

Jennifer Carr, P.E. Administrator Nevada Division of Environmental Protection 901 S. Stewart Street, Suite 4001 Carson City, Nevada 89701 Transmitted by Email Only

Subject: Approval of Nevada's Revised Water Quality Standards - Site-specific selenium criteria to protect aquatic life in the Las Vegas Wash

Dear Administrator Carr,

I am pleased to approve the revised water quality standards (WQS) in the Subject amendments consistent with Clean Water Act (CWA) Section 303(c) and 40 C.F.R. Part 131. Supported by robust science and stakeholder engagement, the approved standards include site-specific selenium freshwater criteria to support aquatic life uses in portions of the Las Vegas Wash in Nevada.

The approved standards take effect immediately for CWA purposes. Incorporated as part of this letter are Enclosure A (summary table of approved standards), Enclosure B (EPA's analysis of the WQS and rationale for approval), and Enclosure C (Full text of approved standards).

I look forward to our continued partnership to protect Nevada's water quality and aquatic life. Please contact me if you would like to discuss further, or your staff may contact Dave Guiliano at 415-947-4133 or guiliano.dave@epa.gov with specific questions concerning this approval.

Sincerely,

Tomás Torres Director, Water Division

Enclosures

- A. Summary of Approved Standards
- B. EPA Review of site-specific selenium criteria for Las Vegas Wash
- C. Full text of Approved Standards from Nevada's Regulation

cc: Jason Kuchnicki, NDEP Water Quality Planning Bureau

## Enclosure A Summary of Approved Standards

The following site-specific Water Quality Standards (WQS) for selenium to support aquatic life uses in portions of the Las Vegas Wash are summarized from the State of Nevada, State Environmental Commission, "Approved Regulation of the State Environmental Commission: LCB File No. R116-22, Adopted on December 14, 2022," as submitted to EPA on February 10, 2023. These WQS are consistent with the requirements of Section 303(c) of the Clean Water Act (CWA) and 40 C.F.R. Part 131 and are now effective for CWA purposes in the portions of the Las Vegas Wash as described in the Nevada Administrative Code 445A.2156 and 445A.2158. Full text of the revised standards is in Enclosure C. The statewide selenium criteria to support aquatic life uses in freshwater approved by EPA on August 26, 2022, remain in effect for CWA purposes for all other freshwaters.

Selenium Criteria	Las Vegas Wash, Site-Specific Criteria for Selenium	Units
Fi	sh Tissue	
The criterion values for selenium in fis not be exceeded.	h tissue are instantaneous	s values that may
Fish egg/ovary tissue	19.0	mg/kg
Fish whole body	9.5	mg/kg
Fish muscle (skinless, boneless fillet)	13.1	mg/kg
Wa	ter Column	
30-day average, lentic systems	6.0	μg/L
30-day average, lotic systems	6.3	μg/L
Intermittent (>1 every 3 yrs), lentic	$(6.0 - C_{bkgd} (1 - f_{int}))/f_{int}$	μg/L
Intermittent (>1 every 3 yrs), lotic	(6.3 - C <sub>bkgd</sub> (1 - f <sub>int</sub> ))/f <sub>int</sub>	μg/L

The following equation is used for calculating the "average background" for a 30-day period (see Equation 20, EPA 2021):  $C_{30-day} = C_{int}*f_{int} + C_{bkgd}(1 - f_{int})$ 

The 30-day average and intermittent concentration limits for dissolved selenium may be exceeded only once every 3 years.

Nothing in this section authorizes a person to take fish without complying with applicable provisions of law related to fishing in this State.

As used in this section:

(a) "C<sub>bkgd</sub>" means the average daily ambient concentration integrated over 30 days.

(b) "f<sub>int</sub>" means the fraction of any 30-day period during which there are elevated concentrations of selenium.

(c) "Fish muscle tissue" means tissue collected from a skinless and boneless fillet.

(d) "Lentic water" means a standing body of water such as a lake or reservoir.

(e) "Lotic water" means a flowing or moving body of water such as a stream or river.

#### Enclosure B

# EPA review of site-specific criteria for selenium to protect aquatic life in the Las Vegas Wash

#### I. Background

Section 303 of the Clean Water Act (CWA), 33 U.S.C. § 1313, requires states to establish water quality standards (WQS) and to submit any new or revised standards to EPA for review and approval or disapproval. See also 40 C.F.R. Part 131.

The Nevada Division of Environmental Protection's (NDEP) process for revising this WQS included a September 15, 2022 Notice of Proposed Rulemaking soliciting public comments on the revisions. The public comment period ended on October 24, 2022. NDEP received two written comments in support of its proposed revision. NDEP held a public hearing before the State Environmental Commission (SEC) on December 14, 2022, during which the amendments were approved by the SEC. A certification from the Attorney General for Nevada, dated February 3, 2023, stated that the revisions were duly adopted pursuant to Nevada law.<sup>1</sup> EPA finds the public participation procedures followed by the State in development and adoption of the site-specific WQS are consistent with the procedural requirements set forth in 40 C.F.R. § 131.20(b). EPA considered Nevada's submittal complete on February 10, 2023, when Nevada's submittal and request for approval were received by email.

As discussed more fully below, where EPA has determined that Nevada's rule revisions are new or revised WQS, EPA has reviewed and acted on these revisions pursuant to Section 303(c) of the CWA.<sup>2</sup>

#### **II.** Synopsis of Approval

EPA's implementing regulations at 40 C.F.R. Part 131, require, among other things, that WQS specify appropriate designated uses of the waters and water quality criteria that protect those uses.<sup>3</sup> EPA reviews the WQS to determine if they are consistent with the factors listed at 40 C.F.R. § 131.5 and contain the minimum requirements listed at 40 C.F.R. § 131.6.

Nevada submitted revisions to its State-wide water quality criteria for selenium to establish site-specific criteria (SSC) for selenium to support aquatic life beneficial uses in the Las Vegas Wash that are based on Clean Water Act 304(a) selenium criteria and recalculation procedures

<sup>&</sup>lt;sup>1</sup> Armstrong, Katie S., Deputy Attorney General, State of Nevada. Letter, Re: 40 CFR 131.6(e) Certification of Regulation R116-22. February 3, 2023.

<sup>&</sup>lt;sup>2</sup> EPA has provided FAQs on "What is a New or Revised Water Quality Standard Under CWA 303(c)(3)?" at https://www.epa.gov/sites/production/files/2014-11/documents/cwa303faq.pdf. The link provides detailed information on such analysis.

<sup>&</sup>lt;sup>3</sup> Nevada regulations use the term "beneficial use" to mean "designated use" under the CWA. The terms are used interchangeably in this document.

therein.<sup>4</sup> EPA finds the WQS in Enclosure C are consistent with 40 C.F.R. Part 131 and are approved pursuant to Section 303(c) of the CWA. The approved criteria apply only to the portions of the Las Vegas Wash specified in the regulation. The statewide selenium criteria to support aquatic life uses in freshwater approved by EPA on August 26, 2022, remain in effect for all other freshwaters of Nevada.

## III. Analysis of Submittal

# Area of applicability

Nevada's new SSC apply to portions of the Las Vegas Wash as described in the Nevada Administrative Code (NAC) 445A.2156 and 445A.2158 and shown in Figure 1 below.<sup>5</sup> Lentic (i.e. standing water) criteria apply in the ponds of the Clark County Wetlands Park<sup>6</sup> and lotic (i.e. flowing water) criteria apply to the following waters:

NAC 445A.2156: Colorado Region: Las Vegas Wash at the Historic Lateral. (NRS 445A.425, 445A.520). The limits of this table apply to the body of water known as the Las Vegas Wash from the confluence of Sloan Channel and Las Vegas Wash to the Historic Lateral. This segment encompasses the discharge from the Clark County wastewater treatment plant, the City of Las Vegas wastewater treatment plant and the City of Henderson wastewater treatment plant. This segment of the Las Vegas Wash is located in Clark County.

NAC 445A.2158: Colorado Region: Las Vegas Wash at Lake Mead. (<u>NRS</u> <u>445A.425</u>, <u>445A.520</u>). The limits of this table apply to the body of water known as the Las Vegas Wash from the Historic Lateral to its confluence with Lake Mead. This segment of the Las Vegas Wash is located in Clark County.

<sup>&</sup>lt;sup>4</sup> Nevada State Environmental Commission (SEC). Approved Regulation of the State Environmental Commission: LCB File No. 116-22. Filed December 29, 2022

<sup>&</sup>lt;sup>5</sup> *Id*. p. 9.

<sup>&</sup>lt;sup>6</sup> B. Latham of Arcadis U.S., Inc. and B. Fulton of Benchmark Environmental LLC. (NDEP Consultant Report) "Draft Proposal for Site-Specific Selenium Criteria." Prepared for Clark County Regional Flood Control District. August 2022. p. 16. "The Clark County Wetlands Park is an off-channel wetland system of ponds and riparian wetlands. Before 2005, the primary source of water in the park was Monson Channel, with relatively higher concentrations of selenium, however, in 2005, the source of water for the wetland park was changed to the same source of treated effluent as the majority of the flow in Las Vegas Wash."

**Figure 1. Site-specific criteria location**<sup>7</sup>



#### Site-Specific Criteria Recalculation

Nevada developed the site-specific selenium criteria consistent with site-specific Recalculation and Translation Procedures outlined in EPA's 2016 Aquatic Life Ambient Water Quality Criterion for Selenium -Freshwater 2016.<sup>8</sup> Specifically, Appendix K pp. 5-6 provides recommendations on how states can develop site specific selenium criteria that are scientifically defensible and protect the applicable designated use.

<sup>&</sup>lt;sup>7</sup> NDEP. NDEP Rationale document. July 2022. p. 5.

<sup>&</sup>lt;sup>8</sup> U.S. Environmental Protection Agency (EPA), (2016 Selenium criteria document) Pub. No. EPA-822-R-21-006,

<sup>&</sup>quot;2021 Revision\* to: Aquatic Life Ambient Water Quality Criteria for Selenium - Freshwater – 2016." 2021 revision. Appendix K.

## Table 1: Nevada Selenium Criteria to Protect Aquatic Life in Freshwater

*Except as provided in subsections 2 and 8 of the regulation (see Enclosure C), the criterion values for selenium in fish tissue are instantaneous values that may not be exceeded.* 

Selenium Criterion	Nevada Statewide Criteria Approved by EPA in 2022 <sup>9</sup>	Site-Specific Criteria for the Las Vegas Wash <sup>10</sup>	Units
	Fish Tissue		
Fish Egg or Ovary Tissue	19	19	mg/kg
Fish Whole Body Tissue	9.5	9.5	mg/kg
Fish Muscle Tissue	13.1	13.1	mg/kg
	Water Column		
30-day average, lentic	1.9	6.0	µg/L
30-day average, lotic	3.9 6.3		µg/L
Intermittent, lentic	$(1.9 - C_{bkgd} (1-fi_{nt}))/f_{int}$	$(6.0 - C_{bkgd} (1-f_{int}))/f_{int}$	µg/L
Intermittent, lotic	$(3.9 - C_{bkgd} (1-f_{int}))/f_{int}$	$(6.3 - C_{bkgd} (1-f_{int}))/f_{int}$	µg/L

The 30-day average and intermittent concentration limits for dissolved selenium may be exceeded only once every 3 years.

As used in this table:

(a) "C<sub>bkgd</sub>" means the average daily ambient concentration integrated over 30 days.

(b) "*f*<sub>int</sub>" means the fraction of any 30-day period during which there are elevated concentrations of selenium.

(c) "Fish muscle tissue" means tissue collected from a skinless and boneless fillet.

(d) "Lentic water" means a standing body of water such as a lake or reservoir.

(e) "Lotic water" means a flowing or moving body of water such as a stream or river.

#### Fish Tissue Criteria

The fish tissue criteria (shown in Table 1) approved by EPA in 2022 are retained in the SSC. EPA determined that these criteria are neither new nor revised water quality standards and therefore do not require action pursuant to CWA section 303(c).<sup>11</sup>

#### Water Column Criteria

NDEP derived the water column criteria by translating the concentration of selenium in fish tissue to water column concentrations for lentic and lotic waters using empirical

<sup>&</sup>lt;sup>9</sup> U.S. Environmental Protection Agency. Approval of "Nevada Water Quality Standards Selenium Criteria to support aquatic life uses in freshwater (Nevada State Environmental Commission Approved Regulation of the State Environmental Commission: LCB File No. R043-19, December 30, 2019)" August 26, 2022.

<sup>&</sup>lt;sup>10</sup> State of Nevada, State Environmental Commission, "Approved Regulation of the State Environmental Commission: LCB File No. R116-22, Adopted December 14, 2022." Submitted to U.S. Environmental Protection Agency on February 10, 2023. at p. 4-6.

<sup>&</sup>lt;sup>11</sup> See footnotes 2 and 9.

bioaccumulation modeling known as the Bioaccumulation Factor (BAF) approach.<sup>12, 13</sup> EPA's selenium criteria document states "...the empirical BAF approach may be desirable in circumstances where fish tissue and water data are available."<sup>14</sup> To manage uncertainty, EPA's selenium criteria document recommends against developing BAFs from data extrapolated from different sites or across large spatial scales.<sup>15</sup>

In this case, substantial amounts of fish tissue and water column data were available from the waterbody, specifically from the lotic and lentic environments individually. This included 365 water column samples and 60 fish samples from the wash (i.e., lotic) portion of the waterbody, and 33 water column samples and 23 fish samples from the nature ponds (i.e., lentic) portion of the wash (see table 3) over a period of nearly 20 years. In addition, the waterbody is not large spatially, at just 12 miles in length, with the nature ponds portion 210 acres in area.

NDEP used site-specific fish tissue and water column samples to calculate the site-specific water column criteria. NDEP provided scientific justification to support the assemblage of fish considered in its recalculation procedures. Reliance on fish tissue and water column samples from both lentic and lotic environments is more representative of water residence time to accurately calculate each criterion. EPA agrees that the use of the BAF approach to derive the site-specific water column criteria is appropriate here because the areas are compact and distinct, and the BAFs are calculated from spatially and temporally representative samples (see Tables 4 and 5).<sup>16</sup>

NDEP relied on fish surveys conducted since 2002 that concluded there are eight species of fish commonly found in the Las Vegas Wash:<sup>17</sup>

- Blue tilapia (Oreochromis aureus)
- Common carp (Cyprinus carpio)
- Fathead minnow (*Pimephales promelas*)
- Green sunfish (Lepomis cyanellus)
- Largemouth bass (Micropterus salmoides)
- Mosquito fish (Gambusia affinis)
- Red shiner (Cyprinella lutrensis)
- Suckermouth catfish (Hypostomus plecostomus)

<sup>&</sup>lt;sup>12</sup> NDEP. NDEP Rationale document. July 2022. at p. 4-5.

<sup>&</sup>lt;sup>13</sup> "The empirical modeling approach establishes a relationship between concentrations of selenium in fish tissue and ambient water directly by measuring selenium concentrations in both media and calculating the ratio of the two concentrations. The ratio (BAF) can then be used to estimate the target concentration of selenium in the water column as related to the adopted fish tissue element." US EPA. 2016 Selenium criteria document. at K-3. <sup>14</sup> *Id.* p. K-3.

<sup>&</sup>lt;sup>15</sup> *Id,* at K-34.

<sup>&</sup>lt;sup>16</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022. Table 7 and 8.

<sup>&</sup>lt;sup>17</sup> NDEP. NDEP Rationale Document. July 2022. at p. 17.

In a separate study, between 2003 and 2021, 95 fish from the Las Vegas Wash and the Nature Preserve Ponds were sampled and analyzed for selenium concentrations:<sup>18</sup>

- Common carp (Cyprinus carpio)
- Green sunfish (*Lepomis cyanellus*)
- Largemouth bass (Micropterus salmoides)
- Mosquito fish (Gambusia affinis)
- Black bullhead catfish (Ameiurus melas)

Following this approach, NDEP relied on Green sunfish followed by Common carp (*Cyprinus carpio*) in its calculation.<sup>19, 20, 21</sup> Nevada added Common carp to the calculation based on both the ubiquity of the species in the relevant portions of the Las Vegas Wash and the large body of data available. The carp seemed to demonstrate greater bioaccumulation, so consideration of both species is appropriate. NDEP did not include other species due to limited samples, which limited spatial distribution throughout the waterbodies. The study excluded fish taken from the Nature Preserve Ponds prior to 2004 (when the source water for the ponds was changed from Monson Channel to treated effluent from wastewater treatment plants) because the source water changed from a higher selenium concentration (Monson Channel) to one with a significantly lower selenium concentration (treated effluent).<sup>22</sup> Table 2 shows the number of water column samples, and fish samples by species used in the calculation of the SSC for each ecosystem, lotic (flowing water) and lentic (standing water).

Nevada derived its SSC from 83 fish tissue samples collected from 2003 to 2021 and 398 water column samples from both the Las Vegas Wash (lotic waters) and the Nature Preserve (lentic waters) (Table 3). <sup>23</sup> The sampling sites are shown in Figure 4 below.

Sample Type	Las Vegas W	Nature Preserve (lentic)	
Fish Tissue	green sunfish	9	8
	(Lepomis cyanellus)		
	common carp 51		15
	(Cyprinus carpio)		
Water Column Samples	36	33	

Table 2. I	Data sources	used in site-specif	ic criteria calculation <sup>24</sup>
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<sup>&</sup>lt;sup>18</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022. at p. 16.

<sup>&</sup>lt;sup>19</sup> US EPA. 2016 Selenium criteria document. 2021 revision. at p. K-11-12.

<sup>&</sup>lt;sup>20</sup> NDEP. NDEP Rationale document. July 2022. at p. 9.

<sup>&</sup>lt;sup>21</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022. at p. 15-16.

<sup>&</sup>lt;sup>22</sup> *Id*, at p. 16.

<sup>&</sup>lt;sup>23</sup> Id.

<sup>&</sup>lt;sup>24</sup> *Id*, at Tables 9-10 p. 27.



Figure 2. Sampling locations for site-specific criteria development

Nevada used the Bioaccumulation Factor (BAF) equation from EPA's 304(a) recommended selenium criteria document as shown below:<sup>25</sup>

$$BAF = \frac{C_{tissue}}{C_{water}}$$

(Equation K-8)

Where:

BAF	=	bioaccumulation factor derived from site-specific field-collected
		samples of tissue and water (L/kg)
$C_{tissue}$	=	concentration of chemical in fish tissue (mg/kg)
$C_{water}$	=	ambient concentration of chemical in water (mg/L)

<sup>&</sup>lt;sup>25</sup> US EPA. 2016 EPA Selenium criteria document. 2021 revision. Excerpt of equation at p. K-32.

Surfac	e Water	Whole-Body Fish Tissue (mg/kg WB dw)		Fish Bioaccumulation Factors (L/kg)			
N	Total Se (µg/L)	N	Carp	N	Sunfish	Carp BAF	Sunfish BAF
2002-2003							
83	3.381	9	6.354			1879.2	
2004-2005							
84	3.678	10	4.63	4	4.95	1258.9	1345.9
2006-2007			•	•	•		•
71	3.706	3	5.533	4	4.475	1493	1207.4
2009-2010	•	•	•		•	•	•
42	2.871	15	3.835			1335.5	
2020-2021							
85	2.286	14	5.274	1	3.79	2306.7	1657.6
	•		•	Average Fis	h BAF (L/kg)	1654.7	1403.7
	Carp C <sub>target</sub> (µg/L)			5.741			
				Sunfish	n C <sub>target</sub> (µg/L)		6.768
	Average of Carp and Sunfish (µg/L)			6.2	255		

Table 4. Summary of surface water, fish tissue, site-specific BAFs, and site-specific water column values based on annual means for lower Las Vegas Wash (lotic water) <sup>26</sup>

Table 5. Summary of surface water, fish tissue, site-specific BAFs, and site-specific water column values based on annual means for Nature Park ponds (lentic water) <sup>27</sup>

Surface	e Water	Whole-Body Fish Tissue (mg/kg WB dw)		sue Fish Bioaccumulatio Factors (L/kg)		cumulation s (L/kg)	
N	Total Se (μg/L)	Ν	Carp	N	Sunfish	Carp BAF	Sunfish BAF
2004-2005							
12	3.748			2	3.8		1013.8
2006-2007							
10	2.94			6	4.933		1678
2020-2021							
11	2.136	15	4.06			1900.4	
Average Fish BAF (L/kg)			1900.4	1345.9			
Carp C <sub>target</sub> (µg/L)			4.999				
	Sunfish C <sub>target</sub> (µg/L) 7.05			7.059			
	Average of Carp and Sunfish C <sub>target</sub> (µg/L)			6.0	)29		

<sup>&</sup>lt;sup>26</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022. Copy of Table 7.

<sup>&</sup>lt;sup>27</sup> *Id*. Copy of Table 8.

Nevada's site-specific criteria for the Las Vegas Wash are based on measurements of total and dissolved selenium samples, rather than only dissolved selenium in the statewide criteria, because most of the historical data available is for total selenium. In addition, when corresponding total and dissolved data were compared for this waterbody they were nearly identical. Therefore, both total and dissolved were used to provide the largest sample for the translation. Nevada opted to use both forms of selenium because it found they were "almost equivalent" and because it would increase the number of samples available for the BAF calculations. NDEP's scientific basis for the total and dissolved numbers being almost equivalent is due to "...the occurrence of selenium as an oxyanion (selenate, SeO4-2) under the oxidizing alkaline conditions, and the low affinity of selenate for sorption or complexation with organic matter and particulates."<sup>28</sup> Nevada also relied on an analysis of the median ratio of paired total-to-dissolved selenium data that supports using total and dissolved selenium as equivalent:

The median ratio of paired total-to-dissolved selenium data analyzed by the same analytical laboratory from 2002 to 2021 was 0.995 (n = 476 paired measurements), indicating that the dissolved fraction represents approximately all of the selenium present in the Lower Las Vegas Wash.<sup>29</sup>

Based on the above analysis, NDEP provided reasonable scientific justification to use measurements for both total and dissolved selenium in its water column translation. In addition, NDEP's supporting documents, the NDEP Rationale and the NDEP Consultant Report <sup>30</sup> the NDEP Rationale<sup>31</sup> and the NDEP Consultant Report, provide a sufficient scientific basis to explain why concentrations of selenium in water result in lower fish tissue concentrations in the Las Vegas Wash than in other environments. The supporting documents explain that the geology, chemistry, literature, and data show that selenium bioaccumulates at a lower rate in the Las Vegas Wash. To summarize, speciation data indicate that selenate is the predominant species of selenium (rather than selenite or selenocyanate) in the Las Vegas Wash and its tributaries. NDEP's submittal also cites evidence that that selenate has less potential to bioaccumulate than selenite:

This is important because the bioconcentration potential of selenate and its waterborne toxicity tend to be less than for selenite. In addition, increasing sulfate concentrations in water reduce the bioconcentration of selenate (DeForest et al. 2017), likely due to direct competition at the cell uptake site (Brix et al. 2001). Selenate and sulfate are structurally similar group VI oxyanions of the form XO4. The average concentration of sulfate in the Lower Las Vegas Wash from 2002 to 2021 was 540  $\pm$  100 milligrams per liter (n = 2,995), which is within the upper range shown by others to mitigate the bioaccumulation of selenium in lotic, selenate-dominated systems (DeForest et al. 2017)."

<sup>&</sup>lt;sup>28</sup> NDEP. NDEP Rationale document. July 2022. at p. 7.

<sup>&</sup>lt;sup>29</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022. at p. 13.

<sup>&</sup>lt;sup>30</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022.

<sup>&</sup>lt;sup>31</sup> NDEP. NDEP Rationale document. July 2022.

EPA's selenium criteria document notes, "Reduced selenate bioconcentration with increasing sulfate concentration has been demonstrated in *Daphnia magna* (Hansen et al. 1993). A significant inverse relationship was shown to exist between acute selenate toxicity to aquatic organisms and ambient sulfate concentrations (Brix et al. 2001a)."<sup>32</sup> Higher concentrations of sulfate occur in the Las Vegas Wash and NDEP provided scientific support to demonstrate that this further mitigates bioaccumulation "in lotic, selenate-dominated systems" such as the Las Vegas Wash.<sup>33, 34</sup>

Based on EPA's review, Nevada developed its site-specific criteria for the Las Vegas Wash following a sound scientific rationale and the resulting criteria protect the applicable designated uses in accordance with 40 C.F.R. 131.11.

# IV. Consultation with Indian Tribes

EPA upholds its trust responsibility to federally recognized tribal governments consistent with the 2011 EPA Policy on Consultation and Coordination with Indian Tribes (https://www.epa.gov/tribal/epa-policy-consultation-and-coordination-indian-tribes). Meaningful communication and coordination with appropriate tribal leadership on a government-to-government basis prior to EPA taking actions or making decisions that may affect tribal interests is a fundamental principle of this Policy.

On January 27, 2023, EPA sent written offers to consult to the following tribes:

- 1) Chemehuevi Indian Tribe of the Chemehuevi Reservation
- 2) Colorado River Indian Tribes of the Colorado River Indian Reservation
- 3) Fort Mojave Indian Tribe of Arizona, California and Nevada
- 4) Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony
- 5) Moapa Band of Paiute Indians of the Moapa River Indian Reservation

No tribes requested consultation.

# V. Endangered Species Act (ESA) Consultation

Section 7(a)(2) of the ESA states that each federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened (listed) species or result in the destruction or adverse modification of critical habitat. EPA's action on WQS is subject to Section 7 of the ESA.

On November 29, 2022, EPA initiated informal consultation with the United States Fish and Wildlife Service (FWS) to request confirmation of Listed Species and Critical Habitat in the action area and to identify relevant technical information to be considered in EPA's analysis.

<sup>&</sup>lt;sup>32</sup> US EPA. 2016 Selenium criteria document. 2021 revision. at p. A-8.

<sup>&</sup>lt;sup>33</sup> NDEP. NDEP Rationale document. July 2022. at p. 8.

<sup>&</sup>lt;sup>34</sup> Arcadis and Benchmark. NDEP Consultant report. August 2022. at p. 15.

FWS reconfirmed the list of threatened and endangered species on a call with EPA on February 28, 2023.

EPA prepared a Biological Evaluation finding that approval of the site-specific WQS "may affect but is not likely to adversely affect" (NLAA) three federally listed species (Southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma Ridgeway's rail (*Coccyzus americanus*), and bonytail (*Gila elegans*)). On November 29, 2023, EPA transmitted to FWS a request for concurrence with EPA's NLAA findings. On July 10, 2024, FWS provided concurrence.

Separately, on July 10, 2024, EPA and FWS concluded a formal consultation for the federally listed razorback sucker (*Xyrauchen texanus*). FWS provided a Biological Opinion that includes an Incidental Take Statement, Reasonable and Prudent Measures, and Terms and Conditions.<sup>35</sup>

# VI. Conclusion

Based on EPA's review, the site-specific selenium criteria to protect aquatic life in portions of the Las Vegas Wash are consistent with the requirements of the CWA and 40 C.F.R. Part 131. Therefore, the criteria, applicable only to portions of the Las Vegas Wash as described in the Nevada Administrative Code 445A.2156 and 445A.2158, are approved by EPA pursuant to Section 303(c) of the CWA. The approved site-specific criteria apply for CWA purposes in place of the previously approved statewide selenium criteria for those portions of the Las Vegas Wash.

## VII. References

B. Latham of Arcadis U.S., Inc. and B. Fulton of Benchmark Environmental LLC. (NDEP Consultant Report) "Draft Proposal for Site-Specific Selenium Criteria." Prepared for Clark County Regional Flood Control District. August 2022.

Brix, K., and DeForest, D. 2001. Assessing acute and chronic copper risk to freshwater aquatic life using species sensitivity distributions for different taxonomic groups. *Environmental Toxicology and Chemistry.* Vol. 20 No. 5: 1037-1045.

DeForest, D., K. Brix, and W. Adams. 2007. Assessing metal bioaccumulation in aquatic environments: the inverse relationship between bioaccumulation factors, trophic transfer factors and exposure concentration. *Aquatic Toxicology*. 84: 236-246.

Nevada Division of Environmental Protection. (NDEP Rationale document) "Rationale for Site-Specific Standards for Selenium in the Lower Las Vegas Wash, R116-22," July 2022.

<sup>&</sup>lt;sup>35</sup> Knowles, Glen, U.S. Fish and Wildlife Service. Letter to Tina Yin, U.S. Environmental Protection Agency. July 10, 2024.

State of Nevada, State Environmental Commission, "Approved Regulation of the State Environmental Commission: LCB File No. R043-19, Filed December 30, 2019." Submitted to U.S. Environmental Protection Agency on August 4, 2020.

State of Nevada, State Environmental Commission, "Approved Regulation of the State Environmental Commission: LCB File No. R116-22, Filed December 29, 2022." Submitted to U.S. Environmental Protection Agency on February 10, 2023.

U.S. Environmental Protection Agency. 2013. Revised Deletion Process for the Site-Specific Recalculation Procedure for Aquatic Life Criteria. EPA 838-R-13-001.

U.S. Environmental Protection Agency, "2021 Revision\* to: Aquatic Life Ambient Water Quality Criterion for Selenium – Freshwater 2016." August 2021.

Tina Yin, U.S. Environmental Protection Agency. (Biological Evaluation and Request for Concurrence) "Re: Endangered Species Act request for concurrence that *Amendments to the Nevada Water Quality Control Plan* site-specific water quality standard for selenium in the Lower Las Vegas Wash may affect but are not likely to adversely affect listed species." Letter to Glen Knowles, U.S. Fish and Wildlife Service, dated November 29, 2023.

Glen Knowles, U.S. Fish and Wildlife Service. (Concurrence and Biological Opinion) "Re: Consultation for the Approval of the Nevada Division of Environmental Protection's Amended Site-Specific Water Quality Standards Criteria for Selenium in Las Vegas Wash, Clark County, Nevada." Letter to Tina Yin, U.S. Environmental Protection Agency, dated July 10, 2024.

## Enclosure C Full text of the approved Water Quality Standards

The following Site-Specific Water Quality Standards excerpted from the State of Nevada, State Environmental Commission, "Approved Regulation of the State Environmental Commission: LCB File No. R116-22, Filed December 29, 2022," submitted to EPA on February 10, 2023 are consistent with the requirements of Section 303(c) of the Clean Water Act (CWA) and 40 C.F.R. Part 131 and are now effective for CWA purposes in the portions of the Las Vegas Wash described in the Nevada Administrative Code 445A.2156 and 445A.2158.

# Full Text of Revised Water Quality Standards <sup>36</sup>

# APPROVED REGULATION OF THE STATE ENVIRONMENTAL COMMISSION LCB File No. R116-22 Filed December 29, 2022

## AUTHORITY: §§ 1-5, NRS 445A.425 and 445A.520.

A REGULATION relating to water quality standards; revising the water quality standards for selenium for the support of aquatic life for certain bodies of water; and providing other matters properly relating thereto.

Section 1. NAC 445A.1237 is hereby amended to read as follows:

445A.1237 1. Except as otherwise provided in subsection 8, the standards for selenium prescribed in this section for the support of aquatic life are applicable to the waters specified in NAC 445A.123 to 445A.2234, inclusive. The criterion values for selenium are calculated to reflect the lack of sturgeon or related fish species in the waters of this State and maintain the conditions necessary to support, protect and allow the propagation of fish species found in the waters of this State. See references a and b.

2. If the standards for selenium are exceeded at a site, the Commission will review and may adjust the standards for the site if:

(a) The standards are not economically controllable; or

(b) Site-specific values for fish and water have been derived through a technically defensible study (see references a and b) and results have been approved by the Division.

<sup>&</sup>lt;sup>36</sup> Note: This enclosure shows only the final version of the approved language without revisions shown in red text and deletions shown in strikeout. The regulation adopted by Nevada and submitted to EPA found in Nevada State Environmental Commission (SEC). Approved Regulation of the State Environmental Commission: LCB File No. 116-22. Filed December 29, 2022.

3. If data from fish tissue are available, such data shall take precedence over data obtained from a water sample. If data from fish egg or ovary tissue are available, such data shall take precedence over data from whole body tissue or fish muscle tissue.

4. Any sampling of fish tissue must be performed in accordance with EPA protocols. See references a and b.

5. Any person or entity wishing to develop site-specific values for fish tissue and water shall submit a proposed sampling and analysis plan to the Division. The plan must be approved by the Division before the study to derive site-specific values for fish tissue and water is conducted.

6. Except as provided in subsections 2 and 8, the criterion values for selenium in fish tissue are instantaneous values that may not be exceeded. The criterion values for selenium in fish tissue are:

Type of Tissue Analyzed	Criterion Value
	(mg/kg dry weight)
Fish Egg or Ovary Tissue	19
Fish Whole Body Tissue	9.5
Fish Muscle Tissue	13.1

7. Except as provided in subsections 2 and 8, the criterion values for dissolved selenium in the water column for aquatic life are:

Exposure Duration and Category of Water	Criterion Value
	(μg/L)
30-day average, lentic water	1.9
30-day average, lotic water	3.9
Intermittent, lentic water	$(1.9 - C_{bkgd} (1-f_{int}))/f_{int}$
Intermittent, lotic water	(3.9 – C <sub>bkgd</sub> (1-f <sub>in</sub> ))/f <sub>int</sub>

The 30-day average and intermittent concentration limits for dissolved selenium may be exceeded only once every 3 years. See reference a.

8. The criterion values for selenium in fish tissue and dissolved selenium in the water column for aquatic life for the body of water known as the Las Vegas Wash, as described in NAC 445A.2156 and 445A.2158, are as follows:

(a) The criterion values for selenium in fish tissue are instantaneous values that may not be exceeded. The criterion values for selenium in fish tissue are as follows:

Type of Tissue Analyzed	Criterion Value (mg/kg dry weight)
Fish Egg or Ovary Tissue	19
Fish Whole Body Tissue	9.5
Fish Muscle Tissue	13.1

(b) The criterion value for dissolved selenium in the water column for aquatic life are:

Exposure Duration and Category of Water	Criterion Value (μg/L)
30-day average, lentic water	6.0
30-day average, lotic water	6.3
Intermittent, lentic water	$(6.0 - C_{bkgd} (1-f_{int}))/f_{int}$
Intermittent, lotic water	(6.3 – C <sub>bkgd</sub> (1-fint))/fint

The 30-day average and intermittent concentration limits for dissolved selenium may be exceeded only once every 3 years. See reference a.

9. Nothing in this section authorizes a person to take fish without complying with applicable provisions of law related to fishing in this State.

10. As used in this section:

(a) "*C*<sub>bkgd</sub>" means the average daily ambient concentration integrated over 30 days.

(b) "*f*<sub>int</sub>" means the fraction of any 30-day period during which there are elevated concentrations of selenium.

(c) "Fish muscle tissue" means tissue collected from a skinless and boneless fillet.

(d) "Lentic water" means a standing body of water such as a lake or reservoir.

(e) "Lotic water" means a flowing or moving body of water such as a stream or river.

References:

a. U.S. Environmental Protection Agency, Pub. No. EPA 822-R-16-006, Aquatic Life Ambient. Water Quality Criterion for Selenium - Freshwater, June 2016.

*b. U.S. Environmental Protection Agency, Pub. No. EPA 820-F-16-007, Technical Support for Fish Tissue Monitoring for Implementation of EPA 's 2016 Selenium Criterion (Draft), September 2016.* 

c. U.S. Environmental Protection Agency, Pub. No. EPA 440/5-86-001, Quality Criteria for Water (Gold Book) (1986).

*d. U.S. Environmental Protection Agency, National Recommended Water Quality Criteria, May 2009.* 

Sec. 2. NAC 445A of NAC is hereby amended to read as follows:

## 445A.1237

1. Except as otherwise provided in subsection 8, the standards for selenium prescribed in this section for the support of aquatic life are applicable to the waters specified in NAC 445A.123 to 445A.2234, inclusive. The criterion values for selenium are calculated to reflect the lack of sturgeon or related fish species in the waters of this State and maintain the conditions necessary to support, protect and allow the propagation of fish species found in the waters of this State. See references a and b.

2. If the standards for selenium are exceeded at a site, the Commission will review and may adjust the standards for the site if:

(a) The standards are not economically controllable; or

(b) Site-specific values for fish and water have been derived through a technically defensible study (see references a and b) and results have been approved by the Division.

3. If data from fish tissue are available, such data shall take precedence over data obtained from a water sample. If data from fish egg or ovary tissue are available, such data shall take precedence over data from whole body tissue or fish muscle tissue.

4. Any sampling of fish tissue must be performed in accordance with EPA protocols. See references a and b.

5. Any person or entity wishing to develop site-specific values for fish tissue and water shall submit a proposed sampling and analysis plan to the Division. The plan must be approved by the Division before the study to derive site-specific values for fish tissue and water is conducted.

6. Except as provided in subsections 2 and 8, the criterion values for selenium in fish tissue are instantaneous values that may not be exceeded. The criterion values for selenium in fish tissue are:

Type of Tissue Analyzed	Criterion Value
	(mg/kg dry weight)
Fish Egg or Ovary Tissue	19
Fish Whole Body Tissue	9.5
Fish Muscle Tissue	13.1

7. Except as provided in subsections 2 and 8, the criterion values for dissolved selenium in the water column for aquatic life are:

Exposure Duration and Category of Water	Criterion Value
	(μg/L)
30-day average, lentic water	1.9
30-day average, lotic water	3.9
Intermittent, lentic water	(1.9 – C <sub>bkgd</sub> (1-f <sub>int</sub> ))/f <sub>int</sub>
Intermittent, lotic water	$(3.9 - C_{bkgd} (1-f_{int}))/f_{int}$

The 30-day average and intermittent concentration limits for dissolved selenium may be exceeded only once every 3 years. See reference a.

8. The criterion values for selenium in fish tissue and dissolved selenium in the water column for aquatic life for the body of water known as the Las Vegas Wash, as described in NAC 445A.2156 and 445A.2158, are as follows:

(a) The criterion values for selenium in fish tissue are instantaneous values that may not be exceeded. The criterion values for selenium in fish tissue are:

Type of Tissue Analyzed	Criterion Value
	(mg/kg dry weight)
Fish Egg or Ovary Tissue	19
Fish Whole Body Tissue	9.5
Fish Muscle Tissue	13.1

(b) The criterion values for dissolved selenium in the water column for aquatic life are:

Exposure Duration and Category of Water	Criterion Value
	(μg/L)
30-day average, lentic water	6.0
30-day average, lotic water	6.3
Intermittent, lentic water	$(6.0 - C_{bkgd} (1-f_{int}))/f_{int}$
Intermittent, lotic water	$(6.3 - C_{bkgd} (1-f_{int}))/f_{int}$

The 30-day average and intermittent concentration limits for dissolved selenium may be exceeded only once every 3 years. See reference a.

9. Nothing in this section authorizes a person to take fish without complying with applicable provisions of law related to fishing in this State.

10. As used in this section:

(a) "C<sub>bkgd</sub>" means the average daily ambient concentration integrated over 30 days.

(b) "*f*<sub>int</sub>" means the fraction of any 30-day period during which there are elevated concentrations of selenium.

(c) "Fish muscle tissue" means tissue collected from a skinless and boneless fillet.

(d) "Lentic water" means a standing body of water such as a lake or reservoir.

(e) "Lotic water" means a flowing or moving body of water such as a stream or river.

References:

a. U.S. Environmental Protection Agency, Pub. No. EPA 822-R-16-006, Aquatic Life Ambient Water Quality Criterion for Selenium - Freshwater, June 2016.
b. U.S. Environmental Protection Agency, Pub. No. EPA 820-F-16-007, Technical Support for Fish Tissue Monitoring for Implementation of EPA's 2016 Selenium Criterion (Draft), September 2016.

Sec. 3. Section 4 of LCB File No. R043-19 is hereby amended to read as follows:

Sec. 4. This section and sections 1 and 3 of LCB File No. R043-19 become effective on the date on which LCB File No. R043-19 is filed by the Legislative Counsel with the Secretary of State.

Sec. 4. Section 2 of LCB File No. R043-19 is hereby repealed.

Sec. 5.

1. Except as otherwise provided in this section, this regulation becomes effective on the date on which the regulation is filed by the Legislative Counsel with the Secretary of State.

2. Sections 1, 3 and 4 of this regulation become effective only if LCB File No. R116-22 is adopted by the State Environmental Commission and approved by the Legislative Commission before January 1, 2023.

3. Section 2 of this regulation becomes effective only if LCB File No. R116-22 is adopted by the State Environmental Commission and approved by the Legislative Commission on or after January 1, 2023.