

1 **STATE OF NEW MEXICO**
2 **BEFORE THE WATER QUALITY CONTROL COMMISSION**
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7)
8 **In the Matter of:**)
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10 **PROPOSED AMENDMENTS TO**)
11 ***STANDARDS FOR INTERSTATE***)
12 ***AND INTRASTATE WATERS,***)
13 **20.6.4 NMAC**)
14)
15 _____)

No. WQCC 14-05 (R)

New Mexico Environment Department,

Petitioner.

16
17 **REBUTTAL TESTIMONY OF JODEY KOUGIOULIS**
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19 **I. INTRODUCTION**
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21 My name is Jodey Kougioulis and I am currently employed as an Environmental
22 Scientist and serve on the Water Quality Standards Team and as the Quality Assurance Officer
23 for the New Mexico Environment Department (“NMED”) Surface Water Quality Bureau
24 (“SWQB”). My professional resume is included as SWQB Exhibit 40, in the Notice of Intent
25 (“NOI”) direct testimony filed on December 12, 2014.
26

27 I am presenting this written rebuttal testimony on behalf of the NMED concerning two
28 proposals filed by Peabody Energy (“Peabody”). The first Peabody proposed revision is to the
29 selenium criteria for wildlife habitat use in Subsection 20.6.4.900.J NMAC. The second is to
30 Subsections 20.6.4.900.D and E NMAC to exempt artificial ponds and man-made wetlands from
31 primary and secondary contact recreation criteria.

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33 **II. PROPOSALS AND REBUTTAL**

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35 **A. Subsection 20.6.4.900.J NMAC - Proposed Revision to Use-Specific Numeric**
36 **Criteria for Selenium**

37 Peabody has proposed replacing the current total recoverable selenium criterion of
38 5.0 µg/L for wildlife habitat with a dissolved selenium criterion of 50 µg/L. This change
39 represents an order of magnitude increase in concentration, which is further amplified
40 by basing the criterion on the dissolved fraction of selenium rather than the current total
41 recoverable criterion for selenium. Amigos Bravos rejects this proposal in its entirety
42 because it is based on protection of livestock and large mammals rather than all wildlife
43 species. The SWQB also opposes this proposal in its entirety because it fails to
44 demonstrate that a wildlife standard of 50 µg/L Selenium (dissolved) is protective of sensitive
45 wildlife species in New Mexico. The SWQB's rebuttal testimony directly follows Peabody's
46 proposals presented below.

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48 **Peabody Proposal:** The current selenium water quality standard for the protection of wildlife
49 habitat is 5.0 µg/L (total recoverable), which is identical to and duplicative of the chronic
50 aquatic life water quality standard. The 5.0 µg/L concentration is based on the current
51 national recommendation by the U.S. Environmental Protection Agency's ("EPA's")
52 ambient water quality criteria for selenium based on the protection of fish, which were
53 determined to be more sensitive than other aquatic life species (e.g., macroinvertebrates). It is

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54 unnecessary to impose 5.0 µg/L as a wildlife standard since any time wildlife and aquatic life are
 55 present the relevant aquatic life standard applies.

56 The NMAC definition of wildlife habitat is:

57 *“Wildlife habitat shall be free from any substances at concentrations that are toxic to*
 58 *or will adversely affect plants and animals that use these environments for feeding, drinking,*
 59 *habitat or propagation; can bioaccumulate; or might impair the community of animals in a*
 60 *watershed or the ecological integrity of surface waters of the state.”* [Subsection 20.6.4.900.G
 61 NMAC]

62
 63 While aquatic life spend their entire lives or sensitive life stages in the water, as stated in the
 64 NMAC definition, wildlife use water only for drinking or through incidental consumption
 65 during feeding. Thus, different standards are appropriate for terrestrial wildlife than for aquatic
 66 life. The exposure to wildlife is expected to be similar to that experienced by livestock;
 67 therefore, the livestock standard of 50 µg/L Selenium (dissolved) is appropriate.

68
 69 Subsection J under 20.6.4.900 - Proposed Revision to Use-Specific Numeric Criteria

Pollutant	CAS Number	DWS	IRR	LW	WH	Aquatic Life			Type
						Acute	Chronic	HH-OO	
Selenium, dissolved	7782-49-2	50	b	50	<u>50</u>			4,200	P
Selenium, total recoverable	7782-49-2				5.0	20.0	5.0		

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 71 **SWQB Rebuttal Response:** The SWQB opposes Peabody’s proposal to modify the selenium
 72 standard for wildlife habitat chiefly because it fails to demonstrate that a wildlife standard of 50
 73 µg/L selenium (dissolved) is protective of sensitive wildlife species in New Mexico. The

74 proposed criterion is ten times higher than the current total recoverable selenium criteria
75 of 5.0 µg/L for wildlife habitat. This increase is further magnified by basing the criteria
76 on the dissolved fraction of selenium rather than the current total recoverable criteria for
77 selenium.

78 In addition, Peabody inaccurately reduces and oversimplifies the New Mexico
79 definition of wildlife habitat and use by stating “*wildlife use water for only drinking or feeding*
80 *purposes, therefore, their potential for harmful effects due to exposure to waterborne selenium*
81 *is much less than aquatic life as fish and macroinvertebrates.*” (Canton Testimony, Peabody
82 NOI, p. 3) This limited interpretation fails to acknowledge the complete wildlife habitat
83 protections afforded under this designated use:

84 “*Wildlife habitat shall be free from any substances at concentrations that are toxic to or*
85 *will adversely affect plants and animals that use these environments for feeding, drinking,*
86 *habitat or propagation; can bioaccumulate; or might impair the community of animals in a*
87 *watershed or the ecological integrity of surface waters of the state.*” (Subsection 20.6.4.900.G
88 NMAC)

89 Definitions for wildlife habitat and associated designated use with narrative criteria, were
90 adopted by the Water Quality Control Commission (“WQCC”) in 1995, replacing the previous
91 “livestock and wildlife watering” use¹. At that time, the SWQB argued that the new use was
92 necessary because the “livestock and wildlife watering” use was inadequate to protect wildlife.
93 During the 1998-2000 Triennial Review, the wildlife habitat designated use was revised by
94 adding language to ensure all wildlife components that utilize the aquatic resource were

¹ “Livestock and wildlife watering use” was adopted in 1973, replacing the “livestock watering” use. The use was not defined and there was no mention of criteria specifically protective of this use. Prior to 1973, there were no wildlife-related uses.

95 protected, and numeric criterion were also adopted, including a criteria for selenium. The WQCC
96 adopted a selenium criterion (5.0 µg/L) based on the EPA’s federal Water Pollution Control Act
97 (i.e., the Clean Water Act (“CWA”)) §304(a) criteria recommendations, “*which better reflects*
98 *national standards and avoids overprotection of wildlife habitats.*”²

99 In adopting the language in the current wildlife habitat designated use the WQCC has
100 stated that wildlife habitat use (and criteria) is not limited to occasional drinking and feeding, but
101 specifically includes protection for habitat, propagation, and most critically, protection against
102 bioaccumulation. Selenium is a bioaccumulative pollutant, meaning that it accumulates in tissues
103 of aquatic organisms at levels greater than water column concentrations. Selenium is also toxic
104 to birds that consume aquatic organisms contaminated with selenium. The key adverse effects
105 are reduced hatching success in birds and deformities in offspring of exposed female fish and
106 birds. (SWQB Rebuttal Exhibit 12) While New Mexico’s current wildlife habitat criteria mirror
107 the EPA’s chronic aquatic life protections, they were adopted by the WQCC considering that
108 protecting lower trophic levels would protect higher trophic levels of wildlife from the
109 bioaccumulative effects of selenium.

110 Peabody’s proposal acknowledges the known toxicity of selenium to birds, but gives little
111 weight to this fact by speculating about various mechanisms that may affect selenium toxicity in
112 birds. Peabody states that the nature of New Mexico watersheds may result in the majority of
113 birds in the state residing in small transient populations that only feed in watersheds for a brief
114 time with limited selenium exposure. Peabody hypothesizes that complex feeding behaviors,
115 varied diet, and foraging in diverse environments may result in diluted selenium concentrations
116 in New Mexico birds, suggesting that selenium toxicity to birds may be less of a concern in New

² WRCC Statement of Reason for Amendment of Standards, 3100L, January 21, 2000.

117 Mexico. This position appears to be based on conjecture and is not supported by any evidence
118 presented in Peabody's testimony. Furthermore, it does not provide any support for increasing
119 the wildlife habitat selenium criteria from 5 µg/L Se (total recoverable) to 50 µg/L Se (dissolved).
120 In fact, Peabody's proposal is largely based on a qualitative summary of selected selenium
121 studies on livestock (e.g., horses, cattle) and wildlife (e.g., elk, deer), which are essentially
122 equivalent and used to support the conclusion that adopting the current livestock standard will be
123 protective of the wildlife use. This approach is not appropriate based on the separate wildlife
124 habitat and livestock watering use definitions and criteria adopted during previous Triennial
125 Reviews.

126 Finally, conclusions drawn from the referenced papers and studies do not expressly
127 support the proposed 50 µg/L Se (dissolved) standard modification of wildlife habitat and
128 furthermore Peabody does not provide a methodology for the derivation of their proposal. While
129 these quantitative studies document the varying effects of selenium on aquatic-dependent
130 species, large mammalian wildlife, and avian species related to habitat, diet, and contact
131 exposure, they fail to provide a scientific foundation to demonstrate that the proposal is
132 protective of all wildlife uses. The lack of research on non-mammalian wildlife and the
133 complexity of selenium toxicity and bioaccumulation demands that any proposal to modify the
134 existing wildlife habitat Se criteria demonstrate through evidence that the proposal is protective
135 of all wildlife habitat uses.

136 The scientific understanding of selenium toxicity has been evolving since the 1980's. In
137 May, 2014, EPA released for external peer review a new draft Aquatic Life Criteria Document for
138 Selenium in Freshwater (SWQB Rebuttal Exhibit 12). While the EPA noted in their draft that
139 recommendations were not focused on aquatic-dependent wildlife such as birds, they recognize

140 the concern and need for wildlife criteria development specific to selenium. **EPA** plans to
141 consider this issue in the future.

142 In summary, it is simply not prudent to adopt a 50 µg/L (dissolved) selenium standard for
143 wildlife habitat without a clear scientific demonstration of adequate protection for all existing or
144 attainable wildlife habitat uses. The current wildlife habitat criteria mirror the EPA's
145 recommendations for aquatic life protection and are based on sound scientific rationale. This was
146 adopted by the WQCC after considerable discussion and review after the 1998-2000 Triennial
147 Review. The EPA is also in the process of developing more guidance specific to wildlife habitat
148 criteria for selenium. The SWQB will continue to evaluate the most scientifically defensible and
149 protective approach for developing wildlife habitat criteria in New Mexico. However, the SWQB
150 recommends that the WQCC reject Peabody's proposal in its entirety.

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152 **B. Proposed Revisions to Subsections 20.6.4.900.D and E NMAC**

153 Peabody has proposed changes to Subsections 20.6.4.900.D and E NMAC to exempt
154 artificial ponds and man-made wetlands, which are not Waters of the United States, from
155 primary and secondary contact recreation criteria. Chevron Mining Incorporated ("CMI") and the
156 San Juan Water Commission ("SJWC") have stated their support for Peabody's proposal, while
157 Amigos Bravos rejects the Peabody proposal in its entirety.

158 The SWQB opposes Peabody's proposal to exempt man-made wetlands and artificial
159 ponds from the primary and secondary contact standards to protect human health as conditioned
160 by the three specified exceptions because it is overbroad, impractical, redundant and may not
161 protect existing or attainable uses. The SWQB's rebuttal testimony directly follows Peabody's
162 proposals presented below.

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Peabody Proposal:

D. Primary Contact: the monthly geometric mean of E. coli bacteria of 126 cfu/100 mL and single sample of 410 cfu/100 mL and pH within the range of 6.6 to 9.0 apply to this use. Notwithstanding the listing of designated uses for perennial or intermittent unclassified waters, it is not the intent of this regulation to require artificial ponds or man-made wetlands which are used or intended to be used for treatment, livestock watering, and/or wildlife habitat purposes, and that were built for such purposes, to meet primary human contact criteria if:

- 1. The artificial ponds or man-made wetlands are not surface waters of the state or waters of the U.S.; or*
- 2. The artificial ponds or man-made wetlands are surface waters of the state, but are not waters of the U.S., and the intended uses are permitted or approved by a state governmental authority; or*
- 3. A written determination has been made by a governmental authority with jurisdiction that the artificial ponds or man-made wetlands are waters of the U.S. but a use attainability analysis pursuant to Section 20.6.4.15 NMAC establishes that primary human contact criteria likely will not be met given the intended use.*

E. Secondary Contact: the monthly geometric mean of E. coli bacteria of 548 cfu/100 mL and single sample of 2,507 cfu/100 mL apply to this use. Notwithstanding the listing of designated uses for ephemeral, unclassified waters, it is not the intent of this regulation to require artificial ponds or man-made wetlands which are used or intended to be used for treatment, livestock watering, and/or wildlife habitat purposes, and that were built for such purposes, to meet secondary human contact criteria if:

- 1. The artificial ponds or man-made wetlands are not surface waters of the state or waters of the U.S.; or*
- 2. The artificial ponds or man-made wetlands are surface waters of the state, but are not waters of the U.S., and the intended uses are permitted or approved by a state governmental authority; or*
- 3. A written determination has been made by a governmental authority with jurisdiction that the artificial ponds or man-made wetlands are waters of the U.S. but a use attainability analysis pursuant to Section 20.6.4.15 NMAC establishes that primary human contact criteria likely will not be met given the intended use.*

Rebuttal Response: The SWQB opposes Peabody's proposed changes to Subsections 20.6.4.900.D and E NMAC to exempt artificial ponds and man-made wetlands, which are not water of the United States, from primary and secondary contact recreation criteria. The WQCC came to the same conclusion in 2009 when it heard virtually the same proposal from Peabody

206 excepting that the present version has structured the arguments into three criteria-specific
207 exemptions. The WQCC did not adopt Peabody's 2009 proposal, stating "*Peabody's proposal to*
208 *exempt certain man-made ponds and wetlands that are not waters of the United States from the*
209 *primary and secondary human contact standards because it is overbroad, impractical, and may*
210 *not protect existing or attainable uses... These determinations are better evaluated on a case-by-*
211 *case basis with public comment and Commission review through the UAA process.*" (2009
212 Triennial Review, Pleading Log 134, Order of Statement and Reasons, Pg. 59 and 295-298) The
213 SWQB finds that the current proposal has the same issues the WQCC identified as problematic
214 in 2009.

215 First, the scope of the proposal is overbroad because it exempts all man-made ponds and
216 wetlands "intended" for a wide category of purposes. The application is vague and uncertain, as
217 the term "intended to be used" is not well defined, and not limited to Peabody's narrowly
218 focused concerns regarding permanent mine impoundments on their New Mexico properties, but
219 to a potentially far greater number of unclassified surface waters of the state. Whether a
220 particular pond or wetland was "intended" for livestock purposes and whether primary contact is
221 an existing or attainable use are questions that turn on many factors including the water's history,
222 location, size, depth, hydrology, ownership and accessibility. While some man-made ponds and
223 wetlands are small, others are of substantial size. As such it is unclear what waters fall into this
224 category and therefore it is impossible to evaluate the merits of Peabody's proposed change in
225 terms of the designated uses of these waters.

226 Second, the implementation of the proposal through the stated exemptions is impractical
227 because it requires both a federal and state jurisdictional determination and Peabody does not
228 explain the mechanism for making this determination. The U.S. Army Corps of Engineers

229 (“USACE”) is responsible for making the regulatory jurisdictional determination; however, they
230 may be unlikely to do so unless a federal permit is involved. As a result, Peabody’s proposal
231 would be dependent upon a federal determination that may never occur. Further, the
232 implementation of Peabody’s proposal for State-only waters would require that waters have
233 “intended uses [that] are permitted or approved by a state governmental authority.” However, the
234 process and who makes this determination (with the possibility that more than one state agency
235 may make this determination) is not described. For the purposes of Peabody’s proposal, this
236 determination would have the effect of changing the designated use of water bodies, which is a
237 change in the water quality standards (“WQS”). Under the New Mexico Water Quality Act,
238 NMSA 1978, Sections 74-6-1 to -17 (1967, as amended through 2013) (“WQA”) this authority
239 rests with the WQCC and is not delegated to any other agency.

240 The proposal is also redundant, as the WQCC has adopted WQS that allow changes to the
241 designated use of a water body through a Use Attainability Analysis (“UAA”) at Section
242 20.6.4.15 NMAC. While these WQS mirror federal requirements, they are adopted for state
243 purposes and therefore also apply to all state jurisdictional waters. Further, the implementation of
244 the three specific types of stated exemptions in the proposal is redundant, unnecessary, or in
245 conflict with the existing regulations. For a federal jurisdiction water, and hence state
246 jurisdictional water as well, a UAA would also be necessary and Peabody’s proposal cites the
247 requirements of Section 20.6.4.15 NMAC. As noted in Peabody’s testimony, federal regulations
248 require that the CWA §101(a)(2) presumption of “fishable/swimmable” uses are attainable
249 unless demonstrated otherwise by a UAA. This proposed language is redundant as there are
250 existing requirements in Section 20.6.4.15 NMAC used to change the designated use of a
251 waterbody. The second exemption for a water that is not a federal or state jurisdictional water is

252 another example of redundancy in Peabody's proposal. Simply stated, in this situation the water
253 quality standards do not apply and therefore the exemption language is not necessary. Finally,
254 according to Peabody's proposal, the third exemption for a water that is not a federal water but is
255 a water of the state would not apply primary or secondary contact recreation use. As noted
256 above, this exemption has the effect of removing these uses for the water and is therefore in
257 conflict with the WQCC adopted regulations that require a UAA under Section 20.6.4.15 NMAC
258 to lower a designated use.

259 Peabody is asking the WQCC to remove contact uses from these waters absent any
260 consideration of whether the water supports an existing or attainable use, specifically a
261 recreational use where human contact standards apply. These determinations are better evaluated
262 on a case-by-case basis with public comment and WQCC review through the UAA process as
263 required by Section 20.6.4.15 NMAC. The UAA must demonstrate, in light of site-specific
264 considerations, that a use is not attainable and that the standards applicable to such water should
265 be amended. If Peabody believes that primary contact use is not attainable for a water body, then
266 that condition can be demonstrated through a UAA. Furthermore, the man-made permanent mine
267 impoundments associated with Peabody's permitted operations appear to be waters of the U.S.
268 and have been regulated as such by the EPA under the federal NPDES permit program. As such,
269 under the proposed language a UAA would still be required to remove or lower the CWA
270 §101(a)(2) uses for the permanent mine impoundments on their New Mexico properties.

271 The requirement to conduct a UAA is particularly appropriate and essential given the
272 wide diversity of impoundments covered by Peabody's proposal that would each need to be
273 considered on a case-by-case basis. Any kind of water feature in an arid environment may attract
274 recreation seekers, especially children. The UAA process allows for the appropriate

275 consideration of the relevant issues regarding waters “*which are used or intended to be used for*
276 *livestock watering and/or wildlife habitat purposes and that were built for such purposes*”
277 (Peabody NOI, p. 2) without ignoring other existing or attainable uses. In other words, whether a
278 recreation use is actually existing or attainable is not solely dependent on the intended purpose of
279 a water body.

280 As documented in the 2009 Triennial Review, Peabody is aware that the UAA process is
281 the appropriate mechanism to remove designated uses. It was acknowledged by Peabody in a
282 correspondence regarding the issue of designated uses that the most appropriate way to exempt
283 these ponds from contact standards is through a UAA.³ As stated in the correspondence, one way
284 out is “*the federal presumption is rebutted through a use attainability analysis. My suggestion is*
285 *to do a general UAA on livestock ponds, indicating that the coliform standards cannot be met.*”
286 (SWQB Rebuttal Exhibit 13)

287 Colorado has approved a UAA prepared by Seneca Coal Company, a subsidiary of
288 Peabody, to remove the primary contact use from an ephemeral stream. This seven-page
289 document – of which two pages are photographs – briefly describes the stream’s geomorphology,
290 proximity to developed areas, access points, depth and flow characteristics, and existing
291 recreational uses. The information was collected by a site visit and three interviews and
292 demonstrates that UAAs need only be as complicated as the circumstances require.

293 Peabody’s NOI Testimony of John Cochran (“Cochran Testimony”) argues that these
294 impoundments were never intended to be subject to human contact standards and are adequately
295 protected through conditions set forth in its permits for their mines under the federal Surface
296 Mining Control and Reclamation Act (“SMCRA”). According to the Cochran Testimony, these

³ 2009 Triennial Review, Peabody Energy Exhibit 8, Pleading Log 20

297 ponds and impoundments are subject to approval by the New Mexico Mines and Minerals
298 Division (“MMD”) that they meet applicable WQS. However, the MMD and the WQCC have
299 different statutory perspectives and obligations. MMD's obligation is to ensure compliance with
300 the New Mexico Surface Mining Act, NMSA 1978, Sections 69-36-1 to -20 (1993, as amended
301 through 2014) (“NMSMA”), which requires that *“the quality of impounded water will be*
302 *suitable on a permanent basis for its intended use and that discharges from the impoundment*
303 *will not degrade the water quality below water quality standards established pursuant to*
304 *applicable federal and state law in the receiving stream.”* NMSA 1978, § 69-25A-19. The
305 WQCC’s obligation through the New Mexico WQA is to ensure that all existing or attainable
306 uses for surface waters of the state are protected for CWA purposes. The mechanism and process
307 for changes to designated uses is through the UAA process. Peabody’s proposal simply does not
308 acknowledge, nor afford the required protection of, existing or attainable uses for a large
309 category of potentially unclassified waters of the state, nor does it provide a mechanism to
310 demonstrate that human contact standards are not attainable. For the reasons described in the
311 above rebuttal testimony, the SWQB urges the WQCC to reject Peabody’s proposal.

312