolff Lake outfall.

Response: *WET monitoring and/or limitations are appropriate for discharges containing pollutants in amounts that may cause or contribute to an excursion of numeric or narrative water quality criteria. This includes all waters classified for aquatic life use, not just large rivers. WET requirements ensure that all aquatic life uses are protected through the entire waterbody including those areas immediately downstream of a discharge. The Tribes' water quality requirements designate aquatic life as a use for Class 3B waters. Because the receiving water and the downstream Dry Creek are Class 3B waters, and because aquatic life is present in the receiving water, WET testing is appropriate for this permit.*

11. The permittee noted that the permit included the following statement: “Included in this permit is additional effluent monitoring for hazardous/toxic constituents in order to develop data for future water quality considerations, *protective of these unique aquatic communities.*” (Italics added.) The permittee stated that it agreed that the aquatic communities present in the Rolff Lake discharge were unique, and stated that these communities have “adapted and evolved to live in the produced water under ambient discharge conditions.” The permittee commented that under natural conditions the drainage would be dry almost 100% of the time, that there would naturally zero aquatic life in the drainage, and that if it is required to improve the quality of its effluent above its current state, it will inject all of the produced water.

Response: *As explained in greater detail in the Statement of Basis for this permit, the Clean Water Act (CWA) requires EPA to include water quality based effluent limits (WQBELs) to ensure protection of designated uses of waters receiving a discharge. Designated uses may include both existing uses and uses that a State or Tribe has determined should be attained. Thus, when EPA considers tribally adopted designated uses when establishing water quality based permit limitations, the Agency must look at both existing designated uses and designated uses that are not yet being attained.*

The Rolff Lake facility discharges to an ephemeral tributary to Dry Creek, which the Wind River Environmental Quality Commission has designated a Class 3B water. For the reasons described above, EPA has concluded that the ephemeral tributary is also best described as a Class 3B water. Class 3B waters are those which normally support and sustain communities of aquatic life, including invertebrates, amphibians, or other flora and fauna which inhabit waters of the Reservation at some stage of their life cycles. Thus, the basis for any water quality based permit limit for this facility must be the protection of these aquatic life uses. The monitoring requirement in the permit is necessary to ensure that EPA has adequate data to understand the nature of the discharges from the facility and sufficient data points to support decisions on establishing permit limitations for toxics for all designated aquatic life uses in future permit renewals.

12. The permittee stated a review of the Effluent Monitoring and Toxic Pollutant Screen data (page 11 of the Statement of Basis) indicates that the Rolff Lake effluent should meet the proposed 1,800 mg/L Daily Maximum for sulfate. However, the facility will have problems meeting the proposed 1,000 mg/L 30-day average, resulting in 100% injection as being the most cost effective means for facility compliance.

Response: *The sulfate limit in this permit is based on the “good enough quality” requirement in 40 CFR § 435.51 described below. No cost information for possible treatment options to meet the sulfate limit was provided by the permittee in the comment for EPA to consider.*

13. The permittee commented that sour oilfield discharges, such as Rolff Lake, are likely to fail an acute WET test without extensive treatment to remove sulfide. The permittee commented that such treatment is expensive, that it is likely that it will be uneconomic for Phoenix to treat the water to remove potential toxicity, and that Phoenix would rely on injection of all of the produced water to keep this facility in compliance.

Response: *The EPA agrees that discharges high in sulfide like sour oilfield wastewater are likely to fail an acute WET test. No cost information was provided by the permittee on possible treatment options for sulfide (as H₂S) or other information demonstrating that the injection option is the only means for facility compliance. The EPA notes, however, that it has worked with a similar facility on the Wind River Indian Reservation with a similar discharge to successfully implement a low cost treatment alternative for sulfide, and demonstrate compliance with permit WET requirements. Such treatment technology could potentially be applied to the discharge from this facility, as well. If the permittee chooses injection as a disposal option for the wastewater, the permittee will need to comply with EPA Safe Drinking Water Act Underground Injection Control regulations.*

14. The permittee commented that on page 10 of the permit the use of the phrase “conduct an additional test within two (2) weeks of the date the permittee learned of the test failure” implied completion of an additional test within 2 weeks and they suggested the word “conduct” be replaced with “initiate”. The permittee also requested the timeframe for conducting an additional test be changed to four (4) weeks instead of two (2) weeks due to lab issues.

Response: *EPA agrees to modify the permit language to “initiate an additional test” on Page 10 of the permit. EPA does not agree to change the re-testing requirement to four weeks. WET testing labs are fully equipped and prepared to conduct the testing as required by the WET Regulations. If the permittee’s laboratory has difficulty in meeting the testing requirements in the specified time, EPA recommends the permittee pursue testing services with other qualified lab(s) to conduct WET testing.*

15. The permittee does not agree with the proposed 1,800 mg/L Daily Maximum and 1,000 mg/L 30-Day Average sulfate limits and requests the existing permit sulfate limit of 3,000 mg/L be retained in the new permit.

Response: *The sulfate limitation is a technology based effluent limit (TBEL) based on an EPA effluent limitation guideline. Under the applicable technology-based requirements for the Agricultural and Wildlife Water Use Subcategory of Part 435, discharges of produced water must be of ‘good enough quality’ to be used for wildlife or livestock watering or other agricultural uses. The EPA’s previous permit limitations for total dissolved solids (TDS), chloride, and sulfate were based on similar requirements for livestock protection imposed by the State of Wyoming on oil and gas production facilities outside the Wind River Indian Reservation in the State of Wyoming. For this renewal permit, the EPA reviewed current information from literature and studies to establish limitations which are protective of livestock and wildlife consumption of the produced water discharge.*

The University of Wyoming Report, “Water Quality for Wyoming Livestock and Wildlife Report” (the “AES bulletin”) was published first in 2007 as a research paper and then in 2008 by the University of Wyoming Extension as Experiment Station Bulletin. (2008. M. F. Raisbeck, et al). To become an Experiment State Bulletin the document must be peer reviewed, with additional reviews from the US Department of Agriculture (USDA). EPA believes that, having gone through both peer review and review by the USDA, the AES bulletin represents the best available science concerning the effects of drinking water quality in Wyoming on livestock. EPA has no indication that the research captured in this bulletin is speculative and thus has chosen to adopt its recommendations for the purposes of writing these permits.

Before adopting the recommended sulfate concentrations in the AES bulletin, however, EPA evaluated them to ensure they would ensure that discharges of produced water are of good enough quality for wildlife and livestock uses. That evaluation is summarized as follows:

The AES bulletin includes a review of the health effects of inorganic contaminants on livestock and wildlife. The AES bulletin recommends, “Assuming normal feedstuff [Total Sulfur] concentrations, keeping water SO_4^{2-} concentrations less than 1,800 mg/L should minimize the possibility of acute death in cattle. Concentrations less than 1,000 mg/L should not result in any easily measured loss in performance.” The AES bulletin recommendation is based on the common understanding of total intake. The EPA evaluated this recommendation to determine the impacts of these contaminants, including sulfur, on the beneficial use of produced water, and what level of such contaminants would provide water of ‘good enough quality’ as contemplated in Subpart E

When evaluating the Total Sulfur(S) intake by livestock, the dry matter intake and the intake of S through drinking water together yield the total intake. The National Research Council (NRC) “2005 Mineral Tolerance of Animals: Second Revised Edition” recommends maximum tolerable levels (MTL) for a variety of minerals. The MTL is the maximum intake of a mineral that an animal can ingest without suffering adverse effects, and is typically presented as a concentration in feed or water. The 2005 NRC report recommends an MTL for sulfur of 0.5 % of the daily intake of feed and water based on dry weight equivalent for ruminants fed diets of at least 40% forage. EPA used this MTL as the basis for evaluating what concentration of sulfur in produced water discharges would be of good enough quality for cattle. EPA assumed that if the total concentration of sulfur in feed and water for cattle was greater than .5%, the cattle would suffer adverse effects and the water would not be of good enough quality.

For purposes of this analysis, EPA assumed that 100% of feed for cattle consuming the produced water discharges is forage. A University of Wyoming Extension document looked at forage mineral concentrations, including Sulfur in Big Horn County, Wyoming (See Horn No Date). This document provided the following concentrations:

0.17 % S Median

0.17% Mean

0.22% was 85 %tile

0.26% was the 95th%tile.

EPA is confident that this data indicates Wyoming forage concentrations range from 0.1% to 0.3% S with an average of approximately 0.2% (see Horn). These concentrations are also reflected in the AES bulletin, which assumed sulfur concentrations in forage of 0.1%S, 0.2%S and 0.3%S on a dry matter basis.

To determine likely total sulfur intake for cattle consuming produced water discharges, EPA utilized a sulfur calculator developed by Colorado State University Veterinary Teaching Hospital. EPA looked at each forage S content (0.1%, 0.2%, 0.3%) with various concentrations of sulfate, ranging from 500 mg/l to 4,000 mg/L. The calculator EPA employed the following assumptions and inputs when running the sulfur calculator:

1. Young rapidly growing cattle 600# Estimate at 7-9 months
2. Recently placed on water
3. Mineral Tolerance of Animals 2005
4. Maximum Tolerable Levels (Sheep and Cattle) as 0.3 %Dry Matter for those on High Concentrate diet
5. 0.5% as Dry matter for high forage diet (as % DM includes Food and Water). We used 0.5%
6. For Calculation used Sulfur calculator from CO VTH at <http://dlab.colostate.edu/webdocs/tools/sulfurcalc.cfm>
7. Three temperatures used to describe the impact of additional water intake at higher temperatures.
8. Area shaded greater than or equal to 20% above MTL of 0.5% S as DM

The sulfur calculator generated the following output for forage with .1%S:

In-take of S as % DM			
Feed 100% - 0.1%	Air Temperature		
SO ₄ in H ₂ O (mg/L)	40°F	70°F	90°F
500	0.15	0.17	0.22
1000	0.21	0.23	0.34
1500	0.26	0.3	0.46
1800	0.29	0.34	0.53
2000	0.31	0.37	0.58
2500	0.37	0.43	0.7
3000	0.42	0.5	0.82
3500	0.47	0.57	0.94
4000	0.53	0.63	1.06

The sulfur calculator generated the following output for forage with .2%S:

In-take of S as % DM			
Feed 100% - 0.2%	Air Temperature		
SO ₄ in H ₂ O (mg/L)	40°F	70°F	90°F
500	0.25	0.27	0.32
1000	0.31	0.33	0.44
1500	0.36	0.4	0.56
1800	0.39	0.44	0.63
2000	0.41	0.47	0.68
2500	0.47	0.53	0.8
3000	0.52	0.6	0.92
3500	0.57	0.67	1.04
4000	0.63	0.73	1.16

The sulfur calculator generated the following output for forage with .3%S:

In-take of S as % DM			
100% - Feed 0.3%	Air Temperature		
SO ₄ in H ₂ O (mg/L)	40°F	70°F	90°F
500	0.35	0.37	0.42
1000	0.41	0.43	0.54
1500	0.46	0.5	0.66
1800	0.49	0.54	0.73
2000	0.51	0.57	0.78
2500	0.57	0.63	0.9
3000	0.62	0.7	1.02
3500	0.67	0.77	1.14
4000	0.73	0.83	1.26

These three charts indicate that at all concentrations of S in forage there is a direct relationship between water intake and temperature: the higher the temperature the greater the water intake. As a result, as temperature increases, the total intake of sulfate (and, therefore, sulfur) also increases. UW AES bulletin B1183 utilized a forage S content of 0.2%, and the Horn study indicates that the average S content of forage in Wyoming is about .2%. As a result, EPA concluded that it is reasonable to base its analysis on an S content of 0.2% in forage for cattle on the Wind River Indian Reservation.

Thus, EPA relied upon the 0.2% forage content chart:

In-take of S as % DM			
Feed 100% - 0.2%	Air Temperature		
SO ₄ in H ₂ O (mg/L)	40°F	70°F	90°F
500	0.25	0.27	0.32
1000	0.31	0.33	0.44
1500	0.36	0.4	0.56
1800	0.39	0.44	0.63
2000	0.41	0.47	0.68
2500	0.47	0.53	0.8
3000	0.52	0.6	0.92
3500	0.57	0.67	1.04
4000	0.63	0.73	1.16

Assuming a forage content of 0.2%, this chart indicates that during times when the temperature is 70F, the sulfur MTL for cattle is exceeded by 20% when the water consumed by the cattle exceeds 3,000 mg/L SO₄. When the temperature is 90F, the sulfur MTL for cattle is exceeded by 26% when the water consumed by the cattle exceeds 1800 mg/L SO₄. EPA believes that this aligns with the AES bulletin with the same forage content of 0.2%, which recommended “keeping water SO₄²⁻ concentrations less than 1,800 mg/L” to minimize the possibility of death in cattle.

As the permittee notes in its comments, the impact of the intake of sulfur (and other inorganic chemicals) in cattle and other livestock depends on many variables. These can include livestock breed, livestock producer management practices, livestock acclimation to waters with high sulfate concentrations, water management practices (e.g., mixing high sulfate concentration water with low sulfate concentration water to achieve desired ambient conditions), and many others. EPA must write permits to ensure that discharges of produced water are “of good enough quality” for livestock and wildlife regardless of other factors that come into play during the water’s beneficial use. EPA’s reevaluation of the recommendations in the AES bulletin using base information from the NRC 2005 Mineral Tolerance of Animals 2nd Revised Edition and the Sulfur calculator from Colorado State University Veterinary Teaching Hospital produced similar water quality to the recommendations in the AES bulletin. EPA has thus concluded that the recommendation made in the AES bulletin are reasonably safe for most circumstances. Moreover, EPA has found no other compelling information to suggest that a different sulfate limit is appropriate. As a result, the sulfate permit limitations in the final permit remains unchanged.

Horn, Blaine E. (no date) Mineral Content of Range Grass Big Horn Mountain Area. University of Wyoming Cooperative Extension Service Available at <http://www.uwyo.edu/ces/county/johnson/files/mineral-report.pdf> verified 18 March 2014.

2005. National Research Council. *Mineral Tolerance of Animals: Second Revised Edition*. Washington, DC: The National Academies Press, 2005 Available from http://www.nap.edu/catalog.php?record_id=11309 verified 10 March 2014.

2008. M. F. Raisbeck, Riker S.L., Tate C.M., Jackson R., Smith M.A., Reddy K.J., Zygmunt J.R.. Water Quality for Wyoming Livestock and Wildlife: A review of the literature pertaining to the health effects of inorganic contaminants. (UW AES bulletin B-1183). Available at <http://www.uwyo.edu/ces/pubs/b1183/> verified 10 March 2014.

Sulfur calculator from CO VTH at <http://dlab.colostate.edu/webdocs/tools/sulfurcalc.cfm>

16. The permittee also commented on sulfide toxicity and the relationship between total sulfides and the dissociation product hydrogen sulfide. The permittee requested the limit for sulfide be expressed as hydrogen sulfide instead of total sulfide.

Response: *EPA agrees with the permittee that the effluent limitation in the proposed permit was expressed incorrectly as total sulfide. The references to “sulfide” in the effluent limit table in Section 1.3.1.3 and the monitoring requirement table 1.3.2 and footnote d/ of that table have been replaced with “sulfide (as H₂S).” Since there currently is no approved analytical method for sulfide (as H₂S) under 40 CFR Part 136 which can detect the pollutant at that low of a concentration, EPA added in a Reporting Level for sulfide (as H₂S) in the final permit of 0.10 mg/L (100 µg/L) which is achievable under the approved procedures of 40 CFR Part 136. As described in the permit, any detection of sulfide (as H₂S) at or above the Reporting Level will be considered a violation of the permit. Values reported below 0.10 mg/L (100 µg/L) will be considered in compliance with the permit conditions.*

17. The permittee commented that the proposed limit for total sulfides is not appropriate for the type of receiving water and that although EPA has allowed a compliance period in the permit to achieve the limitation, they will not be able to meet the limit without “extensive treatment” and they would rely on 100% injection of the produced water.

Response: *EPA disagrees that the limitation for sulfide (as H₂S) is not appropriate for the receiving water. As explained in responses other response above, the receiving water is properly classified as a Class 3B water, and the permit limitation is based on protection of the aquatic life designated use for that class. The aquatic life criterion for sulfide (as H₂S), 0.002 mg/L, is established in the Tribes’ water quality requirements, and is equivalent to EPA’s published recommended criterion for sulfide (as H₂S) for protection of aquatic life. Since there is no dilution available in the receiving water, the value is to be met at the end of the pipe.*

18. The permittee commented that the proposed limit for chloride should not be applied to a Class 3B receiving water and the permit conditions be changed back to the previous permit limit of 2000 mg/L.

Response: *The EPA established a new permit limit for chloride based on protection of the aquatic life use of the receiving water. The chloride criteria for acute and chronic receiving water concentrations were adopted by the Tribes and are equivalent to the EPA’s 304(a) recommended water quality criteria for protection of aquatic life. The acute and chronic criterion were established as daily maximum 860 mg/L and monthly average 230 mg/L due to the lack of dilution in the receiving water.*

19. The permittee requested that the existing Oil and Grease monitoring frequency (i.e., monthly) be retained, rather than the new weekly monitoring requirement in the proposed permit. The permittee stated that the existing monthly oil and grease monitoring frequency has been adequate to detect any oil and grease pass through at this facility.

Response: *After reviewing the compliance monitoring information submitted by the permittee, the EPA believes the increase in monitoring frequency for Oil and Grease is appropriate due to the frequent reporting of results close to the permit limit of 10 mg/L. The average concentration reported in the fourteen results reported since 2005 was 9.0 mg/L and 71% (10/14) of those results exceeded 9.3 mg/L Oil and Grease. The EPA therefore believes increasing monitoring of the pollutant is appropriate and a weekly frequency will be retained in the final permit.*

20. The permittee requests that the implementation of the mercury monitoring plan be based on two mercury samples exceeding 0.77 mg/L rather than one. Phoenix believes any detection of mercury in a sample will likely be due to lab error, and argue that is likely the case of the October 25, 2005 sample. Re-analysis of the same sample or analysis of a follow up sample is needed to validate the mercury results over 0.77 mg/L. The permittee also requests that any mercury monitoring requirements and permit limits be based on dissolved mercury instead of total mercury, as dissolved mercury would be the bio-available form. A dissolved mercury standard, for purposes of aquatic life protection, would be consistent with the Tribal water quality requirements.

Response: *Phoenix has submitted no documentation to substantiate that the results from the 2005 sample were due to lab contamination. However, an older mercury sampling and analysis method was used at that time. Use of proper sampling and lab techniques for analysis is critical; the permit requires use of clean methods and should be strictly adhered to. Any exceedance of the 0.77 mg/L using the proper sampling and analytical methods would be a cause for concern and a second sample is not necessary. The EPA disagrees with the request that any mercury monitoring requirements and permit limits be based on dissolved mercury. The total mercury monitoring requirements and permit limits are based on the EPA recommended criteria and the Tribes' water quality requirements, which are expressed as the total recoverable form and which include the dissolved and suspended fractions. Therefore, the EPA is not changing the mercury monitoring requirements in the permit.*

21. Phoenix requests a compliance schedule for all new or more stringent effluent limits in the final permit for which they cannot immediately achieve compliance.

Response: *EPA agrees the facility cannot meet the proposed discharge limitations for sulfate, sulfide, and chloride without treatment and will address each pollutant separately due to the basis of the limit. EPA's ability to provide a period of compliance under the CWA and the NPDES permitting rules at 40 CFR Part 122 is limited. Section 301(b)(1)(A) requires point sources to immediately comply with effluent limitations based on technology-based requirements under the Act. As a result, compliance schedules providing for a delay in compliance are unavailable for TBELs. However, EPA has long interpreted CWA Section 301(b)(1)(C) as allowing compliance schedules for WQBELs if authorized under state law. See *In the Matter of Star-Kist Caribe, Inc.*, 3 E.A.D. 172, 175, 177 (1990); Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits, memorandum from James Hanlon, Office of Wastewater Management to Alexis Strauss, Director, Water Division, Region 9, May 10, 2007.*

The Tribes have adopted water quality requirements that include a provision authorizing the use of compliance schedules. Thus, compliance schedules are available for WQBELs in this permit.

The permit limit for sulfate is a TBEL under 40 CFR Part 435, Subpart E. As a result, a permit compliance period is not allowed for this pollutant. The permit limits for chloride and sulfide are WQBELs based on the Tribes' water quality requirements. As a result, EPA has provided a 36-month compliance period in part 1.3.3. of the permit.

22. A comment was received stating that the existing beneficial use of water would be jeopardized by the loss of the discharge. The comment supported the use of the discharge in providing riparian habitat and benefits to aquatic and non-aquatic life including plants, as well as domestic and wildlife uses, in an area where little or no water is available for this type of habitat or uses.

Response: *EPA understands that the discharge currently provides riparian meadow/wetland and open surface water habitat for many aquatic and non-aquatic species, as well as providing a source of drinking water for livestock and terrestrial wildlife. EPA evaluated appropriate water quality criteria for aquatic life, and livestock and wildlife, in establishing the effluent limitations for the renewal permit. The new and revised permit limitations will ensure that the discharge quality is sufficient to maintain both aquatic life and agricultural/wildlife uses in those riparian/wetland and open water areas.*