



30 and regulatory processes applicable to mining at LRM. For the past seven (7) years I have served  
31 as an Environmental Specialist for Peabody. In this capacity I am a supervisor of two  
32 environmental technicians. I supervise these employees in a variety of tasks. I am responsible for  
33 supervising weekly air monitoring, monthly collection of surface water monitoring samples,  
34 quarterly collection of groundwater samples, and sampling surface waters after storm events. I also  
35 oversee the collection of soil samples to aid in the development and performance of  
36 contemporaneous and future reclamation and closure activities. I also am responsible for the  
37 management of various contractors at the Lee Ranch and El Segundo mines. I am directly involved  
38 with various aspects of surface water management at the Lee Ranch Mine.

39 I have significant experience working for Peabody to ensure compliance with a variety of  
40 permitting and environmental requirements. I ensure compliance with Clean Water Act (“CWA”)  
41 permits, including the National Pollutant Discharge Elimination System (“NPDES”) point source  
42 permit and the multi-sector general stormwater permit, which includes inspections, sampling, and  
43 reporting. I worked to ensure compliance with mitigation requirements for the Lee Ranch Mine’s  
44 CWA Section 404 permit, which the Lee Ranch Mine met on November 30, 2018. I also oversee  
45 compliance with the LRM’s air permits, drinking water permit, wastewater permits, and hazardous  
46 waste permits. This work involves compliance inspections, reporting, sampling and training  
47 activities. I oversee compliance with the New Mexico Mining and Minerals Division’s (“MMD”)  
48 Surface Mining Control and Reclamation Act (“SMCRA”) permit, which includes submitting  
49 annual reports, revisions, compliance inspections, raptor studies, vegetation studies and collected  
50 weather data. I am responsible for overseeing water rights and production wells utilized in  
51 connection with LRM operations, including conducting monthly meter readings. I also am charged  
52 with spill prevention at both the LRM and El Segundo Mine.

53        **III.    Overview of Lee Ranch Mine**

54            The LRM is located in the southeastern portion of McKinley County, just north of Grants,  
55 New Mexico. The LRM’s permit area, which is located within the black line boundary of Peabody  
56 Exhibit 7, Figure 3, is comprised of state, federal and private lands. The mine is a 1-6 seam surface  
57 coal mine operation that is comprised of fifteen thousand six hundred and fifty six (15,656) acres.  
58 The LRM site includes impoundments, which ensure the protection of water quality at the mine  
59 site. Annual coal production ranges from two million six hundred thousand to six million tons per  
60 year. Since the beginning of mining, in the early 1980s, the mine has disturbed eight thousand  
61 four hundred and seventy (8,470) acres, and has reclaimed five thousand four hundred and fifteen  
62 (5,415) of those disturbed acres to date.

63            As I will explain in greater detail later in this testimony, arroyos in the vicinity of the LRM are  
64 shown in Figure 3; they are Arroyo Tinaja, Mulatto Canyon, San Isidro Arroyo, and Doctor  
65 Arroyo. In 2011, the NMED Surface Water Quality Bureau (“SWQB”) used its Hydrology  
66 Protocol (“HP”) to evaluate eighteen (18) unclassified non-perennial stream segments associated  
67 with several facilities’ with NPDES permits in New Mexico. As part of this evaluation, NMED  
68 completed field work on the Mulatto Canyon drainage area and part of the San Isidro drainage area  
69 located within the Lee Ranch Mine, as shown on Peabody Exhibit 7, Figure 3. The results of the  
70 2011 field study were incorporated into NMED’s June 2012 Use Attainability Analysis (“UAA”).  
71 *See* Peabody Exhibit 8. The results of the UAA indicated the portion of Mulatto Canyon NMED  
72 evaluated, as well as the portion of the San Isidro Arroyo and Arroyo Tinaja NMED evaluated, are  
73 ephemeral. Because NMED’s 2012 UAA was limited in scope, as explained by Mr. Cochran, the  
74 classified uses of the tributary drainages that report to Mulatto Canyon as well as the tributaries

75 within and adjacent to the LRM that report to Arroyo Tinaja, Doctor Arroyo, and San Isidro Arroyo  
76 remain unclassified.

77 Except for the portions of Mulatto Canyon, Arroyo Tinaja and the San Isidro Arroyo that  
78 were evaluated in NMED's 2012 UAA, Arroyo Tinaja, Mulatto Canyon, San Isidro Arroyo, and  
79 Doctor Arroyo are currently regulated as unclassified waters of the state pursuant to 20.6.4.98  
80 NMAC. By default, as Mr. Cochran explained in his testimony, these waterways are therefore  
81 considered to be classified as perennial or intermittent, in order to achieve the CWA's  
82 fishable/swimmable default designation. To address this, Peabody has completed a UAA for these  
83 previously unclassified and unevaluated drainages. As Peabody's witness Mr. James Boswell will  
84 describe in great detail, Peabody analyzed the above referenced drainages and tributaries using the  
85 SWQB's HP, which utilizes hydrologic, geomorphic, and biologic indicators to determine the  
86 persistence of water within a stream reach, and collected evidence demonstrating that these  
87 waterways, like the waterways evaluated in NMED's 2012 UAA, are more properly classified as  
88 ephemeral. Peabody therefore requests this Commission properly classify Arroyo Tinaja, Mulatto  
89 Canyon, San Isidro Arroyo, and Doctor Arroyo and their tributaries as ephemeral, in order to assign  
90 the proper use classifications (and associated standards) to these surface waters.

91 **IV. Peabody' Proposed Regulatory Change**

92 In April 2019, Peabody filed its Petition to Amend the Ground and Surface Water  
93 Protection Regulations ("Petition"). In that the Petition, Peabody proposed the following changes  
94 to 20.6.4.97(C)(1) NMAC:

95 ~~—(k) San Isidro arroyo from the Lee Ranch mine facility outfall upstream to Tinaja arroyo;~~

96 ~~—(l) Tinaja arroyo from San Isidro arroyo upstream to Mulatto canyon; and~~

97 ~~(m) Mulatto canyon from Tinaja arroyo upstream to 1 mile northeast of the Cibola~~  
98 ~~national forest boundary.~~

99 (k) San Isidro Arroyo and all tributaries from its confluence with Arroyo Chico to its  
100 headwaters, excluding Doctor Springs and the receiving portion of Doctor Arroyo up to  
101 1,000 feet downstream of the spring.

102 Following conversations with NMED's SWQB, in an effort to be more precise, Peabody presents  
103 the following proposed regulatory change to 20.6.4.97(C)(1) NMAC for the Commission's  
104 consideration, which is also Peabody Exhibit 9:

105 (k) San Isidro arroyo, including unnamed tributaries to San Isidro arroyo, from the Lee  
106 Ranch mine facility outfall Arroyo Chico upstream to Tinaja arroyo its headwaters;

107 (l) ~~Tinaja arroyo~~ Arroyo Tinaja, including unnamed tributaries to Arroyo Tinaja, from San  
108 Isidro arroyo upstream to Mulatto canyon; 2 miles northeast of the Cibola national forest  
109 boundary;

110 (m) Mulatto canyon from Arroyo Tinaja arroyo upstream to 1 mile northeast of the Cibola  
111 national forest boundary; and,

112 (n) Doctor arroyo, including unnamed tributaries to Doctor arroyo, from San Isidro arroyo  
113 upstream to its headwaters, and excluding Doctor Spring and Doctor arroyo from the spring  
114 to its confluence with the unnamed tributary approximately one-half mile downstream of  
115 the spring.

116 This proposed regulatory change is a closely related outgrowth of the original proposed  
117 amendments, as it implicates the same waterways and regional stream designations.

## 118 **V. Introduction to Peabody Exhibit 7, Figure 3**

119 I will now provide the Commission with a detailed overview of the stream segments  
120 referenced in the proposed rule change. In order to fully explain these stream segments, I will be  
121 referring to Figure 3, Peabody Exhibit 7. Figure 3 is a comprehensive overview of the San Isidro  
122 watershed and its confluences. Figure 3 depicts Mulatto Canyon, Arroyo Tinaja, San Isidro  
123 Arroyo, and Doctor Arroyo, which eventually joins Arroyo Chico north of the San Isidro Arroyo.

124 The LRM is located within this watershed, and is identified by the thin black boundary line on  
125 Figure 3. The colors on this Figure 3 map depict the elevation differences within the region. As  
126 the map indicates, surface water flow runs from the higher elevation in southwest area of the map  
127 to lower elevations on the northeast portion of the map. During storm events, stormwater flow  
128 starts in the upper mesas in the south and flows through Arroyo Tinaja, Mulatto Canyon, San Isidro  
129 Arroyo or Doctor Springs.

130 In order for the Commission to understand the reference points identified in Figure 3, I will  
131 briefly explain the references within Figure 3 that are specific to Peabody's UAA. As shown in  
132 Figure 3, UAA sample locations, depicted by blue boxes, are the sites that that were used as part  
133 of Peabody's hydrological assessment of the arroyos. The blue plus signs found throughout Figure  
134 3 reference particular photo points included within the UAA. As explained in the UAA, the LRM  
135 conducted a spring survey in conjunction with the HP, and located most of the springs depicted on  
136 the map as having been identified by the USGS in 1961, or identified during the original Lee Ranch  
137 Mine permit application 19-1P and 19-2P. Springs are depicted by blue dots with a pigtail.

138 Figure 3 also includes other notable references that will assist the Commission in its  
139 evaluation of the proposed rule. Figure 3 identifies the location of the NPDES outfalls, which are  
140 marked as "existing, permanent" with a yellow rectangle, "existing temporary" with a yellow dot,  
141 and "proposed temporary" with a green dot. As shown on Figure 3, the mine utilizes diversions,  
142 shown as a brown line in Figure 3, and dikes, depicted by a yellow line in Figure 3, to direct flow  
143 to sediment basins or around the mining area. The LRM's groundwater monitor wells are also  
144 shown as blue and white targets on Figure 3. Historical monitoring wells are shown as black and  
145 grey targets in Figure 3. The pink and grey targets in Figure 3 show the mine's production wells.  
146 Fernandez Cattle Company, the LRM's private landlord (owner of the Lee Ranch) has permitted

147 many other wells in this area, which are shown as purple and white targets on Figure 3. The black  
148 and grey targets are plugged groundwater wells. The blue triangles in Figure 3 represent the  
149 placement of stage crest surface water monitors in undisturbed drainages to capture runoff from  
150 storm events, which allow the mine to sample surface water.

## 151 VI. Overview of the Subject Watersheds and Stream Segments

152 As Peabody's witness Mr. James Boswell will explain in greater detail, the Lee Ranch  
153 Mine used the "watershed approach" for analyzing the subject stream segments. Peabody's witness  
154 Mr. Jeffrey Olyphant will describe in great detail the particular hydrologic characteristics of each  
155 watershed.

156 The LRM determined that distilling the larger San Isidro watershed into sub-watersheds would  
157 allow the LRM to accurately study and characterize the hydrologic regime and the ecoregions  
158 within the larger watershed. The three sub-watersheds referred to in the UAA are set out in Figure  
159 3. Figure 3 shows the "Tier 1" watershed with red boundary line. This encompasses watersheds  
160 1A, 1B, 1C, and 1D. Figure 3 shows the "Tier 2" watershed with a green boundary line. This  
161 encompasses watersheds 1A, 1B, and 1C. Finally, Figure 3 shows the "Tier 3" watershed with a  
162 black boundary line. The most distant downstream point of this watershed is located at the  
163 confluence of San Isidro to Arroyo Chico. I will now discuss each respective watershed.

164 The first watershed I will discuss is referred to in part in the proposed rulemaking as  
165 20.6.4.97(C)(1)(I) NMAC, "~~Tinaja arroyo~~ Arroyo Tinaja, including unnamed tributaries to Arroyo  
166 Tinaja, from San Isidro arroyo upstream to ~~Mulatto canyon~~;—2 miles northeast of the Cibola  
167 national forest boundary." Starting at the top left of Figure 3, Watershed 1A is the Arroyo Tinaja  
168 watershed. As depicted in Figure 3, this watershed starts in the uppermost headwaters of the San  
169 Mateo Mesas within the Cibola National Forest. The headwaters are located within steep canyons

170 that go on to flow northwards into high mesas, and eventually into a high plains region. The  
171 reference to “HP 11” in Figure 3 indicates where the Hydrology Protocol was conducted within  
172 the headwaters of Arroyo Tinaja, specifically demonstrating that it was conducted as the stream  
173 segment leaves the steep canyons and high mesas and enters the high plains. The Arroyo Tinaja  
174 watershed then continues on through the Lee Ranch Mine, and ultimately merges with the San  
175 Isidro Arroyo. The references to “HP 21” indicates this point of merger, and also marks the site in  
176 which NMED conducted its Hydrology Protocol in 2011 that ultimately concluded that portion of  
177 the San Isidro Arroyo was ephemeral in the 2012 UAA.

178 The second watershed I will discuss is referred to in part in the proposed rulemaking as  
179 20.6.4.97(C)(1)(m) NMAC, “Mulatto canyon from Arroyo Tinaja ~~arroyo~~ upstream to 1 mile  
180 northeast of the Cibola national forest boundary.” Mulatto Canyon, referred to as Watershed 1B,  
181 is located in the lower left part of Figure 3. The headwaters for this watershed are located in the  
182 San Mateo Mesas in the Cibola National Forest within steep canyons that flow northwards through  
183 high mesas, and eventually into a high plains region. The Lee Ranch Mine identified two HP sites  
184 in the upper portions of the channel, which are marked on Figure 3 as “HP 14” and “HP13.” HP  
185 13 was identified as an evaluation point in order to confirm NMED’s 2012 finding that particular  
186 segment of Mulatto Canyon is ephemeral. From its headwaters, the Mulatto Canyon watershed  
187 flows through the LRM, eventually merging with San Isidro Arroyo near what has been marked  
188 on Figure 3 as “HP 21.” HP 21 reflects the segment of the San Isidro Arroyo NMED previously  
189 classified as ephemeral in its 2012 UAA.

190 The third watershed I will discuss is referred to in part in the proposed rulemaking as  
191 20.6.4.97(C)(1)(k) NMAC, “San Isidro arroyo, including unnamed tributaries to San Isidro arroyo,  
192 from the Lee Ranch mine facility outfall Arroyo Chico upstream to Tinaja arroyo its headwaters.”



193 San Isidro Arroyo, which is identified as “Watershed 1C,” is located to the right of Mulatto  
194 Canyon. The headwaters for this arroyo are located in the mesas of the high plains. The confluence  
195 of the small tributaries in the headwaters of the San Isidro Arroyo are located near what the Lee  
196 Ranch Mine identified the “HP15.” As previously indicated, Figure 3 contains references to photo  
197 points used to provide visual examples of what those conducting the HP observed at various  
198 locations. The Lee Ranch Mines used a photo point to capture the confluence of headwaters of the  
199 San Isidro Arroyo, which are numbered 158. From its headwaters, the San Isidro Arroyo passes  
200 through the Lee Ranch Mine, eventually merging with San Isidro Arroyo near “HP 21.” As  
201 previously noted, HP 21 reflects the segment of the Mulatto Canyon NMED previously deemed  
202 ephemeral in its 2012 UAA.

203 The watersheds I just described, Arroyo Tinaja, Mulatto Canyon, and San Isidro Arroyo  
204 converge in the upper right part of Figure 3, and are identified as “Watershed 2ABC.” This  
205 watershed eventually merges into Arroyo Chico, which is depicted as HP 31 on Figure 3.

206 The final watershed I will discuss is referred to in part in the proposed rulemaking as  
207 20.6.4.97(C)(1)(n) NMAC, “Doctor arroyo, including unnamed tributaries to Doctor arroyo, from  
208 San Isidro arroyo upstream to its headwaters, and excluding Doctor Spring and Doctor arroyo from  
209 the spring to its confluence with the unnamed tributary approximately one-half mile downstream  
210 of the spring.” Doctor Arroyo, Watershed 1D, is found at the upper right of Figure 3. This  
211 watershed starts out in the high plains of the terrain. This single arroyo channel flows from the  
212 southern portion of the mine’s permit boundary and merges with the San Isidro Arroyo. The Lee  
213 Ranch Mine established three HP sites within this arroyo, which are marked as HP16, HP17 and  
214 HP 18, and identified several photo points in this arroyo, including PP 161, 280 and 166. Between  
215 the HP16 and HP17 sites, there is a black line boundary that is in the shape of a keyhole. This

216 boundary reflects what is identified in Figure 3 as “S3,” and what is commonly referred to as  
217 Doctor Springs. As indicated in the proposed rulemaking, the area within the keyhole will be  
218 excluded from the proposed new ephemeral classification. Watershed 1D converges with the San  
219 Isidro Arroyo, and eventually runs into Arroyo Chico, which is depicted in Figure 3 at HP31. The  
220 HP31 location is at the lowest elevation point within the region and, as I previously described,  
221 receives runoff from all of the sub-watersheds. Therefore, HP31 is located in the stream reach with  
222 the greatest potential to support non-ephemeral flow within the San Isidro Arroyo watershed. As  
223 set forth in the UAA, even at HP31, the data indicates that it is an ephemeral stream segment.

224 Finally, I will point out Watershed 3ABCD, located at the very top right side of Figure 3.  
225 This watershed is where the San Isidro watershed merges with Arroyo Chico.

226 **VII. Conclusion**

227 Peabody’s proposed regulatory change is carefully crafted to identify the proper use  
228 classification of specific stream segments, which the Peabody worked with NMED to identify,  
229 study and evaluate.

230 This concludes my direct testimony.

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