IN THE SUPREME COURT OF THE STATE OF NEVADA

COYOTE SPRINGS INVESTMENT, LLC; LINCOLN COUNTY WATER DISTRICT; AND VIDLER WATER COMPANY, INC., Appellants, vs. ADAM SULLIVAN, P.E., NEVADA STATE ENGINEER, DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, Respondent.	 **Supreme Court No. 85137** District Court Case No. A816761

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CERTIFICATE OF SERVICE

I certify that on the 27th day of December 2022, I served a copy of **JOINT APPENDIX** upon all counsel of record:

☐ BY MAIL: I placed a true copy thereof enclosed in a sealed envelope addressed as follows:

☐ BY FACSIMILE: I transmitted a copy of the foregoing document this date via telecopier to the facsimile number shown below:

■ BY ELECTRONIC SERVICE: by electronically filing the foregoing document with the Nevada Supreme Court's electronic filing system, which sends an electronic notification to the following parties at the email address on file with the Nevada Supreme Court:

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CASE NO: A-20-817765-P
Department 1

DISTRICT COURT

CLARK COUNTY, NEVADA

PETITION FOR JUDICIAL REVIEW OF NEVADA STATE ENGINEER ORDER 1309	CASE NO. DEPT. NO.
COYOTE SPRINGS INVESTMENT, LLC Petitioner, v.	PETITION FOR JUDICIAL REVIEW OF NEVADA STATE ENGINEER ORDER 1309

TIM WILSON, State Engineer, State of Nevada, Department of Conservation and Natural Resources, Division of Water Resources,

Respondent.

1. Petitioner Coyote Springs Investment, LLC ("CSI"), by and through the undersigned counsel, hereby petitions this Court for judicial review of a June 15, 2020 decision entitled “Order # 1309 DELINEATING THE LOWER WHITE RIVER FLOW SYSTEM HYDROGRAPHIC BASIN WITH THE KANE SPRINGS VALLEY BASIN (206), COYOTE SPRING VALLEY BASIN (210). A PORTION OF BLACK MOUNTAINS AREA BASIN (215), GARNET VALLEY BASIN (216), HIDDEN VALLEY BASIN (217), CALIFORNIA WASH BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) BASIN (219) ESTABLISHED AS SUB-BASINS, ESTABLISHING A MAXIMUM ALLOWABLE PUMPING IN THE LOWER WHITE RIVER FLOW SYSTEM WITHIN CLARK AND LINCOLN COUNTIES, NEVADA, AND RESCINDING INTERIM ORDER 1303” by Tim Wilson, Nevada State Engineer (“Order 1309”). A true and correct copy of Order 1309 is attached as Exhibit "A".

2. In Order 1309, Nevada State Engineer (“State Engineer”), Tim Wilson, ordered the delineation of six, and part of a seventh, previously separately delineated hydrographic basins, into a single hydrographic basin called the “Lower White River Flow System”, *and ordered* designated a maximum quantity of 8000 acre-feet-annually of groundwater that may be pumped from the Lower White River Flow System Hydrographic Basin, *and ordered* that the 8000 acre-foot maximum may be reduced if it is determined that pumping adversely affects the Moapa dace, *and ordered* that the previously issued moratorium regarding any final subdivision submitted to the State Engineer for review set forth in State Engineer Interim Order 1303 dated January 11,

2019 (“Rescinded Order 1303”) be terminated, *and ordered* that all other matters set forth in Rescinded Order 1303 that are not specifically addressed in Order 1309 were rescinded.

JURISDICTION AND PARTIES

3. This Court has jurisdiction to address this petition pursuant to N.R.S. 533.450(1), which provides that "any person feeling aggrieved by any order or decision of the State Engineer, . . . may have the same reviewed by a proceeding for that purpose, insofar as may be in the nature of an appeal, which must be initiated in the proper court of the county in which the matters affected or a portion thereof are situated. . . ." Coyote Springs Investment LLC, master developer of the Coyote Springs Development, which is subject to the State Engineer's June 15, 2020 decision, has over 21,000 acres of fee-owned land for development in Lincoln County, Nevada, and holds a leasehold interest to over 7,500 acres of conservation land in Lincoln County, Nevada; and over 6,800 acres of fee-owned land for development in Clark County, Nevada, and holds a leasehold interest to over 6,200 acres of conservation land in Clark County, Nevada.

4. CSI is a limited liability company, formed under the laws of the State of Nevada, and is the original developer of Coyote Springs Development in both Lincoln and Clark Counties, Nevada.

5. Tim Wilson is, as of the date of this Petition, the State Engineer, Nevada Division of Water Resources, is an agent of the State of Nevada, and is appointed by and responsible to the Director of the State Department of Conservation and Natural Resources ("Department"). NRS 532.020. The State Engineer issued the June 15, 2020 decision, Order 1309, which is the subject of this Petition.

FACTS

6. From water rights purchased in 1998, CSI owns 4600 acre feet annually ("afa") of certificated and permitted Nevada water rights in the Coyote Spring Valley Hydrographic Basin. CSI's groundwater rights in the Coyote Spring Valley are evidenced as follows: CSI owned 1500 afa under Permit 70429 (Certificate 17035) of which 1250 afa was conveyed to the Clark County Coyote Springs Water Resources General Improvement District ("CS-GID") to be used for the Coyote Springs Development, with the remaining 250 afa still owned by CSI. CSI also owned 1000 afa under Permit 74094 of which 750 afa were conveyed to the CS-GID to be used for the Coyote Springs Development, with the remaining 250 afa still owned by CSI. CSI also owned 1600 afa under Permit 70430 of which 460 afa was relinquished as approved and permitted by the State Engineer and accepted by the United States Fish and Wildlife Service ("USFWS") as required mitigation arising from the Coyote Springs Development and for the protection of the Moapa dace fish, thus leaving 1140 afa that continues to be owned by CSI. Further, CSI continues to own 500 afa under Permit 74095. Thus, the total amount of water permits held by CSI as of the date of this Petition is 2140 afa, and the total amount of water rights held by the CS-GID is 2000 afa all of which is to be used for the Coyote Springs Development[1], with 460 afa relinquished by CSI for protection of the endangered Moapa dace. CSI also owns a few additional rights in the LWRFS Hydrographic Basin outside of the Coyote Springs Valley. Furthermore, through a purchase and option agreement dated October 17, 2005, and as amended from time to time ("KS-Agreement"), CSI purchased from Lincoln County Water District ("LCWD")

[1] And pursuant to that certain Amended and Restated Coyote Springs Water and Wastewater Multi-Party Agreement, dated July 7, 2015, regarding operation and management of the CS-GID, if the Coyote Springs Development ceases to develop, then the water rights revert to CSI. Meaning, the CS-GID executes deeds and other related instruments necessary to effectuate that reversion.

and Vidler Water Company ("Vidler") 246.96 acre feet of permitted water rights in Kane Springs Valley and a contractual commitment from Lincoln County Water District to provide CSI with 253.04 afa that CSI purchased and dedicated to Lincoln County Water District (for an available total quantity of water equal to 500 afa) as evidenced by Permits 72220 and 72221. Further subject to the KS-Agreement, CSI holds an option to purchase from Vidler, an additional 500 afa of permitted Kane Springs Valley water rights.

7. Directly relevant to CSI's interests, the total amount of water rights affected by the State Engineer's decision is 4140 afa in Coyote Spring Valley and 1000 afa in the Kane Spring Valley, in Clark and Lincoln Counties, Nevada, respectively.

8. The Southern Nevada Water Authority ("SNWA"), USFWS, CSI, Moapa Band of Paiutes, and the Moapa Valley Water District ("MVWD") entered into a Memorandum of Agreement dated April 20, 2006 and as amended from time to time (as amended, the "2006 MOA") as a result of the State Engineer's Order 1169 and their respective proposed development needs. The purpose of the 2006 MOA was to protect Muddy River's flow rates for protection of the Moapa dace initially during the Order 1169 pump test and then beyond. The 2006 MOA set forth certain rights and obligations of the parties to the agreement. Among other things, CSI agreed to dedicate ten percent of its initial water rights (4600 afa), which was a quantity of 460 afa, to the survival and recovery of the Moapa dace pursuant to Section 3(a) of the MOA. The Biological Opinion issued by USFWS described in File Nos. 84320-2008-F-0113 and 84320-2008-I-0499, dated October 22, 2008] confirm CSI's obligation to dedicate this water as appropriate mitigation for any take of the Moapa dace related to the development of Coyote Springs community. USFWS determined that the best use of this 460 afa of dedicated water would be for it to remain in the groundwater system in reliance on the premise that the water makes its way in the underground system to the Muddy River

and the Muddy River Springs area, and thus also eventually to Lake Mead. In accordance with Nevada water law, CSI recorded an Affidavit to Relinquish Water Rights in Clark County and Lincoln County. The Affidavits were filed with the State Engineer on May 24, 2016. These documents ensure the 460 afa will not be pumped and remain in the State Engineer's count of appropriated water rights to prevent re-appropriation in the future.

9. Since just before the year 2000, over 20 years ago, CSI commenced development efforts of its property in the Coyote Spring Valley. CSI's first development agreement in Clark County was dated September 2004, and since that time CSI has prepared and processed permits and approvals for community infrastructure, maps and plans, and recorded maps. CSI's development efforts include zoning entitlements for golf course, resort, residential, multi-family, commercial, industrial, gaming enterprise, among others. These efforts include recorded large parcel, parent final maps for purpose of subsequent residential subdivision maps, all of which were for the development of the community and master plan known as the Coyote Springs Development. These efforts were engaged with many agencies, including, without limitation, Clark County, Lincoln County, the Las Vegas Valley Water District ("LVVWD"), Lincoln County Water District, Clark County Water Reclamation District, Nellis Air Force Base, Nevada Department of Wildlife, USFWS, US Army Corp. of Engineers, Bureau of Land Management, Clark County Regional Flood Control District, Nevada Department of Transportation, Nevada Division of Environmental Protection, Department of Air Quality, Southern Nevada Water Authority, Southern Nevada Health District, and the State Engineer. CSI holds and has been issued, a variety of permits, entitlements, bonds, improvements, maps and plans.

10. Based on those permits, entitlements, bonds, and approved plans, CSI constructed significant infrastructure improvements to support the Coyote Springs

Development. CSI constructed a Jack Nicklaus Signature Golf Couse ("Golf Course") at a cost of $40,000,000. The Golf Course was constructed to support future residential development and the overall Coyote Springs Development; but for the full development of Coyote Springs Development pursuant to its entitlements, the Golf Course would not have been built as a stand-alone business; golf courses are built to sell homes. The Golf Course was designed to also serve as natural storm water drainage for the Coyote Springs Development.

11. The Golf Course opened in May 2008, and has operated since opening at a monetary loss, and operations at a loss continue to the present. The Golf Course has just over 25,000 rounds of golf played per year. Prior to COVID-19 over 60 full time employees were employed; post-COVID-19, there remain just 25 personnel employed in connection with the Coyote Springs Golf Club and the Coyote Springs Development. Many more employees would be activated and employed if CSI were allowed to proceed with its entitled and permitted development efforts.

12. CSI's many improvements for the Coyote Springs Development include the $40,000,000 Jack Nicklaus Signature Golf Course; a 325 acre flood control detention basin (subject of a dam permit issued and renewed by the State Engineer); a groundwater treatment plant permitted by Nevada Department of Environmental Projection and to specifications required by the LVVWD and the CS-GID which includes two 1,000,000 gallon water storage tanks designed and constructed to culinary water standards; a wastewater treatment plant permitted by the Nevada Department of Environmental Protection and to specifications required by the LVVWD and the CS-GID and initial package treatment plant; and a 3-megawatt electrical substation and appurtenant equipment operated by Lincoln County Power District.

13. The Coyote Springs Development drilled and operated four groundwater production wells, two of which are fully equipped to LVVWD and CS-GID standards,

municipal water wells, all of which have been overseen, approved, and permitted by the State Engineer. The two wells equipped to municipal standards were done so at a cost greater than Twenty Million Dollars ($20,000,000). Based on, and in reliance on these approvals, and other approvals by the relevant government agencies, including the State Engineer, CSI constructed miles of roadways, curbs, and installed associated underground utilities, including water, sewer, gas and electricity in the Coyote Springs Development. The total cost of construction and acquisitions for these improvements and associated processing is well over Two Hundred Million Dollars ($200,000,000).

14. CSI relied upon the approvals granted by the relevant agencies, some of which are listed above, but most particularly the State Engineer, to proceed with these construction projects. CSI, in particular has relied on the approvals of the State Engineer recognizing that CSI must use its certificated and permitted water rights in the Coyote Springs Development in order to support operation of the existing and operating golf course and related facilities, and all of its residential subdivision development and construction efforts in order to open a homebuilding center to the public and sell residential homes, among other customary southern Nevada master planned community commercial and public facility support amenities.

15. Eighteen years ago, prior State Engineer Hugh Ricci issued an order which held in abeyance certain applications pending or to be filed for additional water rights in the Coyote Spring Valley Basin 210 (and other basins), known as Order 1169 ("Order 1169"). At the time of Order 1169, various parties, including CSI, MVWD, SNWA, among others, had water right applications pending for determination. The State Engineer determined there was insufficient information and data concerning the deep carbonate aquifer underlying the hydrographic basins in question. Based on the need for additional information and data, the State Engineer exercised his authority under NRS 533.368 to order a hydrological study of the basins in question. In taking this step,

the State Engineer studied available water to issue a permit for pending applications, and in so doing the State Engineer determined that certain applicants, including CSI, already had a vested interest in water rights permitted from the carbonate aquifer system, thereby acknowledging the existence and validity of CSI's 4600 afa referenced in paragraph 6 above. The study requested was to occur over a five-year period and fifty-percent (50%) of the water rights then permitted in the Coyote Springs Valley Basin were to be pumped for at least two consecutive years. The applicants, which included CSI, were to pay for the studies and were to file a report with the State Engineer within 180 days of the end of the fifth (5^{th}) consecutive year following commencement of the test.

16. CSI, SNWA, MVWD, among others, thereafter performed the required pump tests on the wells in the Coyote Springs Valley Basin from 2010 to 2012 and filed their reports in 2013.

17. On January 29, 2014, State Engineer Jason King issued Ruling 6255 ("Ruling 6255") out of the Order 1169 pump tests. In Ruling 6255, the State Engineer ruled that pumping groundwater in Coyote Spring Valley Basin for new applications would decrease flows at existing springs and could impact existing water rights held by parties such as CSI's then existing 4600 afa of permitted water rights. The State Engineer also found that the Muddy River and Muddy River Springs were fully appropriated and pumping of groundwater could, in the future, potentially reduce flows in the Muddy River that might cause a conflict with existing water rights. The State Engineer decided this conflict with existing rights was not in the public interest and allowing appropriation of additional groundwater resources could impair protection of springs and the habitat of the Moapa dace that lives in the headwaters of the Muddy River. Based on those findings, the State Engineer denied the then-pending new water right applications. Ruling 6255 protects existing water rights (such as CSI's then owned 4600 afa) from

any new appropriations by denying the pending applications on the basis that existing water rights must be protected.

18. CSI's existing water rights in what is now designated “Lower White River Flow System Hydrographic Basin” are part of the rights the State Engineer ruled must be protected in Ruling 6255. CSI has historically pumped, and continues to pump, between 1400 afa and 2000 afa from its wells in the Coyote Spring Valley Basin. Golf Course operations use, on average, 1100 afa, and beyond that water is used to support construction activity in the Coyote Springs Development. Irrigation of Golf Course Operations and other landscaping areas will be replaced by grey-reclaimed water in the future after residential development is underway.

19. Through the specific plan, development agreement, entitlement and zoning process, and creation of the CS-GID, CSI adopted aggressive water conservation plans that it stands ready to implement. These plans include reuse of groundwater once it makes its ways through the residential infrastructure, including grey-water use on golf courses, common areas, and public parks. Coyote Springs Development’s water conservation target is for each equivalent-residential-unit to achieve 0.36 afa. Treated effluent from CSI's wastewater treatment plant will be recycled within the development and any portion not reused is designed to recharge the aquifer and flow to the Muddy River and ultimately to Lake Mead.

20. Of the 4140 afa CSI has available for immediate development of the Coyote Springs Development, CSI intends to support its existing entitled residential units within its subdivisions, plus related resort, commercial and industrial development. Return flows from the subdivision and effluent from its treatment plants will be returned to the aquifer or recycled.

21. As CSI processed the final governmental approvals of what would be its first residential subdivision map for 575 units in “Village A” of the Coyote Spring

Development, on May 16, 2018, State Engineer Jason King sent a letter to LVVWD regarding Coyote Spring Valley Basin Water Supply, with a copy to CSI's representative, Mr. Albert Seeno III.[2] The State Engineer stated that the pump tests from Order 1169 through the present clearly indicate that pumping at the level during the two year pump test caused unprecedented declines in groundwater levels.

22. In the State Engineer's May 16, 2018 letter, he stated (for the first time), that any groundwater to be pumped across a *five-basin area* [emphasis in original] would be limited to ensure no conflict with Muddy River Springs or the Muddy River as they are the most senior rights in the then-identified five-basin area. The State Engineer further said that carbonate pumping will be limited to a fraction of the 40,300 acre feet already appropriated in the identified five-basin area. Following that sweeping statement, the State Engineer specifically addressed the purpose of the then instant letter by stating:

> Therefore, specific to the question raised in your November 16, 2017, letter, considering current pumping quantities as the estimated sustainable carbonate pumping limit, **pursuant to the provisions found in Nevada Revised Statutes Chapter 278, 533 and 534, the State Engineer cannot justify approval of any subdivision development maps based on the junior priority groundwater rights currently owned by CWSRGID (sic)[Coyote Springs Water Resources General Improvement District] or CSI unless other water sources are identified for development.** (emphasis in original.)

This May 16, 2018 letter went on to close with a desire that the water rights holders in the area plus the Nevada Division of Water Resources work together to reach a resolution for the entirety of the five basin area.

23. Subsequently, in communications by email between Albert Seeno III with the State Engineer, on May 17, 2018, the State Engineer advised that he would neither

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[2] The May 16, 2018 letter was rescinded pursuant to a settlement agreement between CSI and the State Engineer. See paragraph 26 below.

sign-off nor approve any subdivision map submitted by CSI if they were based on water rights CSI owned or had dedicated to the CS-GID.

24. On May 18, 2018, in a conversation with Albert Seeno III, the State Engineer advised CSI not to spend one dollar more on the Coyote Springs Development Project and that processing of CSI's maps had stopped. The State Engineer stated that he was going to prepare a new draft order that would supersede or dramatically modify Order 1169 and Ruling 6255, in approximately 30 days. The State Engineer admitted to Albert Seeno III that this was unchartered territory and further, that his office has never granted rights and then just taken them away.

25. Following his conversation with State Engineer Jason King, on May 18, 2018, Albert Seeno III emailed Jason King and asked if anyone had filed an impairment claim or any type of grievance with regard to CSI's and/or CS-GID's water rights and/or the pumping CSI had performed over the prior 12 years. On May 21, 2018, the State Engineer responded that no one had asserted a conflict or impairment regarding CSI's pumping of the CS-GID and CSI's water rights.

26. On June 8, 2018, CSI filed a Petition for Review of the State Engineer's May 16, 2018, letter challenging the State Engineer’s decision to place a moratorium on processing CSI's subdivision maps. After a court-ordered settlement meeting on August 29, 2018,, the parties agreed to settle and dismiss the case. In that settlement agreement dated August 29, 2018, the State Engineer agreed to rescind his May 16, 2018, letter and to process CSI's subdivision maps without prejudice.

27. Thereafter, the State Engineer began a public workshop process to review the water available for pumping in an area that the State Engineer began calling the Lower White River Flow System ("LWRFS") which includes the Coyote Spring Valley

hydrographic basin[3]. This public process included public workshops, a working group of stakeholders, and included facilitation of a meeting of the Hydrologic Review Team ("HRT") established pursuant to that certain 2006 Memorandum of Agreement among some of the parties involved in the new LWRFS process.[4]

28. On September 7, 2018, the Office of the State Engineer issued two conditional approvals of subdivision maps submitted for review by CSI. The first conditional approval was for the Large Lot Coyote Springs—Village A, consisting of eight lots, common area, and rights of way totaling approximately 643 acres in Clark County and requiring the statutory 2.0 afa per lot, for a total of 16 afa. The second conditional approval was for the Coyote Springs—Village A subdivision map, consisting of 575 lots, common areas and rights of way for approximately 142.71 acres in Clark County and requiring an estimate demand of 408.25 afa of water annually based on .71 afa per residential unit. The two subdivision maps were conditionally approved subject to a showing by CSI (or its agent) that sufficient water was available without affecting senior water rights in the Muddy River and the Muddy River Springs.

29. Following this brief public input process, the State Engineer issued a draft order at a public workshop held on September 19, 2018. The September 19, 2018, draft order contained a preliminary determination that there were 9,318 afa of water rights with a priority date of March 31, 1983, or earlier, that could be safely pumped from five-basins composing the initial-LWRFS basins without affecting the flows in the Muddy

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[3] The Lower White River Flow System as so named, was identified colloquially prior to January 2019, and in Rescinded Order 1303 dated January 11, 2019 these same hydrographic basins were identified as a single administrative unit, and then even further, in his June 15, 2020 Order#1309 the State Engineer specifically named and identified the Lower White River Flow System Hydrographic Basin which is fully described in this Petition.

[4] On July 24, 2018, the State Engineer held a Public Workshop and on August, 23, 2018 facilitated the meeting of the HRT.

River and without affecting the endangered Moapa dace fish. The draft order included a moratorium on processing of subdivision maps unless demonstrated to the State Engineer's satisfaction that an adequate supply of water was available "in perpetuity" for the subdivision proposed to be mapped.

30. On October 5, 2018, CSI submitted a series of comment letters to the State Engineer regarding the September 19, 2018, draft order. CSI commented on the total lack of technical information necessary to perform a comprehensive review of the State Engineer's conclusions in the draft order. CSI requested that the State Engineer provide public access to the cited 30,000 pages of documentation used to support his conclusions in the draft order.

31. In the October 5, 2018 CSI comment letters from CSI and its qualified expert, CSI also pointed out to the State Engineer that his use of the 9318 afa limit for pumping in the basin was not supported by substantial evidence and that the State Engineer's own data supported a figure of at least 11,400 afa that could be pumped without any effect on the flows in the Muddy River or any effects on the Moapa dace. CSI also criticized reliance on only three-years of pump data to establish the limitation of 9318 afa when data from more than three years was available.

32. On October 23, 2018, CSI provided additional comments on the September 19, 2018 draft order. CSI noted again that the State Engineer's own data supported a determination that the correct amount of pumping that could be sustained in the LWRFS was at least 11,400 afa and not 9,318 afa. However, even assuming that 9,318 afa was the correct number, CSI was still entitled to at least 1,880 afa of water for its subdivisions.

33. On January 11, 2019, State Engineer Jason King issued Rescinded Order 1303.

34. On May 13, 2019 the State Engineer amended Rescinded Order 1303. In Rescinded Order 1303, the State Engineer declared that Coyote Spring Valley, Muddy

River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern part of the Black Mountains Area were designated as a joint administrative unit for purposes of administration of water rights, known as the Lower White River Flow System or the Six-Basin Area. Rescinded Order 1303 also declared a temporary moratorium on approvals regarding any final subdivision or other submissions concerning development and construction submitted to the State Engineer for review. According to Rescinded Order 1303, any such submittal shall be held in abeyance pending the conclusion of the public process to determine the total quantity of groundwater that may be developed within the Lower White River Flow System. Rescinded Order 1303 did provide an exception to the moratorium, that the State Engineer could review and grant approval if a showing of an adequate and sustainable supply of water to meet the anticipated "life of the subdivision" was made to his satisfaction.

35. Rescinded Order 1303 raised five questions for stakeholders to review and to which they could respond with technical, scientific data: (a) the geographic boundary of the LWRFS, (b) aquifer recovery subsequent to the Order 1169 aquifer test, (c) the long-term annual quantity and location of groundwater that may be pumped from the LWRFS, (d) the effect of movement of water rights between alluvial and carbonate wells within the LWRFS and (e) any other matter believed to be relevant to the State Engineer's analysis (the "Five Topics Noticed for Determination").

36. In issuing Order 1309, the State Engineer went well beyond the scope of issues within the Rescinded Order 1303's Five Topics Noticed for Determination.

37. Former State Engineer Jason King retired the same day that Rescinded Order 1303 was issued, January 11, 2019. Thereafter, Tim Wilson was appointed as Acting State Engineer; and on December 12, 2019, Tim Wilson was appointed as the full State Engineer.

38. On June 13, 2019, CSI submitted two-maps for signature and approval subject to the exception written into Rescinded Order 1303: (i) its previously described Large Lot Coyote Springs—Village A, consisting of eight lots, common area, and rights of way totaling approximately 643 acres in Clark County and on the face of the map requiring the statutory 2.0 afa per lot, for a total of 16 afa, and (ii) its Coyote Springs—Village A subdivision map, consisting of 575 lots, common areas and rights of way for approximately 142.71 acres in Clark County and requiring an estimate demand of 408.25 afa of water annually based on .71 afa per residential unit. These maps were accompanied by a cover letter describing a request approval based on an attached technical report which evidenced support for approval and identifying the technical and hydrogeologic analysis supporting CSI's request for 2000 afa to be approved and assigned to these maps for development within the Coyote Springs master planned community.

39. The State Engineer held several workshops and meetings regarding Rescinded Order 1303, on February 6, March 22, April 23, and July 24, 2019. These meetings were workshops and held in anticipation and preparation for the scheduled hearing on Rescinded Order 1303 scheduled for the end of September, early October, 2019.

40. The State Engineer identified dates for a hearing to be held on Rescinded Order 1303, to allow all interested parties to submit technical reports and studies in response to the five questions raised by the State Engineer in Rescinded Order 1303, and cross examine the others' experts, following which the State Engineer would take under advisement all of the reports and testimony and render a decision in a new order.

41. Expert reports by interested parties were due July 3, 2019, and rebuttal reports were due on August 16, 2019. CSI filed expert scientific, geophysical, hydrologic, and hydrogeologic reports, and related rebuttal reports; all of which are reflected on the

State Engineer's administrative record supporting Rescinded Order 1303 on their website.

42. The hearing on Rescinded Order 1303 took place in Carson City, Nevada between September 23, 2019, and October 4, 2019.

43. Following the hearing on Rescinded Order 1303, the State Engineer allowed for closing reports, which were due on or before December 3, 2019.

44. Initial reports and expert opinions and rebuttal reports, submitted by interested parties, including those that demanded that the Kane Spring Valley be included within the Lower White River Flow System (thus, turning a Six-Basin area into a Seven-Basin area).

45. In addition to CSI's hydrogeologist and other experts at Stetson Engineering, CSI, LCWD, and Vidler retained an expert in the area of geophysics, Zonge International, to review underground faulting in the Coyote Spring and Kane Springs hydrographic basins and identify faults that could act as barriers to flow from the Kane Springs and Coyote Spring valleys east to the Muddy River and the Muddy River Springs area.

46. Other than CSI and its team of experts in the fields of geology and hydrogeology, water rights, climate, biology, and geophysics, from Stetson Engineering and Zonge International, more than 15 additional other stakeholders were present and participated at Rescinded Order 1303 Hearing, and each stakeholder presented expert witnesses[5] to their previously submitted reports. All of this testimony, and all reports and rebuttal reports submitted is a part of the State Engineer's files for Rescinded Order 1303 Hearing, and testimony preserved by a stenographer's transcript and video taken. CSI

[5] More than 25 experts presented testimony. *See* Nevada State Engineer website for LWRFS at http://water.nv.gov/news.aspx?news=LWRFS and the tab "hearing documents."

disagrees with the summarization by the State Engineer of hearing testimony in Order 1309.

47. Order 1309 specifically delineated the following decisions[6]:

1. The Lower White River Flow System consisting of the Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area as described in this Order, is hereby delineated as a single hydrographic basin. The Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area are hereby established as sub-basins within the Lower White River Flow System Hydrographic Basin.

2. The maximum quantity of groundwater that may be pumped from the Lower White River Flow System Hydrographic Basin on an average annual basis without causing further declines in the Warm Springs area spring flow in the Muddy River cannot exceed 8,000 afa and may be less.

3. The maximum quantity of water that may be pumped from the Lower White River Flow System Hydrographic Basin may be reduced if it is determined that pumping will adversely impact the endangered Moapa dace.

4. All applications for the movement of existing groundwater rights among sub-basins of the Lower White River Flow System Hydrographic Basin will be processed in accordance with NRS 533.370.

5. The temporary moratorium on the subdivision of final subdivision or other submission concerning development and construction submitted to the State Engineer for review established under Interim Order 1303 is hereby terminated.

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[6] Exhibit "A" at 65-66.

6. All other matters set forth in Interim Order 1303 that are not specifically addressed herein are hereby rescinded.

48. Order 1309 neither delivers evidence in support of, nor analysis to support, any of the order and rulings the State Engineer made in Order 1309, Section X, Orders, items 1, 2, 3, and 4, including, without limitation, the addition of Kane Springs Valley into the newly designated Lower White River Flow System Hydrographic Basin.

49. In Order 1309, Section X, Orders, items 5 and 6, the State Engineer correctly terminates the improper, arbitrary, and capricious Rescinded Order 1303 in its entirety, including, without limitation, specifically terminating the improper moratorium instituted in Rescinded Order 1303.

50. On June 17, 2020, 371 days following written submittal of a request for review and approval for an exception pursuant to Rescinded Order 1303, and two days following issuance of Order 1309, Steve Shell, Water Resource Specialist II, signed a letter addressed to Coyote Springs Nevada at an address that the entity has not used for over ten (10) years, and recommended disapproval for water service to be provided by the CS-GID to the Coyote Springs Development ("Subdivision Map Denial Letter"). A true and correct copy of the Subdivision Map Denial Letter is attached as Exhibit "B". The request at issue was for review and approval of a final subdivision map for eight large parcels intended to be further subdivided. This denial was premised on Order 1309 and a statement that "[CSI] groundwater permits have priority dates which may exceed the threshold of allowable pumping within the definition of [Order 1309]".

51. The June 17, 2020 Subdivision Map Denial Letter received by CSI did not include analysis or review of any facts or circumstances or analysis as to why the State Engineer's office refused to process the request for map approval pursuant to the exception provided in Rescinded Order 1303. The State Engineer's office did not

explain why other request made under the exception to the moratorium under Rescinded Order 1303 were processed and CSI's was not.

PETITION FOR JUDICIAL REVIEW

52. This Petition is filed on the grounds that CSI is an aggrieved party by the decision of the State Engineer on June 15, 2020 and the water rights owned or optioned by CSI, in which CSI has a contractual interest, and the water rights CSI dedicated to the CS-GID will be injured as a result of these decisions.

53. The purpose of the State Engineer's hearing leading to its Order 1309 was to address the Five Topics Noticed for Determination:

a. The geographic boundary of the hydrologically connected groundwater and surface water systems comprising the Lower White River Flow System;

b. The information obtained from the Order 1169 aquifer test and subsequent to the aquifer test and Muddy River headwater spring flow as it relates to aquifer recovery since the completion of the aquifer test;

c. The long-term annual quantity of groundwater that may be pumped from the Lower White River Flow System, including the relationships between the location of pumping on discharge to the Muddy River Springs, and the capture of Muddy River flow;

d. The effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River; and,

e. Any other matter believed to be relevant to the State Engineer's analysis.

54. The State Engineer's determinations in his June 15, 2020 order regarding the geographic boundary of the LWRFS, the aquifer recovery since completion of the Order 1169 aquifer test, the long-term annual quantity of groundwater that may be pumped from the LWRFS, and the effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River are

arbitrary, capricious, an abuse of discretion and devoid of supporting facts and substantial evidence.

55. The State Engineer's Order 1309 is arbitrary[7] and capricious[8] due to the lack of substantial evidence supporting its determination that the seven hydrographic basins have a "close" hydraulic connection and must therefore be administered as a single hydrographic basin. The State Engineer concluded in Order 1309 that there may be discrete, local aquifers within the LWRFS with an uncertain hydrologic connection to the Warm Springs Area.[9] The State Engineer based this opinion on his recognition that "The LWRFS has structural complexity and heterogeneity, and some areas have more immediate and more complete connection than others"[10]. One basis for his findings was from Bedroc who presented evidence that their groundwater wells in Coyote Spring Valley are hydraulically disconnected from the regional carbonate aquifer of the LWRFS.[11] The evidence and findings contained in Order 1309 are not sufficient to support its designation of the basins as a single hydrographic basin.

56. In his June 15, 2020 Order 1309, the State Engineer inconsistently applies his own criteria for determining those basins that should be included in the LWRFS based on a "close hydraulic connection"[12]. Order 1309 outlines six criteria that the State Engineer relies on to support the finding of a close hydraulic connection, including geologic structure and water level observations. The State Engineer's application of

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[7] A finding is arbitrary if "it is made without consideration of or regard for facts, circumstances fixed by rules or procedure." (Black's Law Dictionary, Arbitrary (10th ed. 2014).)

[8] A decision is capricious if it is "contrary to the evidence or established rules of law." (Black's Law Dictionary, Capricious (10th ed 2014).)

[9] Exhibit "A" at. 65.

[10] Exhibit "A" at 59.

[11] Exhibit "A" at 39,

[12] Exhibit "A" at 47.

these criteria to his decision regarding the Black Mountains Area, Kane Springs Valley, and Lower Meadow Wash appears subjective, and is thus arbitrary and capricious.

57. For example, Order 1309 excludes from the LWRFS Hydrographic Basin the entire Black Mountain Area due to, among other things, the lack of contiguity of carbonate-rock aquifer and difference in groundwater levels. However, the substantial evidence in the State Engineer's record shows contiguous carbonate rock extends across the Muddy Mountain Thrust Fault between California Wash into the Black Mountains Area[13], similar to the occurrence of contiguous carbonate rock from Kane Springs Valley into Coyote Spring Valley that is offset by a boundary fault[14]. Additional evidence indicated a 150 foot difference in groundwater level between California Wash and the Black Mountains Area, similar in magnitude to the 60 foot difference in groundwater level between Kane Springs Valley and Coyote Spring Valley[15].

58. While both the Black Mountains Area-California Wash and Kane Springs Valley-Coyote Spring Wash boundaries exhibit the same physical expression reflective of a low permeability boundary, the State Engineer's Order 1309 includes one, but not the other, in the LWRFS Hydrographic Basin based on perceived "general hydrographic pattern".[16] The State Engineer's reliance on these subjective criteria instead of objectively applied criteria is arbitrary and capricious.

59. Order 1309 states "the LWRFS exhibits a direct hydraulic connection that demonstrates that conjunctive management and joint administration of these groundwater basins is necessary and supported by the best available science"[17] and at

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[13] Exhibit "A" at 15-18.

[14] Exhibit "A" at 19-22.

[15] Exhibit "A" at 52.

[16] Exhibit "A" at 51, 52.

[17] Exhibit "A" at 42.

the same time cites numerous documents that do not support this statement. For example, the Order 1169 Aquifer Test Reports cited variously describe potential barriers and flow paths within the LWRFS, while others postulate that the LWRFS is hydraulically connected, and some address the entire LWRFS, while other reports only address portions of the LWRFS.[18] The underlying technical analyses in these cited documents are admittedly unreliable and therefore Order 1309's findings regarding the hydraulic connection within the LWRFS are arbitrary and capricious.

60. The State Engineer's determination in his June 15, 2020 order to include the Kane Springs Valley Hydrographic Basin as part of the LWRFS Hydrographic Basin relies on standards regarding hydrologic connections, hydraulic connections, and "close" connections that were not previously known to those submitting evidence in response to Rescinded Order 1303. Inclusion of the Kane Springs Valley Hydrographic Basin into the LWRFS in Order 1309 was a violation of CSI's due process rights. CSI's due process rights were violated because the State Engineer neither provided the standards nor procedures nor analysis describing the method of making such a determination. Therefore, pursuant to Nevada law, as a result, Order 1309 should be voided.

61. Further the State Engineer's determination on June 15, 2020 in Order 1309 to include the Kane Springs Valley Hydrographic Basin in the LWRFS Hydrographic Basin is not supported by substantial evidence. *See Bacher v. Office of State Eng'r of State of Nevada*, 122 Nev. 1110, 1121 (2006) ("This court has defined substantial evidence as that which a reasonable mind might accept as adequate to support a conclusion.") (internal quotation marks omitted). Furthermore, the State Engineer has not provided "findings in sufficient detail to permit judicial review" as required. *Revert v. Ray*, 95 Nev.

[18] Exhibit "A" at 42, FN 244

782, 787 (1979) ("When these procedures, grounded in basic notions of fairness and due process, are not followed, and the resulting administrative decision is arbitrary, oppressive, or accompanied by a manifest abuse of discretion, this court will not hesitate to intervene."). In his February 2, 2007 Ruling 5712, the State Engineer stated that the then-available evidence supported the probability of a low-permeability structure or change in lithology between Kane Springs Valley and the southern part of Coyote Spring Valley and there was not substantial evidence that the appropriation of a limited quantity of water in Kane Springs Valley Hydrographic Basin will have any measurable impact on the Muddy River Springs. (5712, p. 21.) The State Engineer's determination in his June 15, 2020 Order 1309 to include the Kane Springs Valley Hydrographic Basin in the LWRFS Hydrographic Basin is not based on substantial evidence contrary to the evidence supporting his determinations in Ruling 5712.

62. Finally, the State Engineer's determination in his June 15, 2020 order to include the Kane Springs Valley Hydrographic Basin in the LWRFS Hydrographic Basin is arbitrary and capricious as the substantial evidence, as viewed through the State Engineer's own proposed standards regarding hydrologic connections, hydraulic connections, and "close" connections that it uses in Order 1309, does not satisfy his own standards for the purposes of creating a LWRFS Hydrographic Basin.

63. The State Engineer's June 15, 2020 Order 1309 subjectively applies criteria for determining whether the Lower Meadow Valley Wash should be included in the LWRFS. In Order 1309, the State Engineer finds that "while carbonate rocks may underlie the Lower Meadow Valley Wash and be contiguous with carbonate rocks to the south and west, data are lacking to characterize the potential hydraulic connection that may exist."[19] The State Engineer further acknowledges that a connection exists, but

[19] Exhibit "A" at 50.

determines that the Lower Meadow Valley Wash may be managed outside the LWRFS. Accordingly, Order 1309's exclusion of the Lower Meadow Valley Wash from the LWRFS is inconsistent with his decision to include the Kane Springs Valley, as both basins are upgradient of the Muddy River Springs Area, and based on the State Engineer's findings in Order 1309, both basins have a hydraulic connection to the LWRFS. Additional record evidence demonstrates that groundwater from the Lower Meadow Wash directly support streamflow in the Muddy River and groundwater resources in the carbonate aquifer. Further, both Kane Springs Valley and Meadow Valley Wash have relatively little or no groundwater development. Given the similarities between the Lower Meadow Valley Wash and Kane Springs Valley, the inconsistent treatment of the two in regard to their incorporation into the LWRFS is inconsistent and accordingly arbitrary and capricious.

64. The State Engineer's determination that pumping groundwater in the Coyote Springs Basin will have an adverse impact on flows in the Muddy River or on the Moapa dace lacks substantial supporting record evidence and is thus arbitrary and capricious. As described above, the State Engineer relied on outdated and inadequate data in making these determinations. The record evidence before the State Engineer demonstrates that he failed to account for factors such as the effect of faults, groundwater barriers, and hydrogeologic parameters between Coyote Spring Valley pumping and the Muddy River Spring Area.

65. The State Engineer's determination in his June 15, 2020 order that the maximum quantity of groundwater that may be pumped from the LWRFS Hydrographic Basin on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa is not supported by substantial evidence. This is the case as the State Engineer also misinterprets the evidence from the hearing following Rescinded Order 1303 regarding the effect of

groundwater pumping within the LWRFS on the Moapa dace. Furthermore, CSI has already performed and completed its required mitigation for development of Coyote Springs as required by USFWS. CSI was required to set aside 460 afa to protect the endangered Moapa dace and USFWS deemed this dedication as appropriate mitigation for any take of the Moapa dace related to development of the Coyote Springs Development. Ignoring these significant considerations was arbitrary and capricious, rendering Order 1309 unlawful.

66. Order 1309's use of the term "maximum quantity" of groundwater that may be pumped is further confused by the Order's qualifier "on an average annual basis".[20] The use of the "average annual basis" suggests that pumping may be less than 8,000 afa in some years and more than 8,000 afa in others. Accordingly, Order 1309's pumping limitations is vague and lacks direction for how the average annual basis will be used to enforce the maximum quantify of groundwater that may be pumped. Order 1309 further does not distinguish the quantity of pumping that can occur from each of the two aquifers that compose the LWRFS, the Basin Fill and Carbonate aquifers. Accordingly, Order 1309 is arbitrary and capricious as it "lacks specific standards, thereby encouraging, authorizing, or even failing to prevent arbitrary and discriminatory enforcement." *Silvar v. Eighth Judicial Dist. Court ex rel. Cty. of Clark*, 122 Nev. 289, 293 (2006).

67. Further, the State Engineer's determination in his June 15, 2020 Order 1309 that the maximum quantity of groundwater that may be pumped from the LWRFS on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa is not supported by substantial evidence as there is no evidence in the record regarding the effects of this quantity of

[20] Exhibit "A" at 65.

water being pumped within the newly defined LWRFS.[21] Absent such evidence, the State Engineer refers to "Pumpage inventories for 2018 that were published after the completion of the hearing report a total of 8,300 afa."[22] Further, the State Engineer identifies that additional inquiry and evidence is still necessary to support this conclusion. Accordingly, the State Engineer's determination regarding the maximum quantity of groundwater that may be pumped from the LWRFS on an average annual basis is not supported by substantial record evidence.

68. The State Engineer's determination in his June 15, 2020 Order 1309 that the maximum quantity of groundwater that may be pumped from the LWRFS on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa is not supported by substantial evidence as the State Engineer recognizes that there may be discrete, local aquifers within the LWRFS with an uncertain hydrologic connection to the Warm Springs area and that determination of the effect of moving water rights into these areas may require additional scientific data and analysis.[23] However, Order 1309 does not include any plan to gather such data or conduction such analysis.

69. The State Engineer's determination in his June 15, 2020 Order 1309 that the maximum quantity of groundwater that may be pumped from the LWRFS on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa is further arbitrary and capricious and

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[21] Order 1309 states "Groundwater level recovery reached completion approximately two to three years after the Order 1169 aquifer test pumping ended" and pumping at that time averaged 9,318 afa. (Exhibit "A" at 55.) Order 1309's determination to then to base maximum pumping on 2018 when it finds that groundwater levels had recovered by 2015-2016 is arbitrary and capricious and unsupported by substantial evidence.

[22] Exhibit "A" at 55.

[23] Exhibit "A" at 64-65.

violates Nevada law as Order 1309 contains no mechanism for the implementation of this limitation to ensure that the Nevada doctrines of prior appropriation[24] and that the limit and definition of a water right is its reasonable use.[25]

70. The State Engineer's determination in Order 1309 regarding the movement of water rights within the LWRFS is inconsistent, arbitrary, and capricious. The statement in Order 1309 stating "The State Engineer also finds that any movement of water rights into carbonate-rock aquifer and alluvial aquifer wells in the Muddy River Springs Area that may increase the impact to Muddy River decreed rights is disfavored" [26] implies that the some water rights in LWRFS have less impact than others. If there are water rights within the LWRFS that have less impact than others, then the system cannot be homogeneous and be considered as one administrative unit. Accordingly, Order 1309's determination regarding the boundaries of the LWRFS are arbitrary and capricious and not supported by substantial evidence.

71. Throughout Order 1309, the State Engineer "*recognizes*" that Order 1309 will serve as an initial step toward management of the newly defined LWRFS Hydrographic Basin [emphasis added]. The word "recognize" is neither a finding nor a ruling, it is simply the observation of something by the State Engineer. The State Engineer also identifies the need for "an effective management scheme" to "provide for the flexibility to adjust boundaries based on additional information, retain the ability to address unique management issues on a sub-basin scale, and maintain partnership with water users who may be affected by management actions throughout the LWRFS."[27] However, the

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[24] *Steptoe Livestock Co. v. Gulley,* 53 Nev 163, 171-173, 205 P.772 (1931); *Jones v. Adams* 19 Nev. 78, 87, (1885).

[25] NRS 533.035.

[26] Exhibit "A" at 64.

[27] Exhibit "A" at 53.

State Engineer's Order 1309 provides for neither a management scheme nor a plan for the development of such a management scheme. Accordingly, the State Engineer's Order 1309 is incomplete and as a result, his issuance of Order 1309 is both arbitrary and capricious.

72. In his Order 1309, the State Engineer repeatedly identifies that additional information is necessary to administer the newly created LWRFS Hydrographic Basin the manner that he proposes – as a single hydrographic basin from which only 8,000 afa may be pumped. As such additional information is not part of the record underlying Order 1309, the State Engineer's Order 1309 is incomplete, is not supported by substantial evidence, and his issuance of Order 1309 is both arbitrary and capricious.

73. THEREFORE, for the foregoing reasons, and for others that may be discovered and raised during the pendency of this Petition for Judicial Review, Petitioner Coyote Springs Investment, LLC hereby requests that this Court reverse the decision of the State Engineer made on June 15, 2020 regarding the geographic boundary of the LWRFS, the aquifer recovery since completion of the Order 1169 aquifer test, the long-term annual quantity of groundwater that may be pumped from the LWRFS, and the effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River for the reasons discussed in this Petition.

Dated: July 9, 2020

Brownstein Hyatt Farber Schreck, LLP

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21256970

CERTIFICATE OF SERVICE

Pursuant to NRCP 5(b), I hereby certify that I am an employee of Brownstein Hyatt Farber Schreck, LLP, and that on the 9th day of July, 2020, I served, or caused to be served, a true and correct copy of the foregoing **PETITION FOR JUDICIAL REVIEW OF NEVADA STATE ENGINEER ORDER 1309**, to the following:

[X]: Via **HAND DELIVERY**:

Tim Wilson, P.E., State Engineer
Nevada Division of Water Resources
Department of Conservation and Natural Resources
901 South Stewart Street, Suite 2002
Carson City, NV 89701

[X]: Via **U.S. Postal Service Certified Mail, Return Receipt Requested**, by placing a true and correct copy of the foregoing document in an envelope, postage prepaid, and properly addressed, to the following:

Robert O. Kurth, Jr. 3420 North Buffalo Drive Las Vegas, NV 89129	Laura A. Schroeder Theresa A. Ure 10615 Double R Blvd., Suite 100 Reno, NV 89521
Kent R. Robison Therese M. Shanks Robison, Sharp, Sullivan & Brust 71 Washington Street Reno, NV 89503	Paulina Williams Baker Botts, L.L.P. 98 San Jacinto Blvd., Suite 1500 Austin, TX 78701
Sylvia Harrison Sarah Ferguson McDONALD CARANO LLP 100 W. Liberty Street, 10th Floor Reno, NV 89501	Severin A. Carlson Kaempfer Crowell, Ltd. 50 West Liberty Street, Suite 700 Reno, NV 89511
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Steve King, Esq. 227 River Road Dayton, NV 89403	Greg Morrison 50 W. Liberty Street, Suite 750 Reno, NV 89501
Justina Caviglia 6100 Neil Road Reno, NV 89511	Luke Miller Office of Regional Solicitor U.S. Dept. of the Interior 2800 Cottage Way, Suite E1712 Sacramento, CA 95825
Karen Glasgow Office of the Regional Solicitor U.S. Dept. of the Interior 333 Bush Street, Suite 775 San Francisco, CA 94104	Larry Brundy P.O. Box 136 Moapa, NV 89025
Casa De Warm Springs, LLC 1000 N. Green Valley Pkwy., #440-350 Henderson, NV 89074	Clark County 500 S. Grand Central Pkwy. Sixth Floor Las Vegas, NV 89155-1111
Clark County Coyote Springs Water Resources GID 1001 S. Valley View Blvd. Las Vegas, NV 89153	Mary K. Cloud P.O. Box 31 Moapa, NV 89025
Don J. and Marsha L. Davis P.O. Box 400 Moapa, NV 89025	Dry Lake Water, LLC 2470 St. Rose Pkwy., Suite I 07 Henderson, NV 89074
Kelly Kolhoss P.O. Box 232 Moapa, NV 89025	Lake and Las Vegas Joint Venture 1600 Lake Las Vegas Parkway Henderson, NV 89011
Laker Plaza, Inc. 7181 Noon Rd. Everson, WA 98247-9650	State of Nevada Dept. of Transportation 1263 S. Stewart Street Carson City, NV 89712
State of Nevada Dept. of Conservation and Natural Res. 901 S. Stewart Street, Suite 5005 Carson City, NV 89701	Pacific Coast Building Products, Inc. P.O. Box 364329 Las Vegas, NV 89036
S & R, Inc. 808 Shetland Road Las Vegas, NV 89107	Technichrome 4709 Compass Bow Lane Las Vegas, NV 89130

William O'Donnell 2780 S. Jones Blvd., Suite 210 Las Vegas, NV 89146	Global Hydrologic Services, Inc. Mark D. Stock 561 Keystone Avenue, #200 Reno, NV 89503-4331
Patrick Donnelly Center for Biological Diversity 7345 S. Durango Dr. B-107, Box 217 Las Vegas, NV 89113	Lisa Belenky Center for Biological Diversity 1212 Broadway, #800 Oakland, CA 94612

DATED this 9th day of July, 2020.

/s/ Paula Kay
an employee of Brownstein Hyatt Farber Schreck, LLP

Case No. CV0702520

Dept. No. _____

IN THE SEVENTH JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR THE COUNTY OF LINCOLN

LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada, and VIDLER WATER COMPANY, INC., a Nevada corporation,

Petitioners,

vs.

TIM WILSON, P.E., NEVADA STATE ENGINEER, DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES,

Respondent.

_____/

PETITION FOR JUDICIAL REVIEW
(Exempt from Arbitration: Judicial Review of Administrative Decision)

Petitioners, LINCOLN COUNTY WATER DISTRICT, a political subdivision of the State of Nevada, by and through its attorney, DYLAN V. FREHNER, ESQ., LINCOLN COUNTY DISTRICT ATTORNEY, and VIDLER WATER COMPANY, INC., a Nevada corporation, by and through its attorneys, ALLISON, MacKENZIE, LTD., petition and allege as follows:

1. Petitioner, LINCOLN COUNTY WATER DISTRICT ("LINCOLN"), is a political subdivision of the State of Nevada, created for the purpose of providing adequate and efficient water service within Lincoln County, Nevada.

2. Petitioner, VIDLER WATER COMPANY, INC. ("VIDLER"), is a Nevada corporation authorized to conduct business in the state of Nevada.

3. Petitioners, LINCOLN and VIDLER own groundwater permits with a priority date of February 14, 2005 and jointly own groundwater right applications filed on April 10, 2006 to

appropriate water in the Kane Springs Valley Hydrographic Basin (206) ("Kane Springs") for municipal use purposes with a place of use in the Coyote Spring Valley Hydrographic Basin (210). The permits and pending applications are more specifically described below. The Kane Springs hydrographic basin and the points of diversion in the permits and applications are located entirely in Lincoln County, Nevada. Petitioners, LINCOLN and VIDLER are senior water right permit holders and jointly hold senior groundwater right applications in Kane Springs.

4. Respondent, TIM WILSON P.E., NEVADA STATE ENGINEER, DIVISION OF WATER RESOURCES, DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES ("STATE ENGINEER"), is empowered to act pursuant to the provisions of Chapters 533 and 534 of the Nevada Revised Statutes. The Nevada Legislature has provided that, subject to existing rights, all underground waters within the boundaries of the state of Nevada are subject to appropriation for beneficial use under the laws of the state and it is the charge of the STATE ENGINEER to put water to beneficial use for the economic benefit of the state of Nevada. The Office of the State Engineer is a creature of statute; it has no inherent power and its powers and jurisdiction are limited as provided by statute.

5. This Petition is brought pursuant to the procedures authorized and provided in NRS 533.450. Specifically, Petitioners are aggrieved by an order of the STATE ENGINEER that affects Petitioners' interests and Petitioners may obtain judicial review in the proper court of the county in which the matters affected are situated. Petitioners' interests and the matters affected by the STATE ENGINEER's Order 1309, including the Kane Springs basin, are situated entirely in Lincoln County, Nevada. Jurisdiction and venue of Petitioners' Petition for Judicial Review are properly before this Court pursuant to NRS 533.450. A true and correct of Order 1309 is attached hereto as **Exhibit "1"**.

6. A Notice of this Petition has been served on the STATE ENGINEER and all persons affected by Order 1309 of the STATE ENGINEER as required by NRS 533.450(3).

7. The STATE ENGINEER's administration of the Lower White River Flow System Basins started with Order 1169 issued in March 2002. Order 1169 required all pending applications in certain basins be held in abeyance pending an aquifer test of the carbonate-rock

aquifer system to better determine whether the pending applications and future applications could be developed from the carbonate-rock aquifer. Kane Springs was not included in Order 1169 in March 2002 as part of the administration of the Lower White River Flow System Basins.

8. On February 14, 2005, LINCOLN/VIDLER filed Applications 72218, 72219, 72220 and 72221 to appropriate groundwater in Kane Springs.

9. On August 1, 2006, LINCOLN/VIDLER and the UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE ("USFWS") entered into an Amended Stipulation for Withdrawal of Protests for Applications 72218, 72219, 72220 and 72221 ("Amended Stipulation for Withdrawal of Protests"). The Amended Stipulation for Withdrawal of Protests contains among other things, triggers acceptable to USFWS to reduce Petitioners' groundwater pumping for protection of the Moapa dace. From 2006 to date, Petitioners and USFWS have performed and continue to perform under the terms of the Amended Stipulation for Withdrawal of Protests.

10. On February 2, 2007, the STATE ENGINEER issued Ruling 5712, which partially approved Applications 72218, 72219, 72220 and 72221, granting LINCOLN/VIDLER 1,000 acre feet annually ("afa") of water rights in Kane Springs. In Ruling 5712, the STATE ENGINEER specifically determined Kane Springs would not be included in the Order 1169 study area because there was no substantial evidence that the appropriation of a limited quantity of water in Kane Springs will have any measurable impact on the Muddy River Springs that warrants the inclusion of Kane Springs in Order 1169. The STATE ENGINEER denied the request to hold the LINCOLN/VIDLER applications in abeyance and include Kane Springs within the provisions of Order 1169. The STATE ENGINEER specifically rejected the argument that the Kane Springs rights could not be appropriated based upon senior appropriated rights in the down gradient basins. None of the parties to the Memorandum of Understanding ("MOU") entered into on April 20, 2006 by certain water right holders in the Coyote Spring Valley and California Wash hydrographic basins and none of the Order 1169 study participants objected to or appealed the STATE ENGINEER's determinations that Kane Springs would not be included in Order 1169 and Petitioners could

appropriate and develop their water rights notwithstanding senior appropriated rights in the down gradient basins.

11. LINCOLN/VIDLER filed a Petition for Judicial Review with the Seventh Judicial District Court on March 1, 2007, challenging the validity of the STATE ENGINEER's decision in Ruling 5712.

12. Following the filing of the Petition for Judicial Review, LINCOLN/VIDLER met with the STATE ENGINEER on March 15, 2007, regarding their pending Applications 74147, 74148, 74149 and 74150. LINCOLN/VIDLER requested that they perform additional data collection, testing and study in Kane Springs to support the pending applications. The STATE ENGINEER informed LINCOLN/VIDLER he would consider granting to LINCOLN/VIDLER additional unappropriated water rights in Kane Springs pursuant to their pending Applications 74147, 74148, 74149 and 74150 if LINCOLN/VIDLER collected the additional data upgradient in the Kane Springs basin and performed the testing and additional study to support the pending applications.

13. LINCOLN/VIDLER and the STATE ENGINEER thereafter stipulated to the dismissal of the Petition for Judicial Review regarding Applications 72218, 72219, 72220 and 72221 and Ruling 5712.

14. The rights the STATE ENGINEER granted to LINCOLN/VIDLER in Ruling 5712 and now held by LINCOLN/VIDLER were and are rights vested under Nevada law.

15. On April 29, 2009, the Acting STATE ENGINEER issued Ruling 5987 summarily denying Applications 74147, 74148, 74149 and 74150 without holding a hearing or contacting LINCOLN/VIDLER to get any information about the additional data collection, testing and study the STATE ENGINEER stated he would review.

16. LINCOLN/VIDLER filed a Petition for Judicial Review with the Seventh Judicial District Court on May 29, 2009 challenging the validity of the STATE ENGINEER's decision in Ruling 5987.

17. On April 27, 2010, LINCOLN/VIDLER and the STATE ENGINEER entered into a settlement agreement to resolve LINCOLN/VIDLER's Petition for Judicial Review

challenging Ruling 5987. The settlement agreement required, among other things, the STATE ENGINEER to reinstate 74147, 74148, 74149 and 74150 with the same priority as their original application date.

18. LINCOLN/VIDLER and the STATE ENGINEER thereafter stipulated to the dismissal of the Petition for Judicial Review regarding Applications 74147, 74148, 74149 and 74150 and Ruling 5987.

19. On October 29, 2008, LINCOLN/VIDLER obtained a Biological Opinion from the USFWS that pumping of groundwater pursuant to Applications 72218, 72219, 72220 and 72221 for their Kane Springs groundwater project was not likely to jeopardize the continued existence of the endangered Moapa dace; the project could contribute to groundwater level declines and spring flow reductions, however, implementation of the project's conservation actions will minimize these impacts. With regard to incidental take, the Biological Opinion stated the level of anticipated take is not likely to result in jeopardy to the Moapa dace based in part on the implementation of the conservation measures for the project. Since 2008, Petitioners has spent substantial sums, including the direct payment of $50,000, to the USFWS as part of the project's conservation measures in reliance on the Biological Opinion, Ruling 5712 and the settlement agreements entered into with the STATE ENGINEER to resolve Petitioners' appeals of Rulings 5712 and 5987 involving Petitioners' water rights and applications in Kane Springs. None of the parties to the April 20, 2006 Memorandum of Understanding and none of the Order 1169 study participants objected to or appealed the Biological Opinion issued by the USFWS for the LINCOLN/VIDLER groundwater applications in Kane Springs.

20. In reliance on the STATE ENGINEER's approval of Applications 72218, 72219, 72220 and 72221, Ruling 5712, the issuance of permits to Petitioners and the settlement with the STATE ENGINEER, LINCOLN/VIDLER have expended significant time and money since 2005 in furtherance of perfecting their water rights in the Kane Springs basin in the approximate sum of $4,237,000.

21. In reliance upon the STATE ENGINEER's representations regarding the additional data collection, testing and study, and his statements that he would consider any new data

and results regarding the basin, LINCOLN/VIDLER have expended significant time and money to collect data, test and study the Kane Springs basin and to prepare the data and information to be presented to the STATE ENGINEER to support pending Applications 74147, 74148, 74149 and 74150 in the approximate sum of $543,000.

22. Petitioners were not and have never been an Order 1169 study participant. Petitioners are not and have never been a party to the Memorandum of Understanding entered into on April 20, 2006 by certain water right holders in the Coyote Spring Valley and California Wash hydrographic basins whereby such parties voluntarily agreed to certain groundwater pumping restrictions, among other things, to further their shared common interest in the conservation and recovery of the Moapa dace and its habitat, an endangered species under the Endangered Species Act.

23. Between 2010 and 2014, the Order 1169 basins were studied and tested, and the Order 1169 study participants were involved and participated in aquifer tests, the submission of reports, proceedings and actions taken by the STATE ENGINEER pursuant to Order 1169. The basins that were included in the Order 1169 aquifer test were acknowledged to have a unique hydrologic connection and share the same supply of water. The Kane Springs basin was not included in the Order 1169 aquifer testing, monitoring or measurements and Kane Springs basin water right holders, including Petitioners, were not involved and did not participate in the aquifer testing, submission of reports, proceedings and actions taken by the STATE ENGINEER pursuant to Order 1169 from 2010 to 2014. After the aquifer test, no Order 1169 study participants recommended that Kane Springs be included in the Order 1169 study area nor did the STATE ENGINEER make a determination that Kane Springs should be included in the Order 1169 study area based upon the Order 1169 testing and proceedings. One study participant's report (Southern Nevada Water Authority) noted there "was a lack of pumping responses north of the Kane Springs Fault and west of the MX-5 and CSI wells near the eastern front of the Las Vegas Range."

24. On January 11, 2019, the STATE ENGINEER issued Interim Order 1303 designating the Lower White River Flow System ("LWRFS"), a multi-basin area known to share a close hydrologic connection, as a joint administrative unit for purposes of administration of water

rights. Pursuant to Interim Order 1303, all water rights within the LWRFS were to be administered based upon their respective dates of priority in relation to other rights within the regional groundwater unit. Kane Springs was not included as part of the LWRFS multi-basin area in Interim Order 1303.

25. After an administrative hearing, the STATE ENGINEER issued Order 1309 on June 15, 2020 delineating the Lower White River Flow System Hydrographic Basin to include those certain hydrographic basins subject to Order 1169 and Order 1303 and for the first time included the Kane Springs basin as part of the Lower White River Flow System Hydrographic Basin.

26. In Order 1309, the STATE ENGINEER stated it was necessary for spring flow measured at the Warm Springs West gage to flow at a minimum rate in order to maintain habitat for the Moapa dace. The STATE ENGINEER determined in Order 1309 that liability under the Endangered Species Act for a "take" would extend to groundwater users within the LWRFS and would so extend to the State of Nevada through the Division of Water Resources as the government agency responsible for permitting water use. The STATE ENGINEER concluded that it was against the public interest to allow groundwater pumping that will reduce spring flow in the Warm Springs area to a level that would impair habitat necessary for the survival of the Moapa dace and could result in take of the endangered species.

27. In Order 1309, the STATE ENGINEER relied upon six criteria from Rulings 6254-6261 as the standard of general applicability for inclusion into the geographic boundary of the LWRFS, thereby adopting policies in Order 1309 that the STATE ENGINEER then expanded for general application.

28. Order 1309 is in excess of the jurisdiction and statutory authority of the STATE ENGINEER because Nevada law does not authorize the STATE ENGINEER to designate a multi-basin area and effectively reprioritize basin specific water rights by administering them based upon their respective dates of priority in relation to other rights within the multi-basin groundwater area or designate a multi-basin area via an *ad hoc* ruling. By including Kane Springs in the LWRFS in Order 1309 and limiting pumping in the LWRFS to 8,000 afa, the STATE ENGINEER has made

exercising Petitioners' water rights impracticable for no legitimate government reason by reprioritizing Petitioners' water rights holding senior status in Kane Springs to the most junior water rights in the multi-basin LWRFS, destroying Petitioners' property rights, denying Petitioners all viable economic use of their property and eviscerating contractual rights related to the water rights, and interfering with Petitioners' investment backed expectations, all in violation of and to the prejudice of Petitioners' constitutional rights.

29. Order 1309 is arbitrary and capricious and constitutes an abuse of discretion in violation of Petitioners' rights because in the Ruling 5712 contested proceedings, the STATE ENGINEER denied the request to hold the LINCOLN/VIDLER applications in abeyance and include Kane Springs within the provisions of Order 1169 determining there was no substantial evidence that the appropriation of the water granted to Petitioners in Kane Springs will have any measurable impact on the Muddy River Springs that warranted the inclusion of Kane Springs in Order 1169. The STATE ENGINEER specifically rejected the argument that Petitioners' Kane Springs rights could not be appropriated based upon senior appropriated rights in the down gradient basins. The STATE ENGINEER is precluded from re-adjudicating and relitigating issues already determined in a contested proceeding and resolved by settlement agreements with Petitioners resulting from Petitioners' appeals of Rulings 5712 and 5987. In addition, there was no evidence presented in the proceedings leading up to the issuance of Order 1309 that appropriation of Petitioners' water rights in Kane Springs will have any impact on the Muddy River Springs that warrants inclusion of Kane Springs in the LWRFS as defined in Order 1309.

30. Order 1309 is arbitrary and capricious and constitutes an abuse of discretion because the STATE ENGINEER failed to consider or address the Amended Settlement Agreement entered into between Petitioners and USFWS and the Biological Opinion issued by the USFWS that Petitioners' groundwater pumping project in Kane Springs was not likely to jeopardize the continued existence of the endangered Moapa dace and the level of anticipated take is not likely to result in jeopardy to the Moapa dace based in part on the implantation of the conservation measures for Petitioners' project. In issuing Order 1309, the STATE ENGINEER failed to consider the unrefuted expert opinion testimony in the record of the former USFWS Field Supervisor who signed the

Biological Opinion and helped negotiate the Amended Stipulation for Withdrawal of Protests that Petitioners, as parties holding a Biological Opinion and the Amended Stipulation for Withdrawal of Protests, are compliant with the Endangered Species Act. The STATE ENGINEER's determination that liability under the Endangered Species Act for a "take" would extend to groundwater users within the LWRFS not parties to the MOU and would so extend to the State of Nevada through the Division of Water Resources as the government agency responsible for permitting water use is not supported by substantial evidence or any evidence in the record, is contrary to the substantial evidence of record and is contrary to law with respect to Petitioners' water rights and groundwater pumping project in Kane Springs.

31. Order 1309 is arbitrary, capricious and constitutes an abuse of discretion because it adopts, effects and defines the STATE ENGINEER's policy of general application for creating a multi-area basin and inclusion into the geographic boundary of the LWRFS and constitutes unlawful *ad hoc* rulemaking in violation of the STATE ENGINEER's statutory authority thereby making Order 1309 void.

32. Petitioners were not given notice before the STATE ENGINEER applied the *ad hoc* rule developed from Rulings 6255-6261 in Order 1309. LINCOLN/VIDLER were not parties to those rulings and were unable to present evidence or arguments as to why the *ad hoc* rule should not be applied to Petitioners and their water rights in Kane Springs because the *ad hoc* rule of general applicability was announced after the hearing and after Petitioners had the opportunity to present evidence on the issue before the STATE ENGINEER. Rulings from other proceedings cannot be used to bind unrelated parties in later proceedings.

33. The STATE ENGINEER abused his discretion by failing to consider the best available science presented to support the continued exclusion of Kane Springs from the boundaries of the LWRFS and applying criteria or standards which intentionally ignore the best available science to include Kane Springs in the boundaries of the LWRFS.

34. Order 1309 is arbitrary, capricious and constitutes an abuse of discretion because it applies the *ad hoc* rule criteria subjectively and in an inconsistent manner.

35. Order 1309 is arbitrary, capricious, unlawful and constitutes an abuse of discretion because the water right holders pumping closest to Warm Springs and impacting the endangered Moapa dace are not affected by Order 1309 and are allowed to continue to pump their water rights, while Petitioners' water rights, located the furthest distance from Warm Springs with no evidence in the record that pumping of their water rights will impact the endangered Moapa dace, are destroyed and rendered useless by Order 1309.

36. The STATE ENGINEER, like all administrative officers, is required to provide due process of law to all parties. The STATE ENGINEER violated LINCOLN/VIDLER's due process rights pursuant to both the Nevada and United States Constitutions.

37. Order 1309 violated LINCOLN/VIDLER's due process rights by applying the criteria or standards from other contested administrative proceedings before the STATE ENGINEER in which Petitioners were not parties, after the evidentiary hearing held to determine whether Kane Springs and Petitioners' water rights were to be included within the boundaries of the LWRFS. Petitioners received no prior notice the STATE ENGINEER would apply the criteria or standards and were deprived of an opportunity to address the newly developed criteria or standards applied by the STATE ENGINEER in Order 1309 to include Kane Springs and Petitioners' water rights in the boundaries of the LWRFS.

38. In Order 1309, the STATE ENGINEER considered and relied upon evidence submitted after the hearing in the parties' simultaneously submitted written closing statements for which Petitioners had no opportunity to address, respond or refute, all in violation of Petitioners' due process rights.

39. The Order 1309 proceedings violated Petitioners' due process rights because certain former Division of Water Resource employees who participated in and were decision makers in the STATE ENGINEER's proceedings and determinations resulting in Ruling 5712 and Order 1169, which excluded Kane Springs from the LWRFS and appropriated Kane Springs water rights notwithstanding senior appropriated rights in the down gradient basins, testified as private consultants and presented the same evidence relied upon by previous STATE ENGINEERs to exclude Kane Springs from multi-basin joint administration to support the inclusion of Kane Springs

in the LWRFS. The STATE ENGINEER erred as a matter of law when he reweighed evidence previously relied upon to exclude Kane Springs from the LWRFS and used the reweighed evidence to include Kane Springs in the LWRFS, all in violation of Petitioners' due process rights.

40. The substantial rights of LINCOLN/VIDLER have been prejudiced because Order 1309 violates constitutional and statutory provisions, is in excess of the statutory authority of the STATE ENGINEER, is clearly erroneous in view of the reliable, probative and substantial evidence, and is characterized by an abuse of discretion.

41. Order 1309 of the STATE ENGINEER is arbitrary and capricious, contrary to and affected by error of law, without any rational basis, beyond the legitimate exercise of power and authority of the STATE ENGINEER, all to the detriment and damage of Petitioners LINCOLN and VIDLER.

42. The determinations in Order 1309 that 8,000 afa is the long terms annual quantity of water that can be pumped and that Kane Springs should be included within the boundaries of the LWRFS, among other determinations, are not supported by substantial evidence in the record before the STATE ENGINEER and are without consideration of all the facts and circumstances.

43. Petitioners LINCOLN and VIDLER have exhausted their administrative remedies.

44. Petitioners have been required to engage the services of counsel to pursue their rights, and as a proximate and necessary result of the STATE ENGINEER's illegal conduct alleged above, Petitioners are entitled to reasonable attorney's fees and costs as special and foreseeable damages, or in the alternative, as costs of suit.

45. For all the foregoing reasons, the STATE ENGINEER acted improperly as a matter of law and did not and cannot conduct a fair assessment of the scientific evidence presented and the facts and circumstances previously relied upon to exclude Kane Springs from the LWRFS multi-basin area. The STATE ENGINEER's actions are inequitable under all the facts and circumstances and the evidence presented, and equitable relief is warranted in the form of direction

by this Court to the STATE ENGINEER to exclude Kane Springs from the boundaries of the LWRFS as defined in Order 1309.

WHEREFORE, Petitioners pray for judgment as follows:

1. That the Court vacate Order 1309;

2. That the Court exclude Kane Springs from the LWRFS;

3. That the Court restore currently held water right priorities and the perennial yield determined for Kane Springs;

4. That the Court award Petitioners their attorney's fees and costs; and

5. That the Court award such other and further relief as seems just and proper in the premises.

AFFIRMATION

The undersigned does hereby affirm that the preceding document **DOES NOT** contain the social security number of any person.

DATED this 13th day of July, 2020.

KAREN A. PETERSON, ESQ.
Nevada State Bar No. 366
ALLISON MacKENZIE, LTD.
402 North Division Street
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Telephone: (775) 687-0202
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~ and ~

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BY: _____
DYLAN V. FREHNER, ESQ.
Nevada State Bar No. 9020

Attorneys for Petitioners, LINCOLN COUNTY WATER DISTRICT and VIDLER WATER COMPANY, INC.

CERTIFICATE OF SERVICE

Pursuant to NRCP Rule 5(b), I hereby certify that I am an employee of ALLISON MacKENZIE, LTD., Attorneys at Law, and that on this date, I caused the foregoing document to be served on all parties to this action as follows:

Via Hand-Delivery to:

Tim Wilson, P.E. State Engineer
Nevada Division of Water Resources
Department of Conservation and Natural Resources
901 South Stewart Street, Suite 2002
Carson City, NV 89701

Via Certified Mail, Return Receipt Requested to:

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Greg Morrison 50 W. Liberty St., Suite 750 Reno, NV 89501 *Attorney for Moapa Valley Water District*	Clark County Coyote Springs Water Resources GID 1001 S. Valley View Blvd. Las Vegas, NV 89153
Justina Caviglia 6100 Neil Road Reno, NV 89511 *Attorney for Nevada Power Company d/b/a NV Energy*	Mary K. Cloud P.O. Box 31 Moapa, NV 89025
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State of Nevada, Dept. of Conservation And Natural Resources Division of State Parks 901 S. Stewart Street, Suite 5005 Carson City, NV 89701	Kelly Kolhoss P.O. Box 232 Moapa, NV 89025
Pacific Coast Building Products, Inc. P.O. Box 364329 Las Vegas, NV 89036	Lake At Las Vegas Joint Venture, Inc. 1600 Lake Las Vegas Parkway Henderson, NV 89011
S & R, Inc. 808 Shetland Road Las Vegas, NV 89107	Laker Plaza, Inc. 7181 Noon Rd. Everson, WA 98247-9650

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Lisa Belenky Center for Biological Diversity 1212 Broadway #800 Oakland, CA 94612	

DATED this 13th day of July, 2020.

NANCY FONTENOT

INDEX OF EXHIBITS

Exhibit No.	Description	Number of Pages
"1"	Order 1309	68

4848-8027-8210, v. 1

EXHIBIT "1"

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

#1309

ORDER

DELINEATING THE LOWER WHITE RIVER FLOW SYSTEM HYDROGRAPHIC BASIN WITH THE KANE SPRINGS VALLEY BASIN (206), COYOTE SPRING VALLEY BASIN (210), A PORTION OF BLACK MOUNTAINS AREA BASIN (215), GARNET VALLEY BASIN (216), HIDDEN VALLEY BASIN (217), CALIFORNIA WASH BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) BASIN (219) ESTABLISHED AS SUB-BASINS, ESTABLISHING A MAXIMUM ALLOWABLE PUMPING IN THE LOWER WHITE RIVER FLOW SYSTEM WITHIN CLARK AND LINCOLN COUNTIES, NEVADA, AND RESCINDING INTERIM ORDER 1303

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I. BACKGROUND OF THE ADMINISTRATION OF THE LOWER WHITE RIVER FLOW SYSTEM BASINS

WHEREAS, the State Engineer has actively managed and regulated the Coyote Spring Valley Hydrographic Basin (Coyote Spring Valley), Basin 210, since August 21, 1985; the Black Mountains Area Hydrographic Basin (Black Mountains Area), Basin 215, since November 22, 1989; the Garnet Valley Hydrographic Basin (Garnet Valley), Basin 216, since April 24, 1990; the Hidden Valley Hydrographic Basin (Hidden Valley), Basin 217, since April 24, 1990; the California Wash Hydrographic Basin (California Wash), Basin 218, since April 24, 1990; and the

Muddy River Springs Area Hydrographic Basin (Muddy River Springs Area), Basin 219, since July 14, 1971.[1]

WHEREAS, in 1984, the United States Department of Interior, Geological Survey (USGS), Water Services Division, proposed a ten-year investigation into carbonate-rock aquifers that underlay approximately 50,000 square miles of eastern and southern Nevada.[2] In 1985, a program for the study and testing of the carbonate-rock aquifer system of eastern and southern Nevada was authorized by the Nevada Legislature. In 1989, a report was published by the USGS summarizing the first phase of the study.[3] Included in the summary was a determination that:

> Large-scale development (sustained withdrawals) of water from the carbonate-rock aquifers would result in water-level declines and cause the depletion of large quantities of stored water. Ultimately, these declines would cause reductions in the flow of warm-water springs that discharge from the regional aquifers. Storage in other nearby aquifers also might be depleted, and water levels in those other aquifers could decline. In contrast, isolated smaller ground-water developments, or developments that withdraw ground water for only a short time, may result in water-level declines and springflow reductions of manageable or acceptable magnitude.
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> Confidence in predictions of the effects of development, however, is low; and it will remain low until observations of the initial hydrologic results of development are analyzed. A strategy of staging developments gradually and adequately monitoring the resulting hydrologic conditions would provide information that eventually could be used to improve confidence in the predictions.[4]

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[1] *See* NSE Ex. 9, *Order 905*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 8, *Order 1018*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 5, *Order 1025*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 6, *Order 1024*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 4, *Order 1026*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 7, *Order 1023*, Hearing on Interim Order 1303, official records of the Division of Water Resources; NSE Ex. 11, *Order 392*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[2] Memorandum dated August 3, 1984, from Terry Katzer, Nevada Office Chief, Water Resources Division, United States Department of Interior Geologic Survey, Carson City, Nevada to Members of the Carbonate Terrane Study.

[3] Michael D. Dettinger, *Distribution of Carbonate-Rock Aquifers in Southern Nevada and the Potential for their Development, Summary of Findings, 1985-1988*, Summary Report No. 1, U.S. Geological Survey, Department of Interior and Desert Research Institute, University of Nevada System, 1989, p. Forward. *See also* NSE Ex. 3, *Order 1169*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[4] *Id.*, p. 2.

WHEREAS, beginning in 1989 and through the early 2000s, numerous groundwater applications were filed in Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, California Wash, and Muddy River Springs Area Hydrographic Basins seeking to appropriate more than 300,000 acre-feet annually (afa) of groundwater from the carbonate-rock aquifer underlying these basins.[5] The State Engineer held a hearing on July 12-20, 23-24, and August 31, 2001, for pending Applications 54055–54059, filed by Las Vegas Valley Water District (LVVWD) to appropriate 27,510 afa of water in Coyote Spring Valley.[6] The State Engineer conducted a hearing on Coyote Springs Investments LLC (CSI) Applications 63272–63276 on August 20-24, 27-28, 2001.[7]

WHEREAS, following the conclusions of these hearings, the State Engineer issued Order 1169 on March 8, 2002, requiring all pending applications in Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, Muddy River Springs Area, and Lower Moapa Valley Hydrographic Basin (Basin 220), be held in abeyance pending an aquifer test of the carbonate-rock aquifer system to better determine whether the pending applications and future appropriations could be developed from the carbonate-rock aquifer.[8]

WHEREAS, in Order 1169, the State Engineer found that he did not believe that it was prudent to issue additional water rights to be pumped from the carbonate-rock aquifer until a significant portion of the then existing water rights were pumped for a substantial period of time to determine whether the pumping of those water rights would have a detrimental impact on existing water rights or the environment.[9]

WHEREAS, Order 1169 required that at least 50%, or 8,050 afa, of the water rights then currently permitted in Coyote Spring Valley be pumped for at least two consecutive years.[10] On April 18, 2002, the State Engineer added the California Wash to the Order 1169 aquifer test basins.[11]

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[5] *See* NSE Exs. 14–20, *Ruling 6254–Ruling 6260*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[6] *See* NSE Ex. 14.
[7] *Id.*
[8] *See* NSE Ex. 3.
[9] *Id.*
[10] *Id.*
[11] *See* State Engineer's Ruling 5115, dated April 18, 2002, official records of the Division of Water Resources.

WHEREAS, subsequent to the issuance of Order 1169, the United States Fish and Wildlife Service (USFWS) expressed concern that current groundwater pumping coupled with additional groundwater withdrawals in Coyote Spring Valley and California Wash may cause reduction of spring flow to the Warm Springs area, tributary thermal springs in the upper Muddy River, which serves as critical habitat to the Moapa dace (*Moapa corciacea*), an endemic fish species federally listed as endangered in 1967.[12] Due to these concerns, on April 20, 2006, the Southern Nevada Water Authority (SNWA), USFWS, CSI, the Moapa Band of Paiute Indians (MBOP) and the Moapa Valley Water District (MVWD) entered into a Memorandum of Agreement (MOA).[13]

WHEREAS, the MOA stated that all the parties shared "a common interest in the conservation and recovery of the Moapa dace and its habitat." The MOA established certain protections to the Moapa dace, including protocols relating to pumping from the regional carbonate-rock aquifer that may adversely impact spring flow to the dace habitat in the Warm Springs area. Specifically, the MOA identified conservation measures, which included protections for minimum instream flows in the Warm Springs area with trigger levels set at 3.2 cubic feet per second (cfs) at the Warm Springs West gage requiring initial action by the MOA parties, and the most stringent action required at a flow rate of 2.7 cfs.[14]

WHEREAS, the MBOP raised concerns that pumping 8,050 afa from the Coyote Spring Valley as part of the aquifer test would adversely impact the water resources at the Warm Springs area, and consequently the Moapa dace, and that the impacts would persist such that protective measures established in the MOA would be inadequate to protect the dace.[15] As a result, the Order 1169 study participants, which included the LVVWD, SNWA, CSI, Nevada Power Company,[16] MVWD, Dry Lake Water Company, LLC, Republic Environmental Technologies, Inc. (Republic),

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[12] USFWS, *Fish and Aquatic Conservation - Moapa dace*, https://bit.ly/moapadace (last accessed June 3, 2020). *See also* SNWA Ex. 8, p. 1-1.

[13] *See* NSE Ex. 236, *2006 Memorandum of Agreement between the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investment LLC, Moapa Band of Paiute Indians and Moapa Valley Water District*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[14] *Id.*

[15] *See* May 26, 2010, letter from Darren Daboda, Chairperson, Moapa Band of Paiutes, to Jason King, Nevada State Engineer, official records of the Division of Water Resources.

[16] Nevada Power Company, following the merger with Sierra Pacific Power Company and Sierra Pacific Resources subsequently began doing business as NV Energy. *See, e.g.*, NV Energy, *Company History*, https://bit.ly/NVEhistory (last accessed April 20, 2020).

Chemical Lime Company, Nevada Cogeneration Associates, and the MBOP, or their successors, agreed that even if the minimum 8,050 afa was not pumped, sufficient information would be obtained to inform future decisions relating to the study basins.[17]

WHEREAS, on November 15, 2010, the Order 1169 aquifer test began, whereby the study participants began reporting to the Nevada Division of Water Resources (Division) on a quarterly basis the amounts of water pumped from wells in the carbonate-rock and alluvial aquifers during the pendency of the aquifer test.

WHEREAS, on December 21, 2012, the State Engineer issued Order 1169A declaring the completion of the Order 1169 aquifer test to be December 31, 2012, after a period of 25½ months. The State Engineer provided the study participants the opportunity to file reports with the Division until June 28, 2013, to present information gained from the aquifer test in order to estimate water to support applications in the Order 1169 study basins.[18]

WHEREAS, during the Order 1169 aquifer test, an average of 5,290 acre-feet per year (afy) was pumped from carbonate-rock aquifer wells in Coyote Spring Valley, and a cumulative reported total of 14,535 afy of water was pumped throughout the Order 1169 study basins. Of this total, approximately 3,840 afy was pumped from the Muddy River Springs Area alluvial aquifer with the balance pumped from the carbonate-rock aquifer.[19]

WHEREAS, during the aquifer test, pumpage was measured and reported from 30 other wells in the Coyote Spring Valley, Muddy River Springs Area, Garnet Valley, California Wash, Black Mountains Area, and Lower Meadow Valley Wash Hydrographic Basin (Lower Meadow Valley Wash). Stream diversions from the Muddy River were reported, and measurements of the natural discharge of the Muddy River and from the Warm Springs area springs were collected daily. Water-level data were collected from a total of 79 monitoring and pumping wells within the Order 1169 study basins. All of the data collected during the aquifer test were made available to each of the study participants and the public.[20]

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[17] *See* July 1, 2010, letter from Jason King, Nevada State Engineer, to Order 1169 Study Participants, official records of the Division of Water Resources.
[18] *See* NSE Ex. 2, *Order 1169A*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[19] *See, e.g.*, NSE Ex. 1, Appendix B.
[20] *See* Division, *Water Use and Availability – Order 1169*, https://bit.ly/Order1169

WHEREAS, during the Order 1169 aquifer test, the resulting water-level decline encompassed 1,100 square miles and extended from southern Kane Springs Valley, northern Coyote Spring Valley through the Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern portion of the Black Mountains Area.[21] The water-level decline was estimated to be 1 to 1.6 feet throughout this area with minor drawdowns of 0.5 foot or less in the northern portion of Coyote Spring Valley north of the Kane Springs Wash fault zone.[22]

WHEREAS, results of the two-year aquifer test demonstrated that pumping 5,290 afa from the carbonate-rock aquifer in Coyote Spring Valley, in addition to the other carbonate-rock aquifer pumping in Garnet Valley, Muddy River Springs Area, California Wash and the northwest portion of the Black Mountains Area, caused sharp declines in groundwater levels and flows in the Pederson and Pederson East springs, two springs considered to be sentinel springs for the overall condition of the Muddy River due to being higher in altitude than other Muddy River source springs, and therefore are proportionally more affected by a decline in groundwater level in the carbonate-rock aquifer.[23] The Pederson spring flow decreased from 0.22 cfs to 0.08 cfs and the Pederson East spring flow decreased from 0.12 cfs to 0.08 cfs. Additional headwater springs at lower altitude, the Baldwin and Jones springs, declined approximately 4% in spring flow during the test.[24] All of the headwater springs contribute to the decreed and fully-appropriated Muddy River and are the predominant source of water that supplies the habitat of the endangered Moapa dace.

WHEREAS, Order 1169A provided the study participants an opportunity to submit reports addressing three specific questions presented by the State Engineer: (1) what information was obtained from the study/pumping test; (2) what were the impacts of pumping under the pumping test; and, (3) what is the availability of additional water resources to support the pending applications. SNWA, USFWS, National Park Service (NPS) and Bureau of Land Management

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[21] USFWS Ex. 5, *Report in Response to Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 21, 67. *See, e.g.*, NSE Ex. 14. *See also* NSE Ex. 256, *Federal Bureaus Order 1169A Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. There was no groundwater pumping in Hidden Valley, but effects were still observed in the Hidden Valley monitor well.

[22] *See, e.g.*, NSE Ex. 14. *See also* NSE Ex. 256.

[23] *See* NSE Ex. No. 236.

[24] NSE Ex. 256, pp. 43–46, 50–51. *See also*, USGS, *Water Data for Nevada*, https://bit.ly/nvwater.

(BLM), MBOP, MVWD, CSI, Great Basin Water Network (GBWN) and Center for Biological Diversity (CBD) submitted either reports or letters.

WHEREAS, in its report, SNWA addressed water levels throughout the Order 1169 basins. SNWA acknowledged that hydrologic connectivity supported the potential need for redistribution of existing pumping, and indirectly acknowledged the limitation on availability of water to satisfy the pending applications.[25] SNWA further acknowledged declines to spring flow in the Pederson and Pederson East springs as a result of the aquifer test, but characterized the decline in spring flow at the Warm Springs West location as minimal. SNWA further correlated the declining trends as associated with climate but opined that Muddy River flow did not decline as a result of the aquifer test and carbonate-rock aquifer pumping; rather, impact to Muddy River flows were due to alluvial aquifer pumping.[26]

WHEREAS, CSI, through a letter, agreed with SNWA's report and asserted that additional water resources could be developed within the Coyote Spring Valley north of the Kane Springs Fault, which supported granting new appropriations of water.[27]

WHEREAS, the United States Department of Interior Bureaus (USFWS, NPS and BLM) concluded that the aquifer test provided sufficient data to determine the effects of the aquifer drawdown as well as identify drawdown throughout the region and was sufficient to project future pumping effects on spring flow. Based upon their analysis, the Department of Interior Bureaus concluded that water-level declines due to the aquifer test encompassed 1,100 square miles throughout the Order 1169 study basins. Additionally, the Department of Interior Bureaus' analysis found a direct correlation between the aquifer test pumping and flow declines at Pederson, Plummer and Apcar units and Baldwin Spring, all springs critical to the Moapa dace habitat, and asserted that pumping at the Order 1169 rate at well MX-5 in Coyote Spring Valley could result in both of the high-altitude Pederson and Pederson East springs going dry in 3 years or less.[28]

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[25] *See* NSE Ex. 245, *Southern Nevada Water Authority Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 23–25.
[26] *Id.*
[27] NSE Ex. 247, *Coyote Springs Investments, LLC Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[28] *See, e.g.*, NSE Ex. 14, pp.15–18. *See also* NSE Ex. 256.

WHEREAS, the Department of Interior Bureaus further found that the groundwater withdrawals that occurred in Coyote Spring Valley during the Order 1169 aquifer test represented approximately one-third of the then existing water rights within Coyote Spring Valley, concluding that even one-third of the existing water rights could not be developed without adversely impacting spring flow to the headwaters of the Muddy River and habitat for the Moapa dace.[29] Ultimately, the Department of Interior Bureaus concluded that there was insufficient water available for the pending applications, and that the area that was subject to the Order 1169 aquifer test behaved as one connected aquifer and pumping in one basin would have similar effects on the whole aquifer.[30]

WHEREAS, MBOP's report disagreed with the magnitude of drawdown resulting from the Order 1169 aquifer test, but ultimately concluded carbonate-rock aquifer pumping in Coyote Spring Valley and the Muddy River Springs Area would have a one-to-one impact on Muddy River flows.[31] MBOP opined to the existence of a southern flow field, which included California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area, that could be developed without depleting spring flows. MBOP also argued that changes in the groundwater levels were directly tied to water level declines in Lake Mead.[32]

WHEREAS, MVWD's report was limited to water levels and flows within the Muddy River Springs Area. In its report, MVWD acknowledged the groundwater level declines resulting from the aquifer test, including decreased spring flow at the Pederson springs, Warm Springs West gage and Baldwin Spring, but not at Jones Spring or Muddy Spring.[33] Ultimately, MVWD concluded that additional water was available in the Lower Moapa Valley, as that aquifer did not appear hydrologically connected to the regional carbonate-rock aquifer.

WHEREAS, GBWN presented a report that recognized the decline in the groundwater levels in Coyote Spring Valley and discharge to the Muddy River Springs Area resulting from the

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[29] *Id.*
[30] *Id.*
[31] *See* NSE Ex. 252, *Moapa Band of Paiute Indians Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 25.
[32] *Id.*
[33] NSE Ex. 250, *Moapa Valley Water District Basin 220 Well Site Analysis*, Hearing on Interim Order 1303, official records of the Division of Water Resources; NSE Ex. 251, *Moapa Valley Water District Evaluation of MX-5 Pumping Test on Springs and Wells in the Muddy Springs Area*, dated June 24, 2013, Hearing on Interim Order 1303, official records of the Division of Water Resources.

aquifer test.[34] However, GBWN believed that the aquifer test failed to provide sufficient data to determine water availability throughout the other study basins. GBWN did assert that pumping of existing rights within all of the study basins would unacceptably decrease spring discharge.[35]

WHEREAS, CBD, relying on GBWN's technical report, opined that pumping existing water rights within the Order 1169 study basins would result in unacceptable decline in spring flow, ultimately threatening the Moapa dace and the habitat necessary for the species survival.[36]

WHEREAS, based upon the findings of the Order 1169 aquifer test, in denying the pending applications the State Engineer found: (1) that the information obtained from the Order 1169 aquifer test was sufficient to document the effects of pumping from the carbonate-rock aquifer on groundwater levels and spring flow and that the information could assist in forming opinions regarding future impacts of groundwater pumping and availability of groundwater in the study basins; (2) that the impacts of aquifer test pumping in Coyote Spring Valley was widespread throughout the Order 1169 aquifer test study basins and that the additional pumping in Coyote Spring Valley was a significant contributor to the decline in the springs that serve as the headwaters of the Muddy River and habitat for the Moapa dace; and, (3) that additional pumping from the then pending applications would result in significant regional water-level decline, and decreases in spring and Muddy River flows.[37]

WHEREAS, the basins that were included in the Order 1169 aquifer test were acknowledged to have a unique hydrologic connection and share the same supply of water.[38] The State Engineer further went on to find that the total annual supply to the basins could not be more than 50,000 acre-feet, that the perennial yield is much less than that because the Muddy River and the springs in the Warm Springs area utilize the same supply, and that the quantity and location of

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[34] NSE Ex. 246, *Great Basin Water Network Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[35] *Id.*
[36] NSE Ex. 248, *Center for Biological Diversity Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[37] NSE Exs. 14–21. The study basins include Coyote Spring Valley, Garnet Valley, Hidden Valley, Muddy River Springs Area, California Wash, and that portion of the Black Mountains Area lying within the LWRFS was defined as those portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; Section 13 and those portions of Sections 1, 11, 12, and 14, T.19S., R.63E., M.D.B.&M.; Sections 5, 7, 8, 16, 17, and 18 and those portions of Sections 4, 6, 9, 10, and 15, T.19S., R.64E., M.D.B.&M.
[38] *See, e.g.*, NSE Ex. 14, p. 24.

any groundwater that could be developed without conflicting with senior rights on the Muddy River and the springs was uncertain.[39]

II. INTERIM ORDER 1303

WHEREAS, on January 11, 2019, the State Engineer issued Interim Order 1303 designating the Lower White River Flow System (LWRFS), a multi-basin area known to share a close hydrologic connection, as a joint administrative unit for purposes of administration of water rights. The Interim Order defined the LWRFS to consist of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the portion of the Black Mountains Area Hydrographic Basins as described in the Interim Order.[40] Pursuant to Interim Order 1303, all water rights within the LWRFS were to be administered based upon their respective dates of priority in relation to other rights within the regional groundwater unit.

WHEREAS Interim Order 1303 recognized the need for further analysis of the LWRFS because the pre-development discharge of 34,000 acre-feet of the Muddy River system plus the more than 38,000 acre-feet of existing groundwater appropriations within the LWRFS greatly exceed the total water budget, which was determined to be less than 50,000 acre-feet.[41] Stakeholders with interests in water right development within the LWRFS were invited to file a report with the Office of the State Engineer addressing four specific matters, generally summarized as: 1) The geographic boundary of the LWRFS, 2) aquifer recovery subsequent to the Order 1169 aquifer test, 3) the long-term annual quantity and location of groundwater that may be pumped from the LWRFS, and 4) the effect of movement of water rights between alluvial and carbonate wells within the LWRFS. Stakeholders were also invited to address any other matter believed to be relevant to the State Engineer's analysis.

WHEREAS, on May 13, 2019, the State Engineer amended Interim Order 1303 modifying the deadlines for the submission of reports and rebuttal reports by interested stakeholders. Reports

[39] *Id.*
[40] *See* NSE Ex. 1, *Order 1303 and Addendum to Interim Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[41] *Id.*, p. 7.

submitted by interested stakeholders were intended to aid in the fact-finding goals of the Division.[42]

WHEREAS, a public hearing was held in Carson City, Nevada between, September 23, 2019, and October 4, 2019. The purposes of this hearing were to afford stakeholder participants who submitted reports pursuant to the solicitation in Interim Order 1303 an opportunity to provide testimony on the scientific data analysis regarding the five topics within the Interim Order and to test the conclusions offered by other stakeholder participants.

WHEREAS, during the Interim Order 1303 hearing, testimony was provided by expert witnesses for the participants CSI, USFWS, NPS, MBOP, SNWA and LVVWD[43], MVWD, Lincoln County Water District and Vidler Water Company (LC-V), City of North Las Vegas (CNLV), CBD, Georgia Pacific Corporation (Georgia Pacific) and Republic, Nevada Cogeneration Associates Nos. 1 and 2 (collectively "NCA"), Muddy Valley Irrigation Company (MVIC), Western Elite Environmental, Inc. and Bedroc Limited, LLC (collectively "Bedroc"), and NV Energy.

WHEREAS, following the conclusion of the Interim Order 1303 hearing, stakeholder participants were permitted to submit written closing statements no later than December 3, 2019. The specific area evaluated, data analyzed, and methodology used varied by participant. Generally, participants relied on spring and streamflow discharge, groundwater level measurements, geologic and geophysical information, pumping data, climate data, and interpretations of aquifer hydraulics. Methodologies applied ranged from conceptual observations to statistical analysis to numerical and analytical models; the level of complexity and uncertainty differing for each.

WHEREAS, each of the participants' conclusions with respect to the topics set forth in Interim Order 1303 are summarized as follows:

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[42] *Id.*, pp. 16–17.

[43] SNWA is a regional water authority with seven water and wastewater agencies, one of which is LVVWD. References to SNWA include its member agency, LVVWD, which too retains water rights and interests within the LWRFS.

Center for Biological Diversity

The primary concern of the CBD was to ensure adequate habitat for the survival and recovery of the Moapa dace. CBD felt "that the Endangered Species Act is the primary limiting factor on the overall quantity of allowable pumping within the [LWRFS] and thus [...] geared [the] analysis toward that goal of protecting the dace." The Moapa dace primarily resides in the springs and pools of the Muddy River; protecting those areas of habitat are of the utmost importance to CBD's goal and have the collateral benefit of protecting the Muddy River decreed rights. Furthermore, CBD "believe[d] that withdrawals from the carbonate aquifer that cause a reduction in habitat quantity for the dace are a take under the Endangered Species Act and thus prohibited."[44]

CBD urges that Kane Springs Valley Hydrographic Basin (Kane Springs Valley) be included and managed as part of the LWRFS; otherwise CBD did not dispute the boundary as presented in Interim Order 1303. The inclusion of Kane Springs Valley was based on a shallow hydraulic gradient between Coyote Spring Valley and Kane Springs Valley; propagation of water level decline into Kane Springs Valley during the Order 1169 aquifer test; and a finding that the carbonate-rock aquifer extends into Kane Springs Valley. In CBD's opinion, adequate management of the LWRFS does not require that the administrative boundary include the White River Flow System north of Coyote Spring Valley.[45]

CBD identified a long-term, declining trend commencing in the 1990s in carbonate-rock aquifer water levels within the Muddy River Springs Area, which was accelerated by the Order 1169 aquifer test. Although CBD observed a partial, immediate recovery in the carbonate-rock aquifer water levels and spring flows, CBD finds that full recovery to pre-Order 1169 aquifer test conditions were never realized. Concurring with multiple other participants, CBD identified higher water levels in response to wet years despite the continued decline in the overall trend in the hydrographs. However, with regards to long-term drought, in their review of the Climate Division Data for southern Nevada, CBD saw no indication of a 20-year drought and disagreed with the conclusions and analysis presented by MBOP. Decreased spring flows in conjunction with

[44] *See* CBD Ex. 3, *CBD Order 1303 Report by Dr. Tom Myers; 27 pp.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 1; Transcript 1504–1505.
[45] *See* CBD Ex. 3, pp. 1, 2, 12, 17, 19; *See* CBD Ex. 4, *CBD Order 1303 Rebuttal in Response to Stakeholder Reports by Dr. Tom Myers; 30 pp.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 17–21; Tr. 1516; 1520–1521; 1526–1527; 1538–1539; CSI Ex. 2, p. 38; LC-V Ex. 2, pp. 11–14.

increased carbonate-rock aquifer pumping, led the CBD to infer the dependency of spring flows on carbonate-rock aquifer water supply.[46]

Again, with emphasis on protecting spring flows, and thus the Moapa dace habitat, CBD did not support any pumping of the carbonate-rock aquifer. CBD's desired outcome would be to avoid decreases in spring flow in the Warm Springs area attributed to continued carbonate-rock aquifer pumping. CBD postulated that surface water rights on the Muddy River will be protected by limiting carbonate-rock aquifer pumping.

Alternatively, CBD speculated that some alluvial aquifer pumping, within the Muddy River Springs Area and Coyote Spring Valley, could be sustained without significantly impacting the Warm Springs area. A preliminary estimate of 4,000 afa of sustainable alluvial aquifer pumping was proposed, based on the existing pumping within the Muddy River Springs Area and considering pumping in the 1990s near 5,000 afa when alluvial aquifer water levels were stable.[47]

Church of Jesus Christ of Latter-day Saints

The Church of Jesus Christ of Latter-day Saints (the Church) chose not to directly participate in the hearing but joined the evidentiary submissions of CNLV.[48] In response to the directives set forth in Interim Order 1303 and considering the testimony provided, the Church requests the continued administration and management of the LWRFS as identified in Interim Order 1303, and to allow for change applications throughout the LWRFS basins that move pumping of groundwater further away from the Muddy River Springs Area and from the alluvial aquifer to the carbonate-rock aquifer. The Church further requests that the testimony and recommendation of Dwight Smith, PE, PG on behalf of CNLV be considered and adopted.[49]

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[46] *See* CBD Ex. 3, pp. 1, 24; *See* CBD Ex. 4, p. 8–10, 21–25; Tr. 1508–1525; LC-V Ex. 2, p. 12, GP-REP Ex. 2, p. 3; CBD's expert suggest that the Palmer Drought Severity Index is more robust to evaluate for drought rather than using precipitation.
[47] *See* CBD Ex. 3, pp. 20–26; *See* CBD Ex. 4, p. 28–29; Tr. 1525-1528.
[48] *See* Letter from the Church, received August 15, 2019, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[49] *See Closing Brief of the Church of Jesus Christ of Latter-Day Saints* (Church closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

City of North Las Vegas

In CNLV's report submissions and closing statement it addressed four questions set forth in Interim Order 1303.[50] CNLV generally urges for more analysis and study of the LWRFS before administrative decisions are made due to lack of agreement on fundamental interpretations of the water availability and basin connectivity. It was agreed to by CNLV that most of Garnet Valley and a small portion of the Black Mountains area were within the larger carbonate-rock aquifer underlying the LWRFS basins, but that there is uncertainty in the boundaries of Garnet Valley with California Wash and Las Vegas Valley Hydrographic Basin (Las Vegas Valley).[51] With respect to the recovery of the groundwater aquifer following the Order 1169 aquifer test, CNLV concluded that the record and evidence demonstrates a long-term declining trend in the groundwater level since the late 1990s and that pumping responses can propagate relatively quickly through the carbonate-rock aquifer and drawdown is directly related to the pumping.[52]

While CNLV did consider the long-term quantity of groundwater that may be developed without adversely impacting discharge to the Warm Springs area, its opinions were limited to the sustainability of pumping within Garnet Valley.[53] CNLV concluded that the safe yield concept should be applied to the management of pumping within the LWRFS and that pumping between 1,500 afa to 2,000 afa does not appear to be causing regional drawdown within the LWRFS carbonate-rock aquifer and that pumping this quantity of water may be sustainable within the APEX Industrial Park area of Garnet Valley.[54] Finally, CNLV asserted that movement of alluvial water rights from the Muddy River Springs Area along the Muddy River would reduce the capture

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[50] *See* CNLV Ex. 5, *City of North Las Vegas Utilities Department: Interim Order 1303 Report Submittal from the City of North Las Vegas – July 2, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* CNLV Ex. 6, *Rebuttal Document submitted on behalf of the City of North Las Vegas, to Interim Order 1303 Report Submittals of July 3, 2019 – Prepared by Interflow Hydrology – August 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* Tr. 1416–66, and *City of North Las Vegas' Closing Statement* (CNLV Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

[51] *See* CNLV Ex. 5, pp. 2–3. *See also* CNLV Ex. 3, *Garnet Valley Groundwater Pumping Review for APEX Industrial Complex, City of North Las Vegas, Clark County, Nevada- Prepared by Interflow Hydrology, Inc.- July 2019*, pp. 7–8, 38.

[52] *Id.*, p. 3, Technical Memo, pp. 14–16.

[53] *Id.*, pp. 3–4.

[54] *Id.*, p. 4., Technical Memo, p. 45.

of Muddy River flow, move more senior water rights into Garnet Valley to support a secure water supply for the municipal uses within the APEX area, and would support overall objectives relating to the management of the LWRFS.[55] CNLV advocated that transferring water rights between alluvial aquifer and carbonate-rock aquifer should be considered on a case-by-case basis with consideration given as to location, duration, and magnitude of pumping.[56]

CNLV disagreed with certain conclusions of the NPS relating to the inclusion of the entirety of the Black Mountains Area within the LWRFS boundaries and had concerns relating to the reliability of the Tetra Tech model for future water resource management within the LWRFS.[57] CNLV further disagreed with stakeholder conclusions that movement of groundwater withdrawals from the alluvial aquifer along the Muddy River to the carbonate-rock aquifer in Garnet Valley will not alleviate the conflicts to Muddy River flow, rather concluding that there may be benefits for overall management of the LWRFS.[58] Further, CNLV disagreed with certain findings regarding water flow through the carbonate-rock aquifer, finding that it is likely that some groundwater can be pumped within Garnet Valley without capturing groundwater that would otherwise discharge to the Warm Springs area and the Muddy River.[59] Finally, in its rebuttal the CNLV joined other stakeholders in supporting the conclusion that there is a quantity of water that may be sustainably developed within the LWRFS and that use of carbonate-rock aquifer groundwater in Garnet Valley is critical to the short-term and long-term management and development of the APEX Industrial Complex.[60]

Coyote Springs Investments

In presenting its opinions and conclusions CSI's focus was primarily on climate as the foundation for groundwater elevation declines after the Order 1169 aquifer test, and additional geophysical research that provided evidence of a structural block isolating the west side of Coyote Spring Valley.

[55] *Id.*, Technical Memo, p. 48–49.
[56] *Id.*
[57] *See* CNLV Ex. 6, pp. 1–2.
[58] *Id.*, p. 2.
[59] *Id.*, pp. 2–3.
[60] *Id.*, p. 3.

CSI did a statistical analysis of climate data, and determined from the results that 1998, 2004, 2005, and 2010 were wetter than normal, with a drying trend from 2006 to 2017.[61] The Order 1169 aquifer test took place toward the end of an extended dry period when all water resources throughout the LWRFS were negatively affected.[62] Additionally, annual cyclical patterns of groundwater pumping should not be confused with long-term climate variability.[63]

CSI challenged the basic assumption that the LWRFS, as proposed in Interim Order 1303, is a homogenous unit.[64] CSI could not duplicate the results of the SeriesSEE, and its own Theis solution modeling concluded that a greater impact occurred from pumping at a well closer in proximity to Pederson Spring than pumping from a well further away, or the combined effect of both wells.[65] CSI also acknowledged that due to the fragmented nature of the LWRFS, the Theis solution is of limited utility.[66]

CSI presented geologic and geophysical information in support of the idea that the LWRFS administrative unit is a geophysically and hydrogeologically heterogenous area, characterized by multiple flow paths defined by faults and structural elements that control the occurrence and movement of regional and local groundwater along the western side of Coyote Spring Valley, the eastern side of Coyote Spring Valley, and from Lower Meadow Valley Wash into the LWRFS.[67] CSI stated that the LWRFS does not include Kane Springs Valley.[68]

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[61] CSI Ex. 1, *CSI July 3, 2019 Order 1303 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 4–5; Tr. 53.
[62] CSI Ex. 1, p. 5.
[63] CSI Ex. 2, *CSI August 16, 2019 Rebuttal Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2, 7.
[64] CSI Ex. 1, p. 7.
[65] CSI Ex. 1, p. 7; Tr. 131–132.
[66] Tr. 154.
[67] CSI Ex. 2, p. 2; *CSI Closing Statement* (CSI Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources; CSI recommended including Lower Meadow Valley Wash in its Rebuttal report. See CSI Ex. 2, p. 12; Mr. Herrema said Lower Moapa Valley, but the report said Lower Meadow Valley 10:10.
[68] CSI Ex. 1, p. 15; the outflow from Kane Springs Valley is included in the water budget, but due to isolating geologic features, groundwater elevations in Kane Springs Valley are not impacted by pumping in the LWRFS, Tr. 135:7–137:3, 160:2–12.

CSI engaged a geophysicist to conduct a CSAMT survey at multiple points in the valley.[69] CSI's CSAMT study showed evidence of a prominent carbonate block bounded on either side by normal faults.[70] CIS asserts that the carbonate block isolates recharge from the zone west of the block, such that it eliminates or limits contribution of local recharge to the Warm Springs area.[71] Faulting has created a preferred path for groundwater flow "from the east side Coyote Spring Valley to the Muddy River Springs Area".[72]

CSI relied on a water budget as the best method to determine available water in the LWRFS, accounting for recharge and subsurface flow as well as climatic variations.[73] Comparing several models of recharge, CSI estimated recharge at 5,280 afy from the Sheep Range to the western side of Coyote Spring Valley.[74] CSI stated that 30,630 afa can be pumped from the LWRFS, but there would be impacts from pumping the water, and that the Coyote Spring Valley can sustain 5,280 afa of pumping from the western side without impact to the Warm Springs area or the Muddy River.[75]

As asserted by CSI, groundwater pumping from the carbonate-rock aquifer in the Muddy River Springs Area affects flow in the carbonate-rock aquifer to the alluvial aquifer, which then affects flow from the alluvial aquifer to the Muddy River.[76] CSI argues that effects are dependent on well location, geologic formations, hydraulic gradients, and elevation.[77] Transfers between carbonate and alluvial pumping should be made on a case-by-case basis, analyzing place of use, points of diversion, and quantity of groundwater.[78] Movement of water rights between alluvial wells and carbonate-rock aquifer wells will only serve to shift the timing and location of impacts and not the amount of the impact.[79]

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[69] CSI Ex. 1, p. 25
[70] CSI Ex. 1, p. 25.
[71] CSI Ex. 1, p. 29; evidence of impermeability, Tr. 181.
[72] CSI Ex. 1, p. 29.
[73] CSI Closing.
[74] CSI Ex. 1, pp. 31–40.
[75] Tr. 221–223; CSI Closing, pp. 8–9.
[76] CSI Closing.
[77] CSI Closing, p. 19.
[78] CSI Closing.
[79] CSI Ex. 1, p. 58.

As a consequence of the heterogenous nature of the LWRFS, CSI recommended sustainable management of the LWRFS through the creation of "Management Areas" that recognize flow paths and their relative contributions to spring flow, surface flow, evapotranspiration, and sub-surface outflow.[80] For example, though pumping in the Muddy River Springs Area near the Warm Springs area would have a direct impact on available surface water resources, structural blocks and faults isolate the effect of groundwater pumping in other areas of the LWRFS.[81] Thus CSI does not recommend a blanket ban on carbonate-rock aquifer pumping, or a decrease in carbonate-rock aquifer pumping in exchange for alluvial aquifer pumping.

Georgia Pacific and Republic

Dry Lake Water, LLC, Georgia Pacific and Republic submitted initial and rebuttal responses to Interim Order 1303 and offered testimony during the hearing.[82] In their response, Georgia Pacific and Republic acknowledged impacts to groundwater elevations throughout the LWRFS, including wells in the Black Mountains Area and Garnet Valley, which does demonstrate a degree of hydraulic connectivity throughout the carbonate-rock aquifer. However, Georgia Pacific and Republic called for collection of more scientific evidence to further understand the LWRFS and its boundaries. Further, it was their opinion that climate, seasonal fluxes and pumping within Garnet Valley and the Black Mountains Area resulted in the groundwater declines observed during the Order 1169 aquifer test.[83] Ultimately, Georgia Pacific and Republic do not believe sufficient information exists to draw distinct conclusions as to the cause of the groundwater declines during the Order 1169 aquifer test and whether carbonate-rock aquifer pumping within

[80] CSI Closing.
[81] CSI Ex. 2, p. 17.
[82] The initial response was submitted on behalf of Dry Lake Water, LLC, Georgia Pacific, and Republic. *See* GP-REP Ex. 1, *Broadbent July 2, 2019 Initial Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. The rebuttal response was submitted on behalf of Dry Lake Water, LLC, Georgia Pacific Gypsum LLC, and Republic. *See* GP-REP Ex. 2, *Broadbent August 16, 2019 Rebuttal Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. However, the expert only appeared at the Hearing on Interim Order 1303 on behalf of Georgia Pacific and Republic. *See* Tr. 1588-91.
[83] *See* GP-REP Ex. 01, GP-REP Ex. 02, and *Closing Argument of Georgia Pacific Corporation and Republic Environmental Technologies, Inc.* (Closing GP-REP), Hearing on Interim Order 1303, official records of the Division of Water Resources.

the Garnet Valley and the Black Mountains Area has a measurable impact to spring flow in the Warm Springs area.[84]

Great Basin Water Network

GBWN elected to pose procedural suggestions relating to public involvement, availability of documents and data, transparency, and decision making, and did not submit a report with an independent analysis addressing the questions in Interim Order 1303.[85] GBWN advocates for sustainable management of the entirety of the White River Flow System as one unit based on the interconnected nature of all of the hydrologically connected basins, although no analysis to support which areas this would include was provided. GBWN relies on conclusory statements to establish the interconnected nature of the system as support for its position. Later, GBWN chose not to participate in the hearing nor submit a rebuttal report, closing arguments, or public comment.

Lincoln County Water District and Vidler Water Company

LC-V's participation in the LWRFS hearing was driven by their existing and pending groundwater rights in Kane Springs Valley, and an interest in excluding Kane Springs Valley from the LWRFS management area.[86] They disputed that Kane Springs Valley should be included within the LWRFS boundary based on their assertion of: prior decisions of the State Engineer that acknowledged the separate nature of the basin from the rest of the LWRFS, groundwater elevation comparisons, precipitation and recharge data, groundwater chemistry, and geophysical study results. In general, Kane Springs Valley should be managed based on its perennial yield, recognizing that there is groundwater flow to the LWRFS as there are from other basins into the LWRFS, but where they are excluded from the proposed management area.[87]

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[84] *See* Closing GP-REP.
[85] *GBWN Report on Order 1303*, (GBWN Report), Hearing on Interim Order 1303, official records of the Division of Water Resources.
[86] LC-V Ex. 1, *Lower White River Flow System Interim Order #1303 Report Focused on the Northern Boundary of the Proposed Administrative Unit, prepared by Lincoln County Water District and Vidler Water Company in Association with Zonge International Inc., dated July 3, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 2-1.
[87] LC-V Ex. 2, *Rebuttal Submittal to Reports Submitted in Response to Interim Order #1303, dated August 16, 2019 and Attachments A, B, C, D and E containing the reports or technical memorandums of Greg Bushner, Peter Mock, Thomas Butler, Todd Umstot and Norman Carlson.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 7, 14–15.

Various rulings of the State Engineer have previously addressed whether appropriation of groundwater from Kane Springs Valley would affect the Muddy River Springs Area.[88] LC-V states that these findings have not been challenged by any of the Order 1169 participants.[89] However, to the extent that SNWA relied on multiple linear regression models to establish groundwater flow from Kane Springs Valley to the LWRFS, LC-V do not agree.[90]

LC-V identified a distinct "break," or local increase, in water levels in the regional hydraulic gradient between wells drilled in the LWRFS versus wells drilled in Kane Springs Valley and northern Coyote Spring Valley.[91] It attributed the break to geologic structures located throughout the carbonate-rock aquifer. Although wells within the LWRFS exhibit very consistent groundwater levels, indicative of high transmissivity values across the area, the gradient between well KPW-1 and down-basin wells is much steeper, implying an impediment to groundwater flow near the mouth of Kane Springs Valley.[92]

In a 2006 hearing for protested water rights applications, LC-V presented an analysis of the regional geochemistry data including stable isotopes, temperature, and carbon-14 data.[93] That analysis found that the groundwater pumped from Kane Springs Valley could not be identified in the source water for the Big Muddy Spring, nor other springs farther south and outside the boundaries of the LWRFS.[94] LC-V concluded that groundwater pumped from production well KPW-1 is on a different groundwater flow path from the springs, consistent with the differences in hydraulic gradients, groundwater levels, and geophysical data.[95] CSVM-4, a well located in Coyote Spring Valley, and KPW-1, in Kane Springs Valley, have similar temperatures compared to the other wells in the basin, and a lower percentage difference on other markers tracked throughout groundwater in the basin.[96] LC-V argues that the water from these wells is chemically

[88] LC-V Ex. 1, pp. 2-2 through 2-3, citing State Engineer's Rulings 5712, 6254, 5712.
[89] LC-V Ex. 1, p. 2-3.
[90] Testimony generally at Tr. 1311–1318. "... simply having correlation is not proof of causation. Causation is neither proved nor evaluated in a regression analysis." Tr. 1303.
[91] LC-V Ex. 1, p. 3-1.
[92] LC-V Ex. 1, pp. 1-1, 3-1 through 3-4. LC-V went on to conclude that local groundwater recharge occurs in Kane Springs Valley that does not flow to the LWRFS, and therefore there is available unappropriated water in the basin. LC-V Ex. 1, p. 3-5.
[93] LC-V Ex. 1, Appendix C, pp. 111–153.
[94] *Id.*, pp. 124–125.
[95] "Gradient alone does not mean flow." Thomas Butler, witness on behalf of LC-V, Tr. 1281.
[96] Tr. 1281–1282; LC-V Ex. 1, pp. 3-7 through 3-11.

unique and does not appear in any other wells in the LWRFS.[97] LC-V concludes carbon isotope data also confirmed that the water from Kane Springs Valley does not appear in the Muddy River Springs area.[98]

LC-V engaged a geophysical company to perform a CSAMT survey across the boundary line between Kane Springs Valley and Coyote Spring Valley, and identified significant geologic structures in southern Kane Springs Valley and northern Coyote Spring Valley.[99] Several transect lines were conducted perpendicular to the axis of the Kane Springs Valley, and one was also conducted along the axis of the southern part of the basin.[100] Additional transects were run in Coyote Spring Valley.[101] The results of the geophysical data validated concealed faulting indicated on existing maps, and was ground-truthed with observations in the field.[102] Results indicated a previously unmapped fault at the mouth of Kane Springs Valley, which LC-V named the Northern Boundary LWRFS fault, with a potentially 2,500-foot offset of materials with different resistivities.[103] LC-V argues that the extensive faulting that occurs in southern Kane Springs Valley and northern Coyote Spring Valley form the basis for the exclusion of Kane Springs Valley from the LWRFS.[104]

LC-V gave no opinion on the long-term annual quantity of groundwater that could be pumped from the LWRFS.[105] LC-V attributes all reduction in flows of the Muddy River and its associated springs to carbonate-rock aquifer pumping within the Muddy River Springs Area, and finds no discernable effect from carbonate-rock aquifer pumping occurring in Coyote Springs

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[97] Tr. 1284.
[98] Tr. 1286.
[99] LC-V Ex. 1, pp. 1-1, 4-1 through 4-10.
[100] LC-V Ex. 1, p. 4-3.
[101] LC-V Ex. 1, p. 4-3.
[102] LC-V Ex. 1, p. 4-8, Tr. 1322.
[103] Tr. 1271–1272; LC-V Ex. 1, p. 4-9.
[104] LC-V Ex. 1, p. 7-1 through 7-2; Tr. 1408. Questions from the National Park Service and the State Engineer inquired whether the areas of high resistivity in the CSAMT necessarily implied low transmissivity, low permeability of the rock. LC-V conceded that the resistivity information alone does not provide data about the hydraulic properties of either side of the resistive area, but when considered with all available information, LC-V concluded that the fault is likely an impediment to groundwater flow. Tr. 1327–1328, 1363–1364.
[105] LC-V Ex. 1, p. 5-2.

Valley.[106] As a result, LC-V finds that the efforts to protect the Warm Springs area must focus on groundwater pumping within the Muddy River Springs Area itself.[107]

Moapa Band of Paiutes

The MBOP participated in the administrative hearing due to their interest in the outcome of the proceedings and how it may affect their pending water right applications within California Wash. A regional approach, spanning a large aerial expanse, was taken by MBOP; the analysis and modeling efforts extended into central Nevada and Utah. MBOP stands apart from other participants with their interpretation of the data.[108] MBOP opposed management of the LWRFS as one basin and argues the scientific consensus is lacking amongst participants.[109] Regarding the interpretation of other participants, MBOP disagreed with the methodology and application of the 2013 USFWS SeriesSEE analysis and SNWA's multiple linear regression and requests repudiation of both.[110]

While not agreeing with the proposed boundaries of the LWRFS, MBOP did not provide a clear suggestion for which basins or portions therein should be included or excluded. MBOP suggested that pumping in California Wash has little to no impact on the Warm Springs area.[111] MBOP further suggested there are two capture zones, separated by a hydrodynamic and hydrochemical divide, which transects the Moapa River Indian Reservation area and results in south-flowing groundwater into the Las Vegas Valley through the LWRFS, bypassing the Muddy

[106] LC-V Ex. 1, p. 5-3.
[107] LC-V Ex. 1, p. 5-3.
[108] Tr. 772– 773; 839.
[109] *See Closing Statement by the Moapa Band of Paiute Indians for Order 1303 Hearing* (MBOP Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 1–2, 6.
[110] *Id.*, pp. 7–12, 15–16; *See* MBOP Ex. 3, *Johnson, C., and Mifflin, M. Rebuttal Report of the Moapa Band of Paiutes in Response to Stakeholder Technical Reports Filed under Order #1303: unpublished report and appendices, August 16, 2019. 27 p.*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[111] *See* MBOP Ex. 2, *Johnson, C., and Mifflin, M. Water Level Decline in the LWRFS: Managing for Sustainable Groundwater Development. Initial Report of the Moapa Band of Paiutes in Response to Order #1303: unpublished report and appendices, July 3, 2019. 84 p.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2, 4, 14, 35; Tr. 819.

River Springs Area.[112] This hydrodynamic divide theory was not shared by SNWA, CBD, CSI, and NPS.[113]

Several participants agree that climate impacts were observed in the hydrographs, e.g., periods of wet and dry; however, MBOP interpreted the existing data to show that climate-driven decline, specifically drought, as the primary response observed in the long-term declining groundwater levels.[114] Thus, MBOP concluded that no reduction in pumping will restore high-elevation spring flows.[115] MBOP did not agree with other participants that decreasing groundwater levels and spring flows were attributed to increased carbonate-rock aquifer pumping beginning in the early 1990s.[116]

A quantity available for sustainable pumping was not proposed, but MBOP presumed more water is available in California Wash than previously thought.[117] A flux of approximately 40,000 afy of south-flowing groundwater into the Las Vegas Valley, bypassing the Muddy River Springs Area, was postulated in the initial report as possible with the hydrodynamic divide; however, during the hearing this quantity was given a range of plus or minus an order of magnitude based on assumptions for calculations.[118]

MBOP acknowledged that the Muddy River is connected to the alluvial aquifer and thus pumping from the alluvial and carbonate-rock aquifers in the Muddy River Springs Area impact the Muddy River flows.[119] Therefore, to mitigate impacts to the Muddy River, MBOP proposed that alluvial aquifer pumping, specifically between Arrow Canyon and White Narrows, can be moved to the carbonate-rock aquifer in basins to the south, such as California Wash, with minimal anticipated impacts to the Muddy River flows, rather than moving alluvial aquifer pumping from the Muddy River Springs Area to the carbonate-rock aquifer in connected areas, where impacts

[112] *See* MBOP Ex. 2, pp. 2, 4, 12, 14, 20, 35, 55; Tr. 812; 845.
[113] SNWA Ex. 9, pp. 12–13; CBD Ex. 4, p. 15; CSI Ex. 2, p. 23; NPS Ex. 3, *National Park Service's Response to July 2019 Interim Order 1303 Reports, Waddell, August 16, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 4.
[114] *See* MBOP Ex. 2, pp. 3, 26–32, 35; Tr. 764–771; 805.
[115] *See* MBOP Ex. 2, pp. 3, 35; Tr. 821–826.
[116] *See* MBOP Ex. 2, p. 29; Tr. 775, 838–840; 848.
[117] *See* MBOP Ex. 2, pp. 2, 20, 35.
[118] *See* MBOP Ex. 2, pp. 6, 19, 35; Tr. 850–851.
[119] *See* MBOP Ex. 2, pp. 23–24, 35; Tr. 836.

proportional to pumping may be expected.[120] Thus, MBOP proposed favoring temporary over permanent uses and transferring of rights between the carbonate-rock and alluvial aquifers on a case-by-case basis.[121]

Moapa Valley Water District

MVWD was created by the Nevada legislature in 1983, pursuant to NRS Chapter 477, to provide water service "vital to the economy and well-being of Moapa Valley."[122] MVWD provides municipal water service to approximately 8,500 people with 3,250 metered service connections, including service to the MBOP.[123]

MVWD supported the inclusion of Kane Springs Valley within the LWRFS boundary.[124] Data indicated a direct connection between Kane Springs Valley and Coyote Spring Valley. This data included observations that the water level in KMW-1/KSM-1 decreased 0.5 foot over the duration of the Order 1169 aquifer test.[125] State Engineer's rulings have concluded that geochemical evidence and groundwater gradient data indicate that groundwater flows from the Kane Springs Valley into Coyote Spring Valley, and MVWD supports LVVWD's 2001 calculation of that quantity of water at approximately 6,000 afy.[126] MVWD performed its own calculations of the groundwater gradients from Kane Springs Valley at KMW-1 to EH-4, and concluded that the gradient was "an uninterrupted, continuous, exceptionally flat gradient," unlike gradients commonly seen in the western U.S., especially in highly fractured areas.[127] MVWD also

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[120] *See* MBOP Ex. 2, pp. 23, 35.
[121] *See* MBOP Closing.
[122] Tr. 1172.
[123] MVWD Ex. 3, *District July 1, 2019 Report in response to Interim Order 1303*, p.5, Hearing on Interim Order 1303, official records of the Division of Water Resources; MVWD Ex. 4, *District August 16, 2019 Rebuttal Report*, p, 1, Hearing on Interim Order 1303, official records of the Division of Water Resources. MVWD has 3,147 afa of water rights in Arrow Canyon. Tr. 1169–1170.
[124] MVWD Ex. 3, p. 1; Tr. 1175.
[125] MVWD Ex. 3, p. 1; MVWD Ex. 4, p. 2.
[126] MVWD Ex. 3, pp. 1–2, referring to State Engineer's Ruling 5712 (*see*, NSE Ex. 12, *Ruling 5712*, Hearing on Interim Order 1303, official records of the Division of Water Resources) and MVWD Ex. 8, *Las Vegas Valley Water District, Water Resources and Ground-Water Modeling in the White River and Meadow Valley Flow Systems, Clark, Lincoln, Nye, and White Pine Counties, Nevada (2001)*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 6-3.
[127] Tr. 1177–1178.

introduced evidence of a stipulation between LC-V and the USFWS that bases a reduction in pumping in Kane Springs Valley on a lowering of spring discharges in the Warm Springs area, and introduced a letter from SNWA to the State Engineer, as additional support that the participants to the Interim Order 1303 hearing have previously recognized Kane Springs Valley is part of the LWRFS.[128]

MVWD disagreed that a hydrologic barrier exists between Coyote Springs Valley and Kane Springs Valley.[129] Relying on a 2006 report prepared by another consultant, MVWD said the evidence indicated that the fault at the mouth of Kane Springs Valley was not an impediment to flow, and that there was no evidence of having encountered hydraulic barriers to groundwater flow during a seven-day aquifer test.[130] Additionally, the "highly transmissive fault zone" is continuous across the basin boundary between Kane Springs Valley and Coyote Spring Valley.[131] MVWD found further support for its position from evidence that KMW-1 showed drawdown during both the seven-day aquifer test on KPW-1, as well as from the Order 1169 aquifer test pumping that occurred from MX-5.[132] MVWD considered the water level data collected before, during and after the Order 1169 aquifer test, and Warm Springs area spring discharge to support its finding that the fault is not interrupting groundwater flow.[133] MVWD found it "questionable" that the first suggestion of a fault that impedes southward groundwater flow would be prepared by LC-V for this hearing.[134]

Although water levels and spring discharge did not recover to the levels measured before the Order 1169 aquifer test, MVWD believed that the LWRFS is at or near steady-state conditions

[128] Tr. 1195–1197.
[129] Tr. 1176–1177.
[130] Tr. 1181–1182. MVWD also quoted from the report that "the fracturing was so extensive that the fractured aquifer system really behaved as an equivalent porous media." *Id.* MVWD later agreed that this would behave like a sandy aquifer. Tr. 1224.
[131] Tr. 1185.
[132] Tr. 1250.
[133] Tr. 1219.
[134] *Post-Hearing Brief of Moapa Valley Water District* (MVWD Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 5.

regarding aquifer recovery.[135] MVWD viewed this as being consistent with the State Engineer's statements in Interim Order 1303.[136]

Finally, MVWD did not provide a specific quantity of available water but did acknowledge that the "actual safe pumpage" is less than current pumping rates, and recognized a direct relationship between pumping from the carbonate-rock aquifer, spring and Muddy River flows, and alluvial aquifer pumping.[137] The timing and magnitude of carbonate-rock aquifer pumping effects on spring discharge is dependent on the volume of water pumped and the proximity of a pumping center to the springs; however, all cumulative carbonate-rock aquifer pumping in the seven interconnected basins will eventually cause depletions on the Warm Springs area springs.[138] Further, if carbonate rights are transferred to the alluvial aquifer there will be depletions to Muddy River flows and impacts to senior Muddy River water right owners.[139]

MVWD raised additional matters that they believed relevant to the analysis under Interim Order 1303. First, they stressed the importance of municipal water rights, and the necessity for a reasonably certain supply of water for future permanent uses without jeopardizing the economies of the communities that depend on the water supply, and to protect the health and safety of those who rely on the water supply.[140] To that end, MVWD requested that the State Engineer consider designating municipal use as the most protected and highest use of water, and to give MVWD the perpetual right to divert 6,791 afa of permitted and certificated rights from its carbonate-rock aquifer wells.[141] Second, MVWD stated that it had already satisfied its obligation to protect Moapa dace habitat and senior water rights when it dedicated 1cfs/724 afa, or approximately 25% of the MVWD current diversions, from its most senior water right, to the enhancement of the Moapa dace habitat.[142]

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[135] Tr. 1198, MVWD Ex. 3, p. 4.
[136] Tr. 1199.
[137] Tr. 1199–1200; MVWD Closing, pp. 9–10.
[138] MVWD Ex. 3, p. 5.
[139] *Id.*
[140] MVWD Ex. 3, p. 5.
[141] MVWD Ex. 3, p. 6; Tr. 1203–1204; 6,791 afa constitutes an increase in the carbonate-rock aquifer pumping for MVWD. Tr. 1228.
[142] MVWD Ex. 3, pp. 6–7; Tr. 1202–1203.

Muddy Valley Irrigation Company

The MVIC is a non-profit Nevada corporation with the senior decreed water rights to the Muddy River, who provided testimony that SNWA is a majority shareholder while other participants such as CSI, LC-V, and MVWD are minority shareholders of the decreed rights.[143] MVIC concurred with SNWA's conclusions regarding aquifer recovery, long-term quantity of groundwater, and movement of water between the alluvial and the carbonate-rock aquifers.[144] Specifically, that any groundwater pumping, from both alluvial or carbonate-rock aquifers, within the Muddy River Springs Area impacts Muddy River flows, thus violating the Muddy River Decree.[145] MVIC did not dispute the geographic boundaries as identified in Interim Order 1303.[146] MVIC argued that the Muddy River and all of its sources are fully appropriated and emphasized the decreed seniority to groundwater rights, and further asserts that these surface water rights are protected by the Muddy River Decree and the prior appropriation doctrine.[147]

United States Department of the Interior, National Park Service

NPS submitted both an initial and rebuttal report in response to the Interim Order 1303 solicitation and presented testimony during the hearing.[148] Based upon NPS's evaluation of the evidence relating to the Order 1169 aquifer test, the use of an updated numerical groundwater flow model previously developed to predict conditions within the LWRFS, data compiled since the conclusion of the Order 1169 aquifer test, and review of other available data, NPS came to multiple conclusions relating to the delineation and management of the LWRFS. NPS advocates for the

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[143] Tr. 1693–1696, 1705.

[144] MVIC Ex. 1, *MVIC Rebuttal Report dated August 15, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. MVIC identified sections from the SNWA report, but the references do not correspond with sections in SNWA's report. The State Engineer assumes that these section numbers correspond to page numbers of the SNWA report; *See also*, SNWA Ex. 7, *Burns, A., Drici, W., Collins, C., and Watrus, J., 2019, Assessment of Lower White River Flow System water resource conditions and aquifer response, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[145] MVIC Ex. 1, p. 5; Tr. 1698.

[146] *See* MVIC Ex. 1, p. 3; Tr. 1697–1968.

[147] *Muddy Valley Irrigation Company Post Hearing Closing Statement* (MVIC Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources; Tr. 1967, 1700–1708. *See also*, NSE Ex. 333, *Muddy River Decree*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[148] *See* NPS Ex. 2, *Prediction of the Effects of Changing the Spatial Distribution of Pumping in the Lower White River Flow System, Waddell, July 3, 2019*; Tr. 494–597.

inclusion of the entirety of the Black Mountains Area within the geographic boundary of the LWRFS based upon its review of geologic conditions that facilitate flow from the southern portion of the LWRFS through the Muddy Mountains thrust sheet and discharging in Rogers Spring and Blue Point Spring.[149] Further supporting this opinion, NPS cites to spring chemistry and isotopic composition of the water discharging from Rogers Spring and Blue Point Spring and the hydraulic head conditions that NPS believes supports the flow of groundwater beneath the Muddy Mountains from the carbonate-rock aquifer to those springs.[150] NPS acknowledge that there is a weak hydraulic connection between Rogers Spring and Blue Point Spring to the LWRFS based upon the geologic conditions within the Muddy Mountains, but argues that the entirety of the Black Mountains Area should be included to allow for management of the regional carbonate-aquifer to protect against diminished discharge to those springs.[151]

In addition to advocating for the inclusion of the entirety of the Black Mountains Area, the NPS provided evidence and analysis to support its conclusion that Kane Springs Valley too should be included within the geographic boundary of the LWRFS.[152] Based upon a review of the hydrologic data, geology of the Kane Springs Valley and basin boundaries, Coyote Spring Valley, and data from the Order 1169 aquifer test, NPS concludes that there is a clearly established hydrological connection between Kane Springs Valley and the other LWRFS basins, including discharge to the Warm Springs area.[153] While NPS advocates for the inclusion of the entire Black Mountains Area and Kane Springs Valley, it did not find any evidence to support the inclusion of the Las Vegas Valley within the LWRFS based upon a similar review of the geology and hydrological data.[154]

In interpreting data since the conclusion of the Order 1169 aquifer test, NPS reviewed the available data, concluding that the decades long decline of groundwater levels is not attributable to climate, but rather that the groundwater pumping within the LWRFS is the contributing

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[149] *See* NPS Ex. 2, p. 22. *See also*, Tr. 569–70; NPS, *Closing Statements Interim Order 1303 Hearing Testimony* (NPS Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 2.
[150] NPS Ex. 2, p. 22; NPS Closing, pp. 2–4.
[151] *Id.*
[152] NPS Ex. 2, p. 22; NPS Ex. 3, pp. 5–11; Tr. 550–551; NPS Closing, pp. 4–5.
[153] NPS Ex. 2, p. 22; NPS Ex. 3, pp. 5–11; Tr. 550–551; NPS Closing, pp. 5–6.
[154] NPS Ex. 2, p. 22; Tr. 552–554.

factor.[155] NPS opined that if recent pumping withdrawals continued, the current declining trend would be accelerated, adversely impacting spring discharge in the Warm Springs area and Muddy River flow.[156] Further, NPS's review of the data lead to its conclusion that it will take many years, if not decades for the LWRFS carbonate-rock aquifer to reach equilibrium, particularly at the current groundwater pumping withdrawals and even longer if pumping withdrawals occurred at Order 1169 aquifer test levels.[157] However, NPS did not provide an opinion as what rate of groundwater withdrawals would be sustainable within the LWRFS.

Finally, NPS concluded that the movement of groundwater withdrawals from the alluvial aquifer within the Muddy River Springs Area to the carbonate-rock aquifer within the LWRFS would ultimately have little impact on capture of Muddy River flow. Specifically, NPS found that while there may be near-term benefits to the Warm Springs area and Muddy River flow, those benefits would eventually disappear, as the impact would only be delayed and not eliminated.[158]

Nevada Cogeneration Associates

NCA submitted a Rebuttal Report Pertaining to Interim Order 1303 and provided testimony at the Interim Order 1303 hearing.[159] NCA objected to the inclusion of certain non-profit organizations on the basis that those organizations were not stakeholders and did not have an interest to protect as the non-governmental organizations did not have water rights within the LWRFS basins effected by the proceedings.[160]

With respect to the geographic boundary of the LWRFS, in its Rebuttal Report, NCA is of the opinion that the northwestern portion of the Black Mountains Area, as identified by the State Engineer, should be within the LWRFS basins, but expressed its disagreement with other opinions advocating for the inclusion of the entire Black Mountains Area based upon NCA's analysis of the geology and groundwater elevations.[161] During the Interim Order 1303 hearing and in its Post-Hearing Brief, NCA's opinion shifted to advocate for the boundary of the LWRFS to be adjusted

[155] NPS Ex. 2, pp. 7, 22–23. *See also* NPS Closing, pp. 5–6.
[156] *Id.*
[157] *Id.*
[158] NPS Ex. 2, p. 23. *See also* NPS Closing, p. 6, and Tr. 593–594.
[159] NCA Ex. 1, *NCA Rebuttal Report Pertaining to Interim Order 1303 August 16, 2019,* Hearing on Interim Order 1303, official records of the Division of Water Resources; Tr. 1602–50.
[160] NCA Ex. 1, pp. 1, 23.
[161] *Id.*, pp. 2, 23.

to exclude its production wells in the Black Mountains Area; however, NCA did not alter its opinion regarding the remaining portion of the Black Mountains Area staying within the LWRFS.[162]

NCA further expressed that the Lower Meadow Valley Wash should not be included in the LWRFS boundaries based upon the fact that observed groundwater levels do not indicate a hydrologic response to carbonate-rock aquifer pumping and that insufficient data supports a finding of continuity between water level trends to support its inclusion in the LWRFS.[163] However, NCA advocated for the inclusion of the Kane Springs Valley within the LWRFS based upon its opinion that the groundwater data demonstrated hydrologic connectivity between Coyote Spring Valley and Kane Springs Valley, acknowledging that the data is slightly attenuated resulting from the Kane Springs fault.[164] Ultimately, NCA concluded that Kane Springs Valley is tributary to the Coyote Spring Valley and the other LWRFS basins, which justify its inclusion within the boundary of the LWRFS.[165]

Similarly, based upon the groundwater data from the northern portion of Coyote Spring Valley demonstrating similar water level responses as other wells throughout the LWRFS and pumping data demonstrating high hydrologic connectivity across all the LWRFS basins, NCA concluded that there was no basis to exclude the northern portion of Coyote Spring Valley.[166] Finally, NCA rejected a suggestion that the entirety of the White River Flow system, which extends into northeastern Nevada, be included within the management area.[167] Specifically, NCA concluded that the Pahranagat Shear Zone creates a significant barrier to the northwestern portion of the LWRFS and that review of groundwater levels does not support a finding that groundwater level declines propagate into the northern reaches of the White River Flow System.[168] NCA concluded, advocating that proper management of the LWRFS is appropriate and sufficient for the

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[162] *Post-hearing brief of Nevada Cogeneration Associates Nos. 1 and 2 pertaining to Amended Notice of Hearing Interim Order #1303 following the hearing conducted September 23, 2019, through October 4, 2019, before the Nevada State Engineer* (NCA Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2–10. *See also* Tr. 1619–22.
[163] NCA Ex. 1 pp. 3–7, 23. *See also* NCA Closing, pp. 15–16.
[164] NCA Ex. 1, pp. 8–17, 23. *See also* NCA Closing, pp. 10–14, and Tr. 1629–44.
[165] NCA Ex. 1, pp. 11–16.
[166] *Id.*, pp. 17–18, 23.
[167] *Id.*, pp. 19, 24.
[168] *Id.*

purpose of managing discharge of groundwater to the Warm Springs area to support habitat for the Moapa dace and serve senior Muddy River decreed rights.[169]

In addressing the annual amount of groundwater that could be developed within the LWRFS without adversely impacting senior decreed rights on the Muddy River or Warm Springs area discharge supporting the habitat for the Moapa dace, NCA supported a target of 9,318 afa, a recent three-year average of annual pumping within the LWRFS,[170] as it did not believe there to be sufficient data to support either an increase or decrease from this amount.[171] However, in its post-hearing brief, NCA opined that if their production wells located within the northwestern portion of the Black Mountains Area were excluded from the LWRFS boundary, then the annual amount of water that could be sustainably developed was less than the 9,318 afa.[172]

Finally, NCA did not support movement of water rights from the Muddy River Springs Area alluvial aquifer to the carbonate-rock aquifer, as it was of the opinion that the movement of those rights would not mitigate impact to the Warm Springs area.[173] Rather, NCA concluded that movement of those rights would compound the impact of pumping from the carbonate-rock aquifer.[174] However, NCA did express some support for movement of senior alluvial water rights as a management tool to offset existing junior carbonate-rock aquifer pumping within the LWRFS.[175]

NV Energy

NV Energy submitted a rebuttal report outlining its responses to the five matters the State Engineer solicited in Interim Order 1303 and presented its opinions and conclusions during the Interim Order 1303 hearing.[176] In its rebuttal report, NV Energy opined that the geographic boundary of the LWRFS should be as established in Interim Order 1303.[177] NV Energy further

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[169] *Id.*
[170] NCA Ex. 1, p. 19. *See, e.g.* Draft order of the State Engineer distributed to LWRFS stakeholders at the LWRFS Working Group meeting, September 19, 2018, official records of the Division of Water Resources.
[171] *Id.*, pp. 18, 24.
[172] NCA Closing, pp. 14–15.
[173] NCA Ex. 1, pp. 19–23, 24.
[174] *Id.*
[175] *Id.*
[176] NVE Ex. 1, *NV Energy Rebuttal Report to State Engineer's Order 1303 Initial Reports by Respondents*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[177] *Id.*, pp. 1–2.

opined that the existence of subsurface outflow from Kane Springs Valley into the LWRFS basins was insufficient to support its inclusion.[178]

NV Energy, in its rebuttal report, disagreed with MBOP's conclusion that the groundwater level declines observed during and after the Order 1169 aquifer test were primarily caused by drought. Rather, NV Energy agreed with SNWA's and MVWD's conclusions that the groundwater recovery occurred between 2–3 years following the conclusion of the aquifer test, but that continued pumping within the carbonate-rock aquifer has inhibited recovery to pre-Order 1169 aquifer test groundwater levels, and that at the current rate of carbonate-rock aquifer pumping the aquifer has nearly reached steady-state conditions and discharge to the Warm Springs area has reached equilibrium.[179]

NV Energy further agreed in its rebuttal report with MBOP's and CNLV's conclusions that some groundwater flowing within the carbonate-rock aquifer bypassed the Muddy River Springs Area, and ultimately the Muddy River. NV Energy also agreed that groundwater development within the southern boundary of the LWRFS would likely have less of an effect on discharge to the Warm Springs area and the river. NV Energy did not opine as to the quantity of water that bypassed the springs, but inferred that the current 7,000–8,000 afy of carbonate-rock aquifer pumping appeared to support the conclusion that steady-state conditions had been reached.[180] NV Energy also opined that movement of senior certificated alluvial water rights in the Muddy River Springs Area to carbonate-rock aquifer wells located in the southern portion of the LWRFS may be considered acceptable as Nevada law allows for the reasonable lowering of the groundwater table, and such movement would not necessarily result in a conflict to existing rights.[181] NV Energy further concluded that, contrary to the conclusions of MBOP, drought was not a significant cause for the groundwater level declines observed.[182] Finally, NV Energy concluded with suggestions that the State Engineer either: (1) combine the LWRFS basins into a single hydrographic basin and declare the new basin to be a Critical Management Area pursuant to NRS 534.037 and 534.110; or, (2) for the State Engineer to, under his authority in NRS 534.020 and

[178] *Id.*
[179] *Id.*, pp. 2–7.
[180] NVE Ex. 1, p. 8.
[181] *Id.*, pp. 8–9; *Nevada Energy's Closing Statements* (NV Energy Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 4–5.
[182] *Id.*, pp. 9–12.

534.120, require the water right holders within the LWRFS to develop a conjunctive management plan.[183]

After considering all of the evidence and testimony presented at the Interim Order 1303 hearing, NV Energy ultimately altered its opinion and found compelling arguments to both support the inclusion of Kane Springs Valley in the LWRFS as well as its exclusion.[184] Ultimately, NV Energy changed its opinion with respect to the geographic boundary of the LWRFS and in its closing statement expressed support for the inclusion of Kane Springs Valley within the LWRFS boundary due to the connection with Coyote Spring Valley and thus the potential for impacts to LWRFS from pumping within Kane Springs Valley.[185] NV Energy proposes that the current pumping regime of 7,000 to 8,000 afy be maintained to evaluate the potential for steady-state conditions and the continued monitoring of the Warm Springs West gage and agrees that moving pumping further south may reduce impact to the Muddy River and springs. With regards to moving water between the alluvial and carbonate-rock aquifers, similar to others, NV Energy agrees with the evaluation of change applications on a case-by-case basis with demonstration that impacts are reduced or unchanged by the proposed point of diversion compared to the existing point of diversion. NV Energy supports an agreement that would include all water users within the LWRFS for the purposes of not exceeding stresses within system and protecting the Moapa dace.[186]

Southern Nevada Water Authority and Las Vegas Valley Water District

The SNWA and LVVWD submitted multiple reports in response to the Interim Order 1303 solicitation.[187] SNWA and LVVWD supported the boundary of the LWRFS as identified in Interim Order 1303, and argued that there was a general consensus of the participants regarding the

[183] *Id.*, p. 12.
[184] Tr. 1761–1762.
[185] NV Energy Closing, pp. 2–3.
[186] *Id.*, pp. 3–6.
[187] SNWA Ex. 7; SNWA Ex. 8, *Marshall, Z.L., and Williams, R.D., 2019, Assessment of Moapa dace and other groundwater- dependent special status species in the Lower White River Flow System, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources; SNWA Ex. 9, *Burns, A., Drici, W., and Marshall Z.L., 2019, Response to stakeholder reports submitted to the Nevada State Engineer with regards to Interim Order 1303, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

boundaries based upon the hydraulic connectivity within the identified basins.[188] Further, SNWA and LVVWD argued against the exclusion of the northern and western portions of Coyote Spring Valley, that management of adjoining basins should be done in a manner recognizing an impact on pumping from those basins on water availability in the LWRFS basins, and that the Las Vegas Valley should be excluded from the LWRFS.[189]

With respect to the evaluation of the carbonate-rock aquifer recovery since the conclusion of the Order 1169 aquifer test, SNWA and LVVWD concluded that the aquifer has not returned to pre-Order 1169 levels, and that the evidence demonstrates a continued declining trend within the carbonate-rock aquifer as a result of continued groundwater pumping.[190] SNWA and LVVWD concluded that the current pumping continues to capture groundwater storage and that based upon the current rate of groundwater withdrawals, water levels within the carbonate-rock aquifer will continue to decline for the foreseeable future.[191] Further, SNWA and LVVWD rejected the premise that climate was a significant factor over groundwater withdrawals for the observed groundwater level decline.[192]

Based upon a review of the evidence, SNWA and LVVWD concluded that current rate of groundwater withdrawals were not sustainable without adversely impacting senior Muddy River water rights and Moapa dace habitat.[193] Based upon the analysis performed by SNWA and LVVWD, examining the discharge from the Muddy River Springs Area and groundwater production within the carbonate-rock aquifer within the LWRFS, SNWA and LVVWD concluded that any groundwater development within the carbonate-rock aquifer resulted in a one-to-one (1:1) ratio of capture of Muddy River flow, and that regardless of where that pumping occurred, it still resulted in a 1:1 ratio of capture, only that the period of time that the capture was realized was longer.[194] Ultimately, SNWA and LVVWD concluded that while any amount of pumping results

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[188] SNWA Ex. 7, pp. 5-1 through 5-18, 8-1. *See also*, Tr. 953.
[189] *Closing Brief of Southern Nevada Water Authority and Las Vegas Valley Water District* (SNWA Closing), pp. 4–9, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See also* SNWA Ex. 9 at sections 6, 7 and 12.
[190] SNWA Closing, pp. 9–12. *See also* SNWA Ex. 7, pp. 5-1 through 5-18, and SNWA Ex. 9, pp. 15–20.
[191] SNWA Closing, pp. 11–12. *See also* Tr. 932.
[192] SNWA Closing, pp. 12–14. *See also* SNWA Ex. 9, pp. 15–17.
[193] SNWA Ex. 7, pp. 6-3 through 6-4, 8-2 through 8-4.
[194] *Id.*, pp. 6-4 through 6-11, 8-2 through 8-4; SNWA Ex. 9, pp. 22–27.

in a conflict with senior decreed Muddy River rights, approximately 4,000 to 6,000 afa could be sustainably pumped from the aquifer.[195] In conjunction with SNWA and LVVWD's evaluation of the quantity of water that may be sustainably developed within the LWRFS, SNWA and LVVWD reviewed the interrelationship between discharge from the carbonate-rock aquifer underlying the LWRFS, groundwater pumping and the impact on the habitat and recovery of the Moapa dace.[196] SNWA and LVVWD ultimately concluded that the flow required to sustain the Moapa dace from adverse effects, including habitat loss and fish population declines was a minimum 3.2 cfs at the Warm Springs West gage.[197]

Finally, it was SNWA and LVVWD's opinion that movement of water rights from the Muddy River Springs Area alluvial aquifer to the carbonate-rock aquifer within the LWRFS may delay the capture of water serving senior decreed rights on the Muddy River, but that movement of water from the alluvial aquifer to the carbonate-rock aquifer would adversely impact the habitat of the Moapa dace.[198] Thus, SNWA and LVVWD concluded transfer of water rights from the Muddy River Springs Area alluvial aquifer to the LWRFS carbonate-rock aquifer would result in further depletion of flow to the Warm Springs area.[199]

Technichrome

Technichrome submitted a response and additional response to the Interim Order in July 2019 but did not participate in the hearing.[200] Technichrome stated that it had no objection to a "joint administrative basin" consisting of Coyote Spring Valley, Black Mountain Area, Garnet Valley, Hidden Valley, Muddy River Springs Area, and Lower Moapa Valley, expressed no comment regarding the inclusion of Kane Springs Valley, but questioned whether the entirety of the White River Flow System should be included in the State Engineer's analysis.[201] However,

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[195] Tr. 921–22. *See also* SNWA Ex. 7, pp. 8-1 through 8-5; SNWA Ex. 9, p. 27.
[196] *See* SNWA Ex. 8.
[197] *Id.*, pp. 8-1 through 8-2. *See also* SNWA Closing, pp. 17–19.
[198] *See* SNWA Closing, pp. 19–20. *See also* SNWA Ex. 7, pp. 6-3 through 6-11, 8-4; SNWA Ex. 9, pp. 21–22.
[199] SNWA Closing, p. 20. *See also* Tr. 904–05.
[200] *Response to Interim Order #1303 Submitted [sic] by Technichrome* (Technichrome Response), Hearing on Interim Order 1303, official records of the Division of Water Resources, and *Additional Comments from Technichrome* (Technichrome Addendum), Hearing on Interim Order 1303, official records of the Division of Water Resources.
[201] Technichrome Response, pp. 1–3.

Technichrome did note that it believed that combining all water rights into a single management structure reduced the State Engineer's ability to control groundwater withdrawals. Technichrome stated that it believed that the State Engineer should have the ability to control withdrawals in small areas to best manage the discharge to the Warm Springs area, and that more targeted control over the groundwater withdrawals would be more effective in managing the discharge.[202] Technichrome supported this opinion with some analysis of the results of the Order 1169 aquifer test and its opinion that pumping farther from the Warm Springs area had little to no impact on discharge to Pederson Spring.[203]

In Technichrome's additional comments, Technichrome addressed concerns regarding the injury that would result from a system-wide reduction of groundwater rights throughout the LWRFS.[204] Finally, Technichrome addressed concerns regarding reliance on the priority system, as utilization of the prior appropriation system would benefit senior irrigation uses over the junior industrial uses, and that removal of basin boundaries would remove limitations on movement of water rights between the existing hydrographic basins, which would disrupt junior uses in areas where senior rights may be moved.[205]

U.S. Fish and Wildlife Service

USFWS holds several water rights within the LWRFS and its mission is consistent with the scientific and management aspects of the LWRFS and the management area as established in Interim Order 1303.[206] USFWS opted to participate in the proceeding by submitting initial and rebuttal reports and providing testimony during the administrative hearing.[207] The approach of

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[202] *Id.*
[203] *Id.*, and Technichrome Addendum.
[204] Technichrome Addendum.
[205] *Id.*
[206] The USFWS' mission is to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people. *See also,* USFWS, *About the U.S. Fish and Wildlife Service*, https://bit.ly/aboutusfws (last accessed June 4, 2020).
[207] USFWS Ex. 5, *Report in Response to Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources; USFWS Ex. 7, *Rebuttal to: Water Level Decline in the LWRFS: Managing for Sustainable Groundwater Development by Cady Johnson and Martin Mifflin* [sic], *Mifflin & Associates, Inc., submitted by the Moapa Band of Paiutes in accordance with Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

USFWS was to review available data, develop a hydrogeologic conceptual model, and answer the specific questions posed in Interim Order 1303.

USFWS proposed that the boundary be based on geologic breaks rather than the surface drainage areas. The boundary would then encompass all Muddy River Springs Area, Hidden Valley, Garnet Valley, most of Coyote Spring Valley, most of California Wash, the northwest portion of the Black Mountains area, Kane Springs Valley, and most of Lower Meadow Valley Wash. The extent to which Kane Springs Valley and Lower Meadow Valley Wash are included would depend on the data from an aquifer test that has not yet been performed.[208]

Although, USFWS did not directly opine their view on recovery, their report discusses a conceptual model with insight into lag times and hydraulic connections, and how current conditions relate to sustainable pumping. An "undiminished state of decline" in water levels and spring flows indicated that the system was not in equilibrium at the end of the Order 1169 aquifer test. USFWS postulated there was generally good connectivity within the aquifer system with areas of higher and lower transmittivity. Trends in water levels and spring flows allude to the connection between high elevation springs and carbonate-rock aquifer pumping, with a time lag observed in the recovery of carbonate-rock aquifer water levels and spring flows following the cessation of the Order 1169 aquifer test. The exception is Big Muddy Spring where surface water level trends appeared to be unrelated to the carbonate-rock aquifer water levels.[209]

USFWS determined that the optimum method currently available to estimate the maximum allowable rate of pumping in the LWRFS is the average annual rate of pumping from 2015–2017.[210] USFWS considered the period from 2015 to 2017 because it found that the groundwater withdrawals, the discharge of the Muddy River Springs, and the flow of the Muddy River were all relatively constant; flow rates from Plummer, Pederson, Jones and Baldwin springs, though generally lower than before the Order 1169 aquifer test, were reasonably stable compared to earlier

[208] *See* USFWS Ex. 5, pp. 2, 28–36.
[209] USFWS Ex. 5, pp. 3, 32–33, 35, 37–45; Tr. 266–270, 273–281, 299-301, 433-435.
[210] USFWS Ex. 5, p. 3.

periods.[211] Using the pumpage inventories for this time period, USFWS estimated the sustainable groundwater withdrawals to be 9,318 afa.[212]

Even if total carbonate-rock and alluvial aquifer pumping is maintained at a "sustainable" overall level, USFWS did not support increased carbonated-rock aquifer pumping in exchange for reductions in alluvial aquifer pumping, nor did USFWS support increased alluvial aquifer pumping in exchange for reductions in carbonate-rock aquifer pumping. USFWS suggested that carbonate-rock aquifer pumping should not be moved closer to the springs or the river. Similarly, USFWS suggests that alluvial aquifer pumping in the vicinity of the river should not be moved closer to the river. USFWS opines that any movement of water nearer to the springs or the river is anticipated to decrease the lag time for observing responses from pumping and shorten the time to respond to unfavorable impacts.[213]

Moving forward with management of the LWRFS, USFWS supported the use of the triggers at the Warm Springs West gage, as established under the 2006 MOA. Continuing to use these Warm Springs West flows as a trigger for management will protect and provide habitat for the Moapa dace; a reduction in the flow translates to a reduction in habitat.[214]

USFWS did not deny that water levels were independent of a climate response signal. Using observed data for Nevada Climate Divisions, USFWS visually inspected hydrographs for climate signals. USFWS opined that response to wet periods are observed for wells in both the carbonate-rock and alluvial aquifers and springs that discharge from the carbonate-rock aquifer but stated that response to dry periods cannot be separated from the impacts of pumping. USFWS did not observe these same climate signals in the hydrographs for Jones and Baldwin Springs or the Big Muddy Spring. USFWS disagreed with the conclusion of the MBOP regarding long-term, regional drought, as well as the analytical methods.[215]

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[211] USFWS Ex. 5, pp. 3, 37; Tr. 269–270, 433–435.
[212] USFWS Ex. 5, pp. 3, 36–38; Tr. 268–270.
[213] *See* USFWS Ex. 5, pp. 3–4, 38–39; Tr. 272–273.
[214] *See* USFWS Ex. 5, pp. 4, 39–45; Tr. 273–282; *See also*, NSE Ex. 256; NSE Ex. 244, *2006 Memorandum of Agreement Trigger Levels agreed to by the Southern Nevada Water Authority, Moapa Valley Water District, Coyotes Springs Investments LLC and Moapa Band of Paiute Indians*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[215] *See* USFWS Ex. 5, pp. 24–28, 34–35; *See* USFWS Ex. 7, pp. 2–16; Tr. 258–260, 299–322, 429–432.

Western Elite Environmental/Bedroc

Bedroc is the land holding and water-right holding entity for Western Elite Environmental, Inc., a provider of construction and recyclable waste collection and disposal in Southern Nevada.[216] Bedroc submitted an undated rebuttal report signed by Derek Muaina, General Counsel, and a closing statement.[217] Bedroc presented Jay Dixon as its expert to give a presentation and to discuss the rebuttal report.[218] Mr. Dixon stated that he contributed to the report, and that he agreed with it, but he did not sign the report because he was working for another participant in the hearing (NCA).[219] Mr. Dixon did provide testimony consistent with the report, and adopted the findings of that report, and both the testimony and the report will be considered in this Order.[220]

Bedroc presented testimony and evidence that its source of groundwater is hydraulically disconnected from the regional carbonate aquifer of the LWRFS and that additional groundwater may be available for pumping in their part of Coyote Spring Valley. Bedroc also argued that its basin fill alluvial groundwater pumping should be managed outside of the proposed LWRFS joint administrative unit.[221]

To show the hydraulic disconnect, Bedroc presented geologic information demonstrating its unique location.[222] Bedroc showed that a confining shelf of sedimentary rock was noticeably absent in the vicinity of the Bedroc site where recharge from the Sheep Range rises toward the surface between two faults, which results in shallow groundwater that is subject to ET and capture from shallow groundwater wells at the Bedroc site.[223] Recharge from the Sheep Range was estimated to be 750 afy, an average of the high and low estimates of the maximum recharge

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[216] Bedroc Ex. 2, *Interim Order 1303- Rebuttal Report- Prepared by Bedroc and Dixon Hydrologic, PLLC- August 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[217] Bedroc Ex. 2; *Western Elite Environmental Inc.'s and Bedroc Limited, LLC's Closing Statement* (Bedroc Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.
[218] *See* Tr. 1718–1719.
[219] Tr. 1719, 1741.
[220] Tr. 1718–1757, 1749–1750.
[221] Bedroc Closing, pp. 13–14. Bedroc offered summary responses to the first four questions posed by Order 1303 but did no independent analysis. *See* Bedroc Closing, p. 12.
[222] Bedroc Closing, p. 2.
[223] *Id*; Tr. 1726–1733.

available.[224] SNWA challenged this calculation, pointing out that the estimated recharge could be as low as 130 acre-feet.[225]

Bedroc believes that it is capturing the recharge that would otherwise be lost to evapotranspiration.[226] Groundwater conditions at Bedroc's site show a rise in water levels between 2003 and 2006.[227] Bedroc attributed this rise in part to the installation of an unlined storage pond upgradient from the well, but also to the 2005 recharge event that was discussed by many participants to the proceeding.[228] Between 2006 and 2011, Bedroc showed that groundwater levels had been relatively stable even though pumping by Bedroc was fairly constant.[229] Bedroc showed photo evidence of evapotranspiration occurring around the Bedroc site, pointing to areas of white surface soils and green occurring in the photo as evidence of salt residue and phreatophytes, both occurring as a result of shallow groundwater evaporation.[230] The area is estimated to be about 2,200 acres, and the ET range is estimated to be 0.2 to 0.3 feet per year.[231] This results in an estimate of 400 to 600 afa of groundwater that potentially could be captured every year without pulling groundwater from storage.[232] If pumping in this area exceeded ET, water levels to the east of Bedroc would be dropping.[233]

Bedroc considered the alluvial system at its location to be a separate aquifer from the carbonate-rock aquifer in the LWRFS.[234] CBD in its report also supports this conclusion, suggesting that some groundwater can be withdrawn from the Coyote Spring Valley alluvial aquifer system because that system is disconnected from and not responsible for substantial recharge to the carbonate-rock aquifer.[235] SNWA testified similarly during the hearing.[236]

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[224] Tr. 1724–1725, 1755.
[225] Tr. 1755.
[226] Bedroc Closing, pp. 5–9.
[227] Tr. 1735.
[228] *Id.*
[229] Tr. 1735–1736.
[230] Tr. 1734, 1738.
[231] Tr. 1739.
[232] Tr. 1739.
[233] Tr. 1739. *See also* Bedroc Closing, p. 8.
[234] Tr. 1746.
[235] Bedroc Ex. 2, p. 5.
[236] Tr. 1024.

Relying on a lack of connection between pumping at Bedroc and the carbonate-rock aquifer, Bedroc asserted that there is no likely impact to the Warm Springs area caused by Bedroc.[237] Bedroc compared groundwater elevations over time in two alluvial wells, CSV-3009M and CSVM-7, and showed an upward trend in groundwater elevations.[238] But, when comparing groundwater elevations of two monitoring wells in different sources, CSVM-7 in the alluvium and CSVM-4 in the carbonate-rock aquifers, the carbonate-rock aquifer well elevations showed a decline during the Order 1169 aquifer test, but the alluvial well elevation rose during the same period and leveled off after the conclusion of the test.[239] Bedroc concluded that these data illustrate 1) the hydraulic disconnect between the local alluvial aquifer and carbonate-rock aquifer and 2) if historical alluvial pumping at Bedroc has not impacted water levels in nearby alluvial wells, then there is likely no impact to spring or streamflow in the Muddy River Springs Area.

Finally, Bedroc stated that managing all users in the region under the same system would arbitrarily impact users whose water neither comes from the regional carbonate-rock aquifer system nor impacts the springs of concern downstream.[240] It urged caution in allowing transfer of water rights between alluvial and carbonate-rock aquifers due to potential impacts on senior users that are using local recharge that may not sustain pumping from additional users.[241] Transfers of senior alluvial rights from the Muddy River Springs Area to the area near Bedroc should be considered on a case-by-case basis to protect Bedroc's senior water rights.[242]

III. PUBLIC COMMENT

WHEREAS, following the conclusion of the Interim Order 1303 hearing, opportunity for public comment was offered, including the opportunity to submit written public comment, which was due to be submitted to the Division no later than December 3, 2019. Lincoln County Board of

[237] Bedroc Closing, p.11. *See also* SNWA testimony of Andrew Burns that pumping at Bedroc wells is not likely to impact the carbonate system or the Muddy River. Tr. 1024–1025.
[238] Bedroc Closing, p. 12. *See also* Tr. 1736–1737, 1752.
[239] Tr. 1737–1738.
[240] Bedroc Ex. 2, pp. 2–4.
[241] *Id.*, p. 6.
[242] Tr. 1740.

County Commissioners submitted written public comment in addition to the closing argument submitted by LC-V.[243]

IV. AUTHORITY AND NECESSITY

WHEREAS, NRS 533.024(1)(c) directs the State Engineer "to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada."

WHEREAS, in 2017 the Nevada Legislature added NRS 533.024(1)(e), declaring the policy of the State to "manage conjunctively the appropriation, use and administration of all waters of this State regardless of the source of the water."

WHEREAS, NRS 534.020 provides that all waters of the State belong to the public and are subject to all existing rights.

WHEREAS, as demonstrated by the results of the Order 1169 aquifer test and in the data collected in the years since the conclusion of the aquifer test, the LWRFS exhibits a direct hydraulic connection that demonstrates that conjunctive management and joint administration of these groundwater basins is necessary and supported by the best available science.[244]

WHEREAS, the pre-development discharge of 34,000 acre-feet of the fully appropriated Muddy River system plus the more than 38,000 acre-feet of groundwater appropriations within the LWRFS greatly exceed the total water budget that may be developed without impairment of senior existing rights or proving detrimental to the public interest.

WHEREAS, the available groundwater supply within the LWRFS that can be continually pumped over the long-term is limited to the amount that may be developed without impairing existing senior rights, rights on the Muddy River or adversely affecting the public interest in

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[243] *See* Board of County Commissioners, Lincoln County, Nevada, *Public Comment to Interim Order #1303 Hearing, Reports, and Evidence on the Lower White River Flow System,* Hearing on Interim Order 1303, official records of the Division of Water Resources.

[244] *See, e.g.*, NSE Ex. 245; NSE Ex. 248; NSE Ex. 256; NSE Ex. 252; NSE Ex. 282, *Federal Bureaus Order 1169 Report Selected References: Comparison of Simulated and Observed Effects of Pumping from MX-5 Using Data Collected to the Endo of the Order 1169 Test, and Prediction of the Rates of Recovery from the Test, TetraTech, 2013*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See also, e.g.*, CBD Ex. 3; MVWD Exs. 3– 4; MVIC Ex. 1; NCA Ex. 1, SNWA Exs. 7–9; USFWS Exs. 5–6; NPS Exs. 2–3.

protection of the endangered Moapa dace and the habitat necessary to support the management and recovery of the Moapa dace.

WHEREAS, pursuant to NRS 532.120, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.

WHEREAS, pursuant to NRS 534.110(6) the State Engineer is directed to conduct investigations in groundwater basins where it appears that the average annual replenishment of the groundwater is insufficient to meet the needs of all water right holders, and if there is such a finding, the State Engineer may restrict withdrawals to conform to priority rights.

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, and specifically, NRS 534.120, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.[245]

WHEREAS, the State Engineer has the authority to hold a hearing to take evidence and the interpretation of the evidence with respect to its responsibility to manage Nevada's water resources and to allow willing participants to present evidence and testimony regarding the conclusions relating to the questions presented in Interim Order 1303. The State Engineer recognizes that the MBOP is a federally recognized tribe, and that its participation in the hearing was to facilitate the understanding of the interpretation of data with respect to the Interim Order 1303 solicitation.

V. ENDANGERED SPECIES ACT

WHEREAS, the Endangered Species Act (ESA), 16 U.S.C. §1531 et seq. is a federal law designed to serve the purpose of identifying, conserving and ultimately recovering species declining toward extinction.[246] Specifically, while the ESA is primarily a conservation program, a critical element of the conservation component seeks to encourage cooperation and coordination

[245] *See also* NRS 534.030, NRS 534.110.
[246] 16 U.S.C. § 1531(a)–(b).

with state and local agencies.[247] The responsibility of enforcement and management under the ESA rests predominately with the federal government; however, the ultimate responsibility is shared.[248]

WHEREAS, the ESA makes it unlawful for any person to "take" an endangered species – or to attempt to commit, solicit another to commit, or cause to be committed, a taking.[249] The term "person" is broadly defined to include the State and its instrumentalities.[250] "Take" encompasses actions that "harass, harm" or otherwise disturb listed species, including indirect actions that result in a take.[251] For example, a state regulator is not exempted from the ESA for takings that occur as a result of a licensee's regulated activity. States have been faced with the impediment of their administrative management actions being subservient to the ESA. For example, the Massachusetts Division of Marine Fisheries was subject to an injunction prohibiting it from issuing commercial fishing licenses because doing so would likely lead to the taking of an endangered species.[252] In *Strahan v. Coxe*, the court's decision relied on reading two provisions of the ESA— the definition of the prohibited activity of a "taking" and the causation by a third party of a taking— "to apply to acts by third parties that allow or authorize acts that exact a taking and that, but for the permitting process, could not take place."[253] Although Massachusetts was not the one directly causing the harm to the endangered species, the court upheld the injunction because "a governmental third party pursuant to whose authority an actor directly exacts a taking of an endangered species may be deemed to have violated the provisions of the ESA."[254] At least three other circuits have held similarly.[255] In each case, "the regulatory entity purports to make lawful an activity that allegedly violates the ESA."[256] Thus the action of granting the permit for the regulated activity has been considered an indirect cause of a prohibited taking under the ESA.

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[247] 16 U.S.C. § 1531(c); 16 U.S.C. § 1536.
[248] 16 U.S.C.A. § 1536.
[249] 16 U.S.C.A. § 1538(g).
[250] 16 U.S.C.A. § 1532(13).
[251] 16 U.S.C.A. § 1532(19). The term "harm" is defined by regulation, 50 C.F.R. § 17.3 (1999).
[252] *Strahan v. Coxe*, 127 F.3d 155 (1st.Cir.1997), *cert denied* 525 U.S. 830 (1998).
[253] *Id.*, p. 163.
[254] *Id.*
[255] *See Sierra Club v. Yeutter*, 926 F.2d 429 (5th Cir.1991); *Defenders of Wildlife v. EPA*, 882 F.2d 1294 (8th Cir. 1989); *Loggerhead Turtle v. County Council*, 148 F.3d 1231 (11th Cir.1998); *Palila v. Hawaii Dept. of Land & Natural Resources*, 852 F.2d 1106 (9th Cir.1988).
[256] *Loggerhead Turtle*, 148 F.3d at 1251.

WHEREAS, the use of water in Nevada is a regulated activity.[257] It is the responsibility of the State to manage the appropriation, use and administration of all waters of the state.[258] Based on *Strahan* and similar decisions, the act of issuing a permit to withdraw groundwater that reduces the flow of the springs that form the habitat of the Moapa dace and were to result in harm to the Moapa dace exposes the Division, the State Engineer and the State of Nevada to liability under the ESA.

WHEREAS, a USFWS biological opinion for the MOA found that the reduction in spring flow from the warm springs could impact the dace population in multiple ways. First, the USFWS found that declines in groundwater levels will reduce the flow to the Warm Springs area and allow for cooler groundwater seepage into streams. With reduced spring flow, Moapa dace habitat is reduced.[259] Additionally, USFWS determined that the reduced flows of warm water from the springs will also result in cooler water available throughout the dace habitat, reducing spawning habitat and resulting in a population decline.[260]

WHEREAS, based upon the testimony and evidence offered in response to Interim Order 1303, it is clear that it is necessary for spring flow measured at the Warm Springs West gage to flow at a minimum rate of 3.2 cfs in order to maintain habitat for the Moapa dace.[261] A reduction of flow below this rate may result in a decline in the dace population. This minimum flow rate is not necessarily sufficient to support the rehabilitation of the Moapa dace.[262]

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[257] NRS 533.030; 533.325; 534.020.
[258] NRS 533.325; 533.024(1)(e); 534.020.
[259] USFWS Ex. 5, pp. 50–52.
[260] SNWA Ex. 8, pp. 6-2 through 6-3; SNWA Ex. 40, *Hatten, J.R., Batt, T.R., Scoppettone, G.G., and Dixon, C.J., 2013, An ecohydraulic model to identify and monitor Moapa dace habitat. PLoS ONE 8(2):e55551, doi:10.1371/journal.pone.0055551.*, Hearing on Interim Order 1303, official records of the Division of Water Resources; SNWA Ex. 41, *U.S. Fish and Wildlife Service, 2006a, Intra-service programmatic biological opinion for the proposed Muddy River Memorandum of Agreement regarding the groundwater withdrawal of 16,100 acre-feet per year from the regional carbonate aquifer in Coyote Spring Valley and California Wash basins, and establish conservation measures for the Moapa Dace, Clark County, Nevada. File No. 1-5-05 FW-536, January 30, 2006.*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[261] Tr. 1127–1128.
[262] Tr. 401–402, 1147, 1157–1158.

WHEREAS, the ESA prohibits any loss of Moapa dace resulting from actions that would impair habitat necessary for its survival. Some groundwater users are signatories to an MOA that authorizes incidental take of the Moapa dace; however, the State Engineer and many other groundwater users are not covered by the terms of the MOA.[263] Not only would liability under the ESA for a "take" extend to groundwater users within the LWRFS, but would so extend to the State of Nevada through the Division as the government agency responsible for permitting water use.

WHEREAS, the State Engineer concludes that it is against the public interest to allow groundwater pumping from the LWRFS that will reduce spring flow in the Warm Springs area to a level that would impair habitat necessary for the survival of the Moapa dace and could result in take of the endangered species.

VI. GEOGRAPHIC BOUNDARY OF THE LWRFS

WHEREAS, the geographic boundary of the hydrologically connected groundwater and surface water systems comprising the LWRFS, as presented in Interim Order 1303, encompasses the area that includes Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area.[264] The rationale for incorporating these areas into a single administrative unit included the presence of a distinct regional carbonate-rock aquifer that underlies and uniquely connects these areas; the remarkably flat potentiometric surface observed within the area; the diagnostic groundwater level hydrographic pattern exhibited by monitoring wells distributed across the area; and the area-wide diagnostic water level response to pumping during the Order 1169 aquifer test. Each of these characteristics were previously identified and examined in the hydrological studies and subsequent hearing that followed the completion of the Order 1169 aquifer test. Indeed, these characteristics were the foundational basis for the State Engineer's determination in Rulings 6254–6261 that the

[263] NSE Ex. 236; SNWA Ex. 8, pp. 5-1 through 5-8.
[264] *See* NSE Ex. 1, p. 6.

close hydrologic connection[265] and shared source and supply of water in the LWRFS required joint management.[266]

WHEREAS, evidence and testimony presented during the Interim Order 1303 hearing indicated a majority consensus among stakeholder participants that this originally defined area is appropriately combined into a single unit.[267] Evidence and testimony was also presented on whether to add adjacent basins, or parts of basins to the administrative unit; to modify boundaries within the existing administrative unit; or to eliminate the common administrative unit boundaries. The State Engineer has considered this evidence and testimony on the basis of a common set of criteria that are consistent with the original characteristics considered critical in demonstrating a close hydrologic connection requiring joint management in Rulings 6254–6261 and more specifically, include the following:

1) Water level observations whose spatial distribution indicates a relatively uniform or flat potentiometric surface are consistent with a close hydrologic connection.

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[265] The State Engineer notes that the terminology "***hydrologic*** connection" and "***hydraulic*** connection" have been used by different parties sometimes interchangeably, and commonly with nearly the same meaning. The State Engineer considers a hydraulic connection to be intrinsically tied to the behavior and movement of water. With regard to aquifers, it may be thought of as the natural or induced movement of water through permeable geologic material. The degree of hydraulic connection can be considered a measure of the interconnection between locations as defined by a cause and effect change in potentiometric surface or a change in groundwater inflow or outflow that reflects characteristics of both the aquifer material and geometry, and groundwater behavior. It is commonly characterized by a response that is transmitted through the aquifer via changes in hydraulic head, ie., groundwater levels. Hydrologic connections may include hydraulic connections but can also represent more complex system interactions that can encompass all parts of the water cycle, and in some cases may focus on flow paths, water budgets, geochemical interactions, etc. The State Engineer's use of the term "***close*** hydrological connection" is intended to encompass and include a direct hydraulic connection that is reflected in changes in groundwater levels in response to pumping or other fluxes into or out of the aquifer system within a matter of days, months, or years. The closeness, strength, or directness of the response is indicated by timing, with more distinct and more immediate responses being more "close".

[266] *See* NSE Ex. 14, p. 12, 24.

[267] *See* Participant testimony from SNWA (Tr. 875–876), CNLV (Tr. 1418), and CSI (Tr. 95–96). Several other participants agreed, too, that the State Engineer's delineation of the LWRS as defined in Interim Order 1303 was acceptable. *See also* Bedroc Closing, p. 12, Church Closing, p. 1; Technichrome Response, p. 1. Other participants recommended larger areas be included within the LWRFS boundary. *See* Tr. 261–266 (USFWS), 1571–1572 (CBD), 1697–1698 (MVIC). *See also* NV Energy Closing, pp. 2–3; NPS Closing pp. 2–5.

2) Water level hydrographs that, in well-to-well comparisons, demonstrate a similar temporal pattern, irrespective of whether the pattern is caused by climate, pumping, or other dynamic is consistent with a close hydrologic connection.

3) Water level hydrographs that demonstrate an observable increase in drawdown that corresponds to an increase in pumping and an observable decrease in drawdown, or a recovery, that corresponds to a decrease in pumping, are consistent with a direct hydraulic connection and close hydrologic connection to the pumping location(s).

4) Water level observations that demonstrate a relatively steep hydraulic gradient are consistent with a poor hydraulic connection and a potential boundary.

5) Geological structures that have caused a juxtaposition of the carbonate-rock aquifer with low permeability bedrock are consistent with a boundary.

6) When hydrogeologic information indicate a close hydraulic connection (based on criteria 1-5), but limited, poor quality, or low resolution water level data obfuscate a determination of the extent of that connection, a boundary should be established such that it extends out to the nearest mapped feature that juxtaposes the carbonate-rock aquifer with low-permeability bedrock, or in the absence of that, to the basin boundary.

WHEREAS, some testimony was presented advocating to include additional areas to the LWRFS based principally on water budget considerations and/or common groundwater flow pathways.[268] Indeed, some participants advocate to include the entire White River Flow System, or other basins whose water may ultimately flow into or flow out of the system.[269] Other participants used, but did not rely on, water budget and groundwater flow path considerations to support their analysis. Like those participants, the State Engineer agrees that while water budget and groundwater flow path analysis are useful to demonstrate a hydrologic connection, additional information is required to demonstrate the relative strength of that connection. Thus, the State

[268] *See e.g.*, CNLV Ex. 3, p. 33, Tr. 1430; NPS Closing, p. 2. *See also* Tr. 253–257; Sue Braumiller, *Interpretations of available Geologic and Hydrologic Data Leading to Responses to Questions Posed by the State Engineer in Order 1303 regarding Conjunctive Management of the Lower White River Flow System* (USFWS Braumiller presentation), slide 11, Item 6., bullet 1, official records of the Division of Water Resources; MBOP Ex. 2, p. 11.
[269] *See e.g.*, GBWN Report, pp. 1–2.

Engineer recognizes that while any hydrologic connection, weak or strong, needs to be considered in any management approach, many of the connections advocated based principally on a water budget or flow path analysis, including those between nearby basins like Las Vegas Valley and Lower Meadow Valley Wash, are not demonstrated to provide for the uniquely close hydraulic connection that require joint management.

WHEREAS, in their closing statement, NPS proposes that all adjacent hydrographic areas to the original Interim Order 1303 administrative unit where a hydraulic interconnection exists, whether weak or strong, be included in the LWRFS.[270] It does so to alleviate the need for developing new management schemes for the excluded remnants and to provide for appropriate management approaches based on new information and improved understanding of differing degrees of hydraulic interconnection in various sub-basins. The State Engineer agrees with this logic, up to a point, and has applied these concepts to the extent practical as demonstrated in his criteria for determining the extent of the LWRFS. However, the State Engineer also finds that there must be reasonable and technically defensible limits to the geographic boundary. Otherwise, if management were to be based on the entire spectrum of weak to strong hydraulic interconnection, then exclusion of an area from the LWRFS would require absolute isolation from the LWRFS; every sub-basin would have its own management scheme based on some measure of its degree of connectedness; and proper joint management would be intractable.

WHEREAS, evidence and testimony was also presented by the NPS regarding the specific inclusion of the entirety of the Black Mountains Area in the LWRFS.[271] The State Engineer recognizes that there may be a hydrologic connection between the Black Mountains Area and upgradient basins that are sources of inflow, and that outflow from the LWRFS carbonate-rock aquifer may contribute to discharge from Rogers and Blue Point Springs. However, the State Engineer does not find that this supports inclusion of the entirety of the Black Mountains Area. This determination is made based on the lack of contiguity of the carbonate-rock aquifer into this

[270] NPS Closing, pp. 3–5.
[271] NPS Closing pp. 3–4. *See also* Tr.534, 555–569; Richard K. Waddell, Jr., *Testimony of Richard K. Waddell on behalf of the National Park Service*, presentation during hearing for Interim Order 1303 (NPS Presentation), slides 32–46, official records of the Division of Water Resources.

area,[272] the difference in observed water level elevations compared to those in adjacent carbonate-rock aquifer wells to the north and west,[273] and the absence of observed diagnostic hydrographic patterns and responses that define the uniquely close hydraulic connection that characterizes the LWRFS.[274]

WHEREAS, evidence and testimony presented by USFWS relied principally on SeriesSEE analysis of water level responses submitted by the Department of Interior Bureaus following the Order 1169 aquifer test to establish the general extent of the LWRFS. This was supported by the application of hydrogeology and principles of groundwater flow to define specific boundary limits to the LWRFS. It proposed that most of the Lower Meadow Valley Wash be considered for inclusion in the LWRFS based on the potential geologic continuity between carbonate rocks underlying the Lower Meadow Valley Wash and the carbonate-rock aquifer underlying Coyote Spring Valley, the Muddy River Springs Area, and California Wash.[275] Additionally, it asserted that the alluvial aquifer system in Lower Meadow Valley Wash contributes to and is connected to both the Muddy River and the alluvial aquifer system in California Wash. The State Engineer finds that while carbonate rocks may underlie the Lower Meadow Valley Wash and be contiguous with carbonate rocks to the south and west, data are lacking to characterize the potential hydraulic connection that may exist. Regarding the hydraulic connection between the Lower Meadow Valley Wash alluvial aquifer and the LWRFS, the State Engineer agrees with USFWS that a connection exists, but finds that any impacts related to water development in the Lower Meadow Valley Wash alluvial aquifer are localized, and unrelated to the carbonate-rock aquifer, and can be appropriately managed outside the LWRFS joint management process.

WHEREAS, NCA advocated for the exclusion of the portion of the Black Mountains Area from the LWRFS that contains their individual production wells. NCA premise this primarily on testimony and analysis performed by SNWA with respect to the impact of pumping from this area

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[272] *See* CSI Ex. 14, Plate 2, Map and Plate 4, Cross section K–K', in Peter D. Rowley et. al., *Geology and Geophysics of White Pine and Lincoln Counties, Nevada and Adjacent Parts of Nevada and Utah: The Geologic Framework of Regional Groundwater Flow Systems*, Nevada Bureau of Mines and Geology Report 56.
[273] *See, e.g.*, USFWS Ex. 5, p. 30.
[274] *Id.*, p. 17.
[275] *Id.*, pp. 19–24.

on discharge to the Warm Springs area.[276] It also used hydrogeologic and water level response information to conclude that strike-slip faulting and a weak statistical correlation between water levels at NCA well EBM-3 and EH-4 in the Warm Springs area support a boundary to the north of the NCA production wells. While the State Engineer finds logic in NCA's position, other testimony describing flaws in the SNWA analysis make for a compelling argument against relying on SNWA's statistically-based results.[277] The substantial similarity in observed water level elevation and water level response at EBM-3 compared to EH-4[278] and limitations in relying on poor resolution water level measurements for statistical or comparative analysis[279] requires a more inclusive approach that places the boundary to the south of the NCA production wells to a geological location that coincides with the projection of the Muddy Mountain Thrust. This more closely coincides with the measurable drop in water levels recognized to occur south of the NCA wells, between EBM-3 and BM-ONCO-1 and 2, that is indicative of a hydraulic barrier or zone of lower permeability.[280] It also better honors the State Engineer's criteria by acknowledging the uncertainty in the data while reflecting a recognized physical boundary in the carbonate-rock aquifer. Specifically, this shall be defined to include that portion of the Black Mountains Area lying within portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; portions of Sections 1, 11, 12, 14, 22, 23, 27, 28, 33, and 34 and all of Sections 13, 24, 25, 26, 35, and 36, T.19S., R.63E., M.D.B.&M.; portions of Sections 4, 6, 9, 10, and 15 and all of Sections 5, 7, 8, 16, 17, 18, 19, 20, 21, 29, 30, and 31, T.19S., R.64E., M.D.B.&M.[281]

WHEREAS, numerous participants advocated to include Kane Springs Valley in the LWRFS basins.[282] Other participants advocated to exclude Kane Springs Valley.[283] Several expert witnesses recommended the exclusion of Kane Springs Valley based on their characterization of water level elevation data, temporal hydrographic response patterns, geochemistry, and/or the

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[276] *See,* Tr. 1622, 1624; NCA Closing.
[277] *See, e.g.,* Tr. 1467–1469 CNLV presentation, slides 21–23; Tr. 1784–1786; NV Energy presentation, slides 32–33.
[278] NCA Closing, p. 18, Figure 3.
[279] NCA Closing, p. 8.
[280] *See e.g.,* USFWS Ex. 5.
[281] See map of the LWRFS Hydrographic Basin as defined by this Order, Attachment A.
[282] *See, e.g.,* NV Energy Closing, p. 2; NCA Closing, p. 10–14; MVWD Closing, p. 2–8.
[283] *See e.g., Written Closing Statement of Lincoln County Water District and Vidler Water Company, Inc.* (LC-V Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 3–6; CSI Closing, p. 2.

geophysically-inferred presence of structures that may act as flow barriers. Others recommended inclusion based on the same or similar set of information. Water level elevations observed near the southern edge of Kane Springs Valley are approximately 60 feet higher than those observed in the majority of carbonate-rock aquifer wells within the LWRFS to the south; consistent with a zone of lower permeability.[284] Some experts suggested that the hydrographic response pattern exhibited in wells located in the southern edge of Kane Springs Valley is different compared to that exhibited in wells in the LWRFS, being muted, lagged, obscured by climate response, or compromised by low-resolution data.[285] In this regard, the State Engineer recognizes these differences. However, he finds that the evidence and testimony supporting a similarity in hydrographic patterns and response as provided by expert witnesses, like that of the NPS, to be persuasive.[286] Namely, that while attenuated, the general hydrographic pattern observed in southern Kane Springs Valley reflects a response to Order 1169 pumping, consistent with a close hydraulic connection with the LWRFS. The State Engineer also finds that occurrence of the carbonate-rock aquifer in the southern Kane Springs Valley indicates that there is no known geologic feature at or near the southern Kane Springs Valley border that serves to juxtapose the carbonate-rock aquifer within the LWRFS with low permeability rocks in Kane Springs Valley.[287] He also finds that while geologic mapping[288] indicates that the carbonate-rock aquifer does not extend across the northern portion of the Kane Springs Valley, there is insufficient information available to determine whether the non-carbonate bedrock interpreted to underlie the northern part of the Kane Springs Valley represents low-permeability bedrock that would define a hydraulic boundary to the carbonate-rock aquifer.[289] After weighing all of the testimony and evidence relative to his criteria

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[284] LC-V Closing, p. 7.

[285] *See, e.g.*, LC-V Closing, pp. 5–6; LC-V Ex. 1, pp. 3-3–3-4; CSI Closing, pp. 5–6.

[286] *See* Tr. 524–55. *See, e.g.*, NPS presentation, slides 23–27.

[287] Pursuant to the criteria requiring joint management of hydrographic basins and the sixth criteria establishing that the boundary should extend to the nearest mapped feature that juxtaposes the carbonate-rock aquifer with low-permeability bedrock, or where a mapped feature cannot be adequately identified, to the basin boundary, the State Engineer includes the entirety of Kane Springs Valley.

[288] *See, e.g.*, NSE Ex. 12; Page, W.R., Dixon, G.L., Rowley, P.D., and Brickey, D.W., 2005, *Geologic Map of Parts of the Colorado, White River, and Death Valley Groundwater Flow Systems, Nevada, Utah, and Arizona*: Nevada Bureau of Mines and Geology Map 150, Plate plus text.

[289] *See, e.g.*, SNWA Ex. 7, pp. 2-4, 2-5, 2-10, 2-11, and 4-1, that describe volcanic rocks as important aquifers, and calderas as both flow paths and barriers depending on structural controls

for inclusion into the LWRFS, the State Engineer finds that the available information requires that Kane Springs Valley be included within the geographic boundary of the LWRFS.

WHEREAS, limited evidence and testimony were provided by participants advocating to either include or exclude the northern portion of Coyote Spring Valley. The State Engineer finds that while information such as that provided by Bedroc is convincing and supports a finding that local, potentially discrete aquifers may exist in parts of the northern Coyote Springs Valley, his criteria for defining the LWRFS calls for the inclusion of the entirety of the basin in the LWRFS. However, the State Engineer also acknowledges that there may be circumstances, like in the northern Coyote Spring Valley, where case-by-case considerations for proper management are warranted.

WHEREAS, evidence and testimony from Georgia-Pacific and Republic, and MBOP advocated against creating a single LWRFS administrative unit. Their arguments were principally based on concerns that there was insufficient consensus on defining the LWRFS geographic boundaries and that there were inherent policy implications to establishing an LWRFS administrative unit. MBOP recommended continuing to collect data and focusing on areas of scientific consensus. Georgia-Pacific and Republic asserted that boundaries are premature without additional data and without a legally defensible policy and management tools in place. They expressed concern that creating an administrative unit at this time inherently directs policy without providing for due process. The State Engineer has considered these concerns an . agrees that additional data and improved understanding of the hydrologic system is critical to the process. He also believes that the data currently available provide enough information to delineate LWRFS boundaries, and that an effective management scheme will provide for the flexibility to adjust boundaries based on additional information, retain the ability to address unique management issues on a sub-basin scale, and maintain partnership with water users who may be affected by management actions throughout the LWRFS.

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to flow, citing Peter D. Rowley, and Dixon, G.L., 2011, *Geology and Geophysics of Spring, Cave, Dry Lake, and Delamar Valleys, White Pine and Lincoln Counties, and Adjacent Areas, Nevada and Utah: The Geologic Framework of Regional Flow Systems*,.

WHEREAS, evidence and testimony support the delineation of a single hydrographic basin as originally defined by the State Engineer in Interim Order 1303, with the adjustment of the Black Mountain Area boundary and the addition of Kane Springs Valley. The State Engineer acknowledges that special circumstances will exist with regard to both internal and external management. Water development both inside and outside of the perimeter of the LWRFS will continue to be evaluated on the best available data and may become subject to or excluded from the constraints or regulations of the LWRFS.

WHEREAS, the geographic extent of the LWRFS is intended to represent the area that shares both a unique and close hydrologic connection and virtually all of the same source and supply of water, and therefore will benefit from joint and conjunctive management. In that light, the State Engineer recognizes that different areas, jointly considered for inclusion into the LWRFS, have been advocated both to be included and to be excluded by the different hearing participants based on different perspectives, different data subsets, and different criteria. For the Muddy River Springs Area, California Wash, Garnet Valley, Hidden Valley, Coyote Spring Valley, and a portion of the Black Mountain Area, there is a persuasive case previously laid out in Rulings 6254–6261, and the consensus amongst the participants support their inclusion in the LWRFS. For other sub-basins such as Kane Springs Valley and the area around the NCA production wells in the Black Mountain Area, there is persuasive evidence to support their inclusion or exclusion; however, the State Engineer's criteria and available data mandate their inclusion. Their inclusion in the LWRFS provides the opportunity for conducting additional hydrologic studies in sub-basins such as these, to determine the degree to which water use would impact water resources in the LWRFS and to allow continued participation by holders of water rights in future management decisions. Thus, these sub-basins, and any other portions of the LWRFS that may benefit from additional hydrological study, can be managed more effectively and fairly within the LWRFS. For other basins whose inclusion was advocated, such as the northern portion of Las Vegas Valley and the Lower Meadow Valley Wash, the State Engineer finds that data do not exist to apply his criteria, and therefore they cannot be considered for inclusion into the LWRFS. These types of areas may require additional study and special consideration regarding the potential effects of water use in these areas on water resources within the LWRFS.

VII. AQUIFER RECOVERY SINCE COMPLETION OF THE ORDER 1169 AQUIFER TEST

WHEREAS, during the Order 1169 aquifer test an average of 5,290 afa were pumped from the carbonate-rock aquifer wells in Coyote Spring Valley and a cumulative total of 14,535 afa were pumped throughout the Order 1169 study basins. A portion of this total, approximately 3,840 acre-feet per year, was pumped from the alluvial aquifer in the Muddy River Springs Area.[290] In the years since completion of the Order 1169 aquifer test, pumping from wells in the LWRFS has gradually declined.[291] Pumping in 2013-2014 averaged 12,635 afa; pumping in 2015-2017 averaged 9,318 afa.[292] Pumpage inventories for 2018 that were published after the completion of the hearing report a total of 8,300 afa.[293] Pumping from alluvial aquifer wells in the Muddy River Spring Area has consistently declined since closure of the Reid Gardner power plant beginning in 2014, while pumping from the carbonate-rock aquifer since the completion of the aquifer test has consistently ranged between approximately 7,000 and 8,000 afa.

WHEREAS, the information obtained from the Order 1169 aquifer test and in the years since the conclusion of the test demonstrates that while, following conclusion of the aquifer test, there was a recovery of groundwater levels, the carbonate-rock aquifer has not recovered to pre-Order 1169 test levels.[294] Evidence and testimony submitted during the 2019 hearing does not refute the conclusions made by the State Engineer in Rulings 6254–6261 regarding interpretations of the Order 1169 aquifer test results, which were based on observations and analysis by multiple technical experts. Groundwater level recovery reached completion approximately two to three years after the Order 1169 aquifer test pumping ended.[295]

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[290] NSE Ex. 1, p. 4.
[291] *See, e.g.* NSE Ex. 50, *Pumpage Report Coyote Spring Valley 2017*; NSE Ex. 67, *Pumpage Report Black Mountains Area 2017*; NSE Ex. 84, *Pumpage Report Garnet Valley Area 2017*; NSE Ex. 86, *Pumpage Report California Wash Area 2017*; Ex. 88, *Pumpage Report Muddy River Springs Area 2017*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[292] *Id.*
[293] *Id.*
[294] *See, e.g.*, SNWA Ex. 7, pp. 5-17–5-18, 8-2; NPS Closing, p. 4; MVWD Closing, p. 8. *See also* Tr. 1807; NV Energy presentation, p. 11.
[295] SNWA Ex, 7, pp. 5-17–5-18; NVE Ex. 1, p. 2

WHEREAS, several participants testified about the effects of drought and climate on the recovery of groundwater levels and spring discharge after the Order 1169 aquifer test. Droughts, or periods of drier than normal conditions that last weeks, months, or years can lead to declines in groundwater levels.[296] The LWRFS is within National Oceanic and Atmospheric Administration's Nevada Climate Division 4 (Division 4). Precipitation records for Division 4 from 2006 to the 2019 season records indicate that 10 of those 14 seasons received lower than average precipitation.[297] Despite low precipitation, several participants submitted evidence that water levels continue to rise under current climate conditions in other areas with a relative lack of pumping that are tributary to the LWRFS, such as Dry Lake Valley, Delamar Valley, Garden Valley, Tule Desert, Dry Lake Valley, and other areas.[298] These rises have been attributed to efficient winter recharge that has occurred despite low cumulative precipitation.[299] Based on these observations, it was argued that the continued stress of pumping in the LWRFS carbonate-rock aquifer is limiting the recovery of water levels.[300] The State Engineer acknowledges that spring discharge is affected by both pumping and climate, and finds that groundwater levels remain a useful tool for monitoring the state of the aquifer system in the LWRFS regardless of the relative contribution of climate and drought to the measured groundwater levels. The State Engineer only has the authority to regulate pumping, not climate, in consideration of its potential to cause conflict or to be detrimental to the public interest and must do so regardless of the relative contributing effects of climate.

WHEREAS, evidence and testimony during the 2019 hearing was divided on whether water levels in the Warm Springs area and carbonate-rock aquifer indicate the system has reached or is approaching equilibrium,[301] or is still in a state of decline.[302] Hydrographs and evidence presented show that water levels at well EH-4 near the Warm Springs area have been relatively stable for several years following recovery from the Order 1169 aquifer test.[303] However, other

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[296] *See* USGS, 1993, *Drought,* US Geological Survey Open File Report 93-642, accessible at https://bit.ly/93-642, (last accessed June 6, 2020).
[297] SNWA Ex. 7, pp. 4-1–4-4.
[298] Tr. 577, 304–307.
[299] NPS Ex. 3, Appendix A.
[300] *See, e.g.*, SNWA Closing, p. 11. NPS Closing, p. 4. *See also* Tr. 642, 644–45, 1545.
[301] MVWD Closing, pp. 8–9. *See also* NV Energy Closing, p. 3; CNLV Closing, pp. 5–7.
[302] SNWA Closing, pp. 11–12. NPS Closing, pp. 4–5.
[303] SNWA Ex. 7, pp. 5–7.

carbonate-rock aquifer wells located further away from the Warm Springs area such as CSVM-1, TH-2, GV-1, and BM-DL-2 appear to have reached peak recovery from the Order 1169 aquifer test in 2015-2016 and have exhibited downward trends for the past several years.[304] The State Engineer agrees that water levels in the Warm Springs area may be approaching steady state with current pumping conditions. However, the trend is of insufficient duration to make this determination with absolute assurance and continued monitoring is necessary to determine if this trend continues or if water levels are continuing to decline slowly.

VIII. LONG-TERM ANNUAL QUANTITY OF WATER THAT CAN BE PUMPED

WHEREAS, the evidence and testimony presented at the 2019 hearing did not result in a consensus among experts of the long-term annual quantity of groundwater that can be pumped. Recommendations range from zero to over 30,000 afa, though most experts agreed that the amount must be equal to or less than the current rate of pumping. There is a near consensus that the exact amount that can be continually pumped for the long-term cannot be absolutely determined with the data available and that to make that determination will require more monitoring of spring flows, water levels, and pumping amounts over time.

WHEREAS, evidence and testimony were presented arguing that the regional water budget demonstrates that far more groundwater is available for development within the LWRFS than is currently being pumped. CSI argues that the total amount of groundwater available for extraction from the LWRFS may be up to 30,630,[305] which is an estimate of the entirety of natural discharge from the system that occurs through groundwater evapotranspiration and subsurface groundwater outflow. Nearly all other experts disagreed that pumping to that extent could occur without causing harm to the Moapa dace or conflict with senior Muddy River decreed rights. The disagreement is not about the amount of the water budget, but rather the importance of the water budget in determining the amount of groundwater in the LWRFS that can continually be pumped,[306] not the amount of inflow and outflow to the system. In addition, availability of groundwater for pumping based on water budget should consider whether the same water is appropriated for use in upgradient and downgradient basins, and CSI did not account for this.

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[304] *Id.*
[305] CSI Closing, p. 2.
[306] *See e.g.*, SNWA Ex. 9, p. 24.; MVWD Ex. 3, p. 4; NPS Ex. 3, p. 23.

The State Engineer recognizes that the water budget is important to fully understand the hydrology of the regional flow system but also agrees with nearly all participants that the regional water budget is not the limiting measure to determine water available for development in the LWRFS. The potential for conflict with senior rights and impacts that are detrimental to the public interest in the LWRFS is controlled by aquifer hydraulics and the effect of pumping on discharge at the Warm Springs area rather than the regional water budget.

WHEREAS, evidence and testimony were presented arguing that the location of pumping within the LWRFS is an important variable in the determination of the amount that can be pumped. Participants representing groundwater users in Garnet Valley and the APEX area at the south end of the LWRFS testified that pumping within Garnet Valley does not have a discernable signal at wells near the Warm Springs area and that the hydraulic gradient from north-to-south within the LWRFS indicates that there is a component of groundwater flow in Garnet Valley that does not discharge to the Warm Springs area.[307] Several participants agreed that moving pumping to more distal locations within the LWRFS will lessen the effect of that pumping on spring flows. NV Energy testified that there would be a lesser effect because pumping areas around the periphery of the main carbonate-rock aquifer are less well-connected to the springs, and because of the likelihood that some amount of subsurface outflow occurs along and southern and southeastern boundary of the LWRFS and it is possible to capture some of that subsurface outflow without a drop-for-drop effect on discharge at the Warm Springs area[308] Others drew the same conclusion based on their review of the data and characterization of a heterogeneous system[309] or on weak connectivity between peripheral locations and the Warm Springs area.[310]

CSI argues that more groundwater development can occur in the LWRFS because subsurface fault structures create compartmentalization and barriers to groundwater flow that reduce the effects of pumping on discharge at the Warm Springs area.[311] They rebut the contention by others that spring flow is affected homogeneously by pumping within the LWRFS.[312] CSI used geophysical data to map a north-south trending subsurface feature that bisects Coyote Spring

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[307] *See* CNLV Ex. 3, pp. 45–47; GP-REP Ex. 1, pp. 2–3.
[308] NVE Ex. 1, pp. 8–9.
[309] *See e.g.* MBOP Ex. 2, p. 23; GP-REP Ex. 2, pp. 4–5. *See also* Technichrome Response.
[310] *See e.g.* NCA Closing, pp. 2–10; LC-V Closing, pp. 4–6; Bedroc Closing, pp. 9–11.
[311] CSI Closing, pp. 2–5.
[312] CSI Ex. 2, pp. 40–41.

Valley. They hypothesize that this structure is an impermeable flow barrier that creates an isolated groundwater flow path on the west side of Coyote Spring Valley from which pumping would capture recharge from the Sheep Range without spring flow depletion at the Warm Springs area.[313] MBOP also contends that the system is far too complex to characterize it as a homogeneous "bathtub" and that preferential flow paths within the region mean that pumping stress will greatly differ within the LWRFS depending on where the pumping occurs.[314] Rebuttals to MBOP and CSI contend that an emphasis on complexities in geologic structure is a distraction from the question at hand, and that the hydraulic data collected during and after the Order 1169 aquifer test clearly demonstrate close connectivity and disproves CSI's hypothesis.[315]

The State Engineer finds that the data support the conclusion that pumping from locations within the LWRFS that are distal from the Warm Springs area can have a lesser impact on spring flow than pumping from locations more proximal to the springs. The LWRFS system has structural complexity and heterogeneity, and some areas have more immediate and more complete connection than others. For instance, the Order 1169 aquifer test demonstrated that pumping 5,290 afa from carbonate-rock aquifer wells in Coyote Spring Valley caused a sharp decline in discharge at the springs, but distributed pumping since the completion of the aquifer test in excess of 8,000 afa has correlated with a stabilization of spring discharge. The data collected during and after the Order 1169 aquifer test provide substantial evidence that groundwater levels throughout the LWRFS rise and fall in common response to the combined effects of climate and pumping stress, which controls discharge at the Warm Springs area.[316] The State Engineer finds that the best available data do not support the hypotheses that variable groundwater flow paths and heterogeneous subsurface geology are demonstrated to exist that create hydraulically isolated compartments or subareas within the LWRFS carbonate-rock aquifer from which pumping can occur without effect on the Warm Springs area. However, there remains some uncertainty as to the extent that distance and location relative to other capturable sources of discharge either delay, attenuate, or reduce capture from the springs.

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[313] *Id. See also* CSI Ex. 1, pp. 31–40.
[314] MBOP Closing, p. 7.
[315] *See e.g.*, SNWA Ex. 9, pp. 23–24.
[316] NSE Exs. 15–21.

WHEREAS, evidence and testimony were presented to argue that no amount of groundwater can be pumped from the carbonate-rock aquifer or from the LWRFS without conflicting with the Muddy River decree or causing harm to the Moapa dace habitat. This argument is predicated on the interpretation that lowering of groundwater level anywhere within the LWRFS, whether caused by climate or pumping, eventually has an effect on spring discharge, and that any reduction in spring discharge caused by pumping conflicts with senior decreed rights or harms the Moapa dace or both.[317] MVIC and SNWA agree that capturing discharge from the Warm Springs area springs and the Muddy River are a conflict with the Muddy River decree, which appropriates "all of the flow of the said stream, its sources of supply, headwaters and tributaries."

The Muddy River Decree was finalized in 1920, decades before any significant amount of groundwater development within the Muddy River springs area or the LWRFS. The statement quoted above, or something similar to it, is a common conclusion in decrees to establish finality to the determination of relative priority of rights. By including this statement, the decreed right holders are afforded the assurance that no future claimants will interject a new priority right. However, it is also common on decreed systems for junior rights to be appropriated for floodwater or other excess flows, provided that no conflict occurs with the senior priorities. Similarly, groundwater development almost always exists in the tributary watersheds of decreed river systems, even though groundwater in a headwater or tributary basin is part of the same hydrologic system. There is no conflict as long as the senior water rights are served.

The State Engineer disagrees with SNWA and MVIC that the above quoted statement in the decree means that any amount of groundwater pumped within the headwaters that would reduce flow in the Muddy River conflicts with decreed rights. The State Engineer finds that capture or potential capture of the waters of a decreed system does not constitute a conflict with decreed right holders if the flow of the source is sufficient to serve decreed rights. Muddy River decreed rights were defined by acres irrigated and diversion rates for each user.[318] The sum of diversion rates greatly exceeds the full flow of the River, but all users are still served through a rotation schedule managed by the water master. The total amount of irrigated land in the decree is 5,614 acres.[319]

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[317] *See, e.g.*, CBD Ex. 3, p. 23; SNWA Ex. 7, p. 8-4; MVIC Ex. 1, p. 3.
[318] NSE Ex. 333.
[319] *Id.*

Flow in the Muddy River at the Moapa Gage has averaged approximately 30,600 afa since 2015,[320] which is less than the predevelopment baseflow of about 33,900.[321] If all decreed acres were planted with a high-water use crop like alfalfa, the net irrigation water requirement would be 28,300 afa, based on a consumptive use rate of 4.7 afa.[322] Conveyance loss due to infiltration is an additional consideration to serve all decreed users; however, this is limited in the Muddy River because the alluvial corridor is narrow and well defined so water stays within the shallow groundwater or discharges back to the river. The State Engineer finds that the current flow in the Muddy River is sufficient to serve all decreed rights in conformance with the Muddy River Decree, and that reductions in flow that have occurred because of groundwater pumping in the headwaters basins is not conflicting with Decreed rights.

WHEREAS, the majority of experts agree that there is an intermediate amount of pumping approximated by recent pumping rates that can continue to occur in the LWRFS and still protect the Moapa dace and not conflict with decreed rights. USFWS and NCA endorsed the use of average pumping over the years 2015-2017 (9,318 afa as reported by State Engineer pumpage inventories) as a supportable amount that can continue to be pumped, because the system appears to have somewhat stabilized.[323] CSI also endorsed this approach as an initial phase, though they suggested 11,400 afa, which was the average pumping reported by State Engineer inventories over the years 2010-2015 that included the period of the Order 1169 aquifer test.[324] CNLV makes a rough estimate that no more than 10,000 afa can be supported throughout the entire region, based on their professional judgment and review of the data.[325] NV Energy concludes that 7,000–8,000 afa can continue to be pumped, based on the amount of pumping in recent years from carbonate-rock aquifer wells and the observation that steady-state conditions in Warm Springs area spring

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[320] NSE Ex. 211, *USGS 09416000 Muddy River Moapa 1914-2013*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[321] SNWA Ex. 7, p. 5-4.
[322] *See, e.g.*, Huntington, J.L. and R. Allen, (2010), *Evapotranspiration and Net Irrigation Water Requirements for Nevada*, Nevada State Engineer's Office Publication, accessible at https://bit.ly/etniwr, (last accessed June 7, 2020), official records of the Division of Water Resources.
[323] USFWS Ex. 5, p. 3; NCA Ex. 1, p. 19.
[324] CSI Closing, p. 2.
[325] CNLV Ex. 3, p. 2.

flow are being reached.[326] SNWA estimates that only 4,000–6,000 afa of carbonate-rock aquifer pumping can continually occur within the LWRFS.[327]

WHEREAS, the State Engineer finds that the evidence and testimony projecting continual future decline in spring flow at the current rate of pumping is compelling but not certain. Several participants pointed out rising trends in groundwater levels at many locations in Southern Nevada, outside of the LWRFS, that are distant from pumping[328] even though total precipitation has been below average and since 2006 has been described as a drought.[329] This suggests that climate and recharge efficiency may have actually buffered the full effect of pumping on discharge at the Warm Springs area, and that the system could not support the current amount of groundwater pumping during an extended dry period with lesser recharge. In addition, slight declining trends that are observed in Garnet Valley monitoring wells are not evident in wells close to the Warm Springs area.[330] If drawdown in Garnet Valley has not yet propagated to the Muddy Springs area, then the resilience of the apparent steady state of spring flow is in doubt. Projections of continued future decline in spring discharge suggests that the current amount of pumping in the LWRFS is a maximum amount that may need to be reduced in the future if the stabilizing trend in spring discharge does not continue.

WHEREAS, there is an almost unanimous agreement among experts that data collection is needed to further refine with certainty the extent of groundwater development that can be continually pumped over the long term. The State Engineer finds that the current data are adequate to establish an approximate limit on the amount of pumping that can occur within the system, but that continued monitoring of pumping, water levels, and spring flow is essential to refine and validate this limit.

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[326] NVE Ex. 1, p. 8.
[327] SNWA Ex. 7, p. 8-4.
[328] NPS Ex. 3, Appendix A. *See also* Tr. 304–307, 577.
[329] Tr. 1292–1300. *See, also* LC-V Ex. 11, *PowerPoint Presentation of Todd G. Umstot, entitled Drought and Groundwater*, Hearing on Interim Order 1303, official records of the Division of Water Resources, slides 3–10.
[330] CNLV Ex. 3, pp. 45–46.

WHEREAS, pumping from wells in the LWRFS has gradually declined since completion of the Order 1169 aquifer test and is approaching 8,000 afa. This coincides with the period of time when spring discharge may be approaching steady state. The State Engineer finds that the maximum amount of groundwater that can continue to be developed over the long term in the LWRFS is 8,000 afa. The best available data at this time indicate that continued groundwater pumping that consistently exceeds this amount will cause conditions that harm the Moapa dace and threaten to conflict with Muddy River decreed rights.

IX. MOVEMENT OF WATER RIGHTS

WHEREAS, the data and evidence are clear that location of pumping within the LWRFS relative to the Warm Springs area and the Muddy River can influence the relative impact to discharge to the Warm Springs area and/or senior decreed rights on the Muddy River. The transfer of groundwater pumping from the Muddy River Springs Area alluvial wells to carbonate-rock aquifer wells may change the timing of any impact to Muddy River flows and amplify the effect on discharge to the Warm Springs area, thus potentially adversely impacting habitat for the Moapa dace. And the transfer of groundwater withdrawals from the carbonate-rock aquifer into the Muddy River alluvial aquifer may reduce the impact to the Moapa dace habitat but increase the severity of impact to the senior decreed rights on the Muddy River. The State Engineer recognizes that the LWRFS is fundamentally defined by its uniquely close hydrologic interconnection and shared source and supply of water. However, the State Engineer also recognizes that there can be areas within the LWRFS that have a greater or lesser degree of hydraulic connection due to distance, local changes in aquifer properties, or proximity to other potential sources of capturable water.

WHEREAS, Rulings 6254–6261 acknowledge that one of the main goals of Order 1169 and the associated pumping test at well MX-5 was to observe the effects of increased pumping on groundwater levels and spring flows. Coyote Spring Valley carbonate-rock aquifer pumping during the Order 1169 aquifer test was the largest localized carbonate-rock aquifer pumping in the LWRFS. In addition, concurrent carbonate-rock aquifer and alluvial aquifer pumping in Garnet Valley, Muddy River Springs Area, California Wash, and the northwest portion of the Black Mountains Area occurred during the test period. Rulings 6254–6261 described the data and analysis used to determine that additional pumping at the MX-5 well contributed significantly to decreases in high elevation springs (Pederson Springs) and other springs that are the sources to the

Muddy River. Evidence and reports provided under Interim Order 1303 do not challenge the findings in Rulings 6254–6261 that pumping impacts were witnessed. There is a strong consensus among participants that pumping during the Order 1169 aquifer test along with concurrent pumping caused drawdowns of water levels throughout the LWRFS.[331] However, the effects of pumping from different locations within the LWRFS on discharge at the Warm Springs area is not homogeneous.[332] The State Engineer finds that movement of water rights that are relatively distal from the Warm Springs area into carbonate-rock aquifer wells that have a closer hydraulic connection to the Warm Springs area is not favorable.

WHEREAS, evidence and testimony provided by participants during the Interim Order 1303 hearing provides a strong consensus that alluvial aquifer pumping in the Muddy River Springs Area affects Muddy River discharge.[333] There is also strong evidence that carbonate-rock aquifer pumping throughout the LWRFS affects spring flow but can also be dependent on proximity of pumping to springs.[334] No participant is a proponent of moving additional water rights closer to the headwaters of the Muddy River within the Muddy River Springs Area, and most participants agree that carbonate-rock aquifer and alluvial aquifer pumping in the Muddy River Springs Area captures Muddy River flow. The State Engineer finds that any pumping within close proximity to the Muddy River could result in capture of the Muddy River. The State Engineer also finds that any movement of water rights into carbonate-rock aquifer and alluvial aquifer wells in the Muddy River Springs Area that may increase the impact to Muddy River decreed rights is disfavored.

WHEREAS, the Order 1169 aquifer test demonstrated that impacts from the test along with concurrent pumping was widespread within the LWRFS encompassing 1,100 square miles and supported the conclusion of a close hydrologic connection among the basins.[335] While the effects of movement of water rights between alluvial aquifer wells and carbonate-rock aquifer wells on deliveries of senior decreed rights to the Muddy River or impacts to the Moapa dace may not be uniform across the entirety of the LWRFS, the relative degree of hydrologic connectedness

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[331] *See* SNWA Closing, pp. 10, 16; MVIC Closing, p. 6.
[332] *See, e.g.*, SNWA Closing, p. 10.
[333] CNLV Closing, p. 8; Tr. 1456–1457, 1458. *See also* SNWA Closing, p. 16; MVWD Closing, p. 11; MVIC Closing, p. 6.
[334] CNLV Closing, pp. 8–10; Tr. 1457, 1458; NV Energy Closing, p. 4; MVIC Closing, p. 6.
[335] NSE Ex. 256. *See also* NSE Ex. 14, pp. 20–21; NSE Ex. 17, p. 19; SNWA Closing pp. 2, 3.

in the LWRFS will be the principle factor in determining the impact of movement of water rights. The State Engineer recognizes that there may be discrete, local aquifers within the LWRFS with an uncertain hydrologic connection to the Warm Springs area. Determining the effect of moving water rights into these areas may require additional scientific data and analysis. Applications to move water rights under scenarios not addressed in this Order will be evaluated on their individual merits to determine potential impact to existing senior rights, potential impact to the Warm Springs area and Moapa dace habitat, and impacts to the Muddy River.

X. ORDER

NOW THEREFORE, the State Engineer orders:

1. The Lower White River Flow System consisting of the Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area as described in this Order, is hereby delineated as a single hydrographic basin. The Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area are hereby established as sub-basins within the Lower White River Flow System Hydrographic Basin.

2. The maximum quantity of groundwater that may be pumped from the Lower White River Flow System Hydrographic Basin on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa and may be less.

3. The maximum quantity of water that may be pumped from the Lower White River Flow System Hydrographic Basin may be reduced if it is determined that pumping will adversely impact the endangered Moapa dace.

4. All applications for the movement of existing groundwater rights among sub-basins of the Lower White River Flow System Hydrographic Basin will be processed in accordance with NRS 533.370.

5. The temporary moratorium on the submission of final subdivision or other submission concerning development and construction submitted to the State Engineer for review established under Interim Order 1303 is hereby terminated.

6. All other matters set forth in Interim Order 1303 that are not specifically addressed herein are hereby rescinded.

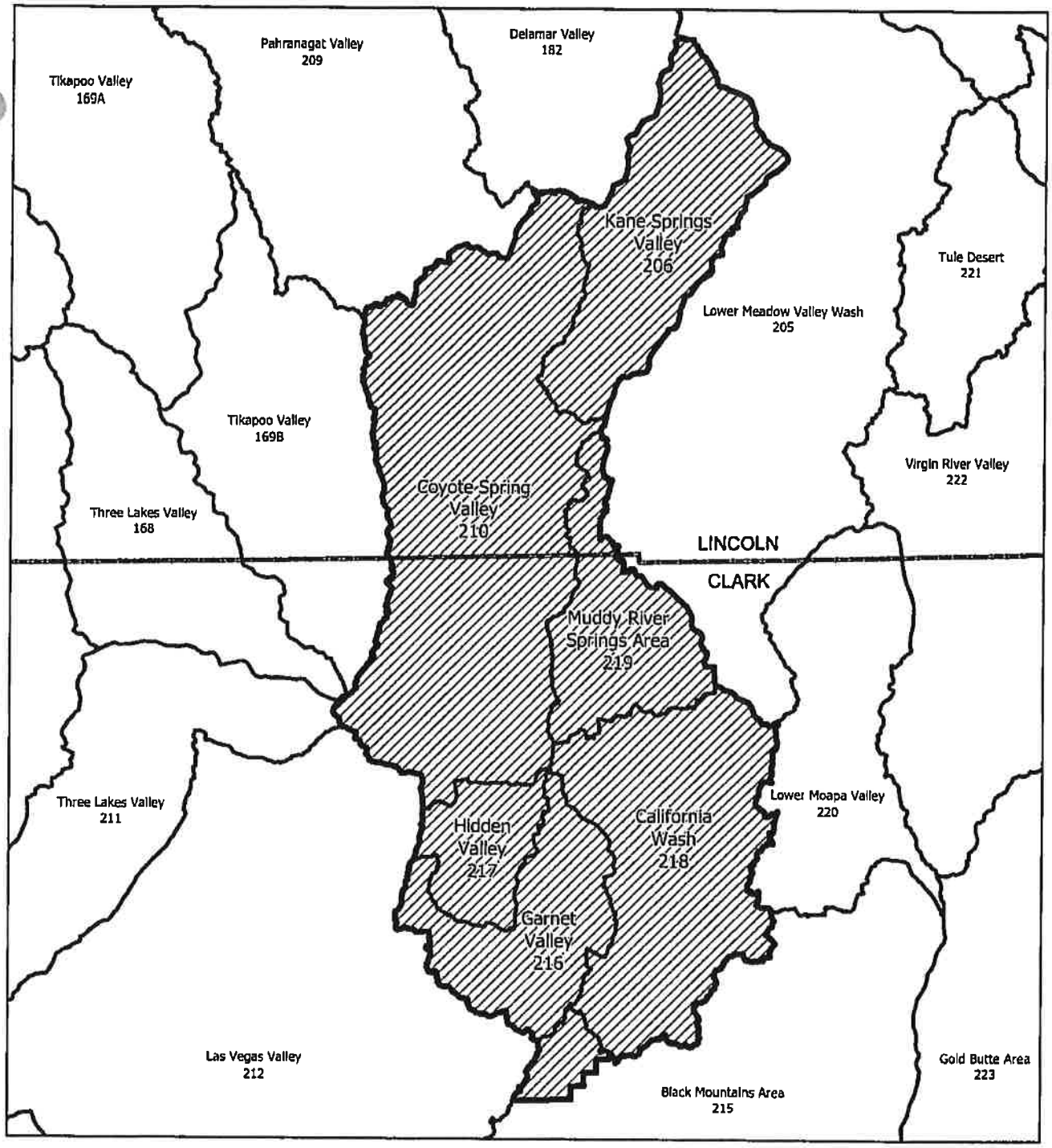
Tim Wilson, P.E.

TIM WILSON, P.E.
State Engineer

Dated at Carson City, Nevada this

15th day of June, 2020.

ATTACHMENT A



Location and Extent of LWRFS Hydrographic Basin, Clark and Lincoln Counties, Nevada

LWRFS Boundary
Hydrographic Basin Boundary
County Boundary

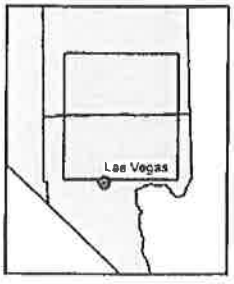
N
W
E
S

0 10 Miles

State of Nevada
Department of Conservation and Natural Resources
Office of the State Engineer
Division of Water Resources

Tim Wilson, P.E
State Engineer

June 2020



IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

#1309

ORDER

DELINEATING THE LOWER WHITE RIVER FLOW SYSTEM HYDROGRAPHIC BASIN WITH THE KANE SPRINGS VALLEY BASIN (206), COYOTE SPRING VALLEY BASIN (210), A PORTION OF BLACK MOUNTAINS AREA BASIN (215), GARNET VALLEY BASIN (216), HIDDEN VALLEY BASIN (217), CALIFORNIA WASH BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) BASIN (219) ESTABLISHED AS SUB-BASINS, ESTABLISHING A MAXIMUM ALLOWABLE PUMPING IN THE LOWER WHITE RIVER FLOW SYSTEM WITHIN CLARK AND LINCOLN COUNTIES, NEVADA, AND RESCINDING INTERIM ORDER 1303

Table of Contents

I. BACKGROUND OF THE ADMINISTRATION OF THE LOWER WHITE RIVER FLOW SYSTEM BASINS

WHEREAS, the State Engineer has actively managed and regulated the Coyote Spring Valley Hydrographic Basin (Coyote Spring Valley), Basin 210, since August 21, 1985; the Black Mountains Area Hydrographic Basin (Black Mountains Area), Basin 215, since November 22, 1989; the Garnet Valley Hydrographic Basin (Garnet Valley), Basin 216, since April 24, 1990; the Hidden Valley Hydrographic Basin (Hidden Valley), Basin 217, since April 24, 1990; the California Wash Hydrographic Basin (California Wash), Basin 218, since April 24, 1990; and the

Muddy River Springs Area Hydrographic Basin (Muddy River Springs Area), Basin 219, since July 14, 1971.[1]

WHEREAS, in 1984, the United States Department of Interior, Geological Survey (USGS), Water Services Division, proposed a ten-year investigation into carbonate-rock aquifers that underlay approximately 50,000 square miles of eastern and southern Nevada.[2] In 1985, a program for the study and testing of the carbonate-rock aquifer system of eastern and southern Nevada was authorized by the Nevada Legislature. In 1989, a report was published by the USGS summarizing the first phase of the study.[3] Included in the summary was a determination that:

> Large-scale development (sustained withdrawals) of water from the carbonate-rock aquifers would result in water-level declines and cause the depletion of large quantities of stored water. Ultimately, these declines would cause reductions in the flow of warm-water springs that discharge from the regional aquifers. Storage in other nearby aquifers also might be depleted, and water levels in those other aquifers could decline. In contrast, isolated smaller ground-water developments, or developments that withdraw ground water for only a short time, may result in water-level declines and springflow reductions of manageable or acceptable magnitude.
>
> Confidence in predictions of the effects of development, however, is low; and it will remain low until observations of the initial hydrologic results of development are analyzed. A strategy of staging developments gradually and adequately monitoring the resulting hydrologic conditions would provide information that eventually could be used to improve confidence in the predictions.[4]

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[1] *See* NSE Ex. 9, *Order 905*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 8, *Order 1018*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 5, *Order 1025*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 6, *Order 1024*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 4, *Order 1026*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* NSE Ex. 7, *Order 1023*, Hearing on Interim Order 1303, official records of the Division of Water Resources; NSE Ex. 11, *Order 392*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[2] Memorandum dated August 3, 1984, from Terry Katzer, Nevada Office Chief, Water Resources Division, United States Department of Interior Geologic Survey, Carson City, Nevada to Members of the Carbonate Terrane Study.

[3] Michael D. Dettinger, *Distribution of Carbonate-Rock Aquifers in Southern Nevada and the Potential for their Development, Summary of Findings, 1985-1988*, Summary Report No. 1, U.S. Geological Survey, Department of Interior and Desert Research Institute, University of Nevada System, 1989, p. Forward. *See also* NSE Ex. 3, *Order 1169*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[4] *Id.*, p. 2.

WHEREAS, beginning in 1989 and through the early 2000s, numerous groundwater applications were filed in Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, California Wash, and Muddy River Springs Area Hydrographic Basins seeking to appropriate more than 300,000 acre-feet annually (afa) of groundwater from the carbonate-rock aquifer underlying these basins.[5] The State Engineer held a hearing on July 12-20, 23-24, and August 31, 2001, for pending Applications 54055–54059, filed by Las Vegas Valley Water District (LVVWD) to appropriate 27,510 afa of water in Coyote Spring Valley.[6] The State Engineer conducted a hearing on Coyote Springs Investments LLC (CSI) Applications 63272–63276 on August 20-24, 27-28, 2001.[7]

WHEREAS, following the conclusions of these hearings, the State Engineer issued Order 1169 on March 8, 2002, requiring all pending applications in Coyote Spring Valley, Black Mountains Area, Garnet Valley, Hidden Valley, Muddy River Springs Area, and Lower Moapa Valley Hydrographic Basin (Basin 220), be held in abeyance pending an aquifer test of the carbonate-rock aquifer system to better determine whether the pending applications and future appropriations could be developed from the carbonate-rock aquifer.[8]

WHEREAS, in Order 1169, the State Engineer found that he did not believe that it was prudent to issue additional water rights to be pumped from the carbonate-rock aquifer until a significant portion of the then existing water rights were pumped for a substantial period of time to determine whether the pumping of those water rights would have a detrimental impact on existing water rights or the environment.[9]

WHEREAS, Order 1169 required that at least 50%, or 8,050 afa, of the water rights then currently permitted in Coyote Spring Valley be pumped for at least two consecutive years.[10] On April 18, 2002, the State Engineer added the California Wash to the Order 1169 aquifer test basins.[11]

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[5] *See* NSE Exs. 14–20, *Ruling 6254–Ruling 6260*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[6] *See* NSE Ex. 14.
[7] *Id.*
[8] *See* NSE Ex. 3.
[9] *Id.*
[10] *Id.*
[11] *See* State Engineer's Ruling 5115, dated April 18, 2002, official records of the Division of Water Resources.

WHEREAS, subsequent to the issuance of Order 1169, the United States Fish and Wildlife Service (USFWS) expressed concern that current groundwater pumping coupled with additional groundwater withdrawals in Coyote Spring Valley and California Wash may cause reduction of spring flow to the Warm Springs area, tributary thermal springs in the upper Muddy River, which serves as critical habitat to the Moapa dace (*Moapa corciacea*), an endemic fish species federally listed as endangered in 1967.[12] Due to these concerns, on April 20, 2006, the Southern Nevada Water Authority (SNWA), USFWS, CSI, the Moapa Band of Paiute Indians (MBOP) and the Moapa Valley Water District (MVWD) entered into a Memorandum of Agreement (MOA).[13]

WHEREAS, the MOA stated that all the parties shared "a common interest in the conservation and recovery of the Moapa dace and its habitat." The MOA established certain protections to the Moapa dace, including protocols relating to pumping from the regional carbonate-rock aquifer that may adversely impact spring flow to the dace habitat in the Warm Springs area. Specifically, the MOA identified conservation measures, which included protections for minimum instream flows in the Warm Springs area with trigger levels set at 3.2 cubic feet per second (cfs) at the Warm Springs West gage requiring initial action by the MOA parties, and the most stringent action required at a flow rate of 2.7 cfs.[14]

WHEREAS, the MBOP raised concerns that pumping 8,050 afa from the Coyote Spring Valley as part of the aquifer test would adversely impact the water resources at the Warm Springs area, and consequently the Moapa dace, and that the impacts would persist such that protective measures established in the MOA would be inadequate to protect the dace.[15] As a result, the Order 1169 study participants, which included the LVVWD, SNWA, CSI, Nevada Power Company,[16] MVWD, Dry Lake Water Company, LLC, Republic Environmental Technologies, Inc. (Republic),

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[12] USFWS, *Fish and Aquatic Conservation - Moapa dace*, https://bit.ly/moapadace (last accessed June 3, 2020). *See also* SNWA Ex. 8, p. 1-1.

[13] *See* NSE Ex. 236, *2006 Memorandum of Agreement between the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investment LLC, Moapa Band of Paiute Indians and Moapa Valley Water District*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

[14] *Id.*

[15] *See* May 26, 2010, letter from Darren Daboda, Chairperson, Moapa Band of Paiutes, to Jason King, Nevada State Engineer, official records of the Division of Water Resources.

[16] Nevada Power Company, following the merger with Sierra Pacific Power Company and Sierra Pacific Resources subsequently began doing business as NV Energy. *See, e.g.*, NV Energy, *Company History*, https://bit.ly/NVEhistory (last accessed April 20, 2020).

Chemical Lime Company, Nevada Cogeneration Associates, and the MBOP, or their successors, agreed that even if the minimum 8,050 afa was not pumped, sufficient information would be obtained to inform future decisions relating to the study basins.[17]

WHEREAS, on November 15, 2010, the Order 1169 aquifer test began, whereby the study participants began reporting to the Nevada Division of Water Resources (Division) on a quarterly basis the amounts of water pumped from wells in the carbonate-rock and alluvial aquifers during the pendency of the aquifer test.

WHEREAS, on December 21, 2012, the State Engineer issued Order 1169A declaring the completion of the Order 1169 aquifer test to be December 31, 2012, after a period of 25½ months. The State Engineer provided the study participants the opportunity to file reports with the Division until June 28, 2013, to present information gained from the aquifer test in order to estimate water to support applications in the Order 1169 study basins.[18]

WHEREAS, during the Order 1169 aquifer test, an average of 5,290 acre-feet per year (afy) was pumped from carbonate-rock aquifer wells in Coyote Spring Valley, and a cumulative reported total of 14,535 afy of water was pumped throughout the Order 1169 study basins. Of this total, approximately 3,840 afy was pumped from the Muddy River Springs Area alluvial aquifer with the balance pumped from the carbonate-rock aquifer.[19]

WHEREAS, during the aquifer test, pumpage was measured and reported from 30 other wells in the Coyote Spring Valley, Muddy River Springs Area, Garnet Valley, California Wash, Black Mountains Area, and Lower Meadow Valley Wash Hydrographic Basin (Lower Meadow Valley Wash). Stream diversions from the Muddy River were reported, and measurements of the natural discharge of the Muddy River and from the Warm Springs area springs were collected daily. Water-level data were collected from a total of 79 monitoring and pumping wells within the Order 1169 study basins. All of the data collected during the aquifer test were made available to each of the study participants and the public.[20]

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[17] *See* July 1, 2010, letter from Jason King, Nevada State Engineer, to Order 1169 Study Participants, official records of the Division of Water Resources.
[18] *See* NSE Ex. 2, *Order 1169A*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[19] *See, e.g.*, NSE Ex. 1, Appendix B.
[20] *See* Division, *Water Use and Availability – Order 1169*, https://bit.ly/Order1169

WHEREAS, during the Order 1169 aquifer test, the resulting water-level decline encompassed 1,100 square miles and extended from southern Kane Springs Valley, northern Coyote Spring Valley through the Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern portion of the Black Mountains Area.[21] The water-level decline was estimated to be 1 to 1.6 feet throughout this area with minor drawdowns of 0.5 foot or less in the northern portion of Coyote Spring Valley north of the Kane Springs Wash fault zone.[22]

WHEREAS, results of the two-year aquifer test demonstrated that pumping 5,290 afa from the carbonate-rock aquifer in Coyote Spring Valley, in addition to the other carbonate-rock aquifer pumping in Garnet Valley, Muddy River Springs Area, California Wash and the northwest portion of the Black Mountains Area, caused sharp declines in groundwater levels and flows in the Pederson and Pederson East springs, two springs considered to be sentinel springs for the overall condition of the Muddy River due to being higher in altitude than other Muddy River source springs, and therefore are proportionally more affected by a decline in groundwater level in the carbonate-rock aquifer.[23] The Pederson spring flow decreased from 0.22 cfs to 0.08 cfs and the Pederson East spring flow decreased from 0.12 cfs to 0.08 cfs. Additional headwater springs at lower altitude, the Baldwin and Jones springs, declined approximately 4% in spring flow during the test.[24] All of the headwater springs contribute to the decreed and fully-appropriated Muddy River and are the predominant source of water that supplies the habitat of the endangered Moapa dace.

WHEREAS, Order 1169A provided the study participants an opportunity to submit reports addressing three specific questions presented by the State Engineer: (1) what information was obtained from the study/pumping test; (2) what were the impacts of pumping under the pumping test; and, (3) what is the availability of additional water resources to support the pending applications. SNWA, USFWS, National Park Service (NPS) and Bureau of Land Management

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[21] USFWS Ex. 5, *Report in Response to Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 21, 67. *See, e.g.*, NSE Ex. 14. *See also* NSE Ex. 256, *Federal Bureaus Order 1169A Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. There was no groundwater pumping in Hidden Valley, but effects were still observed in the Hidden Valley monitor well.

[22] *See, e.g.*, NSE Ex. 14. *See also* NSE Ex. 256.

[23] *See* NSE Ex. No. 236.

[24] NSE Ex. 256, pp. 43–46, 50–51. *See also,* USGS, *Water Data for Nevada,* https://bit.ly/nvwater.

(BLM), MBOP, MVWD, CSI, Great Basin Water Network (GBWN) and Center for Biological Diversity (CBD) submitted either reports or letters.

WHEREAS, in its report, SNWA addressed water levels throughout the Order 1169 basins. SNWA acknowledged that hydrologic connectivity supported the potential need for redistribution of existing pumping, and indirectly acknowledged the limitation on availability of water to satisfy the pending applications.[25] SNWA further acknowledged declines to spring flow in the Pederson and Pederson East springs as a result of the aquifer test, but characterized the decline in spring flow at the Warm Springs West location as minimal. SNWA further correlated the declining trends as associated with climate but opined that Muddy River flow did not decline as a result of the aquifer test and carbonate-rock aquifer pumping; rather, impact to Muddy River flows were due to alluvial aquifer pumping.[26]

WHEREAS, CSI, through a letter, agreed with SNWA's report and asserted that additional water resources could be developed within the Coyote Spring Valley north of the Kane Springs Fault, which supported granting new appropriations of water.[27]

WHEREAS, the United States Department of Interior Bureaus (USFWS, NPS and BLM) concluded that the aquifer test provided sufficient data to determine the effects of the aquifer drawdown as well as identify drawdown throughout the region and was sufficient to project future pumping effects on spring flow. Based upon their analysis, the Department of Interior Bureaus concluded that water-level declines due to the aquifer test encompassed 1,100 square miles throughout the Order 1169 study basins. Additionally, the Department of Interior Bureaus' analysis found a direct correlation between the aquifer test pumping and flow declines at Pederson, Plummer and Apcar units and Baldwin Spring, all springs critical to the Moapa dace habitat, and asserted that pumping at the Order 1169 rate at well MX-5 in Coyote Spring Valley could result in both of the high-altitude Pederson and Pederson East springs going dry in 3 years or less.[28]

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[25] *See* NSE Ex. 245, *Southern Nevada Water Authority Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 23–25.
[26] *Id.*
[27] NSE Ex. 247, *Coyote Springs Investments, LLC Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[28] *See, e.g.*, NSE Ex. 14, pp.15–18. *See also* NSE Ex. 256.

WHEREAS, the Department of Interior Bureaus further found that the groundwater withdrawals that occurred in Coyote Spring Valley during the Order 1169 aquifer test represented approximately one-third of the then existing water rights within Coyote Spring Valley, concluding that even one-third of the existing water rights could not be developed without adversely impacting spring flow to the headwaters of the Muddy River and habitat for the Moapa dace.[29] Ultimately, the Department of Interior Bureaus concluded that there was insufficient water available for the pending applications, and that the area that was subject to the Order 1169 aquifer test behaved as one connected aquifer and pumping in one basin would have similar effects on the whole aquifer.[30]

WHEREAS, MBOP's report disagreed with the magnitude of drawdown resulting from the Order 1169 aquifer test, but ultimately concluded carbonate-rock aquifer pumping in Coyote Spring Valley and the Muddy River Springs Area would have a one-to-one impact on Muddy River flows.[31] MBOP opined to the existence of a southern flow field, which included California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area, that could be developed without depleting spring flows. MBOP also argued that changes in the groundwater levels were directly tied to water level declines in Lake Mead.[32]

WHEREAS, MVWD's report was limited to water levels and flows within the Muddy River Springs Area. In its report, MVWD acknowledged the groundwater level declines resulting from the aquifer test, including decreased spring flow at the Pederson springs, Warm Springs West gage and Baldwin Spring, but not at Jones Spring or Muddy Spring.[33] Ultimately, MVWD concluded that additional water was available in the Lower Moapa Valley, as that aquifer did not appear hydrologically connected to the regional carbonate-rock aquifer.

WHEREAS, GBWN presented a report that recognized the decline in the groundwater levels in Coyote Spring Valley and discharge to the Muddy River Springs Area resulting from the

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[29] *Id.*
[30] *Id.*
[31] *See* NSE Ex. 252, *Moapa Band of Paiute Indians Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 25.
[32] *Id.*
[33] NSE Ex. 250, *Moapa Valley Water District Basin 220 Well Site Analysis*, Hearing on Interim Order 1303, official records of the Division of Water Resources; NSE Ex. 251, *Moapa Valley Water District Evaluation of MX-5 Pumping Test on Springs and Wells in the Muddy Springs Area,* dated June 24, 2013, Hearing on Interim Order 1303, official records of the Division of Water Resources.

aquifer test.[34] However, GBWN believed that the aquifer test failed to provide sufficient data to determine water availability throughout the other study basins. GBWN did assert that pumping of existing rights within all of the study basins would unacceptably decrease spring discharge.[35]

WHEREAS, CBD, relying on GBWN's technical report, opined that pumping existing water rights within the Order 1169 study basins would result in unacceptable decline in spring flow, ultimately threatening the Moapa dace and the habitat necessary for the species survival.[36]

WHEREAS, based upon the findings of the Order 1169 aquifer test, in denying the pending applications the State Engineer found: (1) that the information obtained from the Order 1169 aquifer test was sufficient to document the effects of pumping from the carbonate-rock aquifer on groundwater levels and spring flow and that the information could assist in forming opinions regarding future impacts of groundwater pumping and availability of groundwater in the study basins; (2) that the impacts of aquifer test pumping in Coyote Spring Valley was widespread throughout the Order 1169 aquifer test study basins and that the additional pumping in Coyote Spring Valley was a significant contributor to the decline in the springs that serve as the headwaters of the Muddy River and habitat for the Moapa dace; and, (3) that additional pumping from the then pending applications would result in significant regional water-level decline, and decreases in spring and Muddy River flows.[37]

WHEREAS, the basins that were included in the Order 1169 aquifer test were acknowledged to have a unique hydrologic connection and share the same supply of water.[38] The State Engineer further went on to find that the total annual supply to the basins could not be more than 50,000 acre-feet, that the perennial yield is much less than that because the Muddy River and the springs in the Warm Springs area utilize the same supply, and that the quantity and location of

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[34] NSE Ex. 246, *Great Basin Water Network Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[35] *Id.*
[36] NSE Ex. 248, *Center for Biological Diversity Order 1169 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[37] NSE Exs. 14–21. The study basins include Coyote Spring Valley, Garnet Valley, Hidden Valley, Muddy River Springs Area, California Wash, and that portion of the Black Mountains Area lying within the LWRFS was defined as those portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; Section 13 and those portions of Sections 1, 11, 12, and 14, T.19S., R.63E., M.D.B.&M.; Sections 5, 7, 8, 16, 17, and 18 and those portions of Sections 4, 6, 9, 10, and 15, T.19S., R.64E., M.D.B.&M.
[38] *See, e.g.*, NSE Ex. 14, p. 24.

any groundwater that could be developed without conflicting with senior rights on the Muddy River and the springs was uncertain.[39]

II. INTERIM ORDER 1303

WHEREAS, on January 11, 2019, the State Engineer issued Interim Order 1303 designating the Lower White River Flow System (LWRFS), a multi-basin area known to share a close hydrologic connection, as a joint administrative unit for purposes of administration of water rights. The Interim Order defined the LWRFS to consist of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the portion of the Black Mountains Area Hydrographic Basins as described in the Interim Order.[40] Pursuant to Interim Order 1303, all water rights within the LWRFS were to be administered based upon their respective dates of priority in relation to other rights within the regional groundwater unit.

WHEREAS Interim Order 1303 recognized the need for further analysis of the LWRFS because the pre-development discharge of 34,000 acre-feet of the Muddy River system plus the more than 38,000 acre-feet of existing groundwater appropriations within the LWRFS greatly exceed the total water budget, which was determined to be less than 50,000 acre-feet.[41] Stakeholders with interests in water right development within the LWRFS were invited to file a report with the Office of the State Engineer addressing four specific matters, generally summarized as: 1) The geographic boundary of the LWRFS, 2) aquifer recovery subsequent to the Order 1169 aquifer test, 3) the long-term annual quantity and location of groundwater that may be pumped from the LWRFS, and 4) the effect of movement of water rights between alluvial and carbonate wells within the LWRFS. Stakeholders were also invited to address any other matter believed to be relevant to the State Engineer's analysis.

WHEREAS, on May 13, 2019, the State Engineer amended Interim Order 1303 modifying the deadlines for the submission of reports and rebuttal reports by interested stakeholders. Reports

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[39] *Id.*
[40] *See* NSE Ex. 1, *Order 1303 and Addendum to Interim Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[41] *Id.*, p. 7.

submitted by interested stakeholders were intended to aid in the fact-finding goals of the Division.[42]

WHEREAS, a public hearing was held in Carson City, Nevada between, September 23, 2019, and October 4, 2019. The purposes of this hearing were to afford stakeholder participants who submitted reports pursuant to the solicitation in Interim Order 1303 an opportunity to provide testimony on the scientific data analysis regarding the five topics within the Interim Order and to test the conclusions offered by other stakeholder participants.

WHEREAS, during the Interim Order 1303 hearing, testimony was provided by expert witnesses for the participants CSI, USFWS, NPS, MBOP, SNWA and LVVWD[43], MVWD, Lincoln County Water District and Vidler Water Company (LC-V), City of North Las Vegas (CNLV), CBD, Georgia Pacific Corporation (Georgia Pacific) and Republic, Nevada Cogeneration Associates Nos. 1 and 2 (collectively "NCA"), Muddy Valley Irrigation Company (MVIC), Western Elite Environmental, Inc. and Bedroc Limited, LLC (collectively "Bedroc"), and NV Energy.

WHEREAS, following the conclusion of the Interim Order 1303 hearing, stakeholder participants were permitted to submit written closing statements no later than December 3, 2019. The specific area evaluated, data analyzed, and methodology used varied by participant. Generally, participants relied on spring and streamflow discharge, groundwater level measurements, geologic and geophysical information, pumping data, climate data, and interpretations of aquifer hydraulics. Methodologies applied ranged from conceptual observations to statistical analysis to numerical and analytical models; the level of complexity and uncertainty differing for each.

WHEREAS, each of the participants' conclusions with respect to the topics set forth in Interim Order 1303 are summarized as follows:

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[42] *Id.*, pp. 16–17.

[43] SNWA is a regional water authority with seven water and wastewater agencies, one of which is LVVWD. References to SNWA include its member agency, LVVWD, which too retains water rights and interests within the LWRFS.

Center for Biological Diversity

The primary concern of the CBD was to ensure adequate habitat for the survival and recovery of the Moapa dace. CBD felt "that the Endangered Species Act is the primary limiting factor on the overall quantity of allowable pumping within the [LWRFS] and thus [...] geared [the] analysis toward that goal of protecting the dace." The Moapa dace primarily resides in the springs and pools of the Muddy River; protecting those areas of habitat are of the utmost importance to CBD's goal and have the collateral benefit of protecting the Muddy River decreed rights. Furthermore, CBD "believe[d] that withdrawals from the carbonate aquifer that cause a reduction in habitat quantity for the dace are a take under the Endangered Species Act and thus prohibited."[44]

CBD urges that Kane Springs Valley Hydrographic Basin (Kane Springs Valley) be included and managed as part of the LWRFS; otherwise CBD did not dispute the boundary as presented in Interim Order 1303. The inclusion of Kane Springs Valley was based on a shallow hydraulic gradient between Coyote Spring Valley and Kane Springs Valley; propagation of water level decline into Kane Springs Valley during the Order 1169 aquifer test; and a finding that the carbonate-rock aquifer extends into Kane Springs Valley. In CBD's opinion, adequate management of the LWRFS does not require that the administrative boundary include the White River Flow System north of Coyote Spring Valley.[45]

CBD identified a long-term, declining trend commencing in the 1990s in carbonate-rock aquifer water levels within the Muddy River Springs Area, which was accelerated by the Order 1169 aquifer test. Although CBD observed a partial, immediate recovery in the carbonate-rock aquifer water levels and spring flows, CBD finds that full recovery to pre-Order 1169 aquifer test conditions were never realized. Concurring with multiple other participants, CBD identified higher water levels in response to wet years despite the continued decline in the overall trend in the hydrographs. However, with regards to long-term drought, in their review of the Climate Division Data for southern Nevada, CBD saw no indication of a 20-year drought and disagreed with the conclusions and analysis presented by MBOP. Decreased spring flows in conjunction with

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[44] *See* CBD Ex. 3, *CBD Order 1303 Report by Dr. Tom Myers; 27 pp.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 1; Transcript 1504–1505.
[45] *See* CBD Ex. 3, pp. 1, 2, 12, 17, 19; *See* CBD Ex. 4, *CBD Order 1303 Rebuttal in Response to Stakeholder Reports by Dr. Tom Myers; 30 pp.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 17–21; Tr. 1516; 1520–1521; 1526–1527; 1538–1539; CSI Ex. 2, p. 38; LC-V Ex. 2, pp. 11–14.

increased carbonate-rock aquifer pumping, led the CBD to infer the dependency of spring flows on carbonate-rock aquifer water supply.[46]

Again, with emphasis on protecting spring flows, and thus the Moapa dace habitat, CBD did not support any pumping of the carbonate-rock aquifer. CBD's desired outcome would be to avoid decreases in spring flow in the Warm Springs area attributed to continued carbonate-rock aquifer pumping. CBD postulated that surface water rights on the Muddy River will be protected by limiting carbonate-rock aquifer pumping.

Alternatively, CBD speculated that some alluvial aquifer pumping, within the Muddy River Springs Area and Coyote Spring Valley, could be sustained without significantly impacting the Warm Springs area. A preliminary estimate of 4,000 afa of sustainable alluvial aquifer pumping was proposed, based on the existing pumping within the Muddy River Springs Area and considering pumping in the 1990s near 5,000 afa when alluvial aquifer water levels were stable.[47]

Church of Jesus Christ of Latter-day Saints

The Church of Jesus Christ of Latter-day Saints (the Church) chose not to directly participate in the hearing but joined the evidentiary submissions of CNLV.[48] In response to the directives set forth in Interim Order 1303 and considering the testimony provided, the Church requests the continued administration and management of the LWRFS as identified in Interim Order 1303, and to allow for change applications throughout the LWRFS basins that move pumping of groundwater further away from the Muddy River Springs Area and from the alluvial aquifer to the carbonate-rock aquifer. The Church further requests that the testimony and recommendation of Dwight Smith, PE, PG on behalf of CNLV be considered and adopted.[49]

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[46] *See* CBD Ex. 3, pp. 1, 24; *See* CBD Ex. 4, p. 8–10, 21–25; Tr. 1508–1525; LC-V Ex. 2, p. 12, GP-REP Ex. 2, p. 3; CBD's expert suggest that the Palmer Drought Severity Index is more robust to evaluate for drought rather than using precipitation.
[47] *See* CBD Ex. 3, pp. 20–26; *See* CBD Ex. 4, p. 28–29; Tr. 1525-1528.
[48] *See* Letter from the Church, received August 15, 2019, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[49] *See Closing Brief of the Church of Jesus Christ of Latter-Day Saints* (Church closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

City of North Las Vegas

In CNLV's report submissions and closing statement it addressed four questions set forth in Interim Order 1303.[50] CNLV generally urges for more analysis and study of the LWRFS before administrative decisions are made due to lack of agreement on fundamental interpretations of the water availability and basin connectivity. It was agreed to by CNLV that most of Garnet Valley and a small portion of the Black Mountains area were within the larger carbonate-rock aquifer underlying the LWRFS basins, but that there is uncertainty in the boundaries of Garnet Valley with California Wash and Las Vegas Valley Hydrographic Basin (Las Vegas Valley).[51] With respect to the recovery of the groundwater aquifer following the Order 1169 aquifer test, CNLV concluded that the record and evidence demonstrates a long-term declining trend in the groundwater level since the late 1990s and that pumping responses can propagate relatively quickly through the carbonate-rock aquifer and drawdown is directly related to the pumping.[52]

While CNLV did consider the long-term quantity of groundwater that may be developed without adversely impacting discharge to the Warm Springs area, its opinions were limited to the sustainability of pumping within Garnet Valley.[53] CNLV concluded that the safe yield concept should be applied to the management of pumping within the LWRFS and that pumping between 1,500 afa to 2,000 afa does not appear to be causing regional drawdown within the LWRFS carbonate-rock aquifer and that pumping this quantity of water may be sustainable within the APEX Industrial Park area of Garnet Valley.[54] Finally, CNLV asserted that movement of alluvial water rights from the Muddy River Springs Area along the Muddy River would reduce the capture

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[50] *See* CNLV Ex. 5, *City of North Las Vegas Utilities Department: Interim Order 1303 Report Submittal from the City of North Las Vegas – July 2, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* CNLV Ex. 6, *Rebuttal Document submitted on behalf of the City of North Las Vegas, to Interim Order 1303 Report Submittals of July 3, 2019 – Prepared by Interflow Hydrology – August 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See* Tr. 1416–66, and *City of North Las Vegas' Closing Statement* (CNLV Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.

[51] *See* CNLV Ex. 5, pp. 2–3. *See also* CNLV Ex. 3, *Garnet Valley Groundwater Pumping Review for APEX Industrial Complex, City of North Las Vegas, Clark County, Nevada- Prepared by Interflow Hydrology, Inc.- July 2019*, pp. 7–8, 38.

[52] *Id.*, p. 3, Technical Memo, pp. 14–16.

[53] *Id.*, pp. 3–4.

[54] *Id.*, p. 4., Technical Memo, p. 45.

of Muddy River flow, move more senior water rights into Garnet Valley to support a secure water supply for the municipal uses within the APEX area, and would support overall objectives relating to the management of the LWRFS.[55] CNLV advocated that transferring water rights between alluvial aquifer and carbonate-rock aquifer should be considered on a case-by-case basis with consideration given as to location, duration, and magnitude of pumping.[56]

CNLV disagreed with certain conclusions of the NPS relating to the inclusion of the entirety of the Black Mountains Area within the LWRFS boundaries and had concerns relating to the reliability of the Tetra Tech model for future water resource management within the LWRFS.[57] CNLV further disagreed with stakeholder conclusions that movement of groundwater withdrawals from the alluvial aquifer along the Muddy River to the carbonate-rock aquifer in Garnet Valley will not alleviate the conflicts to Muddy River flow, rather concluding that there may be benefits for overall management of the LWRFS.[58] Further, CNLV disagreed with certain findings regarding water flow through the carbonate-rock aquifer, finding that it is likely that some groundwater can be pumped within Garnet Valley without capturing groundwater that would otherwise discharge to the Warm Springs area and the Muddy River.[59] Finally, in its rebuttal the CNLV joined other stakeholders in supporting the conclusion that there is a quantity of water that may be sustainably developed within the LWRFS and that use of carbonate-rock aquifer groundwater in Garnet Valley is critical to the short-term and long-term management and development of the APEX Industrial Complex.[60]

Coyote Springs Investments

In presenting its opinions and conclusions CSI's focus was primarily on climate as the foundation for groundwater elevation declines after the Order 1169 aquifer test, and additional geophysical research that provided evidence of a structural block isolating the west side of Coyote Spring Valley.

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[55] *Id.*, Technical Memo, p. 48–49.
[56] *Id.*
[57] *See* CNLV Ex. 6, pp. 1–2.
[58] *Id.*, p. 2.
[59] *Id.*, pp. 2–3.
[60] *Id.*, p. 3.

CSI did a statistical analysis of climate data, and determined from the results that 1998, 2004, 2005, and 2010 were wetter than normal, with a drying trend from 2006 to 2017.[61] The Order 1169 aquifer test took place toward the end of an extended dry period when all water resources throughout the LWRFS were negatively affected.[62] Additionally, annual cyclical patterns of groundwater pumping should not be confused with long-term climate variability.[63]

CSI challenged the basic assumption that the LWRFS, as proposed in Interim Order 1303, is a homogenous unit.[64] CSI could not duplicate the results of the SeriesSEE, and its own Theis solution modeling concluded that a greater impact occurred from pumping at a well closer in proximity to Pederson Spring than pumping from a well further away, or the combined effect of both wells.[65] CSI also acknowledged that due to the fragmented nature of the LWRFS, the Theis solution is of limited utility.[66]

CSI presented geologic and geophysical information in support of the idea that the LWRFS administrative unit is a geophysically and hydrogeologically heterogenous area, characterized by multiple flow paths defined by faults and structural elements that control the occurrence and movement of regional and local groundwater along the western side of Coyote Spring Valley, the eastern side of Coyote Spring Valley, and from Lower Meadow Valley Wash into the LWRFS.[67] CSI stated that the LWRFS does not include Kane Springs Valley.[68]

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[61] CSI Ex. 1, *CSI July 3, 2019 Order 1303 Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 4–5; Tr. 53.
[62] CSI Ex. 1, p. 5.
[63] CSI Ex. 2, *CSI August 16, 2019 Rebuttal Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2, 7.
[64] CSI Ex. 1, p. 7.
[65] CSI Ex. 1, p. 7; Tr. 131–132.
[66] Tr. 154.
[67] CSI Ex. 2, p. 2; *CSI Closing Statement* (CSI Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources; CSI recommended including Lower Meadow Valley Wash in its Rebuttal report. See CSI Ex. 2, p. 12; Mr. Herrema said Lower Moapa Valley, but the report said Lower Meadow Valley 10:10.
[68] CSI Ex. 1, p. 15; the outflow from Kane Springs Valley is included in the water budget, but due to isolating geologic features, groundwater elevations in Kane Springs Valley are not impacted by pumping in the LWRFS, Tr. 135:7–137:3, 160:2–12.

CSI engaged a geophysicist to conduct a CSAMT survey at multiple points in the valley.[69] CSI's CSAMT study showed evidence of a prominent carbonate block bounded on either side by normal faults.[70] CIS asserts that the carbonate block isolates recharge from the zone west of the block, such that it eliminates or limits contribution of local recharge to the Warm Springs area.[71] Faulting has created a preferred path for groundwater flow "from the east side Coyote Spring Valley to the Muddy River Springs Area".[72]

CSI relied on a water budget as the best method to determine available water in the LWRFS, accounting for recharge and subsurface flow as well as climatic variations.[73] Comparing several models of recharge, CSI estimated recharge at 5,280 afy from the Sheep Range to the western side of Coyote Spring Valley.[74] CSI stated that 30,630 afa can be pumped from the LWRFS, but there would be impacts from pumping the water, and that the Coyote Spring Valley can sustain 5,280 afa of pumping from the western side without impact to the Warm Springs area or the Muddy River.[75]

As asserted by CSI, groundwater pumping from the carbonate-rock aquifer in the Muddy River Springs Area affects flow in the carbonate-rock aquifer to the alluvial aquifer, which then affects flow from the alluvial aquifer to the Muddy River.[76] CSI argues that effects are dependent on well location, geologic formations, hydraulic gradients, and elevation.[77] Transfers between carbonate and alluvial pumping should be made on a case-by-case basis, analyzing place of use, points of diversion, and quantity of groundwater.[78] Movement of water rights between alluvial wells and carbonate-rock aquifer wells will only serve to shift the timing and location of impacts and not the amount of the impact.[79]

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[69] CSI Ex. 1, p. 25
[70] CSI Ex. 1, p. 25.
[71] CSI Ex. 1, p. 29; evidence of impermeability, Tr. 181.
[72] CSI Ex. 1, p. 29.
[73]CSI Closing.
[74] CSI Ex. 1, pp. 31–40.
[75] Tr. 221–223; CSI Closing, pp. 8–9.
[76] CSI Closing.
[77] CSI Closing, p. 19.
[78] CSI Closing.
[79] CSI Ex. 1, p. 58.

As a consequence of the heterogenous nature of the LWRFS, CSI recommended sustainable management of the LWRFS through the creation of "Management Areas" that recognize flow paths and their relative contributions to spring flow, surface flow, evapotranspiration, and sub-surface outflow.[80] For example, though pumping in the Muddy River Springs Area near the Warm Springs area would have a direct impact on available surface water resources, structural blocks and faults isolate the effect of groundwater pumping in other areas of the LWRFS.[81] Thus CSI does not recommend a blanket ban on carbonate-rock aquifer pumping, or a decrease in carbonate-rock aquifer pumping in exchange for alluvial aquifer pumping.

Georgia Pacific and Republic

Dry Lake Water, LLC, Georgia Pacific and Republic submitted initial and rebuttal responses to Interim Order 1303 and offered testimony during the hearing.[82] In their response, Georgia Pacific and Republic acknowledged impacts to groundwater elevations throughout the LWRFS, including wells in the Black Mountains Area and Garnet Valley, which does demonstrate a degree of hydraulic connectivity throughout the carbonate-rock aquifer. However, Georgia Pacific and Republic called for collection of more scientific evidence to further understand the LWRFS and its boundaries. Further, it was their opinion that climate, seasonal fluxes and pumping within Garnet Valley and the Black Mountains Area resulted in the groundwater declines observed during the Order 1169 aquifer test.[83] Ultimately, Georgia Pacific and Republic do not believe sufficient information exists to draw distinct conclusions as to the cause of the groundwater declines during the Order 1169 aquifer test and whether carbonate-rock aquifer pumping within

[80] CSI Closing.
[81] CSI Ex. 2, p. 17.
[82] The initial response was submitted on behalf of Dry Lake Water, LLC, Georgia Pacific, and Republic. *See* GP-REP Ex. 1, *Broadbent July 2, 2019 Initial Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. The rebuttal response was submitted on behalf of Dry Lake Water, LLC, Georgia Pacific Gypsum LLC, and Republic. *See* GP-REP Ex. 2, *Broadbent August 16, 2019 Rebuttal Report*, Hearing on Interim Order 1303, official records of the Division of Water Resources. However, the expert only appeared at the Hearing on Interim Order 1303 on behalf of Georgia Pacific and Republic. *See* Tr. 1588-91.
[83] *See* GP-REP Ex. 01, GP-REP Ex. 02, and *Closing Argument of Georgia Pacific Corporation and Republic Environmental Technologies, Inc.* (Closing GP-REP), Hearing on Interim Order 1303, official records of the Division of Water Resources.

the Garnet Valley and the Black Mountains Area has a measurable impact to spring flow in the Warm Springs area.[84]

Great Basin Water Network

GBWN elected to pose procedural suggestions relating to public involvement, availability of documents and data, transparency, and decision making, and did not submit a report with an independent analysis addressing the questions in Interim Order 1303.[85] GBWN advocates for sustainable management of the entirety of the White River Flow System as one unit based on the interconnected nature of all of the hydrologically connected basins, although no analysis to support which areas this would include was provided. GBWN relies on conclusory statements to establish the interconnected nature of the system as support for its position. Later, GBWN chose not to participate in the hearing nor submit a rebuttal report, closing arguments, or public comment.

Lincoln County Water District and Vidler Water Company

LC-V's participation in the LWRFS hearing was driven by their existing and pending groundwater rights in Kane Springs Valley, and an interest in excluding Kane Springs Valley from the LWRFS management area.[86] They disputed that Kane Springs Valley should be included within the LWRFS boundary based on their assertion of: prior decisions of the State Engineer that acknowledged the separate nature of the basin from the rest of the LWRFS, groundwater elevation comparisons, precipitation and recharge data, groundwater chemistry, and geophysical study results. In general, Kane Springs Valley should be managed based on its perennial yield, recognizing that there is groundwater flow to the LWRFS as there are from other basins into the LWRFS, but where they are excluded from the proposed management area.[87]

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[84] *See* Closing GP-REP.
[85] *GBWN Report on Order 1303*, (GBWN Report), Hearing on Interim Order 1303, official records of the Division of Water Resources.
[86] LC-V Ex. 1, *Lower White River Flow System Interim Order #1303 Report Focused on the Northern Boundary of the Proposed Administrative Unit, prepared by Lincoln County Water District and Vidler Water Company in Association with Zonge International Inc., dated July 3, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 2-1.
[87] LC-V Ex. 2, *Rebuttal Submittal to Reports Submitted in Response to Interim Order #1303, dated August 16, 2019 and Attachments A, B, C, D and E containing the reports or technical memorandums of Greg Bushner, Peter Mock, Thomas Butler, Todd Umstot and Norman Carlson.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 7, 14–15.

Various rulings of the State Engineer have previously addressed whether appropriation of groundwater from Kane Springs Valley would affect the Muddy River Springs Area.[88] LC-V states that these findings have not been challenged by any of the Order 1169 participants.[89] However, to the extent that SNWA relied on multiple linear regression models to establish groundwater flow from Kane Springs Valley to the LWRFS, LC-V do not agree.[90]

LC-V identified a distinct "break," or local increase, in water levels in the regional hydraulic gradient between wells drilled in the LWRFS versus wells drilled in Kane Springs Valley and northern Coyote Spring Valley.[91] It attributed the break to geologic structures located throughout the carbonate-rock aquifer. Although wells within the LWRFS exhibit very consistent groundwater levels, indicative of high transmissivity values across the area, the gradient between well KPW-1 and down-basin wells is much steeper, implying an impediment to groundwater flow near the mouth of Kane Springs Valley.[92]

In a 2006 hearing for protested water rights applications, LC-V presented an analysis of the regional geochemistry data including stable isotopes, temperature, and carbon-14 data.[93] That analysis found that the groundwater pumped from Kane Springs Valley could not be identified in the source water for the Big Muddy Spring, nor other springs farther south and outside the boundaries of the LWRFS.[94] LC-V concluded that groundwater pumped from production well KPW-1 is on a different groundwater flow path from the springs, consistent with the differences in hydraulic gradients, groundwater levels, and geophysical data.[95] CSVM-4, a well located in Coyote Spring Valley, and KPW-1, in Kane Springs Valley, have similar temperatures compared to the other wells in the basin, and a lower percentage difference on other markers tracked throughout groundwater in the basin.[96] LC-V argues that the water from these wells is chemically

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[88] LC-V Ex. 1, pp. 2-2 through 2-3, citing State Engineer's Rulings 5712, 6254, 5712.
[89] LC-V Ex. 1, p. 2-3.
[90] Testimony generally at Tr. 1311–1318. "... simply having correlation is not proof of causation. Causation is neither proved nor evaluated in a regression analysis." Tr. 1303.
[91] LC-V Ex. 1, p. 3-1.
[92] LC-V Ex. 1, pp. 1-1, 3-1 through 3-4. LC-V went on to conclude that local groundwater recharge occurs in Kane Springs Valley that does not flow to the LWRFS, and therefore there is available unappropriated water in the basin. LC-V Ex. 1, p. 3-5.
[93] LC-V Ex. 1, Appendix C, pp. 111–153.
[94] *Id.*, pp. 124–125.
[95] "Gradient alone does not mean flow." Thomas Butler, witness on behalf of LC-V, Tr. 1281.
[96] Tr. 1281–1282; LC-V Ex. 1, pp. 3-7 through 3-11.

unique and does not appear in any other wells in the LWRFS.[97] LC-V concludes carbon isotope data also confirmed that the water from Kane Springs Valley does not appear in the Muddy River Springs area.[98]

LC-V engaged a geophysical company to perform a CSAMT survey across the boundary line between Kane Springs Valley and Coyote Spring Valley, and identified significant geologic structures in southern Kane Springs Valley and northern Coyote Spring Valley.[99] Several transect lines were conducted perpendicular to the axis of the Kane Springs Valley, and one was also conducted along the axis of the southern part of the basin.[100] Additional transects were run in Coyote Spring Valley.[101] The results of the geophysical data validated concealed faulting indicated on existing maps, and was ground-truthed with observations in the field.[102] Results indicated a previously unmapped fault at the mouth of Kane Springs Valley, which LC-V named the Northern Boundary LWRFS fault, with a potentially 2,500-foot offset of materials with different resistivities.[103] LC-V argues that the extensive faulting that occurs in southern Kane Springs Valley and northern Coyote Spring Valley form the basis for the exclusion of Kane Springs Valley from the LWRFS.[104]

LC-V gave no opinion on the long-term annual quantity of groundwater that could be pumped from the LWRFS.[105] LC-V attributes all reduction in flows of the Muddy River and its associated springs to carbonate-rock aquifer pumping within the Muddy River Springs Area, and finds no discernable effect from carbonate-rock aquifer pumping occurring in Coyote Springs

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[97] Tr. 1284.
[98] Tr. 1286.
[99] LC-V Ex. 1, pp. 1-1, 4-1 through 4-10.
[100] LC-V Ex. 1, p. 4-3.
[101] LC-V Ex. 1, p. 4-3.
[102] LC-V Ex. 1, p. 4-8, Tr. 1322.
[103] Tr. 1271–1272; LC-V Ex. 1, p. 4-9.
[104] LC-V Ex. 1, p. 7-1 through 7-2; Tr. 1408. Questions from the National Park Service and the State Engineer inquired whether the areas of high resistivity in the CSAMT necessarily implied low transmissivity, low permeability of the rock. LC-V conceded that the resistivity information alone does not provide data about the hydraulic properties of either side of the resistive area, but when considered with all available information, LC-V concluded that the fault is likely an impediment to groundwater flow. Tr. 1327–1328, 1363–1364.
[105] LC-V Ex. 1, p. 5-2.

Valley.[106] As a result, LC-V finds that the efforts to protect the Warm Springs area must focus on groundwater pumping within the Muddy River Springs Area itself.[107]

Moapa Band of Paiutes

The MBOP participated in the administrative hearing due to their interest in the outcome of the proceedings and how it may affect their pending water right applications within California Wash. A regional approach, spanning a large aerial expanse, was taken by MBOP; the analysis and modeling efforts extended into central Nevada and Utah. MBOP stands apart from other participants with their interpretation of the data.[108] MBOP opposed management of the LWRFS as one basin and argues the scientific consensus is lacking amongst participants.[109] Regarding the interpretation of other participants, MBOP disagreed with the methodology and application of the 2013 USFWS SeriesSEE analysis and SNWA's multiple linear regression and requests repudiation of both.[110]

While not agreeing with the proposed boundaries of the LWRFS, MBOP did not provide a clear suggestion for which basins or portions therein should be included or excluded. MBOP suggested that pumping in California Wash has little to no impact on the Warm Springs area.[111] MBOP further suggested there are two capture zones, separated by a hydrodynamic and hydrochemical divide, which transects the Moapa River Indian Reservation area and results in south-flowing groundwater into the Las Vegas Valley through the LWRFS, bypassing the Muddy

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[106] LC-V Ex. 1, p. 5-3.
[107] LC-V Ex. 1, p. 5-3.
[108] Tr. 772– 773; 839.
[109] *See Closing Statement by the Moapa Band of Paiute Indians for Order 1303 Hearing* (MBOP Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 1–2, 6.
[110] *Id.*, pp. 7–12, 15–16; *See* MBOP Ex. 3, *Johnson, C., and Mifflin, M. Rebuttal Report of the Moapa Band of Paiutes in Response to Stakeholder Technical Reports Filed under Order #1303: unpublished report and appendices, August 16, 2019. 27 p.*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[111] *See* MBOP Ex. 2, *Johnson, C., and Mifflin, M. Water Level Decline in the LWRFS: Managing for Sustainable Groundwater Development. Initial Report of the Moapa Band of Paiutes in Response to Order #1303: unpublished report and appendices, July 3, 2019. 84 p.*, Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2, 4, 14, 35; Tr. 819.

River Springs Area.[112] This hydrodynamic divide theory was not shared by SNWA, CBD, CSI, and NPS.[113]

Several participants agree that climate impacts were observed in the hydrographs, e.g., periods of wet and dry; however, MBOP interpreted the existing data to show that climate-driven decline, specifically drought, as the primary response observed in the long-term declining groundwater levels.[114] Thus, MBOP concluded that no reduction in pumping will restore high-elevation spring flows.[115] MBOP did not agree with other participants that decreasing groundwater levels and spring flows were attributed to increased carbonate-rock aquifer pumping beginning in the early 1990s.[116]

A quantity available for sustainable pumping was not proposed, but MBOP presumed more water is available in California Wash than previously thought.[117] A flux of approximately 40,000 afy of south-flowing groundwater into the Las Vegas Valley, bypassing the Muddy River Springs Area, was postulated in the initial report as possible with the hydrodynamic divide; however, during the hearing this quantity was given a range of plus or minus an order of magnitude based on assumptions for calculations.[118]

MBOP acknowledged that the Muddy River is connected to the alluvial aquifer and thus pumping from the alluvial and carbonate-rock aquifers in the Muddy River Springs Area impact the Muddy River flows.[119] Therefore, to mitigate impacts to the Muddy River, MBOP proposed that alluvial aquifer pumping, specifically between Arrow Canyon and White Narrows, can be moved to the carbonate-rock aquifer in basins to the south, such as California Wash, with minimal anticipated impacts to the Muddy River flows, rather than moving alluvial aquifer pumping from the Muddy River Springs Area to the carbonate-rock aquifer in connected areas, where impacts

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[112] *See* MBOP Ex. 2, pp. 2, 4, 12, 14, 20, 35, 55; Tr. 812; 845.
[113] SNWA Ex. 9, pp. 12–13; CBD Ex. 4, p. 15; CSI Ex. 2, p. 23; NPS Ex. 3, *National Park Service's Response to July 2019 Interim Order 1303 Reports, Waddell, August 16, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 4.
[114] *See* MBOP Ex. 2, pp. 3, 26–32, 35; Tr. 764–771; 805.
[115] *See* MBOP Ex. 2, pp. 3, 35; Tr. 821–826.
[116] *See* MBOP Ex. 2, p. 29; Tr. 775, 838–840; 848.
[117] *See* MBOP Ex. 2, pp. 2, 20, 35.
[118] *See* MBOP Ex. 2, pp. 6, 19, 35; Tr. 850–851.
[119] *See* MBOP Ex. 2, pp. 23–24, 35; Tr. 836.

proportional to pumping may be expected.[120] Thus, MBOP proposed favoring temporary over permanent uses and transferring of rights between the carbonate-rock and alluvial aquifers on a case-by-case basis.[121]

Moapa Valley Water District

MVWD was created by the Nevada legislature in 1983, pursuant to NRS Chapter 477, to provide water service "vital to the economy and well-being of Moapa Valley."[122] MVWD provides municipal water service to approximately 8,500 people with 3,250 metered service connections, including service to the MBOP.[123]

MVWD supported the inclusion of Kane Springs Valley within the LWRFS boundary.[124] Data indicated a direct connection between Kane Springs Valley and Coyote Spring Valley. This data included observations that the water level in KMW-1/KSM-1 decreased 0.5 foot over the duration of the Order 1169 aquifer test.[125] State Engineer's rulings have concluded that geochemical evidence and groundwater gradient data indicate that groundwater flows from the Kane Springs Valley into Coyote Spring Valley, and MVWD supports LVVWD's 2001 calculation of that quantity of water at approximately 6,000 afy.[126] MVWD performed its own calculations of the groundwater gradients from Kane Springs Valley at KMW-1 to EH-4, and concluded that the gradient was "an uninterrupted, continuous, exceptionally flat gradient," unlike gradients commonly seen in the western U.S., especially in highly fractured areas.[127] MVWD also

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[120] *See* MBOP Ex. 2, pp. 23, 35.
[121] *See* MBOP Closing.
[122] Tr. 1172.
[123] MVWD Ex. 3, *District July 1, 2019 Report in response to Interim Order 1303*, p.5, Hearing on Interim Order 1303, official records of the Division of Water Resources; MVWD Ex. 4, *District August 16, 2019 Rebuttal Report*, p, 1, Hearing on Interim Order 1303, official records of the Division of Water Resources. MVWD has 3,147 afa of water rights in Arrow Canyon. Tr. 1169–1170.
[124] MVWD Ex. 3, p. 1; Tr. 1175.
[125] MVWD Ex. 3, p. 1; MVWD Ex. 4, p. 2.
[126] MVWD Ex. 3, pp. 1–2, referring to State Engineer's Ruling 5712 (*see*, NSE Ex. 12, *Ruling 5712*, Hearing on Interim Order 1303, official records of the Division of Water Resources) and MVWD Ex. 8, *Las Vegas Valley Water District, Water Resources and Ground-Water Modeling in the White River and Meadow Valley Flow Systems, Clark, Lincoln, Nye, and White Pine Counties, Nevada (2001)*, Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 6-3.
[127] Tr. 1177–1178.

introduced evidence of a stipulation between LC-V and the USFWS that bases a reduction in pumping in Kane Springs Valley on a lowering of spring discharges in the Warm Springs area, and introduced a letter from SNWA to the State Engineer, as additional support that the participants to the Interim Order 1303 hearing have previously recognized Kane Springs Valley is part of the LWRFS.[128]

MVWD disagreed that a hydrologic barrier exists between Coyote Springs Valley and Kane Springs Valley.[129] Relying on a 2006 report prepared by another consultant, MVWD said the evidence indicated that the fault at the mouth of Kane Springs Valley was not an impediment to flow, and that there was no evidence of having encountered hydraulic barriers to groundwater flow during a seven-day aquifer test.[130] Additionally, the "highly transmissive fault zone" is continuous across the basin boundary between Kane Springs Valley and Coyote Spring Valley.[131] MVWD found further support for its position from evidence that KMW-1 showed drawdown during both the seven-day aquifer test on KPW-1, as well as from the Order 1169 aquifer test pumping that occurred from MX-5.[132] MVWD considered the water level data collected before, during and after the Order 1169 aquifer test, and Warm Springs area spring discharge to support its finding that the fault is not interrupting groundwater flow.[133] MVWD found it "questionable" that the first suggestion of a fault that impedes southward groundwater flow would be prepared by LC-V for this hearing.[134]

Although water levels and spring discharge did not recover to the levels measured before the Order 1169 aquifer test, MVWD believed that the LWRFS is at or near steady-state conditions

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[128] Tr. 1195–1197.
[129] Tr. 1176–1177.
[130] Tr. 1181–1182. MVWD also quoted from the report that "the fracturing was so extensive that the fractured aquifer system really behaved as an equivalent porous media." *Id.* MVWD later agreed that this would behave like a sandy aquifer. Tr. 1224.
[131] Tr. 1185.
[132] Tr. 1250.
[133] Tr. 1219.
[134] *Post-Hearing Brief of Moapa Valley Water District* (MVWD Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 5.

regarding aquifer recovery.[135] MVWD viewed this as being consistent with the State Engineer's statements in Interim Order 1303.[136]

Finally, MVWD did not provide a specific quantity of available water but did acknowledge that the "actual safe pumpage" is less than current pumping rates, and recognized a direct relationship between pumping from the carbonate-rock aquifer, spring and Muddy River flows, and alluvial aquifer pumping.[137] The timing and magnitude of carbonate-rock aquifer pumping effects on spring discharge is dependent on the volume of water pumped and the proximity of a pumping center to the springs; however, all cumulative carbonate-rock aquifer pumping in the seven interconnected basins will eventually cause depletions on the Warm Springs area springs.[138] Further, if carbonate rights are transferred to the alluvial aquifer there will be depletions to Muddy River flows and impacts to senior Muddy River water right owners.[139]

MVWD raised additional matters that they believed relevant to the analysis under Interim Order 1303. First, they stressed the importance of municipal water rights, and the necessity for a reasonably certain supply of water for future permanent uses without jeopardizing the economies of the communities that depend on the water supply, and to protect the health and safety of those who rely on the water supply.[140] To that end, MVWD requested that the State Engineer consider designating municipal use as the most protected and highest use of water, and to give MVWD the perpetual right to divert 6,791 afa of permitted and certificated rights from its carbonate-rock aquifer wells.[141] Second, MVWD stated that it had already satisfied its obligation to protect Moapa dace habitat and senior water rights when it dedicated 1cfs/724 afa, or approximately 25% of the MVWD current diversions, from its most senior water right, to the enhancement of the Moapa dace habitat.[142]

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[135] Tr. 1198, MVWD Ex. 3, p. 4.
[136] Tr. 1199.
[137] Tr. 1199–1200; MVWD Closing, pp. 9–10.
[138] MVWD Ex. 3, p. 5.
[139] *Id.*
[140] MVWD Ex. 3, p. 5.
[141] MVWD Ex. 3, p. 6; Tr. 1203–1204; 6,791 afa constitutes an increase in the carbonate-rock aquifer pumping for MVWD. Tr. 1228.
[142] MVWD Ex. 3, pp. 6–7; Tr. 1202–1203.

Muddy Valley Irrigation Company

The MVIC is a non-profit Nevada corporation with the senior decreed water rights to the Muddy River, who provided testimony that SNWA is a majority shareholder while other participants such as CSI, LC-V, and MVWD are minority shareholders of the decreed rights.[143] MVIC concurred with SNWA's conclusions regarding aquifer recovery, long-term quantity of groundwater, and movement of water between the alluvial and the carbonate-rock aquifers.[144] Specifically, that any groundwater pumping, from both alluvial or carbonate-rock aquifers, within the Muddy River Springs Area impacts Muddy River flows, thus violating the Muddy River Decree.[145] MVIC did not dispute the geographic boundaries as identified in Interim Order 1303.[146] MVIC argued that the Muddy River and all of its sources are fully appropriated and emphasized the decreed seniority to groundwater rights, and further asserts that these surface water rights are protected by the Muddy River Decree and the prior appropriation doctrine.[147]

United States Department of the Interior, National Park Service

NPS submitted both an initial and rebuttal report in response to the Interim Order 1303 solicitation and presented testimony during the hearing.[148] Based upon NPS's evaluation of the evidence relating to the Order 1169 aquifer test, the use of an updated numerical groundwater flow model previously developed to predict conditions within the LWRFS, data compiled since the conclusion of the Order 1169 aquifer test, and review of other available data, NPS came to multiple conclusions relating to the delineation and management of the LWRFS. NPS advocates for the

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[143] Tr. 1693–1696, 1705.
[144] MVIC Ex. 1, *MVIC Rebuttal Report dated August 15, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources. MVIC identified sections from the SNWA report, but the references do not correspond with sections in SNWA's report. The State Engineer assumes that these section numbers correspond to page numbers of the SNWA report; *See also*, SNWA Ex. 7, *Burns, A., Drici, W., Collins, C., and Watrus, J., 2019, Assessment of Lower White River Flow System water resource conditions and aquifer response, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[145] MVIC Ex. 1, p. 5; Tr. 1698.
[146] *See* MVIC Ex. 1, p. 3; Tr. 1697–1968.
[147] *Muddy Valley Irrigation Company Post Hearing Closing Statement* (MVIC Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources; Tr. 1967, 1700–1708. *See also*, NSE Ex. 333, *Muddy River Decree*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[148] *See* NPS Ex. 2, *Prediction of the Effects of Changing the Spatial Distribution of Pumping in the Lower White River Flow System, Waddell, July 3, 2019*; Tr. 494–597.

inclusion of the entirety of the Black Mountains Area within the geographic boundary of the LWRFS based upon its review of geologic conditions that facilitate flow from the southern portion of the LWRFS through the Muddy Mountains thrust sheet and discharging in Rogers Spring and Blue Point Spring.[149] Further supporting this opinion, NPS cites to spring chemistry and isotopic composition of the water discharging from Rogers Spring and Blue Point Spring and the hydraulic head conditions that NPS believes supports the flow of groundwater beneath the Muddy Mountains from the carbonate-rock aquifer to those springs.[150] NPS acknowledge that there is a weak hydraulic connection between Rogers Spring and Blue Point Spring to the LWRFS based upon the geologic conditions within the Muddy Mountains, but argues that the entirety of the Black Mountains Area should be included to allow for management of the regional carbonate-aquifer to protect against diminished discharge to those springs.[151]

In addition to advocating for the inclusion of the entirety of the Black Mountains Area, the NPS provided evidence and analysis to support its conclusion that Kane Springs Valley too should be included within the geographic boundary of the LWRFS.[152] Based upon a review of the hydrologic data, geology of the Kane Springs Valley and basin boundaries, Coyote Spring Valley, and data from the Order 1169 aquifer test, NPS concludes that there is a clearly established hydrological connection between Kane Springs Valley and the other LWRFS basins, including discharge to the Warm Springs area.[153] While NPS advocates for the inclusion of the entire Black Mountains Area and Kane Springs Valley, it did not find any evidence to support the inclusion of the Las Vegas Valley within the LWRFS based upon a similar review of the geology and hydrological data.[154]

In interpreting data since the conclusion of the Order 1169 aquifer test, NPS reviewed the available data, concluding that the decades long decline of groundwater levels is not attributable to climate, but rather that the groundwater pumping within the LWRFS is the contributing

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[149] *See* NPS Ex. 2, p. 22. *See also*, Tr. 569–70; NPS, *Closing Statements Interim Order 1303 Hearing Testimony* (NPS Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 2.
[150] NPS Ex. 2, p. 22; NPS Closing, pp. 2–4.
[151] *Id.*
[152] NPS Ex. 2, p. 22; NPS Ex. 3, pp. 5–11; Tr. 550–551; NPS Closing, pp. 4–5.
[153] NPS Ex. 2, p. 22; NPS Ex. 3, pp. 5–11; Tr. 550–551; NPS Closing, pp. 5–6.
[154] NPS Ex. 2, p. 22; Tr. 552–554.

factor.[155] NPS opined that if recent pumping withdrawals continued, the current declining trend would be accelerated, adversely impacting spring discharge in the Warm Springs area and Muddy River flow.[156] Further, NPS's review of the data lead to its conclusion that it will take many years, if not decades for the LWRFS carbonate-rock aquifer to reach equilibrium, particularly at the current groundwater pumping withdrawals and even longer if pumping withdrawals occurred at Order 1169 aquifer test levels.[157] However, NPS did not provide an opinion as what rate of groundwater withdrawals would be sustainable within the LWRFS.

Finally, NPS concluded that the movement of groundwater withdrawals from the alluvial aquifer within the Muddy River Springs Area to the carbonate-rock aquifer within the LWRFS would ultimately have little impact on capture of Muddy River flow. Specifically, NPS found that while there may be near-term benefits to the Warm Springs area and Muddy River flow, those benefits would eventually disappear, as the impact would only be delayed and not eliminated.[158]

Nevada Cogeneration Associates

NCA submitted a Rebuttal Report Pertaining to Interim Order 1303 and provided testimony at the Interim Order 1303 hearing.[159] NCA objected to the inclusion of certain non-profit organizations on the basis that those organizations were not stakeholders and did not have an interest to protect as the non-governmental organizations did not have water rights within the LWRFS basins effected by the proceedings.[160]

With respect to the geographic boundary of the LWRFS, in its Rebuttal Report, NCA is of the opinion that the northwestern portion of the Black Mountains Area, as identified by the State Engineer, should be within the LWRFS basins, but expressed its disagreement with other opinions advocating for the inclusion of the entire Black Mountains Area based upon NCA's analysis of the geology and groundwater elevations.[161] During the Interim Order 1303 hearing and in its Post-Hearing Brief, NCA's opinion shifted to advocate for the boundary of the LWRFS to be adjusted

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[155] NPS Ex. 2, pp. 7, 22–23. *See also* NPS Closing, pp. 5–6.
[156] *Id.*
[157] *Id.*
[158] NPS Ex. 2, p. 23. *See also* NPS Closing, p. 6, and Tr. 593–594.
[159] NCA Ex. 1, *NCA Rebuttal Report Pertaining to Interim Order 1303 August 16, 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources; Tr. 1602–50.
[160] NCA Ex. 1, pp. 1, 23.
[161] *Id.*, pp. 2, 23.

to exclude its production wells in the Black Mountains Area; however, NCA did not alter its opinion regarding the remaining portion of the Black Mountains Area staying within the LWRFS.[162]

NCA further expressed that the Lower Meadow Valley Wash should not be included in the LWRFS boundaries based upon the fact that observed groundwater levels do not indicate a hydrologic response to carbonate-rock aquifer pumping and that insufficient data supports a finding of continuity between water level trends to support its inclusion in the LWRFS.[163] However, NCA advocated for the inclusion of the Kane Springs Valley within the LWRFS based upon its opinion that the groundwater data demonstrated hydrologic connectivity between Coyote Spring Valley and Kane Springs Valley, acknowledging that the data is slightly attenuated resulting from the Kane Springs fault.[164] Ultimately, NCA concluded that Kane Springs Valley is tributary to the Coyote Spring Valley and the other LWRFS basins, which justify its inclusion within the boundary of the LWRFS.[165]

Similarly, based upon the groundwater data from the northern portion of Coyote Spring Valley demonstrating similar water level responses as other wells throughout the LWRFS and pumping data demonstrating high hydrologic connectivity across all the LWRFS basins, NCA concluded that there was no basis to exclude the northern portion of Coyote Spring Valley.[166] Finally, NCA rejected a suggestion that the entirety of the White River Flow system, which extends into northeastern Nevada, be included within the management area.[167] Specifically, NCA concluded that the Pahranagat Shear Zone creates a significant barrier to the northwestern portion of the LWRFS and that review of groundwater levels does not support a finding that groundwater level declines propagate into the northern reaches of the White River Flow System.[168] NCA concluded, advocating that proper management of the LWRFS is appropriate and sufficient for the

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[162] *Post-hearing brief of Nevada Cogeneration Associates Nos. 1 and 2 pertaining to Amended Notice of Hearing Interim Order #1303 following the hearing conducted September 23, 2019, through October 4, 2019, before the Nevada State Engineer* (NCA Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 2–10. *See also* Tr. 1619–22.
[163] NCA Ex. 1 pp. 3–7, 23. *See also* NCA Closing, pp. 15–16.
[164] NCA Ex. 1, pp. 8–17, 23. *See also* NCA Closing, pp. 10–14, and Tr. 1629–44.
[165] NCA Ex. 1, pp. 11–16.
[166] *Id.*, pp. 17–18, 23.
[167] *Id.*, pp. 19, 24.
[168] *Id.*

purpose of managing discharge of groundwater to the Warm Springs area to support habitat for the Moapa dace and serve senior Muddy River decreed rights.[169]

In addressing the annual amount of groundwater that could be developed within the LWRFS without adversely impacting senior decreed rights on the Muddy River or Warm Springs area discharge supporting the habitat for the Moapa dace, NCA supported a target of 9,318 afa, a recent three-year average of annual pumping within the LWRFS,[170] as it did not believe there to be sufficient data to support either an increase or decrease from this amount.[171] However, in its post-hearing brief, NCA opined that if their production wells located within the northwestern portion of the Black Mountains Area were excluded from the LWRFS boundary, then the annual amount of water that could be sustainably developed was less than the 9,318 afa.[172]

Finally, NCA did not support movement of water rights from the Muddy River Springs Area alluvial aquifer to the carbonate-rock aquifer, as it was of the opinion that the movement of those rights would not mitigate impact to the Warm Springs area.[173] Rather, NCA concluded that movement of those rights would compound the impact of pumping from the carbonate-rock aquifer.[174] However, NCA did express some support for movement of senior alluvial water rights as a management tool to offset existing junior carbonate-rock aquifer pumping within the LWRFS.[175]

NV Energy

NV Energy submitted a rebuttal report outlining its responses to the five matters the State Engineer solicited in Interim Order 1303 and presented its opinions and conclusions during the Interim Order 1303 hearing.[176] In its rebuttal report, NV Energy opined that the geographic boundary of the LWRFS should be as established in Interim Order 1303.[177] NV Energy further

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[169] *Id.*
[170] NCA Ex. 1, p. 19. *See, e.g.* Draft order of the State Engineer distributed to LWRFS stakeholders at the LWRFS Working Group meeting, September 19, 2018, official records of the Division of Water Resources.
[171] *Id.*, pp. 18, 24.
[172] NCA Closing, pp. 14–15.
[173] NCA Ex. 1, pp. 19–23, 24.
[174] *Id.*
[175] *Id.*
[176] NVE Ex. 1, *NV Energy Rebuttal Report to State Engineer's Order 1303 Initial Reports by Respondents*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[177] *Id.*, pp. 1–2.

opined that the existence of subsurface outflow from Kane Springs Valley into the LWRFS basins was insufficient to support its inclusion.[178]

NV Energy, in its rebuttal report, disagreed with MBOP's conclusion that the groundwater level declines observed during and after the Order 1169 aquifer test were primarily caused by drought. Rather, NV Energy agreed with SNWA's and MVWD's conclusions that the groundwater recovery occurred between 2–3 years following the conclusion of the aquifer test, but that continued pumping within the carbonate-rock aquifer has inhibited recovery to pre-Order 1169 aquifer test groundwater levels, and that at the current rate of carbonate-rock aquifer pumping the aquifer has nearly reached steady-state conditions and discharge to the Warm Springs area has reached equilibrium.[179]

NV Energy further agreed in its rebuttal report with MBOP's and CNLV's conclusions that some groundwater flowing within the carbonate-rock aquifer bypassed the Muddy River Springs Area, and ultimately the Muddy River. NV Energy also agreed that groundwater development within the southern boundary of the LWRFS would likely have less of an effect on discharge to the Warm Springs area and the river. NV Energy did not opine as to the quantity of water that bypassed the springs, but inferred that the current 7,000–8,000 afy of carbonate-rock aquifer pumping appeared to support the conclusion that steady-state conditions had been reached.[180] NV Energy also opined that movement of senior certificated alluvial water rights in the Muddy River Springs Area to carbonate-rock aquifer wells located in the southern portion of the LWRFS may be considered acceptable as Nevada law allows for the reasonable lowering of the groundwater table, and such movement would not necessarily result in a conflict to existing rights.[181] NV Energy further concluded that, contrary to the conclusions of MBOP, drought was not a significant cause for the groundwater level declines observed.[182] Finally, NV Energy concluded with suggestions that the State Engineer either: (1) combine the LWRFS basins into a single hydrographic basin and declare the new basin to be a Critical Management Area pursuant to NRS 534.037 and 534.110; or, (2) for the State Engineer to, under his authority in NRS 534.020 and

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[178] *Id.*
[179] *Id.*, pp. 2–7.
[180] NVE Ex. 1, p. 8.
[181] *Id.*, pp. 8–9; *Nevada Energy's Closing Statements* (NV Energy Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, pp. 4–5.
[182] *Id.*, pp. 9–12.

534.120, require the water right holders within the LWRFS to develop a conjunctive management plan.[183]

After considering all of the evidence and testimony presented at the Interim Order 1303 hearing, NV Energy ultimately altered its opinion and found compelling arguments to both support the inclusion of Kane Springs Valley in the LWRFS as well as its exclusion.[184] Ultimately, NV Energy changed its opinion with respect to the geographic boundary of the LWRFS and in its closing statement expressed support for the inclusion of Kane Springs Valley within the LWRFS boundary due to the connection with Coyote Spring Valley and thus the potential for impacts to LWRFS from pumping within Kane Springs Valley.[185] NV Energy proposes that the current pumping regime of 7,000 to 8,000 afy be maintained to evaluate the potential for steady-state conditions and the continued monitoring of the Warm Springs West gage and agrees that moving pumping further south may reduce impact to the Muddy River and springs. With regards to moving water between the alluvial and carbonate-rock aquifers, similar to others, NV Energy agrees with the evaluation of change applications on a case-by-case basis with demonstration that impacts are reduced or unchanged by the proposed point of diversion compared to the existing point of diversion. NV Energy supports an agreement that would include all water users within the LWRFS for the purposes of not exceeding stresses within system and protecting the Moapa dace.[186]

Southern Nevada Water Authority and Las Vegas Valley Water District

The SNWA and LVVWD submitted multiple reports in response to the Interim Order 1303 solicitation.[187] SNWA and LVVWD supported the boundary of the LWRFS as identified in Interim Order 1303, and argued that there was a general consensus of the participants regarding the

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[183] *Id.*, p. 12.
[184] Tr. 1761–1762.
[185] NV Energy Closing, pp. 2–3.
[186] *Id.*, pp. 3–6.
[187] SNWA Ex. 7; SNWA Ex. 8, *Marshall, Z.L., and Williams, R.D., 2019, Assessment of Moapa dace and other groundwater- dependent special status species in the Lower White River Flow System, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources; SNWA Ex. 9, *Burns, A., Drici, W., and Marshall Z.L., 2019, Response to stakeholder reports submitted to the Nevada State Engineer with regards to Interim Order 1303, Presentation to the Office of the Nevada State Engineer: Southern Nevada Water Authority, Las Vegas, Nevada*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

boundaries based upon the hydraulic connectivity within the identified basins.[188] Further, SNWA and LVVWD argued against the exclusion of the northern and western portions of Coyote Spring Valley, that management of adjoining basins should be done in a manner recognizing an impact on pumping from those basins on water availability in the LWRFS basins, and that the Las Vegas Valley should be excluded from the LWRFS.[189]

With respect to the evaluation of the carbonate-rock aquifer recovery since the conclusion of the Order 1169 aquifer test, SNWA and LVVWD concluded that the aquifer has not returned to pre-Order 1169 levels, and that the evidence demonstrates a continued declining trend within the carbonate-rock aquifer as a result of continued groundwater pumping.[190] SNWA and LVVWD concluded that the current pumping continues to capture groundwater storage and that based upon the current rate of groundwater withdrawals, water levels within the carbonate-rock aquifer will continue to decline for the foreseeable future.[191] Further, SNWA and LVVWD rejected the premise that climate was a significant factor over groundwater withdrawals for the observed groundwater level decline.[192]

Based upon a review of the evidence, SNWA and LVVWD concluded that current rate of groundwater withdrawals were not sustainable without adversely impacting senior Muddy River water rights and Moapa dace habitat.[193] Based upon the analysis performed by SNWA and LVVWD, examining the discharge from the Muddy River Springs Area and groundwater production within the carbonate-rock aquifer within the LWRFS, SNWA and LVVWD concluded that any groundwater development within the carbonate-rock aquifer resulted in a one-to-one (1:1) ratio of capture of Muddy River flow, and that regardless of where that pumping occurred, it still resulted in a 1:1 ratio of capture, only that the period of time that the capture was realized was longer.[194] Ultimately, SNWA and LVVWD concluded that while any amount of pumping results

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[188] SNWA Ex. 7, pp. 5-1 through 5-18, 8-1. *See also*, Tr. 953.
[189] *Closing Brief of Southern Nevada Water Authority and Las Vegas Valley Water District* (SNWA Closing), pp. 4–9, Hearing on Interim Order 1303, official records of the Division of Water Resources. *See also* SNWA Ex. 9 at sections 6, 7 and 12.
[190] SNWA Closing, pp. 9–12. *See also* SNWA Ex. 7, pp. 5-1 through 5-18, and SNWA Ex. 9, pp. 15–20.
[191] SNWA Closing, pp. 11–12. *See also* Tr. 932.
[192] SNWA Closing, pp. 12–14. *See also* SNWA Ex. 9, pp. 15–17.
[193] SNWA Ex. 7, pp. 6-3 through 6-4, 8-2 through 8-4.
[194] *Id.*, pp. 6-4 through 6-11, 8-2 through 8-4; SNWA Ex. 9, pp. 22–27.

in a conflict with senior decreed Muddy River rights, approximately 4,000 to 6,000 afa could be sustainably pumped from the aquifer.[195] In conjunction with SNWA and LVVWD's evaluation of the quantity of water that may be sustainably developed within the LWRFS, SNWA and LVVWD reviewed the interrelationship between discharge from the carbonate-rock aquifer underlying the LWRFS, groundwater pumping and the impact on the habitat and recovery of the Moapa dace.[196] SNWA and LVVWD ultimately concluded that the flow required to sustain the Moapa dace from adverse effects, including habitat loss and fish population declines was a minimum 3.2 cfs at the Warm Springs West gage.[197]

Finally, it was SNWA and LVVWD's opinion that movement of water rights from the Muddy River Springs Area alluvial aquifer to the carbonate-rock aquifer within the LWRFS may delay the capture of water serving senior decreed rights on the Muddy River, but that movement of water from the alluvial aquifer to the carbonate-rock aquifer would adversely impact the habitat of the Moapa dace.[198] Thus, SNWA and LVVWD concluded transfer of water rights from the Muddy River Springs Area alluvial aquifer to the LWRFS carbonate-rock aquifer would result in further depletion of flow to the Warm Springs area.[199]

Technichrome

Technichrome submitted a response and additional response to the Interim Order in July 2019 but did not participate in the hearing.[200] Technichrome stated that it had no objection to a "joint administrative basin" consisting of Coyote Spring Valley, Black Mountain Area, Garnet Valley, Hidden Valley, Muddy River Springs Area, and Lower Moapa Valley, expressed no comment regarding the inclusion of Kane Springs Valley, but questioned whether the entirety of the White River Flow System should be included in the State Engineer's analysis.[201] However,

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[195] Tr. 921–22. *See also* SNWA Ex. 7, pp. 8-1 through 8-5; SNWA Ex. 9, p. 27.
[196] *See* SNWA Ex. 8.
[197] *Id.*, pp. 8-1 through 8-2. *See also* SNWA Closing, pp. 17–19.
[198] *See* SNWA Closing, pp. 19–20. *See also* SNWA Ex. 7, pp. 6-3 through 6-11, 8-4; SNWA Ex. 9, pp. 21–22.
[199] SNWA Closing, p. 20. *See also* Tr. 904–05.
[200] *Response to Interim Order #1303 Submitted [sic] by Technichrome* (Technichrome Response), Hearing on Interim Order 1303, official records of the Division of Water Resources, and *Additional Comments from Technichrome* (Technichrome Addendum), Hearing on Interim Order 1303, official records of the Division of Water Resources.
[201] Technichrome Response, pp. 1–3.

Technichrome did note that it believed that combining all water rights into a single management structure reduced the State Engineer's ability to control groundwater withdrawals. Technichrome stated that it believed that the State Engineer should have the ability to control withdrawals in small areas to best manage the discharge to the Warm Springs area, and that more targeted control over the groundwater withdrawals would be more effective in managing the discharge.[202] Technichrome supported this opinion with some analysis of the results of the Order 1169 aquifer test and its opinion that pumping farther from the Warm Springs area had little to no impact on discharge to Pederson Spring.[203]

In Technichrome's additional comments, Technichrome addressed concerns regarding the injury that would result from a system-wide reduction of groundwater rights throughout the LWRFS.[204] Finally, Technichrome addressed concerns regarding reliance on the priority system, as utilization of the prior appropriation system would benefit senior irrigation uses over the junior industrial uses, and that removal of basin boundaries would remove limitations on movement of water rights between the existing hydrographic basins, which would disrupt junior uses in areas where senior rights may be moved.[205]

U.S. Fish and Wildlife Service

USFWS holds several water rights within the LWRFS and its mission is consistent with the scientific and management aspects of the LWRFS and the management area as established in Interim Order 1303.[206] USFWS opted to participate in the proceeding by submitting initial and rebuttal reports and providing testimony during the administrative hearing.[207] The approach of

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[202] *Id.*
[203] *Id.*, and Technichrome Addendum.
[204] Technichrome Addendum.
[205] *Id.*
[206] The USFWS' mission is to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people. *See also,* USFWS, *About the U.S. Fish and Wildlife Service*, https://bit.ly/aboutusfws (last accessed June 4, 2020).
[207] USFWS Ex. 5, *Report in Response to Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources; USFWS Ex. 7, *Rebuttal to: Water Level Decline in the LWRFS: Managing for Sustainable Groundwater Development by Cady Johnson and Martin Mifflin* [sic], *Mifflin & Associates, Inc., submitted by the Moapa Band of Paiutes in accordance with Order 1303*, Hearing on Interim Order 1303, official records of the Division of Water Resources.

USFWS was to review available data, develop a hydrogeologic conceptual model, and answer the specific questions posed in Interim Order 1303.

USFWS proposed that the boundary be based on geologic breaks rather than the surface drainage areas. The boundary would then encompass all Muddy River Springs Area, Hidden Valley, Garnet Valley, most of Coyote Spring Valley, most of California Wash, the northwest portion of the Black Mountains area, Kane Springs Valley, and most of Lower Meadow Valley Wash. The extent to which Kane Springs Valley and Lower Meadow Valley Wash are included would depend on the data from an aquifer test that has not yet been performed.[208]

Although, USFWS did not directly opine their view on recovery, their report discusses a conceptual model with insight into lag times and hydraulic connections, and how current conditions relate to sustainable pumping. An "undiminished state of decline" in water levels and spring flows indicated that the system was not in equilibrium at the end of the Order 1169 aquifer test. USFWS postulated there was generally good connectivity within the aquifer system with areas of higher and lower transmittivity. Trends in water levels and spring flows allude to the connection between high elevation springs and carbonate-rock aquifer pumping, with a time lag observed in the recovery of carbonate-rock aquifer water levels and spring flows following the cessation of the Order 1169 aquifer test. The exception is Big Muddy Spring where surface water level trends appeared to be unrelated to the carbonate-rock aquifer water levels.[209]

USFWS determined that the optimum method currently available to estimate the maximum allowable rate of pumping in the LWRFS is the average annual rate of pumping from 2015–2017.[210] USFWS considered the period from 2015 to 2017 because it found that the groundwater withdrawals, the discharge of the Muddy River Springs, and the flow of the Muddy River were all relatively constant; flow rates from Plummer, Pederson, Jones and Baldwin springs, though generally lower than before the Order 1169 aquifer test, were reasonably stable compared to earlier

[208] *See* USFWS Ex. 5, pp. 2, 28–36.
[209] USFWS Ex. 5, pp. 3, 32–33, 35, 37–45; Tr. 266–270, 273–281, 299-301, 433-435.
[210] USFWS Ex. 5, p. 3.

periods.[211] Using the pumpage inventories for this time period, USFWS estimated the sustainable groundwater withdrawals to be 9,318 afa.[212]

Even if total carbonate-rock and alluvial aquifer pumping is maintained at a "sustainable" overall level, USFWS did not support increased carbonated-rock aquifer pumping in exchange for reductions in alluvial aquifer pumping, nor did USFWS support increased alluvial aquifer pumping in exchange for reductions in carbonate-rock aquifer pumping. USFWS suggested that carbonate-rock aquifer pumping should not be moved closer to the springs or the river. Similarly, USFWS suggests that alluvial aquifer pumping in the vicinity of the river should not be moved closer to the river. USFWS opines that any movement of water nearer to the springs or the river is anticipated to decrease the lag time for observing responses from pumping and shorten the time to respond to unfavorable impacts.[213]

Moving forward with management of the LWRFS, USFWS supported the use of the triggers at the Warm Springs West gage, as established under the 2006 MOA. Continuing to use these Warm Springs West flows as a trigger for management will protect and provide habitat for the Moapa dace; a reduction in the flow translates to a reduction in habitat.[214]

USFWS did not deny that water levels were independent of a climate response signal. Using observed data for Nevada Climate Divisions, USFWS visually inspected hydrographs for climate signals. USFWS opined that response to wet periods are observed for wells in both the carbonate-rock and alluvial aquifers and springs that discharge from the carbonate-rock aquifer but stated that response to dry periods cannot be separated from the impacts of pumping. USFWS did not observe these same climate signals in the hydrographs for Jones and Baldwin Springs or the Big Muddy Spring. USFWS disagreed with the conclusion of the MBOP regarding long-term, regional drought, as well as the analytical methods.[215]

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[211] USFWS Ex. 5, pp. 3, 37; Tr. 269–270, 433–435.
[212] USFWS Ex. 5, pp. 3, 36–38; Tr. 268–270.
[213] *See* USFWS Ex. 5, pp. 3–4, 38–39; Tr. 272–273.
[214] *See* USFWS Ex. 5, pp. 4, 39–45; Tr. 273–282; *See also*, NSE Ex. 256; NSE Ex. 244, *2006 Memorandum of Agreement Trigger Levels agreed to by the Southern Nevada Water Authority, Moapa Valley Water District, Coyotes Springs Investments LLC and Moapa Band of Paiute Indians*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[215] *See* USFWS Ex. 5, pp. 24–28, 34–35; *See* USFWS Ex. 7, pp. 2–16; Tr. 258–260, 299–322, 429–432.

Western Elite Environmental/Bedroc

Bedroc is the land holding and water-right holding entity for Western Elite Environmental, Inc., a provider of construction and recyclable waste collection and disposal in Southern Nevada.[216] Bedroc submitted an undated rebuttal report signed by Derek Muaina, General Counsel, and a closing statement.[217] Bedroc presented Jay Dixon as its expert to give a presentation and to discuss the rebuttal report.[218] Mr. Dixon stated that he contributed to the report, and that he agreed with it, but he did not sign the report because he was working for another participant in the hearing (NCA).[219] Mr. Dixon did provide testimony consistent with the report, and adopted the findings of that report, and both the testimony and the report will be considered in this Order.[220]

Bedroc presented testimony and evidence that its source of groundwater is hydraulically disconnected from the regional carbonate aquifer of the LWRFS and that additional groundwater may be available for pumping in their part of Coyote Spring Valley. Bedroc also argued that its basin fill alluvial groundwater pumping should be managed outside of the proposed LWRFS joint administrative unit.[221]

To show the hydraulic disconnect, Bedroc presented geologic information demonstrating its unique location.[222] Bedroc showed that a confining shelf of sedimentary rock was noticeably absent in the vicinity of the Bedroc site where recharge from the Sheep Range rises toward the surface between two faults, which results in shallow groundwater that is subject to ET and capture from shallow groundwater wells at the Bedroc site.[223] Recharge from the Sheep Range was estimated to be 750 afy, an average of the high and low estimates of the maximum recharge

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[216] Bedroc Ex. 2, *Interim Order 1303- Rebuttal Report- Prepared by Bedroc and Dixon Hydrologic, PLLC- August 2019*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[217] Bedroc Ex. 2; *Western Elite Environmental Inc.'s and Bedroc Limited, LLC's Closing Statement* (Bedroc Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources.
[218] *See* Tr. 1718–1719.
[219] Tr. 1719, 1741.
[220] Tr. 1718–1757, 1749–1750.
[221] Bedroc Closing, pp. 13–14. Bedroc offered summary responses to the first four questions posed by Order 1303 but did no independent analysis. *See* Bedroc Closing, p. 12.
[222] Bedroc Closing, p. 2.
[223] *Id*; Tr. 1726–1733.

available.[224] SNWA challenged this calculation, pointing out that the estimated recharge could be as low as 130 acre-feet.[225]

Bedroc believes that it is capturing the recharge that would otherwise be lost to evapotranspiration.[226] Groundwater conditions at Bedroc's site show a rise in water levels between 2003 and 2006.[227] Bedroc attributed this rise in part to the installation of an unlined storage pond upgradient from the well, but also to the 2005 recharge event that was discussed by many participants to the proceeding.[228] Between 2006 and 2011, Bedroc showed that groundwater levels had been relatively stable even though pumping by Bedroc was fairly constant.[229] Bedroc showed photo evidence of evapotranspiration occurring around the Bedroc site, pointing to areas of white surface soils and green occurring in the photo as evidence of salt residue and phreatophytes, both occurring as a result of shallow groundwater evaporation.[230] The area is estimated to be about 2,200 acres, and the ET range is estimated to be 0.2 to 0.3 feet per year.[231] This results in an estimate of 400 to 600 afa of groundwater that potentially could be captured every year without pulling groundwater from storage.[232] If pumping in this area exceeded ET, water levels to the east of Bedroc would be dropping.[233]

Bedroc considered the alluvial system at its location to be a separate aquifer from the carbonate-rock aquifer in the LWRFS.[234] CBD in its report also supports this conclusion, suggesting that some groundwater can be withdrawn from the Coyote Spring Valley alluvial aquifer system because that system is disconnected from and not responsible for substantial recharge to the carbonate-rock aquifer.[235] SNWA testified similarly during the hearing.[236]

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[224] Tr. 1724–1725, 1755.
[225] Tr. 1755.
[226] Bedroc Closing, pp. 5–9.
[227] Tr. 1735.
[228] *Id.*
[229] Tr. 1735–1736.
[230] Tr. 1734, 1738.
[231] Tr. 1739.
[232] Tr. 1739.
[233] Tr. 1739. *See also* Bedroc Closing, p. 8.
[234] Tr. 1746.
[235] Bedroc Ex. 2, p. 5.
[236] Tr. 1024.

Relying on a lack of connection between pumping at Bedroc and the carbonate-rock aquifer, Bedroc asserted that there is no likely impact to the Warm Springs area caused by Bedroc.[237] Bedroc compared groundwater elevations over time in two alluvial wells, CSV-3009M and CSVM-7, and showed an upward trend in groundwater elevations.[238] But, when comparing groundwater elevations of two monitoring wells in different sources, CSVM-7 in the alluvium and CSVM-4 in the carbonate-rock aquifers, the carbonate-rock aquifer well elevations showed a decline during the Order 1169 aquifer test, but the alluvial well elevation rose during the same period and leveled off after the conclusion of the test.[239] Bedroc concluded that these data illustrate 1) the hydraulic disconnect between the local alluvial aquifer and carbonate-rock aquifer and 2) if historical alluvial pumping at Bedroc has not impacted water levels in nearby alluvial wells, then there is likely no impact to spring or streamflow in the Muddy River Springs Area.

Finally, Bedroc stated that managing all users in the region under the same system would arbitrarily impact users whose water neither comes from the regional carbonate-rock aquifer system nor impacts the springs of concern downstream.[240] It urged caution in allowing transfer of water rights between alluvial and carbonate-rock aquifers due to potential impacts on senior users that are using local recharge that may not sustain pumping from additional users.[241] Transfers of senior alluvial rights from the Muddy River Springs Area to the area near Bedroc should be considered on a case-by-case basis to protect Bedroc's senior water rights.[242]

III. PUBLIC COMMENT

WHEREAS, following the conclusion of the Interim Order 1303 hearing, opportunity for public comment was offered, including the opportunity to submit written public comment, which was due to be submitted to the Division no later than December 3, 2019. Lincoln County Board of

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[237] Bedroc Closing, p.11. *See also* SNWA testimony of Andrew Burns that pumping at Bedroc wells is not likely to impact the carbonate system or the Muddy River. Tr. 1024–1025.
[238] Bedroc Closing, p. 12. *See also* Tr. 1736–1737, 1752.
[239] Tr. 1737–1738.
[240] Bedroc Ex. 2, pp. 2–4.
[241] *Id.*, p. 6.
[242] Tr. 1740.

County Commissioners submitted written public comment in addition to the closing argument submitted by LC-V.[243]

IV. AUTHORITY AND NECESSITY

WHEREAS, NRS 533.024(1)(c) directs the State Engineer "to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada."

WHEREAS, in 2017 the Nevada Legislature added NRS 533.024(1)(e), declaring the policy of the State to "manage conjunctively the appropriation, use and administration of all waters of this State regardless of the source of the water."

WHEREAS, NRS 534.020 provides that all waters of the State belong to the public and are subject to all existing rights.

WHEREAS, as demonstrated by the results of the Order 1169 aquifer test and in the data collected in the years since the conclusion of the aquifer test, the LWRFS exhibits a direct hydraulic connection that demonstrates that conjunctive management and joint administration of these groundwater basins is necessary and supported by the best available science.[244]

WHEREAS, the pre-development discharge of 34,000 acre-feet of the fully appropriated Muddy River system plus the more than 38,000 acre-feet of groundwater appropriations within the LWRFS greatly exceed the total water budget that may be developed without impairment of senior existing rights or proving detrimental to the public interest.

WHEREAS, the available groundwater supply within the LWRFS that can be continually pumped over the long-term is limited to the amount that may be developed without impairing existing senior rights, rights on the Muddy River or adversely affecting the public interest in

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[243] *See* Board of County Commissioners, Lincoln County, Nevada, *Public Comment to Interim Order #1303 Hearing, Reports, and Evidence on the Lower White River Flow System,* Hearing on Interim Order 1303, official records of the Division of Water Resources.

[244] *See, e.g.*, NSE Ex. 245; NSE Ex. 248; NSE Ex. 256; NSE Ex. 252; NSE Ex. 282, *Federal Bureaus Order 1169 Report Selected References: Comparison of Simulated and Observed Effects of Pumping from MX-5 Using Data Collected to the Endo of the Order 1169 Test, and Prediction of the Rates of Recovery from the Test, TetraTech, 2013,* Hearing on Interim Order 1303, official records of the Division of Water Resources. *See also, e.g.*, CBD Ex. 3; MVWD Exs. 3– 4; MVIC Ex. 1; NCA Ex. 1, SNWA Exs. 7–9; USFWS Exs. 5–6; NPS Exs. 2–3.

protection of the endangered Moapa dace and the habitat necessary to support the management and recovery of the Moapa dace.

WHEREAS, pursuant to NRS 532.120, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.

WHEREAS, pursuant to NRS 534.110(6) the State Engineer is directed to conduct investigations in groundwater basins where it appears that the average annual replenishment of the groundwater is insufficient to meet the needs of all water right holders, and if there is such a finding, the State Engineer may restrict withdrawals to conform to priority rights.

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, and specifically, NRS 534.120, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.[245]

WHEREAS, the State Engineer has the authority to hold a hearing to take evidence and the interpretation of the evidence with respect to its responsibility to manage Nevada's water resources and to allow willing participants to present evidence and testimony regarding the conclusions relating to the questions presented in Interim Order 1303. The State Engineer recognizes that the MBOP is a federally recognized tribe, and that its participation in the hearing was to facilitate the understanding of the interpretation of data with respect to the Interim Order 1303 solicitation.

V. ENDANGERED SPECIES ACT

WHEREAS, the Endangered Species Act (ESA), 16 U.S.C. §1531 et seq. is a federal law designed to serve the purpose of identifying, conserving and ultimately recovering species declining toward extinction.[246] Specifically, while the ESA is primarily a conservation program, a critical element of the conservation component seeks to encourage cooperation and coordination

[245] *See also* NRS 534.030, NRS 534.110.
[246] 16 U.S.C. § 1531(a)–(b).

with state and local agencies.[247] The responsibility of enforcement and management under the ESA rests predominately with the federal government; however, the ultimate responsibility is shared.[248]

WHEREAS, the ESA makes it unlawful for any person to "take" an endangered species – or to attempt to commit, solicit another to commit, or cause to be committed, a taking.[249] The term "person" is broadly defined to include the State and its instrumentalities.[250] "Take" encompasses actions that "harass, harm" or otherwise disturb listed species, including indirect actions that result in a take.[251] For example, a state regulator is not exempted from the ESA for takings that occur as a result of a licensee's regulated activity. States have been faced with the impediment of their administrative management actions being subservient to the ESA. For example, the Massachusetts Division of Marine Fisheries was subject to an injunction prohibiting it from issuing commercial fishing licenses because doing so would likely lead to the taking of an endangered species.[252] In *Strahan v. Coxe*, the court's decision relied on reading two provisions of the ESA— the definition of the prohibited activity of a "taking" and the causation by a third party of a taking— "to apply to acts by third parties that allow or authorize acts that exact a taking and that, but for the permitting process, could not take place."[253] Although Massachusetts was not the one directly causing the harm to the endangered species, the court upheld the injunction because "a governmental third party pursuant to whose authority an actor directly exacts a taking of an endangered species may be deemed to have violated the provisions of the ESA."[254] At least three other circuits have held similarly.[255] In each case, "the regulatory entity purports to make lawful an activity that allegedly violates the ESA."[256] Thus the action of granting the permit for the regulated activity has been considered an indirect cause of a prohibited taking under the ESA.

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[247] 16 U.S.C. § 1531(c); 16 U.S.C. § 1536.
[248] 16 U.S.C.A. § 1536.
[249] 16 U.S.C.A. § 1538(g).
[250] 16 U.S.C.A. § 1532(13).
[251] 16 U.S.C.A. § 1532(19). The term "harm" is defined by regulation, 50 C.F.R. § 17.3 (1999).
[252] *Strahan v. Coxe*, 127 F.3d 155 (1st.Cir.1997), *cert denied* 525 U.S. 830 (1998).
[253] *Id.*, p. 163.
[254] *Id.*
[255] *See Sierra Club v. Yeutter*, 926 F.2d 429 (5th Cir.1991); *Defenders of Wildlife v. EPA*, 882 F.2d 1294 (8th Cir. 1989); *Loggerhead Turtle v. County Council*, 148 F.3d 1231 (11th Cir.1998); *Palila v. Hawaii Dept. of Land & Natural Resources*, 852 F.2d 1106 (9th Cir.1988).
[256] *Loggerhead Turtle*, 148 F.3d at 1251.

WHEREAS, the use of water in Nevada is a regulated activity.[257] It is the responsibility of the State to manage the appropriation, use and administration of all waters of the state.[258] Based on *Strahan* and similar decisions, the act of issuing a permit to withdraw groundwater that reduces the flow of the springs that form the habitat of the Moapa dace and were to result in harm to the Moapa dace exposes the Division, the State Engineer and the State of Nevada to liability under the ESA.

WHEREAS, a USFWS biological opinion for the MOA found that the reduction in spring flow from the warm springs could impact the dace population in multiple ways. First, the USFWS found that declines in groundwater levels will reduce the flow to the Warm Springs area and allow for cooler groundwater seepage into streams. With reduced spring flow, Moapa dace habitat is reduced.[259] Additionally, USFWS determined that the reduced flows of warm water from the springs will also result in cooler water available throughout the dace habitat, reducing spawning habitat and resulting in a population decline.[260]

WHEREAS, based upon the testimony and evidence offered in response to Interim Order 1303, it is clear that it is necessary for spring flow measured at the Warm Springs West gage to flow at a minimum rate of 3.2 cfs in order to maintain habitat for the Moapa dace.[261] A reduction of flow below this rate may result in a decline in the dace population. This minimum flow rate is not necessarily sufficient to support the rehabilitation of the Moapa dace.[262]

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[257] NRS 533.030; 533.325; 534.020.
[258] NRS 533.325; 533.024(1)(e); 534.020.
[259] USFWS Ex. 5, pp. 50–52.
[260] SNWA Ex. 8, pp. 6-2 through 6-3; SNWA Ex. 40, *Hatten, J.R., Batt, T.R., Scoppettone, G.G., and Dixon, C.J., 2013, An ecohydraulic model to identify and monitor Moapa dace habitat. PLoS ONE 8(2):e55551, doi:10.1371/journal.pone.0055551.*, Hearing on Interim Order 1303, official records of the Division of Water Resources; SNWA Ex. 41, *U.S. Fish and Wildlife Service, 2006a, Intra-service programmatic biological opinion for the proposed Muddy River Memorandum of Agreement regarding the groundwater withdrawal of 16,100 acre-feet per year from the regional carbonate aquifer in Coyote Spring Valley and California Wash basins, and establish conservation measures for the Moapa Dace, Clark County, Nevada. File No. 1-5-05 FW-536, January 30, 2006.*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[261] Tr. 1127–1128.
[262] Tr. 401–402, 1147, 1157–1158.

WHEREAS, the ESA prohibits any loss of Moapa dace resulting from actions that would impair habitat necessary for its survival. Some groundwater users are signatories to an MOA that authorizes incidental take of the Moapa dace; however, the State Engineer and many other groundwater users are not covered by the terms of the MOA.[263] Not only would liability under the ESA for a "take" extend to groundwater users within the LWRFS, but would so extend to the State of Nevada through the Division as the government agency responsible for permitting water use.

WHEREAS, the State Engineer concludes that it is against the public interest to allow groundwater pumping from the LWRFS that will reduce spring flow in the Warm Springs area to a level that would impair habitat necessary for the survival of the Moapa dace and could result in take of the endangered species.

VI. GEOGRAPHIC BOUNDARY OF THE LWRFS

WHEREAS, the geographic boundary of the hydrologically connected groundwater and surface water systems comprising the LWRFS, as presented in Interim Order 1303, encompasses the area that includes Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area.[264] The rationale for incorporating these areas into a single administrative unit included the presence of a distinct regional carbonate-rock aquifer that underlies and uniquely connects these areas; the remarkably flat potentiometric surface observed within the area; the diagnostic groundwater level hydrographic pattern exhibited by monitoring wells distributed across the area; and the area-wide diagnostic water level response to pumping during the Order 1169 aquifer test. Each of these characteristics were previously identified and examined in the hydrological studies and subsequent hearing that followed the completion of the Order 1169 aquifer test. Indeed, these characteristics were the foundational basis for the State Engineer's determination in Rulings 6254–6261 that the

[263] NSE Ex. 236; SNWA Ex. 8, pp. 5-1 through 5-8.
[264] *See* NSE Ex. 1, p. 6.

close hydrologic connection[265] and shared source and supply of water in the LWRFS required joint management.[266]

WHEREAS, evidence and testimony presented during the Interim Order 1303 hearing indicated a majority consensus among stakeholder participants that this originally defined area is appropriately combined into a single unit.[267] Evidence and testimony was also presented on whether to add adjacent basins, or parts of basins to the administrative unit; to modify boundaries within the existing administrative unit; or to eliminate the common administrative unit boundaries. The State Engineer has considered this evidence and testimony on the basis of a common set of criteria that are consistent with the original characteristics considered critical in demonstrating a close hydrologic connection requiring joint management in Rulings 6254–6261 and more specifically, include the following:

1) Water level observations whose spatial distribution indicates a relatively uniform or flat potentiometric surface are consistent with a close hydrologic connection.

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[265] The State Engineer notes that the terminology "***hydrologic*** connection" and "***hydraulic*** connection" have been used by different parties sometimes interchangeably, and commonly with nearly the same meaning. The State Engineer considers a hydraulic connection to be intrinsically tied to the behavior and movement of water. With regard to aquifers, it may be thought of as the natural or induced movement of water through permeable geologic material. The degree of hydraulic connection can be considered a measure of the interconnection between locations as defined by a cause and effect change in potentiometric surface or a change in groundwater inflow or outflow that reflects characteristics of both the aquifer material and geometry, and groundwater behavior. It is commonly characterized by a response that is transmitted through the aquifer via changes in hydraulic head, ie., groundwater levels. Hydrologic connections may include hydraulic connections but can also represent more complex system interactions that can encompass all parts of the water cycle, and in some cases may focus on flow paths, water budgets, geochemical interactions, etc. The State Engineer's use of the term "***close*** hydrological connection" is intended to encompass and include a direct hydraulic connection that is reflected in changes in groundwater levels in response to pumping or other fluxes into or out of the aquifer system within a matter of days, months, or years. The closeness, strength, or directness of the response is indicated by timing, with more distinct and more immediate responses being more "close".

[266] *See* NSE Ex. 14, p. 12, 24.

[267] *See* Participant testimony from SNWA (Tr. 875–876), CNLV (Tr. 1418), and CSI (Tr. 95–96). Several other participants agreed, too, that the State Engineer's delineation of the LWRS as defined in Interim Order 1303 was acceptable. *See also* Bedroc Closing, p. 12, Church Closing, p. 1; Technichrome Response, p. 1. Other participants recommended larger areas be included within the LWRFS boundary. *See* Tr. 261–266 (USFWS), 1571–1572 (CBD), 1697–1698 (MVIC). *See also* NV Energy Closing, pp. 2–3; NPS Closing pp. 2–5.

2) Water level hydrographs that, in well-to-well comparisons, demonstrate a similar temporal pattern, irrespective of whether the pattern is caused by climate, pumping, or other dynamic is consistent with a close hydrologic connection.

3) Water level hydrographs that demonstrate an observable increase in drawdown that corresponds to an increase in pumping and an observable decrease in drawdown, or a recovery, that corresponds to a decrease in pumping, are consistent with a direct hydraulic connection and close hydrologic connection to the pumping location(s).

4) Water level observations that demonstrate a relatively steep hydraulic gradient are consistent with a poor hydraulic connection and a potential boundary.

5) Geological structures that have caused a juxtaposition of the carbonate-rock aquifer with low permeability bedrock are consistent with a boundary.

6) When hydrogeologic information indicate a close hydraulic connection (based on criteria 1-5), but limited, poor quality, or low resolution water level data obfuscate a determination of the extent of that connection, a boundary should be established such that it extends out to the nearest mapped feature that juxtaposes the carbonate-rock aquifer with low-permeability bedrock, or in the absence of that, to the basin boundary.

WHEREAS, some testimony was presented advocating to include additional areas to the LWRFS based principally on water budget considerations and/or common groundwater flow pathways.[268] Indeed, some participants advocate to include the entire White River Flow System, or other basins whose water may ultimately flow into or flow out of the system.[269] Other participants used, but did not rely on, water budget and groundwater flow path considerations to support their analysis. Like those participants, the State Engineer agrees that while water budget and groundwater flow path analysis are useful to demonstrate a hydrologic connection, additional information is required to demonstrate the relative strength of that connection. Thus, the State

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[268] *See e.g.*, CNLV Ex. 3, p. 33, Tr. 1430; NPS Closing, p. 2. *See also* Tr. 253–257; Sue Braumiller, *Interpretations of available Geologic and Hydrologic Data Leading to Responses to Questions Posed by the State Engineer in Order 1303 regarding Conjunctive Management of the Lower White River Flow System* (USFWS Braumiller presentation), slide 11, Item 6., bullet 1, official records of the Division of Water Resources; MBOP Ex. 2, p. 11.
[269] *See e.g.*, GBWN Report, pp. 1–2.

Engineer recognizes that while any hydrologic connection, weak or strong, needs to be considered in any management approach, many of the connections advocated based principally on a water budget or flow path analysis, including those between nearby basins like Las Vegas Valley and Lower Meadow Valley Wash, are not demonstrated to provide for the uniquely close hydraulic connection that require joint management.

WHEREAS, in their closing statement, NPS proposes that all adjacent hydrographic areas to the original Interim Order 1303 administrative unit where a hydraulic interconnection exists, whether weak or strong, be included in the LWRFS.[270] It does so to alleviate the need for developing new management schemes for the excluded remnants and to provide for appropriate management approaches based on new information and improved understanding of differing degrees of hydraulic interconnection in various sub-basins. The State Engineer agrees with this logic, up to a point, and has applied these concepts to the extent practical as demonstrated in his criteria for determining the extent of the LWRFS. However, the State Engineer also finds that there must be reasonable and technically defensible limits to the geographic boundary. Otherwise, if management were to be based on the entire spectrum of weak to strong hydraulic interconnection, then exclusion of an area from the LWRFS would require absolute isolation from the LWRFS; every sub-basin would have its own management scheme based on some measure of its degree of connectedness; and proper joint management would be intractable.

WHEREAS, evidence and testimony was also presented by the NPS regarding the specific inclusion of the entirety of the Black Mountains Area in the LWRFS.[271] The State Engineer recognizes that there may be a hydrologic connection between the Black Mountains Area and upgradient basins that are sources of inflow, and that outflow from the LWRFS carbonate-rock aquifer may contribute to discharge from Rogers and Blue Point Springs. However, the State Engineer does not find that this supports inclusion of the entirety of the Black Mountains Area. This determination is made based on the lack of contiguity of the carbonate-rock aquifer into this

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[270] NPS Closing, pp. 3–5.

[271] NPS Closing pp. 3–4. *See also* Tr.534, 555–569; Richard K. Waddell, Jr., *Testimony of Richard K. Waddell on behalf of the National Park Service*, presentation during hearing for Interim Order 1303 (NPS Presentation), slides 32–46, official records of the Division of Water Resources.

area,[272] the difference in observed water level elevations compared to those in adjacent carbonate-rock aquifer wells to the north and west,[273] and the absence of observed diagnostic hydrographic patterns and responses that define the uniquely close hydraulic connection that characterizes the LWRFS.[274]

WHEREAS, evidence and testimony presented by USFWS relied principally on SeriesSEE analysis of water level responses submitted by the Department of Interior Bureaus following the Order 1169 aquifer test to establish the general extent of the LWRFS. This was supported by the application of hydrogeology and principles of groundwater flow to define specific boundary limits to the LWRFS. It proposed that most of the Lower Meadow Valley Wash be considered for inclusion in the LWRFS based on the potential geologic continuity between carbonate rocks underlying the Lower Meadow Valley Wash and the carbonate-rock aquifer underlying Coyote Spring Valley, the Muddy River Springs Area, and California Wash.[275] Additionally, it asserted that the alluvial aquifer system in Lower Meadow Valley Wash contributes to and is connected to both the Muddy River and the alluvial aquifer system in California Wash. The State Engineer finds that while carbonate rocks may underlie the Lower Meadow Valley Wash and be contiguous with carbonate rocks to the south and west, data are lacking to characterize the potential hydraulic connection that may exist. Regarding the hydraulic connection between the Lower Meadow Valley Wash alluvial aquifer and the LWRFS, the State Engineer agrees with USFWS that a connection exists, but finds that any impacts related to water development in the Lower Meadow Valley Wash alluvial aquifer are localized, and unrelated to the carbonate-rock aquifer, and can be appropriately managed outside the LWRFS joint management process.

WHEREAS, NCA advocated for the exclusion of the portion of the Black Mountains Area from the LWRFS that contains their individual production wells. NCA premise this primarily on testimony and analysis performed by SNWA with respect to the impact of pumping from this area

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[272] *See* CSI Ex. 14, Plate 2, Map and Plate 4, Cross section K–K', in Peter D. Rowley et. al., *Geology and Geophysics of White Pine and Lincoln Counties, Nevada and Adjacent Parts of Nevada and Utah: The Geologic Framework of Regional Groundwater Flow Systems*, Nevada Bureau of Mines and Geology Report 56.
[273] *See, e.g.*, USFWS Ex. 5, p. 30.
[274] *Id.*, p. 17.
[275] *Id.*, pp. 19–24.

on discharge to the Warm Springs area.[276] It also used hydrogeologic and water level response information to conclude that strike-slip faulting and a weak statistical correlation between water levels at NCA well EBM-3 and EH-4 in the Warm Springs area support a boundary to the north of the NCA production wells. While the State Engineer finds logic in NCA's position, other testimony describing flaws in the SNWA analysis make for a compelling argument against relying on SNWA's statistically-based results.[277] The substantial similarity in observed water level elevation and water level response at EBM-3 compared to EH-4[278] and limitations in relying on poor resolution water level measurements for statistical or comparative analysis[279] requires a more inclusive approach that places the boundary to the south of the NCA production wells to a geological location that coincides with the projection of the Muddy Mountain Thrust. This more closely coincides with the measurable drop in water levels recognized to occur south of the NCA wells, between EBM-3 and BM-ONCO-1 and 2, that is indicative of a hydraulic barrier or zone of lower permeability.[280] It also better honors the State Engineer's criteria by acknowledging the uncertainty in the data while reflecting a recognized physical boundary in the carbonate-rock aquifer. Specifically, this shall be defined to include that portion of the Black Mountains Area lying within portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; portions of Sections 1, 11, 12, 14, 22, 23, 27, 28, 33, and 34 and all of Sections 13, 24, 25, 26, 35, and 36, T.19S., R.63E., M.D.B.&M.; portions of Sections 4, 6, 9, 10, and 15 and all of Sections 5, 7, 8, 16, 17, 18, 19, 20, 21, 29, 30, and 31, T.19S., R.64E., M.D.B.&M.[281]

WHEREAS, numerous participants advocated to include Kane Springs Valley in the LWRFS basins.[282] Other participants advocated to exclude Kane Springs Valley.[283] Several expert witnesses recommended the exclusion of Kane Springs Valley based on their characterization of water level elevation data, temporal hydrographic response patterns, geochemistry, and/or the

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[276] *See,* Tr. 1622, 1624; NCA Closing.
[277] *See, e.g.,* Tr. 1467–1469 CNLV presentation, slides 21–23; Tr. 1784–1786; NV Energy presentation, slides 32–33.
[278] NCA Closing, p. 18, Figure 3.
[279] NCA Closing, p. 8.
[280] *See e.g.,* USFWS Ex. 5.
[281] See map of the LWRFS Hydrographic Basin as defined by this Order, Attachment A.
[282] *See, e.g.,* NV Energy Closing, p. 2; NCA Closing, p. 10–14; MVWD Closing, p. 2–8.
[283] *See e.g., Written Closing Statement of Lincoln County Water District and Vidler Water Company, Inc.* (LC-V Closing), Hearing on Interim Order 1303, official records of the Division of Water Resources, p. 3–6; CSI Closing, p. 2.

geophysically-inferred presence of structures that may act as flow barriers. Others recommended inclusion based on the same or similar set of information. Water level elevations observed near the southern edge of Kane Springs Valley are approximately 60 feet higher than those observed in the majority of carbonate-rock aquifer wells within the LWRFS to the south; consistent with a zone of lower permeability.[284] Some experts suggested that the hydrographic response pattern exhibited in wells located in the southern edge of Kane Springs Valley is different compared to that exhibited in wells in the LWRFS, being muted, lagged, obscured by climate response, or compromised by low-resolution data.[285] In this regard, the State Engineer recognizes these differences. However, he finds that the evidence and testimony supporting a similarity in hydrographic patterns and response as provided by expert witnesses, like that of the NPS, to be persuasive.[286] Namely, that while attenuated, the general hydrographic pattern observed in southern Kane Springs Valley reflects a response to Order 1169 pumping, consistent with a close hydraulic connection with the LWRFS. The State Engineer also finds that occurrence of the carbonate-rock aquifer in the southern Kane Springs Valley indicates that there is no known geologic feature at or near the southern Kane Springs Valley border that serves to juxtapose the carbonate-rock aquifer within the LWRFS with low permeability rocks in Kane Springs Valley.[287] He also finds that while geologic mapping[288] indicates that the carbonate-rock aquifer does not extend across the northern portion of the Kane Springs Valley, there is insufficient information available to determine whether the non-carbonate bedrock interpreted to underlie the northern part of the Kane Springs Valley represents low-permeability bedrock that would define a hydraulic boundary to the carbonate-rock aquifer.[289] After weighing all of the testimony and evidence relative to his criteria

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[284] LC-V Closing, p. 7.

[285] *See, e.g.*, LC-V Closing, pp. 5–6; LC-V Ex. 1, pp. 3-3–3-4; CSI Closing, pp. 5–6.

[286] *See* Tr. 524–55. *See, e.g.*, NPS presentation, slides 23–27.

[287] Pursuant to the criteria requiring joint management of hydrographic basins and the sixth criteria establishing that the boundary should extend to the nearest mapped feature that juxtaposes the carbonate-rock aquifer with low-permeability bedrock, or where a mapped feature cannot be adequately identified, to the basin boundary, the State Engineer includes the entirety of Kane Springs Valley.

[288] *See, e.g.*, NSE Ex. 12; Page, W.R., Dixon, G.L., Rowley, P.D., and Brickey, D.W., 2005, *Geologic Map of Parts of the Colorado, White River, and Death Valley Groundwater Flow Systems, Nevada, Utah, and Arizona*: Nevada Bureau of Mines and Geology Map 150, Plate plus text.

[289] *See, e.g.*, SNWA Ex. 7, pp. 2-4, 2-5, 2-10, 2-11, and 4-1, that describe volcanic rocks as important aquifers, and calderas as both flow paths and barriers depending on structural controls

for inclusion into the LWRFS, the State Engineer finds that the available information requires that Kane Springs Valley be included within the geographic boundary of the LWRFS.

WHEREAS, limited evidence and testimony were provided by participants advocating to either include or exclude the northern portion of Coyote Spring Valley. The State Engineer finds that while information such as that provided by Bedroc is convincing and supports a finding that local, potentially discrete aquifers may exist in parts of the northern Coyote Springs Valley, his criteria for defining the LWRFS calls for the inclusion of the entirety of the basin in the LWRFS. However, the State Engineer also acknowledges that there may be circumstances, like in the northern Coyote Spring Valley, where case-by-case considerations for proper management are warranted.

WHEREAS, evidence and testimony from Georgia-Pacific and Republic, and MBOP advocated against creating a single LWRFS administrative unit. Their arguments were principally based on concerns that there was insufficient consensus on defining the LWRFS geographic boundaries and that there were inherent policy implications to establishing an LWRFS administrative unit. MBOP recommended continuing to collect data and focusing on areas of scientific consensus. Georgia-Pacific and Republic asserted that boundaries are premature without additional data and without a legally defensible policy and management tools in place. They expressed concern that creating an administrative unit at this time inherently directs policy without providing for due process. The State Engineer has considered these concerns and agrees that additional data and improved understanding of the hydrologic system is critical to the process. He also believes that the data currently available provide enough information to delineate LWRFS boundaries, and that an effective management scheme will provide for the flexibility to adjust boundaries based on additional information, retain the ability to address unique management issues on a sub-basin scale, and maintain partnership with water users who may be affected by management actions throughout the LWRFS.

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to flow, citing Peter D. Rowley, and Dixon, G.L., 2011, *Geology and Geophysics of Spring, Cave, Dry Lake, and Delamar Valleys, White Pine and Lincoln Counties, and Adjacent Areas, Nevada and Utah: The Geologic Framework of Regional Flow Systems*,.

WHEREAS, evidence and testimony support the delineation of a single hydrographic basin as originally defined by the State Engineer in Interim Order 1303, with the adjustment of the Black Mountain Area boundary and the addition of Kane Springs Valley. The State Engineer acknowledges that special circumstances will exist with regard to both internal and external management. Water development both inside and outside of the perimeter of the LWRFS will continue to be evaluated on the best available data and may become subject to or excluded from the constraints or regulations of the LWRFS.

WHEREAS, the geographic extent of the LWRFS is intended to represent the area that shares both a unique and close hydrologic connection and virtually all of the same source and supply of water, and therefore will benefit from joint and conjunctive management. In that light, the State Engineer recognizes that different areas, jointly considered for inclusion into the LWRFS, have been advocated both to be included and to be excluded by the different hearing participants based on different perspectives, different data subsets, and different criteria. For the Muddy River Springs Area, California Wash, Garnet Valley, Hidden Valley, Coyote Spring Valley, and a portion of the Black Mountain Area, there is a persuasive case previously laid out in Rulings 6254–6261, and the consensus amongst the participants support their inclusion in the LWRFS. For other sub-basins such as Kane Springs Valley and the area around the NCA production wells in the Black Mountain Area, there is persuasive evidence to support their inclusion or exclusion; however, the State Engineer's criteria and available data mandate their inclusion. Their inclusion in the LWRFS provides the opportunity for conducting additional hydrologic studies in sub-basins such as these, to determine the degree to which water use would impact water resources in the LWRFS and to allow continued participation by holders of water rights in future management decisions. Thus, these sub-basins, and any other portions of the LWRFS that may benefit from additional hydrological study, can be managed more effectively and fairly within the LWRFS. For other basins whose inclusion was advocated, such as the northern portion of Las Vegas Valley and the Lower Meadow Valley Wash, the State Engineer finds that data do not exist to apply his criteria, and therefore they cannot be considered for inclusion into the LWRFS. These types of areas may require additional study and special consideration regarding the potential effects of water use in these areas on water resources within the LWRFS.

VII. AQUIFER RECOVERY SINCE COMPLETION OF THE ORDER 1169 AQUIFER TEST

WHEREAS, during the Order 1169 aquifer test an average of 5,290 afa were pumped from the carbonate-rock aquifer wells in Coyote Spring Valley and a cumulative total of 14,535 afa were pumped throughout the Order 1169 study basins. A portion of this total, approximately 3,840 acre-feet per year, was pumped from the alluvial aquifer in the Muddy River Springs Area.[290] In the years since completion of the Order 1169 aquifer test, pumping from wells in the LWRFS has gradually declined.[291] Pumping in 2013-2014 averaged 12,635 afa; pumping in 2015-2017 averaged 9,318 afa.[292] Pumpage inventories for 2018 that were published after the completion of the hearing report a total of 8,300 afa.[293] Pumping from alluvial aquifer wells in the Muddy River Spring Area has consistently declined since closure of the Reid Gardner power plant beginning in 2014, while pumping from the carbonate-rock aquifer since the completion of the aquifer test has consistently ranged between approximately 7,000 and 8,000 afa.

WHEREAS, the information obtained from the Order 1169 aquifer test and in the years since the conclusion of the test demonstrates that while, following conclusion of the aquifer test, there was a recovery of groundwater levels, the carbonate-rock aquifer has not recovered to pre-Order 1169 test levels.[294] Evidence and testimony submitted during the 2019 hearing does not refute the conclusions made by the State Engineer in Rulings 6254–6261 regarding interpretations of the Order 1169 aquifer test results, which were based on observations and analysis by multiple technical experts. Groundwater level recovery reached completion approximately two to three years after the Order 1169 aquifer test pumping ended.[295]

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[290] NSE Ex. 1, p. 4.
[291] *See, e.g.* NSE Ex. 50, *Pumpage Report Coyote Spring Valley 2017*; NSE Ex. 67, *Pumpage Report Black Mountains Area 2017*; NSE Ex. 84, *Pumpage Report Garnet Valley Area 2017*; NSE Ex. 86, *Pumpage Report California Wash Area 2017*; Ex. 88, *Pumpage Report Muddy River Springs Area 2017*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[292] *Id.*
[293] *Id.*
[294] *See, e.g.*, SNWA Ex. 7, pp. 5-17–5-18, 8-2; NPS Closing, p. 4; MVWD Closing, p. 8. *See also* Tr. 1807; NV Energy presentation, p. 11.
[295] SNWA Ex, 7, pp. 5-17–5-18; NVE Ex. 1, p. 2

WHEREAS, several participants testified about the effects of drought and climate on the recovery of groundwater levels and spring discharge after the Order 1169 aquifer test. Droughts, or periods of drier than normal conditions that last weeks, months, or years can lead to declines in groundwater levels.[296] The LWRFS is within National Oceanic and Atmospheric Administration's Nevada Climate Division 4 (Division 4). Precipitation records for Division 4 from 2006 to the 2019 season records indicate that 10 of those 14 seasons received lower than average precipitation.[297] Despite low precipitation, several participants submitted evidence that water levels continue to rise under current climate conditions in other areas with a relative lack of pumping that are tributary to the LWRFS, such as Dry Lake Valley, Delamar Valley, Garden Valley, Tule Desert, Dry Lake Valley, and other areas.[298] These rises have been attributed to efficient winter recharge that has occurred despite low cumulative precipitation.[299] Based on these observations, it was argued that the continued stress of pumping in the LWRFS carbonate-rock aquifer is limiting the recovery of water levels.[300] The State Engineer acknowledges that spring discharge is affected by both pumping and climate, and finds that groundwater levels remain a useful tool for monitoring the state of the aquifer system in the LWRFS regardless of the relative contribution of climate and drought to the measured groundwater levels. The State Engineer only has the authority to regulate pumping, not climate, in consideration of its potential to cause conflict or to be detrimental to the public interest and must do so regardless of the relative contributing effects of climate.

WHEREAS, evidence and testimony during the 2019 hearing was divided on whether water levels in the Warm Springs area and carbonate-rock aquifer indicate the system has reached or is approaching equilibrium,[301] or is still in a state of decline.[302] Hydrographs and evidence presented show that water levels at well EH-4 near the Warm Springs area have been relatively stable for several years following recovery from the Order 1169 aquifer test.[303] However, other

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[296] *See* USGS, 1993, *Drought,* US Geological Survey Open File Report 93-642, accessible at https://bit.ly/93-642, (last accessed June 6, 2020).
[297] SNWA Ex. 7, pp. 4-1–4-4.
[298] Tr. 577, 304–307.
[299] NPS Ex. 3, Appendix A.
[300] *See, e.g.*, SNWA Closing, p. 11. NPS Closing, p. 4. *See also* Tr. 642, 644–45, 1545.
[301] MVWD Closing, pp. 8–9. *See also* NV Energy Closing, p. 3; CNLV Closing, pp. 5–7.
[302] SNWA Closing, pp. 11–12. NPS Closing, pp. 4–5.
[303] SNWA Ex. 7, pp. 5–7.

carbonate-rock aquifer wells located further away from the Warm Springs area such as CSVM-1, TH-2, GV-1, and BM-DL-2 appear to have reached peak recovery from the Order 1169 aquifer test in 2015-2016 and have exhibited downward trends for the past several years.[304] The State Engineer agrees that water levels in the Warm Springs area may be approaching steady state with current pumping conditions. However, the trend is of insufficient duration to make this determination with absolute assurance and continued monitoring is necessary to determine if this trend continues or if water levels are continuing to decline slowly.

VIII. LONG-TERM ANNUAL QUANTITY OF WATER THAT CAN BE PUMPED

WHEREAS, the evidence and testimony presented at the 2019 hearing did not result in a consensus among experts of the long-term annual quantity of groundwater that can be pumped. Recommendations range from zero to over 30,000 afa, though most experts agreed that the amount must be equal to or less than the current rate of pumping. There is a near consensus that the exact amount that can be continually pumped for the long-term cannot be absolutely determined with the data available and that to make that determination will require more monitoring of spring flows, water levels, and pumping amounts over time.

WHEREAS, evidence and testimony were presented arguing that the regional water budget demonstrates that far more groundwater is available for development within the LWRFS than is currently being pumped. CSI argues that the total amount of groundwater available for extraction from the LWRFS may be up to 30,630,[305] which is an estimate of the entirety of natural discharge from the system that occurs through groundwater evapotranspiration and subsurface groundwater outflow. Nearly all other experts disagreed that pumping to that extent could occur without causing harm to the Moapa dace or conflict with senior Muddy River decreed rights. The disagreement is not about the amount of the water budget, but rather the importance of the water budget in determining the amount of groundwater in the LWRFS that can continually be pumped,[306] not the amount of inflow and outflow to the system. In addition, availability of groundwater for pumping based on water budget should consider whether the same water is appropriated for use in upgradient and downgradient basins, and CSI did not account for this.

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[304] *Id.*
[305] CSI Closing, p. 2.
[306] *See e.g.*, SNWA Ex. 9, p. 24.; MVWD Ex. 3, p. 4; NPS Ex. 3, p. 23.

The State Engineer recognizes that the water budget is important to fully understand the hydrology of the regional flow system but also agrees with nearly all participants that the regional water budget is not the limiting measure to determine water available for development in the LWRFS. The potential for conflict with senior rights and impacts that are detrimental to the public interest in the LWRFS is controlled by aquifer hydraulics and the effect of pumping on discharge at the Warm Springs area rather than the regional water budget.

WHEREAS, evidence and testimony were presented arguing that the location of pumping within the LWRFS is an important variable in the determination of the amount that can be pumped. Participants representing groundwater users in Garnet Valley and the APEX area at the south end of the LWRFS testified that pumping within Garnet Valley does not have a discernable signal at wells near the Warm Springs area and that the hydraulic gradient from north-to-south within the LWRFS indicates that there is a component of groundwater flow in Garnet Valley that does not discharge to the Warm Springs area.[307] Several participants agreed that moving pumping to more distal locations within the LWRFS will lessen the effect of that pumping on spring flows. NV Energy testified that there would be a lesser effect because pumping areas around the periphery of the main carbonate-rock aquifer are less well-connected to the springs, and because of the likelihood that some amount of subsurface outflow occurs along and southern and southeastern boundary of the LWRFS and it is possible to capture some of that subsurface outflow without a drop-for-drop effect on discharge at the Warm Springs area[308] Others drew the same conclusion based on their review of the data and characterization of a heterogeneous system[309] or on weak connectivity between peripheral locations and the Warm Springs area.[310]

CSI argues that more groundwater development can occur in the LWRFS because subsurface fault structures create compartmentalization and barriers to groundwater flow that reduce the effects of pumping on discharge at the Warm Springs area.[311] They rebut the contention by others that spring flow is affected homogeneously by pumping within the LWRFS.[312] CSI used geophysical data to map a north-south trending subsurface feature that bisects Coyote Spring

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[307] *See* CNLV Ex. 3, pp. 45–47; GP-REP Ex. 1, pp. 2–3.
[308] NVE Ex. 1, pp. 8–9.
[309] *See e.g.* MBOP Ex. 2, p. 23; GP-REP Ex. 2, pp. 4–5. *See also* Technichrome Response.
[310] *See e.g.* NCA Closing, pp. 2–10; LC-V Closing, pp. 4–6; Bedroc Closing, pp. 9–11.
[311] CSI Closing, pp. 2–5.
[312] CSI Ex. 2, pp. 40–41.

Valley. They hypothesize that this structure is an impermeable flow barrier that creates an isolated groundwater flow path on the west side of Coyote Spring Valley from which pumping would capture recharge from the Sheep Range without spring flow depletion at the Warm Springs area.[313] MBOP also contends that the system is far too complex to characterize it as a homogeneous "bathtub" and that preferential flow paths within the region mean that pumping stress will greatly differ within the LWRFS depending on where the pumping occurs.[314] Rebuttals to MBOP and CSI contend that an emphasis on complexities in geologic structure is a distraction from the question at hand, and that the hydraulic data collected during and after the Order 1169 aquifer test clearly demonstrate close connectivity and disproves CSI's hypothesis.[315]

The State Engineer finds that the data support the conclusion that pumping from locations within the LWRFS that are distal from the Warm Springs area can have a lesser impact on spring flow than pumping from locations more proximal to the springs. The LWRFS system has structural complexity and heterogeneity, and some areas have more immediate and more complete connection than others. For instance, the Order 1169 aquifer test demonstrated that pumping 5,290 afa from carbonate-rock aquifer wells in Coyote Spring Valley caused a sharp decline in discharge at the springs, but distributed pumping since the completion of the aquifer test in excess of 8,000 afa has correlated with a stabilization of spring discharge. The data collected during and after the Order 1169 aquifer test provide substantial evidence that groundwater levels throughout the LWRFS rise and fall in common response to the combined effects of climate and pumping stress, which controls discharge at the Warm Springs area.[316] The State Engineer finds that the best available data do not support the hypotheses that variable groundwater flow paths and heterogeneous subsurface geology are demonstrated to exist that create hydraulically isolated compartments or subareas within the LWRFS carbonate-rock aquifer from which pumping can occur without effect on the Warm Springs area. However, there remains some uncertainty as to the extent that distance and location relative to other capturable sources of discharge either delay, attenuate, or reduce capture from the springs.

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[313] *Id. See also* CSI Ex. 1, pp. 31–40.
[314] MBOP Closing, p. 7.
[315] *See e.g.*, SNWA Ex. 9, pp. 23–24.
[316] NSE Exs. 15–21.

WHEREAS, evidence and testimony were presented to argue that no amount of groundwater can be pumped from the carbonate-rock aquifer or from the LWRFS without conflicting with the Muddy River decree or causing harm to the Moapa dace habitat. This argument is predicated on the interpretation that lowering of groundwater level anywhere within the LWRFS, whether caused by climate or pumping, eventually has an effect on spring discharge, and that any reduction in spring discharge caused by pumping conflicts with senior decreed rights or harms the Moapa dace or both.[317] MVIC and SNWA agree that capturing discharge from the Warm Springs area springs and the Muddy River are a conflict with the Muddy River decree, which appropriates "all of the flow of the said stream, its sources of supply, headwaters and tributaries."

The Muddy River Decree was finalized in 1920, decades before any significant amount of groundwater development within the Muddy River springs area or the LWRFS. The statement quoted above, or something similar to it, is a common conclusion in decrees to establish finality to the determination of relative priority of rights. By including this statement, the decreed right holders are afforded the assurance that no future claimants will interject a new priority right. However, it is also common on decreed systems for junior rights to be appropriated for floodwater or other excess flows, provided that no conflict occurs with the senior priorities. Similarly, groundwater development almost always exists in the tributary watersheds of decreed river systems, even though groundwater in a headwater or tributary basin is part of the same hydrologic system. There is no conflict as long as the senior water rights are served.

The State Engineer disagrees with SNWA and MVIC that the above quoted statement in the decree means that any amount of groundwater pumped within the headwaters that would reduce flow in the Muddy River conflicts with decreed rights. The State Engineer finds that capture or potential capture of the waters of a decreed system does not constitute a conflict with decreed right holders if the flow of the source is sufficient to serve decreed rights. Muddy River decreed rights were defined by acres irrigated and diversion rates for each user.[318] The sum of diversion rates greatly exceeds the full flow of the River, but all users are still served through a rotation schedule managed by the water master. The total amount of irrigated land in the decree is 5,614 acres.[319]

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[317] *See, e.g.*, CBD Ex. 3, p. 23; SNWA Ex. 7, p. 8-4; MVIC Ex. 1, p. 3.
[318] NSE Ex. 333.
[319] *Id.*

Flow in the Muddy River at the Moapa Gage has averaged approximately 30,600 afa since 2015,[320] which is less than the predevelopment baseflow of about 33,900.[321] If all decreed acres were planted with a high-water use crop like alfalfa, the net irrigation water requirement would be 28,300 afa, based on a consumptive use rate of 4.7 afa.[322] Conveyance loss due to infiltration is an additional consideration to serve all decreed users; however, this is limited in the Muddy River because the alluvial corridor is narrow and well defined so water stays within the shallow groundwater or discharges back to the river. The State Engineer finds that the current flow in the Muddy River is sufficient to serve all decreed rights in conformance with the Muddy River Decree, and that reductions in flow that have occurred because of groundwater pumping in the headwaters basins is not conflicting with Decreed rights.

WHEREAS, the majority of experts agree that there is an intermediate amount of pumping approximated by recent pumping rates that can continue to occur in the LWRFS and still protect the Moapa dace and not conflict with decreed rights. USFWS and NCA endorsed the use of average pumping over the years 2015-2017 (9,318 afa as reported by State Engineer pumpage inventories) as a supportable amount that can continue to be pumped, because the system appears to have somewhat stabilized.[323] CSI also endorsed this approach as an initial phase, though they suggested 11,400 afa, which was the average pumping reported by State Engineer inventories over the years 2010-2015 that included the period of the Order 1169 aquifer test.[324] CNLV makes a rough estimate that no more than 10,000 afa can be supported throughout the entire region, based on their professional judgment and review of the data.[325] NV Energy concludes that 7,000–8,000 afa can continue to be pumped, based on the amount of pumping in recent years from carbonate-rock aquifer wells and the observation that steady-state conditions in Warm Springs area spring

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[320] NSE Ex. 211, *USGS 09416000 Muddy River Moapa 1914-2013*, Hearing on Interim Order 1303, official records of the Division of Water Resources.
[321] SNWA Ex. 7, p. 5-4.
[322] *See, e.g.*, Huntington, J.L. and R. Allen, (2010), *Evapotranspiration and Net Irrigation Water Requirements for Nevada*, Nevada State Engineer's Office Publication, accessible at https://bit.ly/etniwr, (last accessed June 7, 2020), official records of the Division of Water Resources.
[323] USFWS Ex. 5, p. 3; NCA Ex. 1, p. 19.
[324] CSI Closing, p. 2.
[325] CNLV Ex. 3, p. 2.

flow are being reached.[326] SNWA estimates that only 4,000–6,000 afa of carbonate-rock aquifer pumping can continually occur within the LWRFS.[327]

WHEREAS, the State Engineer finds that the evidence and testimony projecting continual future decline in spring flow at the current rate of pumping is compelling but not certain. Several participants pointed out rising trends in groundwater levels at many locations in Southern Nevada, outside of the LWRFS, that are distant from pumping[328] even though total precipitation has been below average and since 2006 has been described as a drought.[329] This suggests that climate and recharge efficiency may have actually buffered the full effect of pumping on discharge at the Warm Springs area, and that the system could not support the current amount of groundwater pumping during an extended dry period with lesser recharge. In addition, slight declining trends that are observed in Garnet Valley monitoring wells are not evident in wells close to the Warm Springs area.[330] If drawdown in Garnet Valley has not yet propagated to the Muddy Springs area, then the resilience of the apparent steady state of spring flow is in doubt. Projections of continued future decline in spring discharge suggests that the current amount of pumping in the LWRFS is a maximum amount that may need to be reduced in the future if the stabilizing trend in spring discharge does not continue.

WHEREAS, there is an almost unanimous agreement among experts that data collection is needed to further refine with certainty the extent of groundwater development that can be continually pumped over the long term. The State Engineer finds that the current data are adequate to establish an approximate limit on the amount of pumping that can occur within the system, but that continued monitoring of pumping, water levels, and spring flow is essential to refine and validate this limit.

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[326] NVE Ex. 1, p. 8.
[327] SNWA Ex. 7, p. 8-4.
[328] NPS Ex. 3, Appendix A. *See also* Tr. 304–307, 577.
[329] Tr. 1292–1300. *See, also* LC-V Ex. 11, *PowerPoint Presentation of Todd G. Umstot, entitled Drought and Groundwater*, Hearing on Interim Order 1303, official records of the Division of Water Resources, slides 3–10.
[330] CNLV Ex. 3, pp. 45–46.

WHEREAS, pumping from wells in the LWRFS has gradually declined since completion of the Order 1169 aquifer test and is approaching 8,000 afa. This coincides with the period of time when spring discharge may be approaching steady state. The State Engineer finds that the maximum amount of groundwater that can continue to be developed over the long term in the LWRFS is 8,000 afa. The best available data at this time indicate that continued groundwater pumping that consistently exceeds this amount will cause conditions that harm the Moapa dace and threaten to conflict with Muddy River decreed rights.

IX. MOVEMENT OF WATER RIGHTS

WHEREAS, the data and evidence are clear that location of pumping within the LWRFS relative to the Warm Springs area and the Muddy River can influence the relative impact to discharge to the Warm Springs area and/or senior decreed rights on the Muddy River. The transfer of groundwater pumping from the Muddy River Springs Area alluvial wells to carbonate-rock aquifer wells may change the timing of any impact to Muddy River flows and amplify the effect on discharge to the Warm Springs area, thus potentially adversely impacting habitat for the Moapa dace. And the transfer of groundwater withdrawals from the carbonate-rock aquifer into the Muddy River alluvial aquifer may reduce the impact to the Moapa dace habitat but increase the severity of impact to the senior decreed rights on the Muddy River. The State Engineer recognizes that the LWRFS is fundamentally defined by its uniquely close hydrologic interconnection and shared source and supply of water. However, the State Engineer also recognizes that there can be areas within the LWRFS that have a greater or lesser degree of hydraulic connection due to distance, local changes in aquifer properties, or proximity to other potential sources of capturable water.

WHEREAS, Rulings 6254–6261 acknowledge that one of the main goals of Order 1169 and the associated pumping test at well MX-5 was to observe the effects of increased pumping on groundwater levels and spring flows. Coyote Spring Valley carbonate-rock aquifer pumping during the Order 1169 aquifer test was the largest localized carbonate-rock aquifer pumping in the LWRFS. In addition, concurrent carbonate-rock aquifer and alluvial aquifer pumping in Garnet Valley, Muddy River Springs Area, California Wash, and the northwest portion of the Black Mountains Area occurred during the test period. Rulings 6254–6261 described the data and analysis used to determine that additional pumping at the MX-5 well contributed significantly to decreases in high elevation springs (Pederson Springs) and other springs that are the sources to the

Muddy River. Evidence and reports provided under Interim Order 1303 do not challenge the findings in Rulings 6254–6261 that pumping impacts were witnessed. There is a strong consensus among participants that pumping during the Order 1169 aquifer test along with concurrent pumping caused drawdowns of water levels throughout the LWRFS.[331] However, the effects of pumping from different locations within the LWRFS on discharge at the Warm Springs area is not homogeneous.[332] The State Engineer finds that movement of water rights that are relatively distal from the Warm Springs area into carbonate-rock aquifer wells that have a closer hydraulic connection to the Warm Springs area is not favorable.

WHEREAS, evidence and testimony provided by participants during the Interim Order 1303 hearing provides a strong consensus that alluvial aquifer pumping in the Muddy River Springs Area affects Muddy River discharge.[333] There is also strong evidence that carbonate-rock aquifer pumping throughout the LWRFS affects spring flow but can also be dependent on proximity of pumping to springs.[334] No participant is a proponent of moving additional water rights closer to the headwaters of the Muddy River within the Muddy River Springs Area, and most participants agree that carbonate-rock aquifer and alluvial aquifer pumping in the Muddy River Springs Area captures Muddy River flow. The State Engineer finds that any pumping within close proximity to the Muddy River could result in capture of the Muddy River. The State Engineer also finds that any movement of water rights into carbonate-rock aquifer and alluvial aquifer wells in the Muddy River Springs Area that may increase the impact to Muddy River decreed rights is disfavored.

WHEREAS, the Order 1169 aquifer test demonstrated that impacts from the test along with concurrent pumping was widespread within the LWRFS encompassing 1,100 square miles and supported the conclusion of a close hydrologic connection among the basins.[335] While the effects of movement of water rights between alluvial aquifer wells and carbonate-rock aquifer wells on deliveries of senior decreed rights to the Muddy River or impacts to the Moapa dace may not be uniform across the entirety of the LWRFS, the relative degree of hydrologic connectedness

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[331] *See* SNWA Closing, pp. 10, 16; MVIC Closing, p. 6.
[332] *See, e.g.*, SNWA Closing, p. 10.
[333] CNLV Closing, p. 8; Tr. 1456–1457, 1458. *See also* SNWA Closing, p. 16; MVWD Closing, p. 11; MVIC Closing, p. 6.
[334] CNLV Closing, pp. 8–10; Tr. 1457, 1458; NV Energy Closing, p. 4; MVIC Closing, p. 6.
[335] NSE Ex. 256. *See also* NSE Ex. 14, pp. 20–21; NSE Ex. 17, p. 19; SNWA Closing pp. 2, 3.

in the LWRFS will be the principle factor in determining the impact of movement of water rights. The State Engineer recognizes that there may be discrete, local aquifers within the LWRFS with an uncertain hydrologic connection to the Warm Springs area. Determining the effect of moving water rights into these areas may require additional scientific data and analysis. Applications to move water rights under scenarios not addressed in this Order will be evaluated on their individual merits to determine potential impact to existing senior rights, potential impact to the Warm Springs area and Moapa dace habitat, and impacts to the Muddy River.

X. ORDER

NOW THEREFORE, the State Engineer orders:

1. The Lower White River Flow System consisting of the Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area as described in this Order, is hereby delineated as a single hydrographic basin. The Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley and the northwest portion of the Black Mountains Area are hereby established as sub-basins within the Lower White River Flow System Hydrographic Basin.

2. The maximum quantity of groundwater that may be pumped from the Lower White River Flow System Hydrographic Basin on an average annual basis without causing further declines in Warm Springs area spring flow and flow in the Muddy River cannot exceed 8,000 afa and may be less.

3. The maximum quantity of water that may be pumped from the Lower White River Flow System Hydrographic Basin may be reduced if it is determined that pumping will adversely impact the endangered Moapa dace.

4. All applications for the movement of existing groundwater rights among sub-basins of the Lower White River Flow System Hydrographic Basin will be processed in accordance with NRS 533.370.

5. The temporary moratorium on the submission of final subdivision or other submission concerning development and construction submitted to the State Engineer for review established under Interim Order 1303 is hereby terminated.

6. All other matters set forth in Interim Order 1303 that are not specifically addressed herein are hereby rescinded.

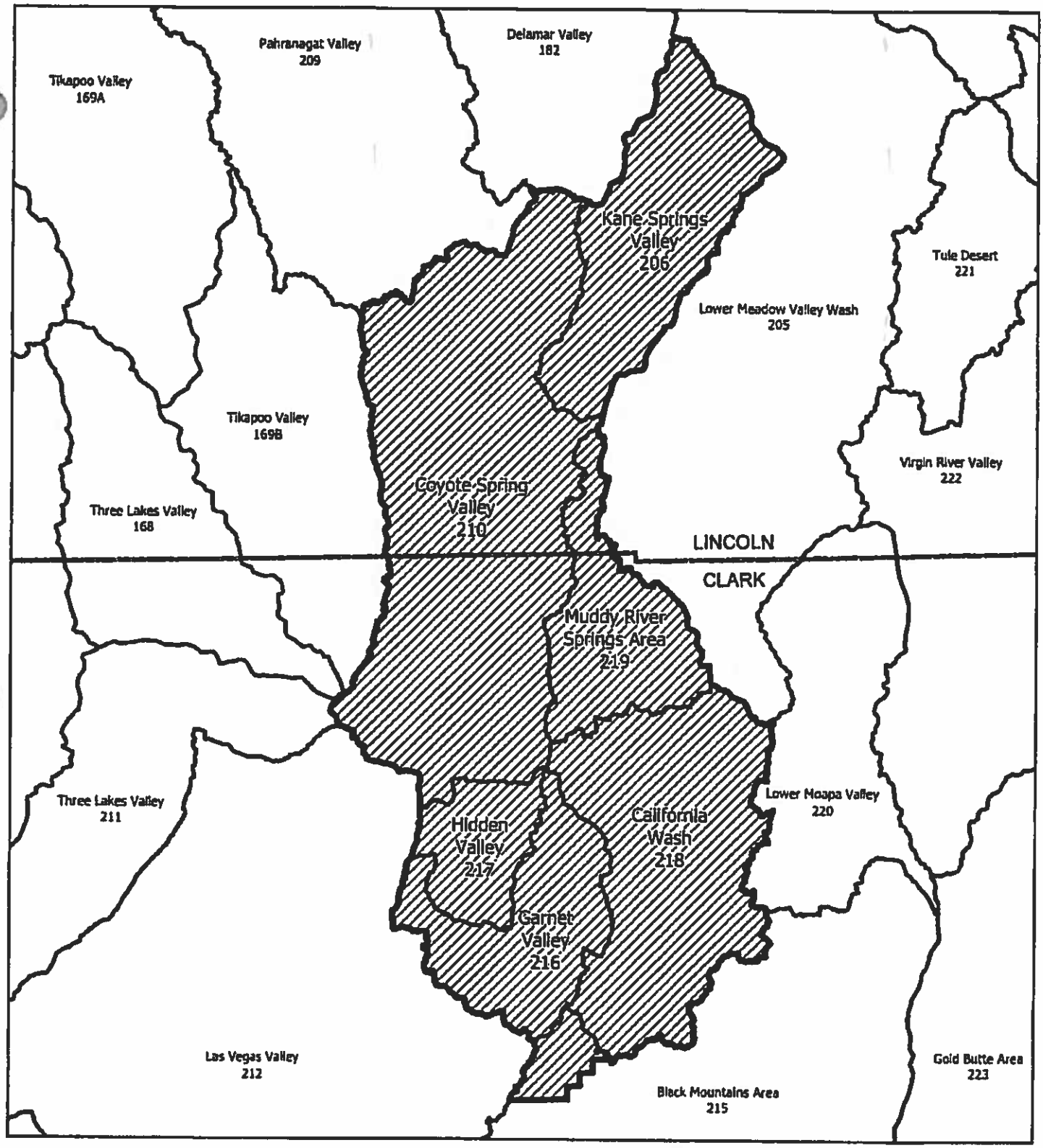
Tim Wilson, P.E.

TIM WILSON, P.E.
State Engineer

Dated at Carson City, Nevada this

15th day of June, 2020.

ATTACHMENT A



Location and Extent of LWRFS Hydrographic Basin, Clark and Lincoln Counties, Nevada

LWRFS Boundary
Hydrographic Basin Boundary
County Boundary

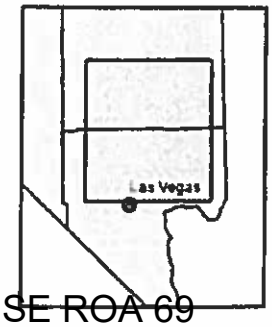
N
W
E
S

0 10 Miles

State of Nevada
Department of Conservation and Natural Resources
Office of the State Engineer
Division of Water Resources

Tim Wilson, P.E.
State Engineer

June 2020



IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

INTERIM ORDER **#1303**

DESIGNATING THE ADMINISTRATION OF ALL WATER RIGHTS WITHIN COYOTE SPRING VALLEY HYDROGRAPHIC BASIN (210), A PORTION OF BLACK MOUNTAINS AREA BASIN (215), GARNET VALLEY BASIN (216), HIDDEN VALLEY BASIN (217), CALIFORNIA WASH BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) BASIN (219) AS A JOINT ADMINISTRATIVE UNIT, HOLDING IN ABEYANCE APPLICATIONS TO CHANGE EXISTING GROUNDWATER RIGHTS, AND ESTABLISHING A TEMPORARY MORATORIUM ON THE REVIEW OF FINAL SUBDIVISION MAPS

I. PURPOSE

WHEREAS, the purpose of this Interim Order is to designate a multi-basin area known to share a close hydrologic connection as a joint administrative unit, which shall be known as the Lower White River Flow System (LWRFS).

WHEREAS, an adequate and predictable supply of groundwater within the LWRFS supports the health, safety and welfare of the area, and this Interim Order aims to protect existing senior rights and the public interest in an endangered species, recognize existing beneficial use, and limit development actions that are dependent on a supply of water that may not be available in the future.

WHEREAS, during the interim period that this Order is in effect, holders of existing rights and other interested parties are encouraged to submit reports to the Nevada Division of Water Resources (NDWR) analyzing the data available regarding sustainable groundwater development in the LWRFS, the geographic extent of the LWRFS, and considerations relating to groundwater pumping within the LWRFS and its effects on the fully decreed Muddy River. This collected and analyzed data is an essential step to optimize the beneficial use of the available water supply in the LWRFS.

WHEREAS, concurrent with this interim order, holders of existing rights and other interested parties are encouraged to participate in the public process to develop a conjunctive management plan.

I. BASIN DESIGNATIONS PURSUANT TO NRS § 534.030

WHEREAS, the Coyote Spring Valley Hydrographic Basin was designated pursuant to Nevada Revised Statute (NRS) § 534.030 by Order 905 dated August 21, 1985, which also declared municipal, power, industrial and domestic uses as preferred uses of the groundwater resource pursuant to NRS § 534.120.

WHEREAS, the Black Mountains Area Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1018 dated November 22, 1989, which also declared municipal, industrial, commercial and power generation purposes as preferred uses of the groundwater resource pursuant to NRS § 534.120, declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the Garnet Valley Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1025 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the California Wash Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1026 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the Hidden Valley Hydrographic Basin was designated pursuant to NRS § 534.030 by Order 1024 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

WHEREAS, the Muddy River Springs Area was partially designated pursuant to NRS § 534.030 by Order 392 dated July 14, 1971, and was fully designated by Order 1023 dated April 24, 1990, which also declared municipal, quasi-municipal, industrial, commercial, mining, stockwater and wildlife purposes as preferred uses pursuant to NRS § 534.120, and declared irrigation of land using groundwater to be a non-preferred use, and ordered that applications to appropriate groundwater for irrigation purposes would be denied.

II. ORDERS 1169 AND 1169A

WHEREAS, on March 8, 2002, the State Engineer issued Order 1169 holding in abeyance carbonate-rock aquifer system groundwater applications either pending or to be filed in Coyote Spring Valley (Basin 210), Black Mountains Area (Basin 215), Garnet Valley (Basin 216), Hidden Valley (Basin 217), Muddy River Springs Area (Basin 219), and Lower Moapa Valley (Basin 220) and ordering an aquifer test of the carbonate-rock aquifer system, which was not well understood, to determine whether additional appropriations could be developed from the carbonate-rock aquifer system. The Order required that at least 50%, or 8,050 acre-feet annually (afa), of the water rights then currently permitted in Coyote Spring Valley be pumped for at least two consecutive years.

WHEREAS, on April 18, 2002, in Ruling 5115, the State Engineer added the California Wash (Basin 218) to the Order 1169 aquifer test basins.

WHEREAS, prior to the Order 1169 aquifer test beginning, there were significant concerns that pumping 8,050 afa from the Coyote Spring Valley as part of the aquifer test would adversely impact the water resources at the Muddy River Springs, and consequently the Muddy River. Ultimately, the Order 1169 study participants agreed that even if the minimum 8,050 afa was not pumped, sufficient information would be obtained to inform future decisions relating to the study basins.

WHEREAS, on November 15, 2010, the Order 1169 aquifer test began, whereby the study participants began reporting to NDWR on a quarterly basis the amounts of water being pumped from wells in the carbonate and alluvial aquifer during the pendency of the aquifer test.

WHEREAS, on December 21, 2012, the State Engineer issued Order 1169A declaring the completion of the aquifer test to be December 31, 2012, after a period of 25½ months. The

State Engineer provided the study participants the opportunity to file reports with NDWR until June 28, 2013, addressing the information gained from the aquifer test and the water available to support applications in the aquifer test basins.

WHEREAS, during the Order 1169 aquifer test, an average of 5,290 acre-feet per year was pumped from carbonate wells in Coyote Spring Valley, and a cumulative total of approximately 14,535 acre-feet per year of water was pumped throughout the LWRFS. Of this total, approximately 3,840 acre-feet per year was pumped from the Muddy River Springs Area alluvial aquifer.[1]

WHEREAS, during the aquifer test, pumpage was measured and reported from 30 other wells in the Muddy River Springs Area, Garnet Valley, California Wash, Black Mountains Area, and Lower Meadow Valley Wash. Stream diversions from the Muddy River were reported, and measurements of the natural discharge of the Muddy River and several of the Muddy River's headwater springs were collected daily. Water-level data were collected from a total of 79 monitoring and pumping wells within the LWRFS. All of the data collected during the aquifer test was made available to each of the study participants and the public.

WHEREAS, during the Order 1169 aquifer test, the resulting water-level decline encompassed 1,100 square miles and extended from northern Coyote Spring Valley through the Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern part of the Black Mountains Area.[2,3] The water-level decline was estimated to be 1 to 1.6 feet in this area with minor drawdowns of 0.5 feet or less in the northern part of Coyote Spring Valley north of the Kane Springs Wash fault zone.

WHEREAS, results of the two-year test demonstrated that pumping 5,290 acre-feet annually from the carbonate aquifer in Coyote Spring Valley, in addition to the other carbonate pumping in Garnet Valley, Muddy River Springs Area, California Wash and the northwest part

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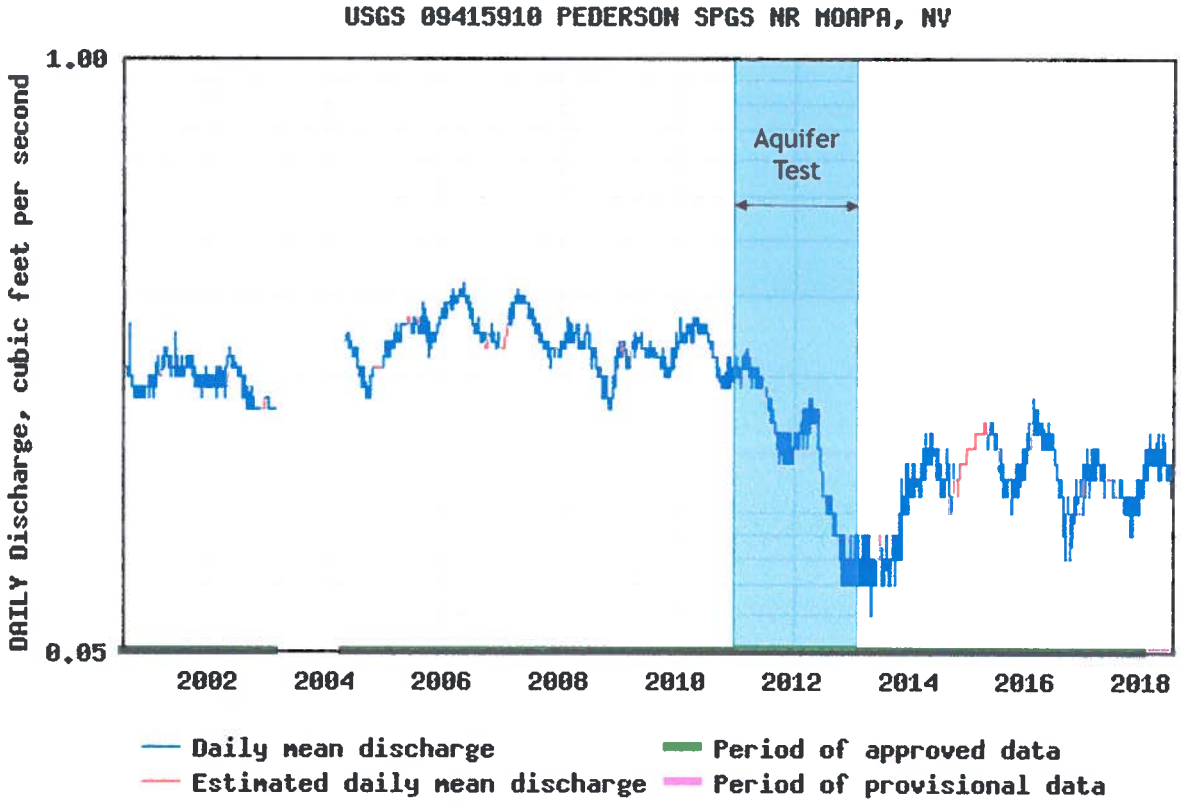
[1] *See, e.g.*, Ruling 6254, p. 17; Appendix B.
[2] *See, e.g.*, Ruling 6254. *See also* U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, June 28, 2013, official records in the Office of the State Engineer.
[3] There was no groundwater pumping in Hidden Valley but effects were still observed in the Hidden Valley monitor well.

of the Black Mountains Area, caused sharp declines in groundwater levels and flows in the Pederson and Pederson East springs. These two springs are considered to be sentinel springs for the overall condition of the Muddy River because they are at a higher altitude than other Muddy River source springs, and therefore are proportionally more affected by a decline in groundwater level in the carbonate aquifer.[4] The Pederson spring flow decreased from 0.22 cubic feet per second (cfs) to 0.08 cfs and the Pederson East spring flow decreased from 0.12 cfs to 0.08 cfs. The following hydrograph at Pederson spring illustrates the decline in discharge during the aquifer test and also demonstrates that in the five years since the end of the aquifer test, spring flow has not recovered to pre-test flow rates.



[4] *See* the 2006 Memorandum of Agreement among the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investments, Moapa Band of Paiutes, and the Moapa Valley Water District.

Additional headwater springs at lower altitude, the Baldwin and Jones springs, declined approximately 4% during the test.[5] All of the headwater springs contribute to the decreed and fully appropriated Muddy River and are the predominant source of water that supplies the habitat of the endangered Moapa dace, a fish federally listed as an endangered species since 1967.

WHEREAS, based upon the analysis of the carbonate aquifer test, it was asserted that pumping at the Order 1169 rate at well MX-5 in Coyote Spring Valley could result in both of the high-altitude Pederson and Pederson East springs going dry in 3 years or less.[6]

WHEREAS, based upon the findings of the aquifer test, the carbonate aquifer underlying Coyote Spring Valley, Garnet Valley, Hidden Valley, Muddy River Springs Area, California Wash and the northwest part of the Black Mountains Area[7] (the LWRFS as depicted in Appendix A) was acknowledged to have a unique hydrologic connection and share the same supply of water.[8]

III. RULINGS 6254, 6255, 6256, 6257, 6258, 6259, 6260, AND 6261

WHEREAS, on January 29, 2014, the State Engineer issued Ruling 6254 on pending applications of the Las Vegas Valley Water District (LVVWD) and Coyote Springs Investment, LLC (CSI) in the Coyote Spring Valley; Ruling 6255 on pending applications of Dry Lake Water, LLC (Dry Lake), and CSI in Coyote Spring Valley; Ruling 6256 on pending applications of Bonneville Nevada Corporation, Nevada Power Company (Nevada Power), Dry Lake, and the Southern Nevada Water Authority (SNWA) in the Garnet Valley; Ruling 6257 on pending applications of Nevada Power, Dry Lake, and SNWA in the Hidden Valley; Ruling 6258 on

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[5] U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, pp. 43-46, 50-51, June 28, 2013, official records in the Office of the State Engineer. *See also,* http://waterdata.usgs.gov/nv/nwis/.

[6] *See, e.g.*, Ruling 6254. *See also* U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, p. 85, June 28, 2013, official records in the Office of the State Engineer.

[7] That portion of the Black Mountains Area lying within the Lower White River Flow System is defined as those portions of Sections 29, 30, 31, 32, and 33, T.18S., R.64E., M.D.B.&M.; Section 13 and those portions of Sections 1, 11, 12, and 14, T.19S., R.63E., M.D.B.&M.; Sections 5, 7, 8, 16, 17, and 18 and those portions of Sections 4, 6, 9, 10, and 15, T.19S., R.64E., M.D.B.&M.

[8] *See, e.g.,* State Engineer Ruling 6254, p. 24, official records in the Office of the State Engineer.

pending applications by LVVWD, Nevada Power, Dry Lake, and the Moapa Band of Paiute Indians in the California Wash; Ruling 6259 on pending applications by the Moapa Valley Water District in the Muddy River Springs Area; and Ruling 6260 on pending applications by Nevada Cogeneration Associates #1, Nevada Cogeneration Associates #2, and Dry Lake, in the Black Mountains Area, upholding in part the protests to said applications and denying the applications on the grounds that there was no unappropriated groundwater at the source of supply, the proposed use would conflict with existing rights, and the proposed use of the water would threaten to prove detrimental to the public interest because it would threaten the water resources upon which the endangered Moapa dace are dependent.

IV. LOWER WHITE RIVER FLOW SYSTEM

WHEREAS, the total long-term average water supply to the LWRFS, from subsurface groundwater inflow and local precipitation recharge, is not more than 50,000 acre-feet annually.[9]

WHEREAS, the Muddy River, a fully appropriated surface water source, has its headwaters in the Muddy River Springs Area and has the most senior rights in the LWRFS. Spring discharge in the Muddy River Springs Area is produced from the regional carbonate aquifer. Prior to groundwater development, the Muddy River flows at the Moapa gage were approximately 34,000 acre-feet annually.[10]

WHEREAS, the alluvial aquifer surrounding the Muddy River ultimately derives virtually all of its water supply from the carbonates, either through spring discharge that infiltrates into the alluvium or through subsurface hydraulic connectivity between the carbonate rocks and the alluvium.[11]

WHEREAS, the State Engineer has determined that pumping of groundwater within the LWRFS has a direct interrelationship with the flow of the decreed and fully appropriated Muddy River, which has the most-senior rights.[12]

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[9] *Id.*
[10] United States Geological Survey Surface-Water Annual Statistics for the Nation, USGS 09416000 MUDDY RV NR MOAPA, NV, accessed at https://waterdata.usgs.gov/nwis/annual/?search_site_no=09416000&agency_cd=USGS&referred_module=sw&format=sites_selection_links.
[11] *See, e.g.,* State Engineer Ruling 6254, p. 24, official records in the Office of the State Engineer.
[12] *Id.*

WHEREAS, since the conclusion of the Order 1169 aquifer test, the State Engineer has jointly managed the groundwater rights within LWRFS.

WHEREAS, the State Engineer, under the joint management of the LWRFS, has not distinguished pumping from wells in the Muddy River Springs Area alluvium from pumping carbonate wells within the LWRFS.

WHEREAS, within the LWRFS, there exist more than 38,000 acre-feet of groundwater appropriations. Groundwater pumping from 2007 forward is included in Appendix B and is significantly less than the total appropriations.

WHEREAS, groundwater levels within the LWRFS have been relatively flat in the five years since the end of the Order 1169 aquifer test, but groundwater levels have not recovered to pre-test levels.[13]

IV. PUMPAGE INVENTORIES

WHEREAS, annual groundwater pumpage inventories in the Coyote Spring Valley have been published by the State Engineer since 2005. In the years 2005 through 2017 pumping has ranged from 665 acre-feet to 5,606 acre-feet, averaging 2,605 acre-feet. The average pumping in Coyote Spring Valley, excluding the years 2011 and 2012 when the aquifer test was being conducted, is 2,068 acre-feet.[14]

WHEREAS, annual groundwater pumpage inventories in the Black Mountains Area have been published by the State Engineer since 2001. In the years 2001 through 2017 pumping in the northwest portion of the basin has ranged from 1,137 acre-feet to 1,591 acre-feet, with an average of 1,476 acre-feet.[15]

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[13] *See, e.g., USGS water level data for Site 364650114432001 219 S13 E65 28BDBA1 USGS CSV-2.* waterdata.usgs.gov/nwis.

[14] *See, e.g., Nevada Division of Water Resources, Coyote Spring Valley Hydrographic Basin 13-210 Groundwater Pumpage Inventory*, 2017.

[15] *See, e.g., Nevada Division of Water Resources, Black Mountains Area Hydrographic Basin 13-215 Groundwater Pumpage Inventory*, 2017.

WHEREAS, annual groundwater pumpage inventories in the Garnet Valley have been published by the State Engineer since 2001. In the years 2001 through 2017 pumping has ranged from 797 acre-feet to 2,181 acre-feet, averaging 1,358 acre-feet.[16]

WHEREAS, the State Engineer does not conduct annual groundwater pumpage inventories in the Hidden Valley basin because there is no groundwater pumping in the basin.

WHEREAS, annual groundwater pumpage inventories in the California Wash have been published by the State Engineer since 2016. In the years 2016 and 2017 pumping has ranged from 88 acre-feet to 252 acre-feet, averaging 170 acre-feet.[17] Groundwater pumpage data have been reported by water right holders since 2009.

WHEREAS, annual groundwater pumpage inventories in the Muddy River Springs Area have been published by the State Engineer since 2016. In the years 2016 and 2017 pumping has ranged from 3,553 acre-feet to 4,048 acre-feet, with an average of 3,801 acre-feet.[18] Groundwater pumpage data have been reported by water right holders since 1976.

WHEREAS, total groundwater pumpage in Coyote Spring Valley, Muddy River Springs Area (MRSA), California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black Mountains Area in calendar years 2007 through 2017, ranged from 9,090 acre-feet to 14,766 acre-feet. Pumpage in years 2011-2012 during the aquifer test averaged 14,535 afa. Pumpage in years 2015 through 2017, when alluvial pumping in the MRSA was greatly reduced because of the Reid Gardner Generating Station closure, ranged from 9,090 afa to 9,637 afa.

V. AUTHORITY AND NECESSITY

WHEREAS, NRS § 533.024(1)(c) directs the State Engineer "to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada."

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[16] *See, e.g., Nevada Division of Water Resources, Garnet Valley Hydrographic Basin 13-216 Groundwater Pumpage Inventory*, 2017.
[17] *See, e.g., Nevada Division of Water Resources, California Wash Hydrographic Basin 13-218 Groundwater Pumpage Inventory*, 2017.
[18] *See, e.g., Nevada Division of Water Resources, Muddy River Springs Area (AKA Upper Moapa Valley) Hydrographic Basin 13-219 Groundwater Pumpage Inventory*, 2017.

WHEREAS, NRS § 533.024(1)(e) was added in 2017 to declare the policy of the State to "manage conjunctively the appropriation, use and administration of all waters of this State regardless of the source of the water."

WHEREAS, given that the State Engineer must use the best available science and manage conjunctively the water resources in the LWRFS, consideration of any development of long-term, permanent, uses that could ultimately be curtailed due to water availability will be examined with great caution.

WHEREAS, as demonstrated by the results of the aquifer test, Coyote Spring Valley, Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and the northwestern part of the Black Mountains Area have a direct hydraulic connection, and as a result must be administered as a joint administrative unit, including the administration of all water rights based upon the date of priority of such rights in relation to the priority of rights in the other basins.[19]

WHEREAS, the pre-development discharge of 34,000 acre-feet of the Muddy River system, which is fully appropriated, plus the more than 38,000 acre-feet of groundwater appropriations within the LWRFS greatly exceed the total water budget within the flow system.

WHEREAS, the results from the aquifer test, the data from groundwater level recovery and spring flow, and climate data indicate to the State Engineer that the quantity of water that may be pumped within the LWRFS without conflicting with senior rights on the Muddy River or adversely affecting the habitat of the Moapa dace is less than the quantity pumped during the aquifer test.

WHEREAS, the current amount of pumping corresponds to a period of time in which spring flows have remained relatively stable and have not demonstrated a continuing decline.

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[19] *See, e.g.,* Southern Nevada Water Authority, *Nevada State Engineer Order 1169 and 1169A Study Report*, June 2013; Tom Meyers, Ph.D., *Technical Memorandum Comments on Carbonate Order 1169 Pump Test Data and Groundwater Flow System in Coyote Springs and Muddy River Springs Valley, Nevada*, June 25, 2013; U.S. Fish and Wildlife Service, U.S. Bureau of Land Management and U.S. National Park Service Order 1169A Report, *Test Impacts and Availability of Water Pursuant to Applications Pending Under Order 1169*, June 28, 2013; Johnson and Mifflin, *Summary of Order 1169 Testing Impacts, per Order 1169A*, June 28, 2013; Tetra Tech, *Comparison of Simulated and Observed Effects of Pumping from MX-5 Using Data Collected to the End of the Order 1169 Test, and Prediction of Recovery from the Test*, June 10, 2013, official records in the Office of the State Engineer.

WHEREAS, the precise extent of the development of existing appropriations of groundwater within the LWRFS that may occur without conflicting with the senior rights of the fully decreed Muddy River has not been determined.

WHEREAS, recognizing that there exists a need for further analysis of the historic and ongoing groundwater pumping data, the relationship of groundwater pumping within the LWRFS to spring discharge and flow of the fully decreed Muddy River, the extent of impact of climate conditions on groundwater levels and spring discharge, and the ultimate determination of the sustainable yield of the LWRFS, the State Engineer finds that input by means of reports by the stakeholders in the interpretation of the data from the aquifer test and from the years since the conclusion of the aquifer test is important to fully inform the State Engineer prior to setting a limit on the quantity of groundwater that may be developed in the LWRFS or to developing a long-term Conjunctive Management Plan for the LWRFS and Muddy River.

WHEREAS, the State Engineer finds that it is necessary to carefully monitor the effects of groundwater development within the LWRFS under current conditions, toward the goal of collaboratively (with stakeholders) evaluating the amount of groundwater that may ultimately be developed within the LWRFS without conflicting with senior decreed rights on the Muddy River or adversely affecting the public interest in maintaining the habitat of the endangered Moapa dace. The evaluation process will include public meetings, meetings of a stakeholder representative working group, and coordination with the Hydrologic Review Team (HRT) developed under the 2006 Memorandum of Agreement among the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investments, Moapa Band of Paiutes, and the Moapa Valley Water District. The process will provide the opportunity for the stakeholders to engage in the development of a conjunctive management plan that will be informed by the determination of the total quantity of groundwater that may be developed within the LWRFS and that will facilitate the continued use of groundwater by junior priority groundwater rights holders whom have perfected their water rights while protecting the senior decreed rights on the Muddy River.

WHEREAS, recognizing that an amount less than the full quantity of the appropriated groundwater rights within the LWRFS may be developed in a manner that will provide for a reasonably certain supply of water for future permanent uses without jeopardizing the economies of the communities reliant on the water supply within the LWRFS, the health and safety of those

whom are either presently reliant the water, existing public interests, or those who may in the future become reliant on a reliable and sustainable source of supply, the State Engineer, with the following exception, finds that it is necessary to issue a temporary moratorium on the review and decision by the Division of Water Resources regarding any final subdivision map or other construction or development submission requiring a finding that adequate water is available to support the proposed development. During the pendency of this Interim Order, the State Engineer may review and grant approval of a subdivision or other submission if a showing of an adequate and sustainable supply of water to meet the anticipated life of the subdivision, other construction or development can be made to the State Engineer's satisfaction.

WHEREAS, through continued monitoring of the LWRFS during the effective period of this Interim Order, the State Engineer seeks to maintain recent groundwater pumping amounts, while providing time for the submission of additional scientific data and analysis regarding the total quantity of water that may be sustainably withdrawn from the LWRFS over the long-term without conflicting with senior Muddy River decreed rights or jeopardizing the communities, water users, or public interests identified above.

WHEREAS, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.[20]

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.[21]

WHEREAS, the State Engineer finds that additional data relating to the impacts of groundwater pumping from the LWRFS coupled with the public process will allow his office to make a determination as to the appropriate long-term management of groundwater pumping that may occur in the LWRFS by existing holders of water rights without conflicting with existing senior decreed rights or adversely affecting the endangered Moapa dace.

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[20] NRS § 532.120.
[21] *Id.*

VI. ORDER

NOW THEREFORE, the State Engineer orders:

1. The Lower White River Flow System consisting of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the portion of the Black Mountains Area as described in this Order, is herewith designated as a joint administrative unit for purposes of administration of water rights. All water rights within the Lower White River Flow System will be administered based upon their respective date of priorities in relation to other rights within the regional groundwater unit.

2. Any stakeholder with interests that may be affected by water right development within the Lower White River Flow System may file a report in the Office of the State Engineer in Carson City, Nevada, no later than the close of business on Monday, June 3, 2019.[22] Reports filed with the Office of the State Engineer should address the following matters:

    a. The geographic boundary of the hydrologically connected groundwater and surface water systems comprising the Lower White River Flow System;
    b. The information obtained from the Order 1169 aquifer test and subsequent to the aquifer test and Muddy River headwater spring flow as it relates to aquifer recovery since the completion of the aquifer test;
    c. The long-term annual quantity of groundwater that may be pumped from the Lower White River Flow System, including the relationships between the location of pumping on discharge to the Muddy River Springs, and the capture of Muddy River flow;

[22] For any stakeholder affected by the shut-down of the United States government beginning in December 2018, upon a request and showing of good cause to the satisfaction of the State Engineer, an extension of time may be granted to those affected parties.

d. The effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River; and,

e. Any other matter believed to be relevant to the State Engineer's analysis.

3. Any stakeholder with interests that may be affected by water right development within the Lower White River Flow System may file with the Office of the State Engineer no later than the close of business on Thursday July 18, 2019, a rebuttal to the Reports filed on June 3, 2019.

4. The State Engineer will schedule an administrative hearing within the month of September 2019 to take comment on the submitted reports.

5. During the pendency of this Interim Order:

   a. Permanent applications to change existing groundwater rights shall be held in abeyance pending the submission of the reports as required by Paragraph 2 of this Order and as authorized by NRS §§ 532.165(1), 533.368 and 533.370(4)(d). Temporary applications to change existing groundwater rights will be processed pursuant to NRS § 533.345.

   b. A temporary moratorium is issued regarding any final subdivision or other submission concerning development and construction submitted to the State Engineer for review, and such submissions shall be held in abeyance pending the conclusion of the public process to determine the total quantity of groundwater that may be developed within the Lower White River Flow System. The State Engineer may review and grant approval of a subdivision or other submission if a showing of an adequate and sustainable supply of water to meet the anticipated life of the subdivision, other construction or development can be made to the State Engineer's satisfaction.

c. Holders of water rights who maintain their water rights in good standing by filing all required applications for extension of time in conformity with the requirements of NRS §§ 533.390, 533.395 and 533.410 may cite this order in support of their applications for extension of time.

d. Holders of water rights who file all required applications for extension of time in conformity with the requirements of NRS § 534.090 may cite this order in support of their applications for extension of time to prevent the working of a forfeiture.

JASON KING, P.E.
State Engineer

Dated at Carson City, Nevada this
11TH day of JANUARY, 2019.

Order 1303, Appendix A : LOWER WHITE RIVER FLOW SYSTEM

Coyote Spring Valley, Muddy River Springs Area, Hidden Valley, Garnet Valley, California Wash, and a portion of Black Mountains Area

Summer 2017 imagery from the
National Agriculture Imagery Program

Nevada Division of Water Resources
Office of the State Engineer
Jason King, P.E.
State Engineer

Order 1303, APPENDIX B: Groundwater Pumping in the Lower White River Flow System, 2007–2017

Basin No.	219				215		210	216	218	217	Total pumping in the LWRFS
Basin Name	Muddy River Springs Area				Black Mountains Area		Coyote Spring Valley	Garnet Valley	California Wash	Hidden Valley	
Year	Carbonate pumping (reported by MVWD)	Alluvial pumping (reported by NV Energy)	All other Alluvial Pumping[1]	Total Pumping in Basin 219[1]	Carbonate pumping in the Northwest Portion of Basin 215	Total Pumping in Basin 215					
2007	2,079	4,744	253	7,076	1,585	1,732	3,147	1,412	27[2]	0	**13,247**
2008	2,272	4,286	253	6,811	1,591	1,759	2,000	1,552	27[2]	0	**11,981**
2009	2,034	4,092	253	6,379	1,137	1,159	1,792	1,427	21[3]	0	**10,756**
2010	1,826	4,088	253	6,167	1,561	1,572	2,923	1,373	26[3]	0	**12,050**
2011	1,837	4,212	253	6,302	1,398	1,409	5,606	1,427	33[3]	0	**14,766**
2012	2,638	2,961	253	5,852	1,556	1,564	5,516	1,351	28[3]	0	**14,303**
2013	2,496	3,963	253	6,712	1,585	1,776	3,407	1,484	66[3]	0	**13,254**
2014	1,442	4,825	253	6,520	1,429	1,624	2,258	1,568	241[3]	0	**12,016**
2015	2,396	1,249	253	3,898	1,448	1,708	2,064	1,520	460	0	**9,390**
2016	2,795	941	312	4,048	1,434	1,641	1,722	2,181	252	0	**9,637**
2017	2,824	535	194	3,553	1,507	1,634	1,961	1,981	88	0	**9,090**

The LWRFS includes basins 210, 216, 217, 218, 219 and the northwest portion of 215.

All values in this table are from State Engineer basin pumpage inventory reports except as noted in the footnotes below:

1. Alluvial Pumping not reported by NV Energy for years 2007–2015 estimated as the average of inventoried years 2016–2017.
2. Estimated as the average of groundwater pumping in years 2009–2012.
3. Reported to the State Engineer but not published in a basin inventory report.

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

ADDENDUM TO INTERIM ORDER #1303

DESIGNATING THE ADMINISTRATION OF ALL WATER RIGHTS WITHIN COYOTE SPRING VALLEY HYDROGRAPHIC BASIN (210), A PORTION OF BLACK MOUNTAINS AREA (BASIN 215), GARNET VALLEY (BASIN 216), HIDDEN VALLEY (BASIN 217), CALIFORNIA WASH (BASIN 218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) (BASIN 219) AS A JOINT ADMINISTRATIVE UNIT, HOLDING IN ABEYANCE APPLICATIONS TO CHANGE EXISTING GROUNDWATER RIGHTS, AND ESTABLISHING A TEMPORARY MORATORIUM ON THE REVIEW OF FINAL SUBDIVISION MAPS

WHEREAS, the purpose of this Addendum is to modify the schedule for the submission of reports and rebuttal reports of interested stakeholders analyzing the data available regarding sustainable groundwater development in the Lower White River Flow System (LWRFS), the geographic extent of the LWRFS, and considerations relating to the movement of groundwater pumping between the alluvial wells and carbonate wells and its effects on the fully decreed Muddy River.

WHEREAS, NRS § 533.024(1)(c) directs the State Engineer "to consider the best available science in rendering decisions concerning the availability of surface and underground sources of water in Nevada."

WHEREAS, NRS § 533.024(1)(e) was added in 2017 to declare the policy of the State to "manage conjunctively the appropriation, use and administration of all waters of this State regardless of the source of the water."

WHEREAS, based upon the recognition that a need exists for further analysis of the groundwater pumping data, the relationship of groundwater pumping within the LWRFS to spring discharge and flow of the fully decreed Muddy River, the extent of impact of climate conditions on groundwater levels and spring discharge, and the ultimate determination of the sustainable yield of the LWRFS, and the interest in the stakeholders having sufficient time to prepare reports, the State Engineer finds that it is reasonable and appropriate to modify the schedule originally established in Interim Order 1303.

WHEREAS, the State Engineer is empowered to make such reasonable rules and regulations as may be necessary for the proper and orderly execution of the powers conferred by law.[1]

WHEREAS, within an area that has been designated by the State Engineer, as provided for in NRS Chapter 534, where, in the judgment of the State Engineer, the groundwater basin is being depleted, the State Engineer in his or her administrative capacity may make such rules, regulations and orders as are deemed essential for the welfare of the area involved.[2]

ORDER

NOW THEREFORE, the State Engineer orders:

1. The deadline for any stakeholder with interests that may be affected by water right development within the Lower White River Flow System to file a report in the Office of the State Engineer in Carson City, Nevada, is extended to no later than the close of business on Wednesday, July 3, 2019. The substance of the reports should include the same elements as established originally in Interim Order 1303.
2. Any rebuttal report to the Reports filed on July 3, 2019, to be submitted by a stakeholder with interests that may be affected by water right development within the Lower White River Flow System shall be submitted to the Office of the State Engineer no later than the close of business on Friday August 16, 2019.
3. All other matters contained in Interim Order 1303 remain unaltered.

Tim Wilson, P.E.

TIM WILSON, P.E.
State Engineer

Dated at Carson City, Nevada this

13th day of May, 2019.

[1] NRS § 532.120.
[2] *Id.*

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

IN THE MATTER OF THE ADMINISTRATION AND MANAGEMENT OF THE LOWER WHITE RIVER FLOW SYSTEM WITHIN COYOTE SPRING VALLEY HYDROGRAPHIC BASIN (210), A PORTION OF BLACK MOUNTAINS AREA HYDROGRAPHIC BASIN (215), GARNET VALLEY HYDROGRAPHIC BASIN (216), HIDDEN VALLEY HYDROGRAPHIC BASIN (217), CALIFORNIA WASH HYDROGRAPHIC BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) HYDROGRAPHIC BASIN (219), LINCOLN AND CLARK COUNTIES, NEVADA.	)	**NOTICE OF HEARING**

I. PROCEDURAL BACKGROUND

The State Engineer issued Interim Order 1303 on January 11, 2019, whereby the State Engineer designated the Lower White River Flow System, consisting of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and a portion of the Black Mountain Area as a joint administrative unit for the purpose of administering water rights, and among other interim matters, solicited reports to be filed with the Office of the State Engineer addressing: (1) the geographic boundary of the hydrologically connected groundwater and surface-water system comprising the Lower White River Flow System; (b) the information obtained from the State Engineer's Order 1169 aquifer test and subsequent to the aquifer test and Muddy River headwater spring flow as it relates to aquifer recovery since the completion of the aquifer test; (c) the long-term annual quantity of groundwater that may be pumped from the Lower White River Flow System, including the relationships between the location of pumping on discharge to the Muddy River Springs, and the capture of Muddy River Flow; (d) the effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River; and, (e) any other matter believed to be relevant to the State Engineer's analysis. The deadline for the filing of reports was initially set for June 3, 2019, and rebuttal reports were permitted to be filed no later than July 18, 2019. The State Engineer further ordered that an administrative hearing would be held in the month of September 2019. The State Engineer issued an addendum to Interim Order 1303 on May 13, 2019, whereby the State Engineer extended the deadline for any interested stakeholder to submit a report to July 3, 2019, and rebuttal reports to August 16, 2019.[1]

Initial reports in response to the Order 1303 solicitation were filed with the Office of the State Engineer by the Center for Biological Diversity; City of North Las Vegas; Coyote Springs Investment, LLC; Dry Lake Water, LLC; Georgia Pacific Corporation and Republic

[1] *See* Interim Order 1303, and addendum, official records in the Office of the State Engineer.

Environmental Technologies; Great Basin Water Network; Lincoln County Water District and Vidler Water Company; Moapa Band of Paiutes; Moapa Valley Water District; United States National Park Service; Southern Nevada Water Authority and Las Vegas Valley Water District; Technichrome; and the United States Fish and Wildlife Service. Rebuttal reports were filed by Bedroc Limited and Western Elite Environmental, Inc.; Center for Biological Diversity; City of North Las Vegas; Coyote Springs Investment, LLC; Dry Lake Water, LLC, Georgia Pacific Gypsum and Republic Environmental Technologies; Lincoln County Water District and Vidler Water Company; Moapa Band of Paiutes; Moapa Valley Water District; Muddy Valley Irrigation Company; the United States National Park Service; Nevada Cogeneration Associates; Nevada Energy; Southern Nevada Water Authority and Las Vegas Valley Water District; and the United States Fish and Wildlife Service.

On August 9, 2019, the State Engineer held a pre-hearing conference regarding the hearing on the submission of reports and evidence as solicited in Order 1303. At the pre-hearing conference, the State Engineer set forth the purpose of the Order 1303 hearing, addressed the timing and length of the hearing, discussed the sequence of the presentation of evidence by the participants, addressed the procedures and other administrative matters relating to Order 1303, discussed the timing for disclosures of witnesses and evidence, including expert witnesses, and addressed other matters relating to the hearing. The State Engineer established that the purpose of the hearing on the Order 1303 reports was to provide the participants an opportunity to explain the positions and conclusions expressed in the reports and/or rebuttal reports submitted in response to the Order 1303 solicitation. The State Engineer directed the participants to limit the offer of evidence and testimony to the salient conclusions, including directing the State Engineer and his staff to the relevant data, evidence and other information supporting those conclusions. The State Engineer further noted that the hearing on the Order 1303 reports was the first step in determining to what extent, if any, and in what manner the State Engineer would address future management decisions, including policy decisions, relating to the Lower White River Flow System basins. On that basis, the State Engineer then addressed other related matters pertaining to the hearing on the Order 1303 reports, including addressing the date and sequence of the hearing, as set forth in this Notice of Hearing.

II. NOTICE OF HEARING

Please take notice, the State Engineer hereby sets the hearing on Order 1303, to begin at **8:30 a.m., on Monday, September 23, 2019, continuing through Friday, September 27, 2019, ending each day by 4:30 p.m. The hearing will reconvene at 8:30 a.m. on Monday, September 30, 2019, continuing through Friday, October 4, 2019, ending each day by 4:30 p.m., with the exception of October 3, 2019, where the hearing will reconvene at 11:00 a.m. and end at 4:30 p.m., at the Nevada State Legislature, 401 South Carson Street, Room 2135, Carson City, Nevada and will video be conferenced to the Legislative Counsel Bureau, Sawyer Office Building, 555 E. Washington Ave., Suite 4400, Las Vegas, Nevada.**

III. REPRESENTATION OF PARTICIPANTS BY ATTORNEYS OR AGENTS

Pursuant to NAC 533.200, any participant may be represented by either an attorney or other agent. Any attorney appearing on behalf of a participant must be an active member of the State Bar of Nevada or associated with an active member of the State Bar of Nevada. Any attorney not an active member of the State Bar of Nevada must comply with Nevada Supreme Court Rule 42, governing the practice of attorneys not admitted in Nevada. Further, **either** the attorney(s) **or** agent will be recognized as fully controlling the case on behalf of the participant, and in accordance with NAC 533.200, the attorney or agent must make an appearance and submit a **Notice of Appearance** with the State Engineer in this matter. Only the attorney or agent whom submits a Notice of Appearance on behalf of a participant shall be permitted to examine and cross-examine witnesses in the proceedings. The State Engineer will not permit a participant to have both attorneys and agents examine witnesses in this proceeding.

IV. SEQUENCE OF PRESENTATION OF EVIDENCE AND CROSS-EXAMINATION OF WITNESSES

Each participant who has submitted either a report, rebuttal report, or both a report and rebuttal report in response to the Order 1303 solicitation is hereby assigned the following dates and times for both the presentation of their submitted reports, and to present any other evidence, as outlined within the scope of the hearing. The time allocated to each participant shall be alloted such that the participant shall use half its time to present their evidence and testimony, and the other half shall be used by the other participants to cross-examine the witnesses. For example, 7 hours will be allocated to address the report and rebuttal report submitted by Coyote Springs Investment, LLC; accordingly, Coyote Springs Investments, LLC will be allowed not more than 3.5 hours to present its evidence and testimony and the other participants shall be allowed not more than 3.5 to cross-examine Coyote Springs Investments, LLC's witnesses.

The schedule for presentation of evidence by the parties is established as follows:

Date(s) and Time(s)	Participant
September 23, 2019, all day	Coyote Springs Investment, LLC
September 24, 2019, all day	United States Fish and Wildlife Service
September 25, 2019, all day	United States National Park Service
September 26, 2019, all day	Moapa Band of Paiutes
September 27, 2019, all day, and September 30, 2019, 8:30 a.m. to 10:30 a.m.	Southern Nevada Water Authority and Las Vegas Valley Water District
September 30, 2019, 10:30 a.m. to 12:30 p.m., and 1:30 p.m. to 3:30 p.m.	Moapa Valley Water District
September 30, 2019, 3:30 p.m. to 4:30 p.m., and October 1, 2019, 8:30 a.m. to 11:30 a.m.	Lincoln County Water District and Vidler Water Company

October 1, 2019, 11:30 a.m. to 12:30 p.m., and 1:30 p.m. to 4:30 p.m.	City of North Las Vegas
October 2, 2019, 8:30 a.m. to 12:30 p.m.	Center for Biological Diversity and Great Basin Water Network
October 2, 2019, 1:30 p.m. to 4:30 p.m., and October 3, 2019, 11:00 a.m. to 12:00 p.m.	Dry Lake Water, LLC, Georgia Pacific Corporation/Georgia Pacific Gypsum, LLC, and Republic Environmental Technologies
October 3, 2019, 12:00 p.m. to 2:00 p.m.	Technichrome
October 3, 2019, 2:00 p.m. to 4:30 p.m.	Nevada Cogeneration Associates
October 4, 2019, 8:30 a.m. to 10:30 a.m.	Moapa Valley Irrigation Company
October 4, 2019, 10:30 a.m. to 12:30 p.m.	Bedroc Limited/Western Elite Environmental, Inc.
October 4, 2019, 1:30 p.m. to 3:30 p.m.	Nevada Energy
October 4, 2019, 3:30 p.m. to 4:30 p.m.	Public Comment

A participant is not required to examine their witnesses or to use its full allocation of time. Any participant who has submitted a report or expert report to the State Engineer for consideration as written testimony or evidence must, pursuant to NAC 533.250, present the person who has prepared that report or expert report to affirm that it is their work product and that they personally prepared or directed its preparation, and submit to cross-examination. The State Engineer may, in his discretion, disregard any report or rebuttal report submitted pursuant to Order 1303 that is not affirmed and attested to by the individual who is identified as an author of the report or rebuttal report and is not made available for cross-examination.

V. DISCLOSURE OF EVIDENCE AND WITNESS LISTS

The disclosure of documents, witness lists and descriptions of witness testimony will take place as set forth and in the manner provided in this Notice of Hearing. The State Engineer requires that two copies of any of the documents referenced below be filed in the Office of the State Engineer in addition to the electronic copies, as applicable.

Evidentiary Disclosure. The participants are hereby ordered to serve on the State Engineer in Carson City, Nevada, **no later than Friday, September 6, 2019**, an exhibit list, a witness list, a reasonably detailed summary of the testimony of each witness, and copies of any documentary evidence intended to be introduced into the hearing record. If a witness is not identified as testifying on direct as to a certain topic, the witness may not be allowed to testify to the unidentified topic in his or her direct testimony. If a witness is to be presented to provide expert testimony, the evidentiary exchange shall identify the written report prepared and submitted to the State Engineer in response to the solicitations contained within Order 1303 and any exhibits to be used as a summary of or in support of the opinions and a statement of qualifications of the witness. For any

witness identified and designated as an expert witness, the evidentiary disclosure shall include the Curriculum Vitae and shall identify whether the expert has been previously admitted as an expert witness before the State Engineer, in what discipline(s) the expert has been so admitted before the State Engineer, and if the witness has not previously been admitted as an expert before the State Engineer, all other court or administrative proceedings in which the expert has been admitted. The Evidentiary Disclosure must include any relevant documents or evidence that the participant desires the State Engineer to consider in his examination of the five issues identified in Order 1303, and making any determination related to those issues.

In addition to two copies of the exhibit list, witness list, and documentary evidence, **the participants are required to also provide an electronic copy of: the exhibit list in Excel format, their witness summaries, and scanned copies of all their exhibits in pdf 200 dpi format**.

The State Engineer shall publish all timely served Evidentiary Disclosures on its website at *http://water.nv.gov/news.aspx?news=LWRFS.*

Objections to Evidentiary Disclosures: Any objection or challenge to evidence disclosed by another participant must be served on the State Engineer in Carson City, Nevada, **no later than 5:00 p.m., Friday, September 13, 2019.** The objection must include the basis for the evidence or expert to not be admitted.

Pre-Hearing on Challenged Experts: If a participant objects to the designation of an expert not previously admitted as an expert in the specified discipline before the State Engineer, the State Engineer shall hold a hearing commencing at **8:30 a.m., Thursday September 19, 2019**, to consider the admission of the challenged expert in the designated discipline at the hearing commencing on September 23, 2019.

Further, the Nevada State Engineer has taken administrative notice of those files and records of the Office of the State Engineer identified on Exhibit A to this Notice of Hearing, and which will be marked as exhibits of the Nevada State Engineer. The exhibits identified in Exhibit A will be published on the Division of Water Resources website at *http://water.nv.gov/news.aspx?news=LWRFS.*

VI. EXHIBITS

Nevada Administrative Code Chapter 533 requires that exhibits introduced into evidence must be in a readily reproducible form, on paper that is 8½" x 11" or foldable to that size.

Larger charts, maps, drawings and other material will not be admitted into evidence, but may be used for demonstrative purposes. The State Engineer recognizes that if hydrologic models are used that some evidence may need to be submitted in an electronic format. An original and one copy of each exhibit must be submitted to the State Engineer. Exhibits based on technical studies or models shall be accompanied by sufficient information to clearly identify and explain the logic, assumptions, development, and operation of the studies or models.

Each electronically submitted exhibit must be saved as a separate .pdf file, with the name of the participant presenting the document, the exhibit number and a short description of the document in the title. For example, a document identified as Exhibit No. 1 submitted by the Nevada State Engineer would be identified as "*NSE Ex. No. 1 Order 1303.*"

VII. RULES OF EVIDENCE NOT APPLICABLE

Pursuant to NRS 533.365(4), the technical rules of evidence do not apply to administrative hearings before the State Engineer.

VIII. COST OF REPORTING

As set forth in Nevada Administrative Code Chapter 533, the hearing will be reported by a certified court reporter. The court reporter will file an original and one copy of the transcript with the State Engineer. Anyone wanting a copy of the transcript should make arrangements with the court reporter. The costs of the transcript will be borne proportionally by all participants actively participating during the hearing.

IX. REASONABLE ACCOMMODATIONS

The Division of Water Resources is pleased to make reasonable accommodations for members of the public who are disabled and wish to attend the hearing. If special arrangements are necessary, please notify the Nevada Division of Water Resources, 901 South Stewart, Suite 2002, Carson City, Nevada, 89701, or by calling (775) 684-2800.

Micheline N. Fairbank
MICHELINE N. FAIRBANK
Deputy Administrator

Dated this 23rd day of

August, 2019.

Exhibit A

Documents and Records of the Nevada State Engineer Which Administrative Notice is Taken for the Purpose of the Order 1303 Administrative Hearing

NSE Ex. No. 1	Order 1303 and Addendum to Order 1303
NSE Ex. No. 2	Order 1169A
NSE Ex. No. 3	Order 1169
NSE Ex. No. 4	Order 1026
NSE Ex. No. 5	Order 1025
NSE Ex. No. 6	Order 1024
NSE Ex. No. 7	Order 1023
NSE Ex. No. 8	Order 1018
NSE Ex. No. 9	Order 905
NSE Ex. No. 10	Order 803
NSE Ex. No. 11	Order 392
NSE Ex. No. 12	Ruling 5712[1]
NSE Ex. No. 13	Ruling 5987[1]
NSE Ex. No. 14	Ruling 6254[1]
NSE Ex. No. 15	Ruling 6255[1]
NSE Ex. No. 16	Ruling 6256[1]
NSE Ex. No. 17	Ruling 6257[1]
NSE Ex. No. 18	Ruling 6258[1]
NSE Ex. No. 19	Ruling 6259[1]
NSE Ex. No. 20	Ruling 6260[1]
NSE Ex. No. 21	Ruling 6261[1]
NSE Ex. No. 22	Hydrographic Abstract Lower Meadow Valley Wash (Basin 205)
NSE Ex. No. 23	Hydrographic Abstract Kane Springs Valley (Basin 206)
NSE Ex. No. 24	Hydrographic Abstract Coyote Spring Valley (Basin 210)
NSE Ex. No. 25	Hydrographic Abstract Black Mountains Area (Basin 215)
NSE Ex. No. 26	Hydrographic Abstract Garnet Valley (Basin 216)
NSE Ex. No. 27	Hydrographic Abstract Hidden Valley (Basin 217)
NSE Ex. No. 28	Hydrographic Abstract California Wash (Basin 218)
NSE Ex. No. 29	Hydrographic Abstract Muddy River Springs Area (Basin 219)
NSE Ex. No. 30	Hydrographic Basin Summary Lower Meadow Valley Wash (Basin 205)
NSE Ex. No. 31	Hydrographic Basin Summary Kane Springs Valley (Basin 206)
NSE Ex. No. 32	Hydrographic Basin Summary Coyote Spring Valley (Basin 210)
NSE Ex. No. 33	Hydrographic Basin Summary Black Mountains Area (Basin 215)
NSE Ex. No. 34	Hydrographic Basin Summary Garnet Valley (Basin 216)

[1] While the State Engineer does not officially identify the permit and/or hearing files that were subject to the ruling, such records, should they be determined to be relevant to these proceedings may be included in the State Engineer's ultimate determination and will be so identified if relied upon.

NSE Ex. No. 35	Hydrographic Basin Summary Hidden Valley (Basin 217)
NSE Ex. No. 36	Hydrographic Basin Summary California Wash (Basin 218)
NSE Ex. No. 37	Hydrographic Basin Summary Muddy River Springs Area (Basin 219)
NSE Ex. No. 38	Pumpage Report Coyote Spring Valley 2005
NSE Ex. No. 39	Pumpage Report Coyote Spring Valley 2006
NSE Ex. No. 40	Pumpage Report Coyote Spring Valley 2007
NSE Ex. No. 41	Pumpage Report Coyote Spring Valley 2008
NSE Ex. No. 42	Pumpage Report Coyote Spring Valley 2009
NSE Ex. No. 43	Pumpage Report Coyote Spring Valley 2010
NSE Ex. No. 44	Pumpage Report Coyote Spring Valley 2011
NSE Ex. No. 45	Pumpage Report Coyote Spring Valley 2012
NSE Ex. No. 46	Pumpage Report Coyote Spring Valley 2013
NSE Ex. No. 47	Pumpage Report Coyote Spring Valley 2014
NSE Ex. No. 48	Pumpage Report Coyote Spring Valley 2015
NSE Ex. No. 49	Pumpage Report Coyote Spring Valley 2016
NSE Ex. No. 50	Pumpage Report Coyote Spring Valley 2017
NSE Ex. No. 51	Pumpage Report Black Mountains Area 2001
NSE Ex. No. 52	Pumpage Report Black Mountains Area 2002
NSE Ex. No. 53	Pumpage Report Black Mountains Area 2003
NSE Ex. No. 54	Pumpage Report Black Mountains Area 2004
NSE Ex. No. 55	Pumpage Report Black Mountains Area 2005
NSE Ex. No. 56	Pumpage Report Black Mountains Area 2006
NSE Ex. No. 57	Pumpage Report Black Mountains Area 2007
NSE Ex. No. 58	Pumpage Report Black Mountains Area 2008
NSE Ex. No. 59	Pumpage Report Black Mountains Area 2009
NSE Ex. No. 60	Pumpage Report Black Mountains Area 2010
NSE Ex. No. 61	Pumpage Report Black Mountains Area 2011
NSE Ex. No. 62	Pumpage Report Black Mountains Area 2012
NSE Ex. No. 63	Pumpage Report Black Mountains Area 2013
NSE Ex. No. 64	Pumpage Report Black Mountains Area 2014
NSE Ex. No. 65	Pumpage Report Black Mountains Area 2015
NSE Ex. No. 66	Pumpage Report Black Mountains Area 2016
NSE Ex. No. 67	Pumpage Report Black Mountains Area 2017
NSE Ex. No. 68	Pumpage Report Garnet Valley Area 2001
NSE Ex. No. 69	Pumpage Report Garnet Valley Area 2002
NSE Ex. No. 70	Pumpage Report Garnet Valley Area 2003
NSE Ex. No. 71	Pumpage Report Garnet Valley Area 2004
NSE Ex. No. 72	Pumpage Report Garnet Valley Area 2005
NSE Ex. No. 73	Pumpage Report Garnet Valley Area 2006
NSE Ex. No. 74	Pumpage Report Garnet Valley Area 2007
NSE Ex. No. 75	Pumpage Report Garnet Valley Area 2008
NSE Ex. No. 76	Pumpage Report Garnet Valley Area 2009
NSE Ex. No. 77	Pumpage Report Garnet Valley Area 2010
NSE Ex. No. 78	Pumpage Report Garnet Valley Area 2011

NSE Ex. No. 79	Pumpage Report Garnet Valley Area 2012
NSE Ex. No. 80	Pumpage Report Garnet Valley Area 2013
NSE Ex. No. 81	Pumpage Report Garnet Valley Area 2014
NSE Ex. No. 82	Pumpage Report Garnet Valley Area 2015
NSE Ex. No. 83	Pumpage Report Garnet Valley Area 2016
NSE Ex. No. 84	Pumpage Report Garnet Valley Area 2017
NSE Ex. No. 85	Pumpage Report California Wash Area 2016
NSE Ex. No. 86	Pumpage Report California Wash Area 2017
NSE Ex. No. 87	Pumpage Report Muddy River Springs Area 2016
NSE Ex. No. 88	Pumpage Report Muddy River Springs Area 2017
NSE Ex. No. 89	Water Level Data 205 S14 E66 15CA 1 Lower Meadow Valley Wash
NSE Ex. No. 90	Water Level Data 205 S14 E66 22DCAD Lower Meadow Valley Wash
NSE Ex. No. 91	Water Level Data 205 S14 E66 35CABA1 Lower Meadow Valley Wash
NSE Ex. No. 92	Water Level Data 205 S12 E66 12BBBD1 Lower Meadow Valley Wash
NSE Ex. No. 93	Water Level Data 205 S12 E66 12BBBD2 Lower Meadow Valley Wash
NSE Ex. No. 94	Water Level Data 205 S12 E66 12BBBD3 Lower Meadow Valley Wash
NSE Ex. No. 95	Water Level Data 205 S14 E66 04DB 1 Lower Meadow Valley Wash
NSE Ex. No. 96	Water Level Data 205 S14 E66 22DC 1 Lower Meadow Valley Wash
NSE Ex. No. 97	Water Level Data 205 S14 E66 26CD 1 Lower Meadow Valley Wash
NSE Ex. No. 98	Water Level Data 205 S14 E66 26CDAB1 Lower Meadow Valley Wash
NSE Ex. No. 99	Water Level Data 205 S14 E66 26CDBA1 Lower Meadow Valley Wash
NSE Ex. No. 100	Water Level Data 205 S14 E66 26DDCD1 Lower Meadow Valley Wash
NSE Ex. No. 101	Water Level Data 205 S14 E66 34ADCA1 Lower Meadow Valley Wash
NSE Ex. No. 102	Water Level Data 205 S14 E66 35BDAB1 Lower Meadow Valley Wash
NSE Ex. No. 103	Water Level Data 205 S14 E66 35CA 1 Lower Meadow Valley Wash
NSE Ex. No. 104	Water Level Data 205 S14 E66 35CABA2 Lower Meadow Valley Wash
NSE Ex. No. 105	Water Level Data 205 S14 E66 35CACC1 Lower Meadow Valley Wash
NSE Ex. No. 106	Water Level Data 205 S14 E66 35DACC1 Lower Meadow Valley Wash
NSE Ex. No. 107	Water Level Data 205 S14 E66 35DD 1 Lower Meadow Valley Wash 205
NSE Ex. No. 108	Water Level Data 206 S11 E64 06CACC1 Kane Springs
NSE Ex. No. 109	Water Level Data 210 S10 E62 25ACAD1 Coyote Spring Valley
NSE Ex. No. 110	Water Level Data 210 S10 E62 25CBCC1 Coyote Spring Valley
NSE Ex. No. 111	Water Level Data 210 S11 E62 13BDDC1 Coyote Spring Valley
NSE Ex. No. 112	Water Level Data 210 S11 E62 24BA 2 Coyote Spring Valley
NSE Ex. No. 113	Water Level Data 210 S11 E62 24BD 1 Coyote Spring Valley
NSE Ex. No. 114	Water Level Data 210 S11 E62 24DB 1 Coyote Spring Valley
NSE Ex. No. 115	Water Level Data 210 S11 E63 13CBAB1 Coyote Spring Valley
NSE Ex. No. 116	Water Level Data 210 S11 E63 19ABAA1 Coyote Spring Valley
NSE Ex. No. 117	Water Level Data 210 S11 E63 21ABCA1 Coyote Spring Valley
NSE Ex. No. 118	Water Level Data 210 S12 E63 29ADCC1 Coyote Spring Valley
NSE Ex. No. 119	Water Level Data 210 S12 E63 29DABC1 Coyote Spring Valley
NSE Ex. No. 120	Water Level Data 210 S13 E63 05ABCC1 Coyote Spring Valley
NSE Ex. No. 121	Water Level Data 210 S13 E63 10DCCA1 Coyote Spring Valley
NSE Ex. No. 122	Water Level Data 210 S13 E63 11BACD1 Coyote Spring Valley

NSE Ex. No. 123	Water Level Data 210 S13 E63 11BCCC1 Coyote Spring Valley
NSE Ex. No. 124	Water Level Data 210 S13 E63 22DCAC1 Coyote Spring Valley
NSE Ex. No. 125	Water Level Data 210 S13 E63 23BAAB1 Coyote Spring Valley
NSE Ex. No. 126	Water Level Data 210 S13 E63 23DDDC1 Coyote Spring Valley
NSE Ex. No. 127	Water Level Data 210 S13 E63 25BDBB1 Coyote Spring Valley
NSE Ex. No. 128	Water Level Data 210 S13 E63 26AAAA1 Coyote Spring Valley
NSE Ex. No. 129	Water Level Data 210 S13 E63 26AABD1 Coyote Spring Valley
NSE Ex. No. 130	Water Level Data 210 S13 E64 31DAAD1 Coyote Spring Valley
NSE Ex. No. 131	Water Level Data 210 S14 E62 01ADBD1 Coyote Spring Valley
NSE Ex. No. 132	Water Level Data 210 S14 E63 28ACDC1 Coyote Spring Valley
NSE Ex. No. 133	Water Level Data 210 S15 E63 03BBCC1 Coyote Spring Valley
NSE Ex. No. 134	Water Level Data 215 S19 E63 13AADD1 Black Mountains Area
NSE Ex. No. 135	Water Level Data 215 S19 E63 13ABCB1 Black Mountains Area
NSE Ex. No. 136	Water Level Data 215 S19 E63 13DAAB1 Black Mountains Area
NSE Ex. No. 137	Water Level Data 215 S19 E63 13DACA1 Black Mountains Area
NSE Ex. No. 138	Water Level Data 215 S19 E63 13DACA1 Black Mountains Area
NSE Ex. No. 139	Water Level Data 215 S20 E65 08CDBA1 Black Mountains Area
NSE Ex. No. 140	Water Level Data 215 S20 E65 08DCAA1 Black Mountains Area
NSE Ex. No. 141	Water Level Data 216 S16 E64 19DCDB1 Garnet Valley
NSE Ex. No. 142	Water Level Data 216 S17 E63 32AABA1 Garnet Valley
NSE Ex. No. 143	Water Level Data 216 S17 E63 32CCCB1 Garnet Valley
NSE Ex. No. 144	Water Level Data 216 S17 E63 33CBCB1 Garnet Valley
NSE Ex. No. 145	Water Level Data 216 S17 E64 09DDCD1 Garnet Valley
NSE Ex. No. 146	Water Level Data 216 S17 E64 10CBCC1 Garnet Valley
NSE Ex. No. 147	Water Level Data 216 S17 E64 21CBBD1 Garnet Valley
NSE Ex. No. 148	Water Level Data 216 S17 E64 21CCAB1 Garnet Valley
NSE Ex. No. 149	Water Level Data 216 S18 E63 04CBBA1 Garnet Valley
NSE Ex. No. 150	Water Level Data 216 S18 E63 05AADB1 Garnet Valley
NSE Ex. No. 151	Water Level Data 216 S18 E63 05DBCA1 Garnet Valley
NSE Ex. No. 152	Water Level Data 216 S18 E63 05DBCD1 Garnet Valley
NSE Ex. No. 153	Water Level Data 216 S18 E63 15AACC1 Garnet Valley
NSE Ex. No. 154	Water Level Data 216 S18 E63 15AACD1 Garnet Valley
NSE Ex. No. 155	Water Level Data 216 S18 E63 27ACAD1 Garnet Valley
NSE Ex. No. 156	Water Level Data 216 S18 E64 07DDCC1 Garnet Valley
NSE Ex. No. 157	Water Level Data 216 S18 E64 18ACDB1 Garnet Valley
NSE Ex. No. 158	Water Level Data 216 S18 E64 20BABA1 Garnet Valley
NSE Ex. No. 159	Water Level Data 217 S16 E63 09DDAB1 Hidden Valley
NSE Ex. No. 160	Water Level Data 218 S15 E66 31DACA1 California Wash
NSE Ex. No. 161	Water Level Data 218 S16 E64 02ABCD1 California Wash
NSE Ex. No. 162	Water Level Data 218 S16 E64 15AAAA1 California Wash
NSE Ex. No. 163	Water Level Data 218 S16 E64 15AADD1 California Wash
NSE Ex. No. 164	Water Level Data 218 S16 E64 15ADAA1 California Wash
NSE Ex. No. 165	Water Level Data 218 S16 E64 34CDBC1 California Wash
NSE Ex. No. 166	Water Level Data 219 S13 E64 35DCAD1 Muddy River Springs Area

NSE Ex. No. 167	Water Level Data 219 S13HE64 33DBBC1 Muddy River Springs Area
NSE Ex. No. 168	Water Level Data _219 S14 E65 07ADDA1 Muddy River Springs Area
NSE Ex. No. 169	Water Level Data 219 S14 E65 07ADDA2 Muddy River Springs Area
NSE Ex. No. 170	Water Level Data 219 S14 E65 08AB 1 Muddy River Springs Area
NSE Ex. No. 171	Water Level Data 219 S14 E65 08AB 2 Muddy River Springs Area
NSE Ex. No. 172	Water Level Data 219 S14 E65 08ABBD1 Muddy River Springs Area
NSE Ex. No. 173	Water Level Data 219 S14 E65 08AC 1 Muddy River Springs Area
NSE Ex. No. 174	Water Level Data 219 S14 E65 08AC 2 Muddy River Springs Area
NSE Ex. No. 175	Water Level Data 219 S14 E65 08ADBB1 Muddy River Springs Area
NSE Ex. No. 176	Water Level Data 219 S14 E65 08BD 1 Muddy River Springs Area
NSE Ex. No. 177	Water Level Data 219 S14 E65 08BDBD1 Muddy River Springs Area
NSE Ex. No. 178	Water Level Data 219 S14 E65 08BDCC1 Muddy River Springs Area
NSE Ex. No. 179	Water Level Data 219 S14 E65 08DB 1 Muddy River Springs Area
NSE Ex. No. 180	Water Level Data 219 S14 E65 08DB 2 Muddy River Springs Area
NSE Ex. No. 181	Water Level Data 219 S14 E65 08DD 1 Muddy River Springs Area
NSE Ex. No. 182	Water Level Data 219 S14 E65 09CA 1 Muddy River Springs Area
NSE Ex. No. 183	Water Level Data 219 S14 E65 09CBCC1 Muddy River Springs Area
NSE Ex. No. 184	Water Level Data 219 S14 E65 09CC 1 Muddy River Springs Area
NSE Ex. No. 185	Water Level Data 219 S14 E65 09CCBC1 Muddy River Springs Area
NSE Ex. No. 186	Water Level Data 219 S14 E65 09DC 1 Muddy River Springs Area
NSE Ex. No. 187	Water Level Data 219 S14 E65 09DD 1 Muddy River Springs Area
NSE Ex. No. 188	Water Level Data 219 S14 E65 14CD 1 Muddy River Springs Area
NSE Ex. No. 189	Water Level Data 219 S14 E65 14CDBB1 Muddy River Springs Area
NSE Ex. No. 190	Water Level Data 219 S14 E65 15AC 1 Muddy River Springs Area
NSE Ex. No. 191	Water Level Data 219 S14 E65 15BBCA1 Muddy River Springs Area
NSE Ex. No. 192	Water Level Data 219 S14 E65 16AACD1 Muddy River Springs Area
NSE Ex. No. 193	Water Level Data 219 S14 E65 21AB 1 Muddy River Springs Area
NSE Ex. No. 194	Water Level Data 219 S14 E65 21ACAA1 Muddy River Springs Area
NSE Ex. No. 195	Water Level Data 219 S14 E65 22AA 1 Muddy River Springs Area
NSE Ex. No. 196	Water Level Data 219 S14 E65 22AABB1 Muddy River Springs Area
NSE Ex. No. 197	Water Level Data 219 S14 E65 22AABB2 Muddy River Springs Area
NSE Ex. No. 198	Water Level Data 219 S14 E65 23AB 1 Muddy River Springs Area
NSE Ex. No. 199	Water Level Data 219 S14 E65 23BB 1 Muddy River Springs Area
NSE Ex. No. 200	Water Level Data 219 S14 E65 23BB 2 Muddy River Springs Area
NSE Ex. No. 201	Water Level Data 219 S14 E65 23BB 3 Muddy River Springs Area
NSE Ex. No. 202	Water Level Data 219 S14 E65 23BBBB1 Muddy River Springs Area
NSE Ex. No. 203	Water Level Data 219 S14 E65 23BC 1 Muddy River Springs Area
NSE Ex. No. 204	Water Level Data 219 S14 E66 35DD 1 Muddy River Springs Area
NSE Ex. No. 205	Nevada Climate Divisional 3, 4 and PRISM Precipitation Data 1985-2012
NSE Ex. No. 206	USGS 09415900 Muddy Springs LDS Moapa NV (all data)
NSE Ex. No. 207	USGS 09415908 Pederson E. Springs Moapa 2002-2012
NSE Ex. No. 208	USGS 09415910 Pederson Springs Moapa 1985-2013
NSE Ex. No. 209	USGS 09415920 Warm Springs West_1985-2012
NSE Ex. No. 210	USGS 09415927 Warm Springs Confluence at Iverson Flume 2001-10

NSE Ex. No. 211	USGS 09416000 Muddy River Moapa 1914-2013
NSE Ex. No. 212	USGS Partial Muddy River Springs 11, 12, 13, 19, 15, 16,
NSE Ex. No. 213	All Order 1169 Water Level Data
NSE Ex. No. 214	Baldwin Jones Monthly Data 2002-2019
NSE Ex. No. 215	Moapa Valley Water District Data Baldwin Jones Daily/Monthly 2010-2012
NSE Ex. No. 216	Order 1169 EH4 Data NDWR Dec. 2012
NSE Ex. No. 217	Order 1169 Daily Pumpage 2010-2013
NSE Ex. No. 218	Order 1169 Monthly Pumpage Data 2000-2012
NSE Ex. No. 219	Order 1169 Monthly Pumpage Data 2000-2019
NSE Ex. No. 220	*Intentionally Omitted*
NSE Ex. No. 221	Southern Nevada Water Authority Shallow Monitor Wells Muddy River Springs Area Periodic Measurements 2009-2012
NSE Ex. No. 222	Southern Nevada Water Authority Solver White River Flow System 10-11-2011
NSE Ex. No. 223	Order 1169 Nevada State Engineer Monitoring Well Site ID and Locations
NSE Ex. No. 224	Lower White River Flow System Water Rights by Priority
NSE Ex. No. 225	2016 Hydrologic Review Team Annual Determination Report with Appendices
NSE Ex. No. 226	2017 Hydrologic Review Team Annual Determination Report
NSE Ex. No. 227	Lower White River Flow System Rights by Priority with 2017 Pumpage Data
NSE Ex. No. 228	2018 Hydrologic Review Team Annual Determination Report with Appended Moapa Valley Water District and Moapa Band of Paiutes Reports
NSE Ex. No. 229	2016 Southern Nevada Water Authority Muddy River Intentionally Created Surplus Certification Report
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NSE Ex. No. 235	State of Nevada, Department of Conservation and Natural Resources, Water Resources Bulletin No. 33, A Regional Interbasin Ground-Water System in the White River Area, Southeastern Nevada, by Thomas E. Eakin, 1966

NSE Ex. No. 236	2006 Memorandum of Agreement between the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investment LLC, Moapa Band of Paiute Indians and Moapa Valley Water District.
NSE Ex. No. 237	2001 Stipulation for Dismissal of Protests between Las Vegas Valley Water District, Southern Nevada Water Authority and Federal Bureaus
NSE Ex. No. 238	4/20/2006 Southern Nevada Water Authority Agenda Item Re: Memorandum of Agreement, Water Supply Agreement and Back-Up Water Rights Agreement
NSE Ex. No. 239	4/18/2006 Las Vegas Valley Water District Board of Directors Agenda Item Re: Water Supply Agreement and Water Supply Agreement
NSE Ex. No. 240	4/13/2006 Letter from Nevada Department of Conservation and Natural Resources Re: Supporting Water Settlement Agreement
NSE Ex. No. 241	April 2006 Back-Up Water Rights Agreement Between Southern Nevada Water Authority, Moapa Valley Water District, Moapa Valley Irrigation Company and Coyote Springs Investments LLC
NSE Ex. No. 242	April 2006 Surface Water Lease Between Moapa Valley Irrigation Company and Moapa Band of Paiute Indians
NSE Ex. No. 243	2006 Water Rights Deed Between Las Vegas Valley Water District and Moapa Band of Paiute Indians
NSE Ex. No. 244	2006 Memorandum of Agreement Trigger Levels agreed to by the Southern Nevada Water Authority, Moapa Valley Water District, Coyote Springs Investments LLC and Moapa Band of Paiute Indians
NSE Ex. No. 245	Southern Nevada Water Authority Order 1169 Report
NSE Ex. No. 246	Great Basin Water Network Order 1169 Report
NSE Ex. No. 247	Coyote Springs Investments, LLC Order 1169 Report
NSE Ex. No. 248	Center for Biological Diversity Order 1169 Report
NSE Ex. No. 249	Moapa Valley Water District Order 1169 Report
NSE Ex. No. 250	Moapa Valley Water District Basin 220 Well Site Analysis
NSE Ex. No. 251	Moapa Valley Water District Evaluation of MX-5 Pumping Test on Springs and Wells in the Muddy Springs Area
NSE Ex. No. 252	Moapa Band of Paiute Indians Order 1169 Report
NSE Ex. No. 253	Hydrogeologic and Groundwater Modeling Analysis for the Moapa Paiute Energy Center by Mifflin and Associates
NSE Ex. No. 254	PowerPoint Presentation Re: Lewis Well Field Production Effects on Groundwater Temperatures
NSE Ex. No. 255	Cover Letter Federal Bureaus Order 1169 Report
NSE Ex. No. 256	Federal Bureaus Order 1169 Report
NSE Ex. No. 257	Federal Bureaus Order 1169 Report Appendix A
NSE Ex. No. 258	Federal Bureaus Order 1169 Report Selected References: Water-Surface Elevations, Discharge, and Water-Qualify Data for Selected Sites in the Warm Springs Area near Moapa, Nevada, Beck et. al., 2006

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NSE Ex. No. 264	Federal Bureaus Order 1169 Report Selected References: The Disconnect Between Restoration Goals and Practices: A Case Study of Watershed Restoration in the Russian River Basin, California, Christian-Smith and Merenlender, 2010
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NSE Ex. No. 266	Federal Bureaus Order 1169 Report Selected References: A Regional Interbasin Groundwater System in the White River Area, Southeastern Nevada, Eakin, 1966
NSE Ex. No. 267	Federal Bureaus Order 1169 Report Selected References: Detecting Drawdowns Masked by Environmental Stresses with Water-Level Models, Garcia et. al., 2013
NSE Ex. No. 268	Federal Bureaus Order 1169 Report Selected References: Advanced Methods for Modeling Water-Levels and Estimating Drawdowns with SeriesSEE, and Excel Add-In, Halford et. al., 2012
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NSE Ex. No. 272	Federal Bureaus Order 1169 Report Selected References: The AEM and Regional Carbonate Aquifer Modeling, Johnson and Mifflin, 2006
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NSE Ex. No. 276	Federal Bureaus Order 1169 Report Selected References: Geology of White Pine and Lincoln Counties and Adjacent Areas, Nevada and Utah: The Geologic Framework of Regional Groundwater Flow Systems, Southern Nevada Water Authority, 2007
NSE Ex. No. 277	Federal Bureaus Order 1169 Report Selected References: Water-Resources Assessment and Hydrogeologic Report for Gave, Dry Lake, and Delamar Valleys, Southern Nevada Water Authority, 2007
NSE Ex. No. 278	Federal Bureaus Order 1169 Report Selected References: Hydrologic Data Analysis Report for Test Well 184W105 in Spring Valley Hydrographic Area 184, Southern Nevada Water Authority, 2009
NSE Ex. No. 279	Federal Bureaus Order 1169 Report Selected References: Warm Springs Natural Area Stewardship Plan, Southern Nevada Water Authority, 2011
NSE Ex. No. 280	Federal Bureaus Order 1169 Report Selected References: Development of a Numerical Groundwater Flow Model of Selected Basins within the Colorado Regional Groundwater Flow System, Southeastern Nevada, Tetra Tech 2012
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NSE Ex. No. 288	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement Summary, August 2009

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NSE Ex. No. 292	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix C List of Preparers
NSE Ex. No. 293	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix D Distribution List
NSE Ex. No. 294	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix E Laws and Regs
NSE Ex. No. 295	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix F GOS
NSE Ex. No. 296	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix G CDs
NSE Ex. No. 297	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix H Biological Resources

NSE Ex. No. 298	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix I Wilderness Review
NSE Ex. No. 299	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix J Bighorn Sheep
NSE Ex. No. 300	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix K Implementation
NSE Ex. No. 301	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix L Moapa LPP-CMP
NSE Ex. No. 302	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix M Response to Comments
NSE Ex. No. 303	Federal Bureaus Order 1169 Detailed Production Data w CHECKS
NSE Ex. No. 304	Federal Bureaus Order 1169 Groundwater level & production data
NSE Ex. No. 305	Federal Bureaus Order 1169 Baldwin Jones Monthly Data_2002-2019
NSE Ex. No. 306	Federal Bureaus Order 1169 NV Climate Divisional 3, 4 and PRISM pcp data 1985-2012
NSE Ex. No. 307	Federal Bureaus Order 1169 EH4 Data NDWR Dec 2012
NSE Ex. No. 308	Federal Bureaus Order 1169 Monthly Pumpage Data 2000-2012
NSE Ex. No. 309	Federal Bureaus Order 1169 Southern Nevada Water Authority shallow monitor wells MRSA periodic measurements 2009-2012
NSE Ex. No. 310	Federal Bureaus Order 1169 Muddy Springs LDS Moapa NV (all data)
NSE Ex. No. 311	Federal Bureaus Order 1169 Pederson E. Springs near Moapa 2002-2012
NSE Ex. No. 312	Federal Bureaus Order 1169 Pederson Springs near Moapa 1985-2013
NSE Ex. No. 313	Federal Bureaus Order 1169 Warm Springs West all data 1985-2012
NSE Ex. No. 314	Federal Bureaus Order 1169 Warm Springs Confluence at Iverson Flume 2001-2010
NSE Ex. No. 315	Federal Bureaus Order 1169 Muddy River near Moapa all data 1914-2013
NSE Ex. No. 316	Federal Bureaus Order 1169 Muddy River Springs Partial
NSE Ex. No. 317	2/27/2014 Tetra Tech Cover Letter
NSE Ex. No. 318	Responses Tetra Tech Model final

NSE Ex. No. 319	Lincoln County/Vidler Water Company Response to National Park Service
NSE Ex. No. 320	Settlement Agreement between the Nevada State Engineer, Lincoln County and Vidler Water Company
NSE Ex. No. 321	Clearing the Waters: Unraveling Hydrologic Trends in the Muddy River Springs Area, Tim Mayer, U.S. Fish and Wildlife Service, March, 2008, NWRA Annual Meeting
NSE Ex. No. 322	Geologic Map of Lincoln County
NSE Ex. No. 323	Geologic Map of Clark County
NSE Ex. No. 324	April 26, 2019, United States Fish and Wildlife Service Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 325	May 2, 2019, NDWR Letter Seeking Responses to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 326	May 2, 2019, Coyote Springs Investment, LLC Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 327	May 2, 2019, Moapa Band of Paiutes Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 328	May 6, 2019, Centers for Biological Diversity Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 329	May 8, 2019, Las Vegas Valley Water District and Southern Nevada Water Authority Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 330	May 9, 2019, Dry Lake Water Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 331	March 5, 2018, Memorandum by Stetson Engineer Inc. to Coyote Spring Investment, LLC Re: Review of Nevada State Engineer's Ruling #6255 and Order 1169 Pumping Test in the Coyote Spring Valley
NSE Ex. No. 332	Evaluation of boundary fluxes for the ground-water flow model being prepared as part of the NDPLMA-5 project by James R. Harrill, December 31, 2007
NSE Ex. No. 333	Muddy River Decree
NSE Ex. No. 334	8/21/2019 Vidler Water Company Quarterly Update of Ongoing Data Collection in Kane Springs Valley Hydrographic Basin (206)

CERTIFICATE OF SERVICE

I hereby certify that a copy of **Notice of Hearing in the Matter of the Administration and Management of the Lower White River Flow System** was served:
By E-mail, on **August 23, 2019,** on the following:

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Capitol Reporters, E-mail

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

IN THE MATTER OF THE ADMINISTRATION AND MANAGEMENT OF THE LOWER WHITE RIVER FLOW SYSTEM WITHIN COYOTE SPRING VALLEY HYDROGRAPHIC BASIN (210), A PORTION OF BLACK MOUNTAINS AREA HYDROGRAPHIC BASIN (215), GARNET VALLEY HYDROGRAPHIC BASIN (216), HIDDEN VALLEY HYDROGRAPHIC BASIN (217), CALIFORNIA WASH HYDROGRAPHIC BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) HYDROGRAPHIC BASIN (219), LINCOLN AND CLARK COUNTIES, NEVADA.	**AMENDED NOTICE OF HEARING**

I. PROCEDURAL BACKGROUND

The State Engineer issued Interim Order 1303 on January 11, 2019, whereby the State Engineer designated the Lower White River Flow System, consisting of the Coyote Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley, Garnet Valley, and a portion of the Black Mountain Area as a joint administrative unit for the purpose of administering water rights, and among other interim matters, solicited reports to be filed with the Office of the State Engineer addressing: (1) the geographic boundary of the hydrologically connected groundwater and surface-water system comprising the Lower White River Flow System; (b) the information obtained from the State Engineer's Order 1169 aquifer test and subsequent to the aquifer test and Muddy River headwater spring flow as it relates to aquifer recovery since the completion of the aquifer test; (c) the long-term annual quantity of groundwater that may be pumped from the Lower White River Flow System, including the relationships between the location of pumping on discharge to the Muddy River Springs, and the capture of Muddy River Flow; (d) the effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River; and, (e) any other matter believed to be relevant to the State Engineer's analysis. The deadline for the filing of reports was initially set for June 3, 2019, and rebuttal reports were permitted to be filed no later than July 18, 2019. The State Engineer further ordered that an administrative hearing would be held in the month of September 2019. The State Engineer issued an addendum to Interim Order 1303 on May 13, 2019, whereby the State Engineer extended the deadline for any interested stakeholder to submit a report to July 3, 2019, and rebuttal reports to August 16, 2019. [1]

Initial reports in response to the Order 1303 solicitation were filed with the Office of the State Engineer by the Center for Biological Diversity; City of North Las Vegas; Coyote Springs Investment, LLC; Dry Lake Water, LLC; Georgia Pacific Corporation and Republic

[1] *See* Interim Order 1303, and addendum, official records in the Office of the State Engineer.

Environmental Technologies; Great Basin Water Network; Lincoln County Water District and Vidler Water Company; Moapa Band of Paiutes; Moapa Valley Water District; United States National Park Service; Southern Nevada Water Authority and Las Vegas Valley Water District; Technichrome; and the United States Fish and Wildlife Service. Rebuttal reports were filed by Bedroc Limited and Western Elite Environmental, Inc.; Center for Biological Diversity; City of North Las Vegas; Coyote Springs Investment, LLC; Dry Lake Water, LLC, Georgia Pacific Gypsum and Republic Environmental Technologies; Lincoln County Water District and Vidler Water Company; Moapa Band of Paiutes; Moapa Valley Water District; Muddy Valley Irrigation Company; the United States National Park Service; Nevada Cogeneration Associates; Nevada Energy; Southern Nevada Water Authority and Las Vegas Valley Water District; and the United States Fish and Wildlife Service.

On August 9, 2019, the State Engineer held a pre-hearing conference regarding the hearing on the submission of reports and evidence as solicited in Order 1303. At the pre-hearing conference, the State Engineer set forth the purpose of the Order 1303 hearing, addressed the timing and length of the hearing, discussed the sequence of the presentation of evidence by the participants, addressed the procedures and other administrative matters relating to Order 1303, discussed the timing for disclosures of witnesses and evidence, including expert witnesses, and addressed other matters relating to the hearing. The State Engineer established that the purpose of the hearing on the Order 1303 reports was to provide the participants an opportunity to explain the positions and conclusions expressed in the reports and/or rebuttal reports submitted in response to the Order 1303 solicitation. The State Engineer directed the participants to limit the offer of evidence and testimony to the salient conclusions, including directing the State Engineer and his staff to the relevant data, evidence and other information supporting those conclusions. The State Engineer further noted that the hearing on the Order 1303 reports was the first step in determining to what extent, if any, and in what manner the State Engineer would address future management decisions, including policy decisions, relating to the Lower White River Flow System basins. On that basis, the State Engineer then addressed other related matters pertaining to the hearing on the Order 1303 reports, including addressing the date and sequence of the hearing, as set forth in this Notice of Hearing.

II. NOTICE OF HEARING

Please take notice, the State Engineer hereby sets the hearing on Order 1303, to begin at **8:30 a.m., on Monday, September 23, 2019, continuing through Friday, September 27, 2019, ending each day by 4:30 p.m. The hearing will reconvene at 8:30 a.m. on Monday, September 30, 2019, continuing through Friday, October 4, 2019, ending each day by 4:30 p.m., with the exception of October 3, 2019, where the hearing will reconvene at 11:00 a.m. and end at 4:30 p.m., at the Nevada State Legislature, 401 South Carson Street, Room 2135, Carson City, Nevada and will video be conferenced to the Legislative Counsel Bureau, Sawyer Office Building, 555 E. Washington Ave., Suite 4400, Las Vegas, Nevada.**

III. REPRESENTATION OF PARTICIPANTS BY ATTORNEYS OR AGENTS

Pursuant to NAC 533.200, any participant may be represented by either an attorney or other agent. Any attorney appearing on behalf of a participant must be an active member of the State Bar of Nevada or associated with an active member of the State Bar of Nevada. Any attorney not an active member of the State Bar of Nevada must comply with Nevada Supreme Court Rule 42, governing the practice of attorneys not admitted in Nevada. Further, **either** the attorney(s) **or** agent will be recognized as fully controlling the case on behalf of the participant, and in accordance with NAC 533.200, the attorney or agent must make an appearance and submit a **Notice of Appearance** with the State Engineer in this matter. Only the attorney or agent whom submits a Notice of Appearance on behalf of a participant shall be permitted to examine and cross-examine witnesses in the proceedings. The State Engineer will not permit a participant to have both attorneys and agents examine witnesses in this proceeding.

IV. SEQUENCE OF PRESENTATION OF EVIDENCE AND CROSS-EXAMINATION OF WITNESSES

Each participant who has submitted either a report, rebuttal report, or both a report and rebuttal report in response to the Order 1303 solicitation is hereby assigned the following dates and times for both the presentation of their submitted reports, and to present any other evidence, as outlined within the scope of the hearing. The time allocated to each participant shall be alloted such that the participant shall use half its time to present their evidence and testimony, and the other half shall be used by the other participants to cross-examine the witnesses. For example, 7 hours will be allocated to address the report and rebuttal report submitted by Coyote Springs Investment, LLC; accordingly, Coyote Springs Investments, LLC will be allowed not more than 3.5 hours to present its evidence and testimony and the other participants shall be allowed not more than 3.5 to cross-examine Coyote Springs Investments, LLC's witnesses.

The schedule for presentation of evidence by the parties is established as follows:

Date(s) and Time(s)	Participant
September 23, 2019, all day	Coyote Springs Investment, LLC
September 24, 2019, all day	United States Fish and Wildlife Service
September 25, 2019, all day	United States National Park Service
September 26, 2019, all day	Moapa Band of Paiutes
September 27, 2019, all day, and September 30, 2019, 8:30 a.m. to 10:30 a.m.	Southern Nevada Water Authority and Las Vegas Valley Water District
September 30, 2019, 10:30 a.m. to 12:30 p.m., and 1:30 p.m. to 3:30 p.m.	Moapa Valley Water District
September 30, 2019, 3:30 p.m. to 4:30 p.m., and October 1, 2019, 8:30 a.m. to 11:30 a.m.	Lincoln County Water District and Vidler Water Company

October 1, 2019, 11:30 a.m. to 12:30 p.m., and 1:30 p.m. to 4:30 p.m.	City of North Las Vegas
October 2, 2019, 8:30 a.m. to 12:30 p.m.	Center for Biological Diversity and Great Basin Water Network
October 2, 2019, 1:30 p.m. to 4:30 p.m., and October 3, 2019, 11:00 a.m. to 12:00 p.m.	Dry Lake Water, LLC, Georgia Pacific Corporation/Georgia Pacific Gypsum, LLC, and Republic Environmental Technologies
October 3, 2019, 12:00 p.m. to 2:00 p.m.	Technichrome
October 3, 2019, 2:00 p.m. to 4:30 p.m.	Nevada Cogeneration Associates
October 4, 2019, 8:30 a.m. to 10:30 a.m.	Muddy Valley Irrigation Company
October 4, 2019, 10:30 a.m. to 12:30 p.m.	Bedroc Limited/Western Elite Environmental, Inc.
October 4, 2019, 1:30 p.m. to 3:30 p.m.	Nevada Energy
October 4, 2019, 3:30 p.m. to 4:30 p.m.	Public Comment

A participant is not required to examine their witnesses or to use its full allocation of time. Any participant who has submitted a report or expert report to the State Engineer for consideration as written testimony or evidence must, pursuant to NAC 533.250, present the person who has prepared that report or expert report to affirm that it is their work product and that they personally prepared or directed its preparation, and submit to cross-examination. The State Engineer may, in his discretion, disregard any report or rebuttal report submitted pursuant to Order 1303 that is not affirmed and attested to by the individual who is identified as an author of the report or rebuttal report and is not made available for cross-examination.

V. DISCLOSURE OF EVIDENCE AND WITNESS LISTS

The disclosure of documents, witness lists and descriptions of witness testimony will take place as set forth and in the manner provided in this Notice of Hearing. The State Engineer requires that two copies of any of the documents referenced below be filed in the Office of the State Engineer in addition to the electronic copies, as applicable.

Evidentiary Disclosure. The participants are hereby ordered to serve on the State Engineer in Carson City, Nevada, **no later than Friday, September 6, 2019**, an exhibit list, a witness list, a reasonably detailed summary of the testimony of each witness, and copies of any documentary evidence intended to be introduced into the hearing record. If a witness is not identified as testifying on direct as to a certain topic, the witness may not be allowed to testify to the unidentified topic in his or her direct testimony. If a witness is to be presented to provide expert testimony, the evidentiary exchange shall identify the written report prepared and submitted to the State Engineer in response to the solicitations contained within Order 1303 and any exhibits to be used as a summary of or in support of the opinions and a statement of qualifications of the witness. For any

witness identified and designated as an expert witness, the evidentiary disclosure shall include the Curriculum Vitae and shall identify whether the expert has been previously admitted as an expert witness before the State Engineer, in what discipline(s) the expert has been so admitted before the State Engineer, and if the witness has not previously been admitted as an expert before the State Engineer, all other court or administrative proceedings in which the expert has been admitted. The Evidentiary Disclosure must include any relevant documents or evidence that the participant desires the State Engineer to consider in his examination of the five issues identified in Order 1303, and making any determination related to those issues.

In addition to two copies of the exhibit list, witness list, and documentary evidence, **the participants are required to also provide an electronic copy of: the exhibit list in Excel format, their witness summaries, and scanned copies of all their exhibits in pdf 200 dpi format**.

The State Engineer shall publish all timely served Evidentiary Disclosures on its website at *http://water.nv.gov/news.aspx?news=LWRFS.*

Objections to Evidentiary Disclosures: Any objection or challenge to evidence disclosed by another participant must be served on the State Engineer in Carson City, Nevada, **no later than 5:00 p.m., Friday, September 13, 2019.** The objection must include the basis for the evidence or expert to not be admitted.

Pre-Hearing on Challenged Experts: If a participant objects to the designation of an expert not previously admitted as an expert in the specified discipline before the State Engineer, the State Engineer shall hold a hearing commencing at **8:30 a.m., Thursday September 19, 2019**, to consider the admission of the challenged expert in the designated discipline at the hearing commencing on September 23, 2019.

Further, the Nevada State Engineer has taken administrative notice of those files and records of the Office of the State Engineer identified on Exhibit A to this Notice of Hearing, and which will be marked as exhibits of the Nevada State Engineer. The exhibits identified in Exhibit A will be published on the Division of Water Resources website at *http://water.nv.gov/news.aspx?news=LWRFS.*

VI. EXHIBITS

Nevada Administrative Code Chapter 533 requires that exhibits introduced into evidence must be in a readily reproducible form, on paper that is 8½" x 11" or foldable to that size.

Larger charts, maps, drawings and other material will not be admitted into evidence, but may be used for demonstrative purposes. The State Engineer recognizes that if hydrologic models are used that some evidence may need to be submitted in an electronic format. An original and one copy of each exhibit must be submitted to the State Engineer. Exhibits based on technical studies or models shall be accompanied by sufficient information to clearly identify and explain the logic, assumptions, development, and operation of the studies or models.

Each electronically submitted exhibit must be saved as a separate .pdf file, with the name of the participant presenting the document, the exhibit number and a short description of the document in the title. For example, a document identified as Exhibit No. 1 submitted by the Nevada State Engineer would be identified as "*NSE Ex. No. 1 Order 1303.*"

VII. RULES OF EVIDENCE NOT APPLICABLE

Pursuant to NRS 533.365(4), the technical rules of evidence do not apply to administrative hearings before the State Engineer.

VIII. COST OF REPORTING

As set forth in Nevada Administrative Code Chapter 533, the hearing will be reported by a certified court reporter. The court reporter will file an original and one copy of the transcript with the State Engineer. Anyone wanting a copy of the transcript should make arrangements with the court reporter. The costs of the transcript will be borne proportionally by all participants actively participating during the hearing.

IX. REASONABLE ACCOMMODATIONS

The Division of Water Resources is pleased to make reasonable accommodations for members of the public who are disabled and wish to attend the hearing. If special arrangements are necessary, please notify the Nevada Division of Water Resources, 901 South Stewart, Suite 2002, Carson City, Nevada, 89701, or by calling (775) 684-2800.

Micheline N. Fairbank

MICHELINE N. FAIRBANK
Deputy Administrator

Dated this 26rd day of

August, 2019.

Exhibit A

Documents and Records of the Nevada State Engineer Which Administrative Notice is Taken for the Purpose of the Order 1303 Administrative Hearing

NSE Ex. No. 1	Order 1303 and Addendum to Order 1303
NSE Ex. No. 2	Order 1169A
NSE Ex. No. 3	Order 1169
NSE Ex. No. 4	Order 1026
NSE Ex. No. 5	Order 1025
NSE Ex. No. 6	Order 1024
NSE Ex. No. 7	Order 1023
NSE Ex. No. 8	Order 1018
NSE Ex. No. 9	Order 905
NSE Ex. No. 10	Order 803
NSE Ex. No. 11	Order 392
NSE Ex. No. 12	Ruling 5712[1]
NSE Ex. No. 13	Ruling 5987[1]
NSE Ex. No. 14	Ruling 6254[1]
NSE Ex. No. 15	Ruling 6255[1]
NSE Ex. No. 16	Ruling 6256[1]
NSE Ex. No. 17	Ruling 6257[1]
NSE Ex. No. 18	Ruling 6258[1]
NSE Ex. No. 19	Ruling 6259[1]
NSE Ex. No. 20	Ruling 6260[1]
NSE Ex. No. 21	Ruling 6261[1]
NSE Ex. No. 22	Hydrographic Abstract Lower Meadow Valley Wash (Basin 205)
NSE Ex. No. 23	Hydrographic Abstract Kane Springs Valley (Basin 206)
NSE Ex. No. 24	Hydrographic Abstract Coyote Spring Valley (Basin 210)
NSE Ex. No. 25	Hydrographic Abstract Black Mountains Area (Basin 215)
NSE Ex. No. 26	Hydrographic Abstract Garnet Valley (Basin 216)
NSE Ex. No. 27	Hydrographic Abstract Hidden Valley (Basin 217)
NSE Ex. No. 28	Hydrographic Abstract California Wash (Basin 218)
NSE Ex. No. 29	Hydrographic Abstract Muddy River Springs Area (Basin 219)
NSE Ex. No. 30	Hydrographic Basin Summary Lower Meadow Valley Wash (Basin 205)
NSE Ex. No. 31	Hydrographic Basin Summary Kane Springs Valley (Basin 206)
NSE Ex. No. 32	Hydrographic Basin Summary Coyote Spring Valley (Basin 210)
NSE Ex. No. 33	Hydrographic Basin Summary Black Mountains Area (Basin 215)
NSE Ex. No. 34	Hydrographic Basin Summary Garnet Valley (Basin 216)

[1] While the State Engineer does not officially identify the permit and/or hearing files that were subject to the ruling, such records, should they be determined to be relevant to these proceedings may be included in the State Engineer's ultimate determination and will be so identified if relied upon.

NSE Ex. No. 35	Hydrographic Basin Summary Hidden Valley (Basin 217)
NSE Ex. No. 36	Hydrographic Basin Summary California Wash (Basin 218)
NSE Ex. No. 37	Hydrographic Basin Summary Muddy River Springs Area (Basin 219)
NSE Ex. No. 38	Pumpage Report Coyote Spring Valley 2005
NSE Ex. No. 39	Pumpage Report Coyote Spring Valley 2006
NSE Ex. No. 40	Pumpage Report Coyote Spring Valley 2007
NSE Ex. No. 41	Pumpage Report Coyote Spring Valley 2008
NSE Ex. No. 42	Pumpage Report Coyote Spring Valley 2009
NSE Ex. No. 43	Pumpage Report Coyote Spring Valley 2010
NSE Ex. No. 44	Pumpage Report Coyote Spring Valley 2011
NSE Ex. No. 45	Pumpage Report Coyote Spring Valley 2012
NSE Ex. No. 46	Pumpage Report Coyote Spring Valley 2013
NSE Ex. No. 47	Pumpage Report Coyote Spring Valley 2014
NSE Ex. No. 48	Pumpage Report Coyote Spring Valley 2015
NSE Ex. No. 49	Pumpage Report Coyote Spring Valley 2016
NSE Ex. No. 50	Pumpage Report Coyote Spring Valley 2017
NSE Ex. No. 51	Pumpage Report Black Mountains Area 2001
NSE Ex. No. 52	Pumpage Report Black Mountains Area 2002
NSE Ex. No. 53	Pumpage Report Black Mountains Area 2003
NSE Ex. No. 54	Pumpage Report Black Mountains Area 2004
NSE Ex. No. 55	Pumpage Report Black Mountains Area 2005
NSE Ex. No. 56	Pumpage Report Black Mountains Area 2006
NSE Ex. No. 57	Pumpage Report Black Mountains Area 2007
NSE Ex. No. 58	Pumpage Report Black Mountains Area 2008
NSE Ex. No. 59	Pumpage Report Black Mountains Area 2009
NSE Ex. No. 60	Pumpage Report Black Mountains Area 2010
NSE Ex. No. 61	Pumpage Report Black Mountains Area 2011
NSE Ex. No. 62	Pumpage Report Black Mountains Area 2012
NSE Ex. No. 63	Pumpage Report Black Mountains Area 2013
NSE Ex. No. 64	Pumpage Report Black Mountains Area 2014
NSE Ex. No. 65	Pumpage Report Black Mountains Area 2015
NSE Ex. No. 66	Pumpage Report Black Mountains Area 2016
NSE Ex. No. 67	Pumpage Report Black Mountains Area 2017
NSE Ex. No. 68	Pumpage Report Garnet Valley Area 2001
NSE Ex. No. 69	Pumpage Report Garnet Valley Area 2002
NSE Ex. No. 70	Pumpage Report Garnet Valley Area 2003
NSE Ex. No. 71	Pumpage Report Garnet Valley Area 2004
NSE Ex. No. 72	Pumpage Report Garnet Valley Area 2005
NSE Ex. No. 73	Pumpage Report Garnet Valley Area 2006
NSE Ex. No. 74	Pumpage Report Garnet Valley Area 2007
NSE Ex. No. 75	Pumpage Report Garnet Valley Area 2008
NSE Ex. No. 76	Pumpage Report Garnet Valley Area 2009
NSE Ex. No. 77	Pumpage Report Garnet Valley Area 2010
NSE Ex. No. 78	Pumpage Report Garnet Valley Area 2011

NSE Ex. No. 79	Pumpage Report Garnet Valley Area 2012
NSE Ex. No. 80	Pumpage Report Garnet Valley Area 2013
NSE Ex. No. 81	Pumpage Report Garnet Valley Area 2014
NSE Ex. No. 82	Pumpage Report Garnet Valley Area 2015
NSE Ex. No. 83	Pumpage Report Garnet Valley Area 2016
NSE Ex. No. 84	Pumpage Report Garnet Valley Area 2017
NSE Ex. No. 85	Pumpage Report California Wash Area 2016
NSE Ex. No. 86	Pumpage Report California Wash Area 2017
NSE Ex. No. 87	Pumpage Report Muddy River Springs Area 2016
NSE Ex. No. 88	Pumpage Report Muddy River Springs Area 2017
NSE Ex. No. 89	Water Level Data 205 S14 E66 15CA 1 Lower Meadow Valley Wash
NSE Ex. No. 90	Water Level Data 205 S14 E66 22DCAD Lower Meadow Valley Wash
NSE Ex. No. 91	Water Level Data 205 S14 E66 35CABA1 Lower Meadow Valley Wash
NSE Ex. No. 92	Water Level Data 205 S12 E66 12BBBD1 Lower Meadow Valley Wash
NSE Ex. No. 93	Water Level Data 205 S12 E66 12BBBD2 Lower Meadow Valley Wash
NSE Ex. No. 94	Water Level Data 205 S12 E66 12BBBD3 Lower Meadow Valley Wash
NSE Ex. No. 95	Water Level Data 205 S14 E66 04DB 1 Lower Meadow Valley Wash
NSE Ex. No. 96	Water Level Data 205 S14 E66 22DC 1 Lower Meadow Valley Wash
NSE Ex. No. 97	Water Level Data 205 S14 E66 26CD 1 Lower Meadow Valley Wash
NSE Ex. No. 98	Water Level Data 205 S14 E66 26CDAB1 Lower Meadow Valley Wash
NSE Ex. No. 99	Water Level Data 205 S14 E66 26CDBA1 Lower Meadow Valley Wash
NSE Ex. No. 100	Water Level Data 205 S14 E66 26DDCD1 Lower Meadow Valley Wash
NSE Ex. No. 101	Water Level Data 205 S14 E66 34ADCA1 Lower Meadow Valley Wash
NSE Ex. No. 102	Water Level Data 205 S14 E66 35BDAB1 Lower Meadow Valley Wash
NSE Ex. No. 103	Water Level Data 205 S14 E66 35CA 1 Lower Meadow Valley Wash
NSE Ex. No. 104	Water Level Data 205 S14 E66 35CABA2 Lower Meadow Valley Wash
NSE Ex. No. 105	Water Level Data 205 S14 E66 35CACC1 Lower Meadow Valley Wash
NSE Ex. No. 106	Water Level Data 205 S14 E66 35DACC1 Lower Meadow Valley Wash
NSE Ex. No. 107	Water Level Data 205 S14 E66 35DD 1 Lower Meadow Valley Wash 205
NSE Ex. No. 108	Water Level Data 206 S11 E64 06CACC1 Kane Springs
NSE Ex. No. 109	Water Level Data 210 S10 E62 25ACAD1 Coyote Spring Valley
NSE Ex. No. 110	Water Level Data 210 S10 E62 25CBCC1 Coyote Spring Valley
NSE Ex. No. 111	Water Level Data 210 S11 E62 13BDDC1 Coyote Spring Valley
NSE Ex. No. 112	Water Level Data 210 S11 E62 24BA 2 Coyote Spring Valley
NSE Ex. No. 113	Water Level Data 210 S11 E62 24BD 1 Coyote Spring Valley
NSE Ex. No. 114	Water Level Data 210 S11 E62 24DB 1 Coyote Spring Valley
NSE Ex. No. 115	Water Level Data 210 S11 E63 13CBAB1 Coyote Spring Valley
NSE Ex. No. 116	Water Level Data 210 S11 E63 19ABAA1 Coyote Spring Valley
NSE Ex. No. 117	Water Level Data 210 S11 E63 21ABCA1 Coyote Spring Valley
NSE Ex. No. 118	Water Level Data 210 S12 E63 29ADCC1 Coyote Spring Valley
NSE Ex. No. 119	Water Level Data 210 S12 E63 29DABC1 Coyote Spring Valley
NSE Ex. No. 120	Water Level Data 210 S13 E63 05ABCC1 Coyote Spring Valley
NSE Ex. No. 121	Water Level Data 210 S13 E63 10DCCA1 Coyote Spring Valley
NSE Ex. No. 122	Water Level Data 210 S13 E63 11BACD1 Coyote Spring Valley

NSE Ex. No. 123	Water Level Data 210 S13 E63 11BCCC1 Coyote Spring Valley
NSE Ex. No. 124	Water Level Data 210 S13 E63 22DCAC1 Coyote Spring Valley
NSE Ex. No. 125	Water Level Data 210 S13 E63 23BAAB1 Coyote Spring Valley
NSE Ex. No. 126	Water Level Data 210 S13 E63 23DDDC1 Coyote Spring Valley
NSE Ex. No. 127	Water Level Data 210 S13 E63 25BDBB1 Coyote Spring Valley
NSE Ex. No. 128	Water Level Data 210 S13 E63 26AAAA1 Coyote Spring Valley
NSE Ex. No. 129	Water Level Data 210 S13 E63 26AABD1 Coyote Spring Valley
NSE Ex. No. 130	Water Level Data 210 S13 E64 31DAAD1 Coyote Spring Valley
NSE Ex. No. 131	Water Level Data 210 S14 E62 01ADBD1 Coyote Spring Valley
NSE Ex. No. 132	Water Level Data 210 S14 E63 28ACDC1 Coyote Spring Valley
NSE Ex. No. 133	Water Level Data 210 S15 E63 03BBCC1 Coyote Spring Valley
NSE Ex. No. 134	Water Level Data 215 S19 E63 13AADD1 Black Mountains Area
NSE Ex. No. 135	Water Level Data 215 S19 E63 13ABCB1 Black Mountains Area
NSE Ex. No. 136	Water Level Data 215 S19 E63 13DAAB1 Black Mountains Area
NSE Ex. No. 137	Water Level Data 215 S19 E63 13DACA1 Black Mountains Area
NSE Ex. No. 138	Water Level Data 215 S19 E63 13DACA1 Black Mountains Area
NSE Ex. No. 139	Water Level Data 215 S20 E65 08CDBA1 Black Mountains Area
NSE Ex. No. 140	Water Level Data 215 S20 E65 08DCAA1 Black Mountains Area
NSE Ex. No. 141	Water Level Data 216 S16 E64 19DCDB1 Garnet Valley
NSE Ex. No. 142	Water Level Data 216 S17 E63 32AABA1 Garnet Valley
NSE Ex. No. 143	Water Level Data 216 S17 E63 32CCCB1 Garnet Valley
NSE Ex. No. 144	Water Level Data 216 S17 E63 33CBCB1 Garnet Valley
NSE Ex. No. 145	Water Level Data 216 S17 E64 09DDCD1 Garnet Valley
NSE Ex. No. 146	Water Level Data 216 S17 E64 10CBCC1 Garnet Valley
NSE Ex. No. 147	Water Level Data 216 S17 E64 21CBBD1 Garnet Valley
NSE Ex. No. 148	Water Level Data 216 S17 E64 21CCAB1 Garnet Valley
NSE Ex. No. 149	Water Level Data 216 S18 E63 04CBBA1 Garnet Valley
NSE Ex. No. 150	Water Level Data 216 S18 E63 05AADB1 Garnet Valley
NSE Ex. No. 151	Water Level Data 216 S18 E63 05DBCA1 Garnet Valley
NSE Ex. No. 152	Water Level Data 216 S18 E63 05DBCD1 Garnet Valley
NSE Ex. No. 153	Water Level Data 216 S18 E63 15AACC1 Garnet Valley
NSE Ex. No. 154	Water Level Data 216 S18 E63 15AACD1 Garnet Valley
NSE Ex. No. 155	Water Level Data 216 S18 E63 27ACAD1 Garnet Valley
NSE Ex. No. 156	Water Level Data 216 S18 E64 07DDCC1 Garnet Valley
NSE Ex. No. 157	Water Level Data 216 S18 E64 18ACDB1 Garnet Valley
NSE Ex. No. 158	Water Level Data 216 S18 E64 20BABA1 Garnet Valley
NSE Ex. No. 159	Water Level Data 217 S16 E63 09DDAB1 Hidden Valley
NSE Ex. No. 160	Water Level Data 218 S15 E66 31DACA1 California Wash
NSE Ex. No. 161	Water Level Data 218 S16 E64 02ABCD1 California Wash
NSE Ex. No. 162	Water Level Data 218 S16 E64 15AAAA1 California Wash
NSE Ex. No. 163	Water Level Data 218 S16 E64 15AADD1 California Wash
NSE Ex. No. 164	Water Level Data 218 S16 E64 15ADAA1 California Wash
NSE Ex. No. 165	Water Level Data 218 S16 E64 34CDBC1 California Wash
NSE Ex. No. 166	Water Level Data 219 S13 E64 35DCAD1 Muddy River Springs Area

NSE Ex. No. 167	Water Level Data 219 S13HE64 33DBBC1 Muddy River Springs Area
NSE Ex. No. 168	Water Level Data _219 S14 E65 07ADDA1 Muddy River Springs Area
NSE Ex. No. 169	Water Level Data 219 S14 E65 07ADDA2 Muddy River Springs Area
NSE Ex. No. 170	Water Level Data 219 S14 E65 08AB 1 Muddy River Springs Area
NSE Ex. No. 171	Water Level Data 219 S14 E65 08AB 2 Muddy River Springs Area
NSE Ex. No. 172	Water Level Data 219 S14 E65 08ABBD1 Muddy River Springs Area
NSE Ex. No. 173	Water Level Data 219 S14 E65 08AC 1 Muddy River Springs Area
NSE Ex. No. 174	Water Level Data 219 S14 E65 08AC 2 Muddy River Springs Area
NSE Ex. No. 175	Water Level Data 219 S14 E65 08ADBB1 Muddy River Springs Area
NSE Ex. No. 176	Water Level Data 219 S14 E65 08BD 1 Muddy River Springs Area
NSE Ex. No. 177	Water Level Data 219 S14 E65 08BDBD1 Muddy River Springs Area
NSE Ex. No. 178	Water Level Data 219 S14 E65 08BDCC1 Muddy River Springs Area
NSE Ex. No. 179	Water Level Data 219 S14 E65 08DB 1 Muddy River Springs Area
NSE Ex. No. 180	Water Level Data 219 S14 E65 08DB 2 Muddy River Springs Area
NSE Ex. No. 181	Water Level Data 219 S14 E65 08DD 1 Muddy River Springs Area
NSE Ex. No. 182	Water Level Data 219 S14 E65 09CA 1 Muddy River Springs Area
NSE Ex. No. 183	Water Level Data 219 S14 E65 09CBCC1 Muddy River Springs Area
NSE Ex. No. 184	Water Level Data 219 S14 E65 09CC 1 Muddy River Springs Area
NSE Ex. No. 185	Water Level Data 219 S14 E65 09CCBC1 Muddy River Springs Area
NSE Ex. No. 186	Water Level Data 219 S14 E65 09DC 1 Muddy River Springs Area
NSE Ex. No. 187	Water Level Data 219 S14 E65 09DD 1 Muddy River Springs Area
NSE Ex. No. 188	Water Level Data 219 S14 E65 14CD 1 Muddy River Springs Area
NSE Ex. No. 189	Water Level Data 219 S14 E65 14CDBB1 Muddy River Springs Area
NSE Ex. No. 190	Water Level Data 219 S14 E65 15AC 1 Muddy River Springs Area
NSE Ex. No. 191	Water Level Data 219 S14 E65 15BBCA1 Muddy River Springs Area
NSE Ex. No. 192	Water Level Data 219 S14 E65 16AACD1 Muddy River Springs Area
NSE Ex. No. 193	Water Level Data 219 S14 E65 21AB 1 Muddy River Springs Area
NSE Ex. No. 194	Water Level Data 219 S14 E65 21ACAA1 Muddy River Springs Area
NSE Ex. No. 195	Water Level Data 219 S14 E65 22AA 1 Muddy River Springs Area
NSE Ex. No. 196	Water Level Data 219 S14 E65 22AABB1 Muddy River Springs Area
NSE Ex. No. 197	Water Level Data 219 S14 E65 22AABB2 Muddy River Springs Area
NSE Ex. No. 198	Water Level Data 219 S14 E65 23AB 1 Muddy River Springs Area
NSE Ex. No. 199	Water Level Data 219 S14 E65 23BB 1 Muddy River Springs Area
NSE Ex. No. 200	Water Level Data 219 S14 E65 23BB 2 Muddy River Springs Area
NSE Ex. No. 201	Water Level Data 219 S14 E65 23BB 3 Muddy River Springs Area
NSE Ex. No. 202	Water Level Data 219 S14 E65 23BBBB1 Muddy River Springs Area
NSE Ex. No. 203	Water Level Data 219 S14 E65 23BC 1 Muddy River Springs Area
NSE Ex. No. 204	Water Level Data 219 S14 E66 35DD 1 Muddy River Springs Area
NSE Ex. No. 205	Nevada Climate Divisional 3, 4 and PRISM Precipitation Data 1985-2012
NSE Ex. No. 206	USGS 09415900 Muddy Springs LDS Moapa NV (all data)
NSE Ex. No. 207	USGS 09415908 Pederson E. Springs Moapa 2002-2012
NSE Ex. No. 208	USGS 09415910 Pederson Springs Moapa 1985-2013
NSE Ex. No. 209	USGS 09415920 Warm Springs West_1985-2012
NSE Ex. No. 210	USGS 09415927 Warm Springs Confluence at Iverson Flume 2001-10

NSE Ex. No. 211	USGS 09416000 Muddy River Moapa 1914-2013
NSE Ex. No. 212	USGS Partial Muddy River Springs 11, 12, 13, 19, 15, 16,
NSE Ex. No. 213	All Order 1169 Water Level Data
NSE Ex. No. 214	Baldwin Jones Monthly Data 2002-2019
NSE Ex. No. 215	Moapa Valley Water District Data Baldwin Jones Daily/Monthly 2010-2012
NSE Ex. No. 216	Order 1169 EH4 Data NDWR Dec. 2012
NSE Ex. No. 217	Order 1169 Daily Pumpage 2010-2013
NSE Ex. No. 218	Order 1169 Monthly Pumpage Data 2000-2012
NSE Ex. No. 219	Order 1169 Monthly Pumpage Data 2000-2019
NSE Ex. No. 220	*Intentionally Omitted*
NSE Ex. No. 221	Southern Nevada Water Authority Shallow Monitor Wells Muddy River Springs Area Periodic Measurements 2009-2012
NSE Ex. No. 222	Southern Nevada Water Authority Solver White River Flow System 10-11-2011
NSE Ex. No. 223	Order 1169 Nevada State Engineer Monitoring Well Site ID and Locations
NSE Ex. No. 224	Lower White River Flow System Water Rights by Priority
NSE Ex. No. 225	2016 Hydrologic Review Team Annual Determination Report with Appendices
NSE Ex. No. 226	2017 Hydrologic Review Team Annual Determination Report
NSE Ex. No. 227	Lower White River Flow System Rights by Priority with 2017 Pumpage Data
NSE Ex. No. 228	2018 Hydrologic Review Team Annual Determination Report with Appended Moapa Valley Water District and Moapa Band of Paiutes Reports
NSE Ex. No. 229	2016 Southern Nevada Water Authority Muddy River Intentionally Created Surplus Certification Report
NSE Ex. No. 230	2017 Southern Nevada Water Authority Muddy River Intentionally Created Surplus Certification Report
NSE Ex. No. 231	State of Nevada, Nevada Water Resources Water Planning Report No. 3, Water for Nevada, October 1971
NSE Ex. No. 232	State of Nevada, Department of Conservation and Natural Resources, Ground-Water Resources – Reconnaissance Series Report 25: Ground-Water Appraisal of Coyote Spring and Kane Spring Valleys and Muddy River Springs Area, Lincoln and Clark Counties, Nevada, by Thomas E. Eakin, February 1964
NSE Ex. No. 233	State of Nevada, Department of Conservation and Natural Resources, Ground-Water Resources – Reconnaissance Series Report 50: Water-Resources Appraisal of the Lower Moapa-Lake Mead Area, Clark County, Nevada, by F. Eugene Rush, December 1968
NSE Ex. No. 234	State of Nevada, Department of Conservation and Natural Resources, Division of Water Resources, Nevada Water Resources-Informational, Nevada Streamflow Characteristics, October 1978
NSE Ex. No. 235	State of Nevada, Department of Conservation and Natural Resources, Water Resources Bulletin No. 33, A Regional Interbasin Ground-Water System in the White River Area, Southeastern Nevada, by Thomas E. Eakin, 1966

NSE Ex. No. 236	2006 Memorandum of Agreement between the Southern Nevada Water Authority, United States Fish and Wildlife Service, Coyote Springs Investment LLC, Moapa Band of Paiute Indians and Moapa Valley Water District.
NSE Ex. No. 237	2001 Stipulation for Dismissal of Protests between Las Vegas Valley Water District, Southern Nevada Water Authority and Federal Bureaus
NSE Ex. No. 238	4/20/2006 Southern Nevada Water Authority Agenda Item Re: Memorandum of Agreement, Water Supply Agreement and Back-Up Water Rights Agreement
NSE Ex. No. 239	4/18/2006 Las Vegas Valley Water District Board of Directors Agenda Item Re: Water Supply Agreement and Water Supply Agreement
NSE Ex. No. 240	4/13/2006 Letter from Nevada Department of Conservation and Natural Resources Re: Supporting Water Settlement Agreement
NSE Ex. No. 241	April 2006 Back-Up Water Rights Agreement Between Southern Nevada Water Authority, Moapa Valley Water District, Muddy Valley Irrigation Company and Coyote Springs Investments LLC
NSE Ex. No. 242	April 2006 Surface Water Lease Between Muddy Valley Irrigation Company and Moapa Band of Paiute Indians
NSE Ex. No. 243	2006 Water Rights Deed Between Las Vegas Valley Water District and Moapa Band of Paiute Indians
NSE Ex. No. 244	2006 Memorandum of Agreement Trigger Levels agreed to by the Southern Nevada Water Authority, Moapa Valley Water District, Coyote Springs Investments LLC and Moapa Band of Paiute Indians
NSE Ex. No. 245	Southern Nevada Water Authority Order 1169 Report
NSE Ex. No. 246	Great Basin Water Network Order 1169 Report
NSE Ex. No. 247	Coyote Springs Investments, LLC Order 1169 Report
NSE Ex. No. 248	Center for Biological Diversity Order 1169 Report
NSE Ex. No. 249	Moapa Valley Water District Order 1169 Report
NSE Ex. No. 250	Moapa Valley Water District Basin 220 Well Site Analysis
NSE Ex. No. 251	Moapa Valley Water District Evaluation of MX-5 Pumping Test on Springs and Wells in the Muddy Springs Area
NSE Ex. No. 252	Moapa Band of Paiute Indians Order 1169 Report
NSE Ex. No. 253	Hydrogeologic and Groundwater Modeling Analysis for the Moapa Paiute Energy Center by Mifflin and Associates
NSE Ex. No. 254	PowerPoint Presentation Re: Lewis Well Field Production Effects on Groundwater Temperatures
NSE Ex. No. 255	Cover Letter Federal Bureaus Order 1169 Report
NSE Ex. No. 256	Federal Bureaus Order 1169 Report
NSE Ex. No. 257	Federal Bureaus Order 1169 Report Appendix A
NSE Ex. No. 258	Federal Bureaus Order 1169 Report Selected References: Water-Surface Elevations, Discharge, and Water-Qualify Data for Selected Sites in the Warm Springs Area near Moapa, Nevada, Beck et. al., 2006

NSE Ex. No. 259	Federal Bureaus Order 1169 Report Selected References: Hydraulic-Property Estimates for Use with a Transient Ground-Water Flow Model of the Death Valley Regional Ground-Water Flow System, Nevada and California, Belcher et. al., 2001
NSE Ex. No. 260	Federal Bureaus Order 1169 Report Selected References: Ground Water Development – The Time to Full Capture Problem, Bredehoeft and Durbin 2009
NSE Ex. No. 261	Federal Bureaus Order 1169 Report Selected References: It Is the Discharge, Bredehoeft,_2007
NSE Ex. No. 262	Federal Bureaus Order 1169 Report Selected References: Basic Principles and Ecological Consequences of Altered Flow Regimes for Aquatic Biodiversity, Bunn & Arthington, 2002
NSE Ex. No. 263	Federal Bureaus Order 1169 Report Selected References: Extinction Rates in North American Freshwater Fishes, 1900-2010, Burkhead, 2012
NSE Ex. No. 264	Federal Bureaus Order 1169 Report Selected References: The Disconnect Between Restoration Goals and Practices: A Case Study of Watershed Restoration in the Russian River Basin, California, Christian-Smith and Merenlender, 2010
NSE Ex. No. 265	Federal Bureaus Order 1169 Report Selected References: Quantifying Ground-Water and Surface-Water Discharge from Evapotranspiration Processes in 12 Hydrographic Areas of the Colorado Regional Ground-Water Flow System, Nevada, Utah, and Arizona, Demeo et. al., 2008
NSE Ex. No. 266	Federal Bureaus Order 1169 Report Selected References: A Regional Interbasin Groundwater System in the White River Area, Southeastern Nevada, Eakin, 1966
NSE Ex. No. 267	Federal Bureaus Order 1169 Report Selected References: Detecting Drawdowns Masked by Environmental Stresses with Water-Level Models, Garcia et. al., 2013
NSE Ex. No. 268	Federal Bureaus Order 1169 Report Selected References: Advanced Methods for Modeling Water-Levels and Estimating Drawdowns with SeriesSEE, and Excel Add-In, Halford et. al., 2012
NSE Ex. No. 269	Federal Bureaus Order 1169 Report Selected References: An Ecohydraulic Model to Identify and Monitor Moapa Dace Habitat, Hatten et. al., 2013
NSE Ex. No. 270	Federal Bureaus Order 1169 Report Selected References: The Myths of Restoration Ecology, Hilderbrand et. al., 2005
NSE Ex. No. 271	Federal Bureaus Order 1169 Report Selected References: Technical Memo Re: Analysis of Evapotranspiration for the Muddy River Springs Area, Huntington et. al., 2013
NSE Ex. No. 272	Federal Bureaus Order 1169 Report Selected References: The AEM and Regional Carbonate Aquifer Modeling, Johnson and Mifflin, 2006
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NSE Ex. No. 274	Federal Bureaus Order 1169 Report Selected References: Vanishing Fishes of North America, Ono et. al., 1983

NSE Ex. No. 275	Federal Bureaus Order 1169 Report Selected References: Life History, Abundance, and Distribution of Moapa Dace, Scoppettone et. al., 1992
NSE Ex. No. 276	Federal Bureaus Order 1169 Report Selected References: Geology of White Pine and Lincoln Counties and Adjacent Areas, Nevada and Utah: The Geologic Framework of Regional Groundwater Flow Systems, Southern Nevada Water Authority, 2007
NSE Ex. No. 277	Federal Bureaus Order 1169 Report Selected References: Water-Resources Assessment and Hydrogeologic Report for Gave, Dry Lake, and Delamar Valleys, Southern Nevada Water Authority, 2007
NSE Ex. No. 278	Federal Bureaus Order 1169 Report Selected References: Hydrologic Data Analysis Report for Test Well 184W105 in Spring Valley Hydrographic Area 184, Southern Nevada Water Authority, 2009
NSE Ex. No. 279	Federal Bureaus Order 1169 Report Selected References: Warm Springs Natural Area Stewardship Plan, Southern Nevada Water Authority, 2011
NSE Ex. No. 280	Federal Bureaus Order 1169 Report Selected References: Development of a Numerical Groundwater Flow Model of Selected Basins within the Colorado Regional Groundwater Flow System, Southeastern Nevada, Tetra Tech 2012
NSE Ex. No. 281	Federal Bureaus Order 1169 Report Selected References: Predictions of the Effects of Groundwater Pumping in the Colorado Regional Groundwater Flow System Southeastern Nevada, Tetra Tech, 2012
NSE Ex. No. 282	Federal Bureaus Order 1169 Report Selected References: Comparison of Simulated and Observed Effects of Pumping from MX-5 Using Data Collected to the Endo of the Order 1169 Test, and Prediction of the Rates of Recovery from the Test, TetraTech,2013
NSE Ex. No. 283	Federal Bureaus Order 1169 Report Selected References: Geochemistry and Isotope Hydrology of Representative Aquifers in the Great Basin Region of Nevada, Utah, and Adjacent States, Thomas et. al.,1996
NSE Ex. No. 284	Federal Bureaus Order 1169 Report Selected References: Federal Register, Vol. 32, No. 48, p. 4001, Department of the Interior Fish and Wildlife Service Endangered Species Listing (Moapa Dace), 1967
NSE Ex. No. 285	Federal Bureaus Order 1169 Report Selected References: United States Fish and Wildlife Service, 2013 Moapa dace survey data (1994-2013)
NSE Ex. No. 286	Federal Bureaus Order 1169 Report Selected References: Analysis and Management of Animal Populations, Modeling, Estimation, and Decision Making, Williams et. al., 2002
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NSE Ex. No. 288	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement Summary, August 2009

NSE Ex. No. 289	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 1, August 2009
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NSE Ex. No. 291	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix B References
NSE Ex. No. 292	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix C List of Preparers
NSE Ex. No. 293	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix D Distribution List
NSE Ex. No. 294	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix E Laws and Regs
NSE Ex. No. 295	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix F GOS
NSE Ex. No. 296	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix G CDs
NSE Ex. No. 297	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix H Biological Resources

NSE Ex. No. 298	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix I Wilderness Review
NSE Ex. No. 299	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix J Bighorn Sheep
NSE Ex. No. 300	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix K Implementation
NSE Ex. No. 301	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix L Moapa LPP-CMP
NSE Ex. No. 302	Federal Bureaus Order 1169 United States Fish and Wildlife Service Desert National Wildlife Refuge Complex, Ash Meadows, Desert, Moapa Valley, and Pahranagat National Wildlife Refuges, Final Comprehensive Conservation Plan and Environmental Impact Statement, Volume 2, Appendix M Response to Comments
NSE Ex. No. 303	Federal Bureaus Order 1169 Detailed Production Data w CHECKS
NSE Ex. No. 304	Federal Bureaus Order 1169 Groundwater level & production data
NSE Ex. No. 305	Federal Bureaus Order 1169 Baldwin Jones Monthly Data_2002-2019
NSE Ex. No. 306	Federal Bureaus Order 1169 NV Climate Divisional 3, 4 and PRISM pcp data 1985-2012
NSE Ex. No. 307	Federal Bureaus Order 1169 EH4 Data NDWR Dec 2012
NSE Ex. No. 308	Federal Bureaus Order 1169 Monthly Pumpage Data 2000-2012
NSE Ex. No. 309	Federal Bureaus Order 1169 Southern Nevada Water Authority shallow monitor wells MRSA periodic measurements 2009-2012
NSE Ex. No. 310	Federal Bureaus Order 1169 Muddy Springs LDS Moapa NV (all data)
NSE Ex. No. 311	Federal Bureaus Order 1169 Pederson E. Springs near Moapa 2002-2012
NSE Ex. No. 312	Federal Bureaus Order 1169 Pederson Springs near Moapa 1985-2013
NSE Ex. No. 313	Federal Bureaus Order 1169 Warm Springs West all data 1985-2012
NSE Ex. No. 314	Federal Bureaus Order 1169 Warm Springs Confluence at Iverson Flume 2001-2010
NSE Ex. No. 315	Federal Bureaus Order 1169 Muddy River near Moapa all data 1914-2013
NSE Ex. No. 316	Federal Bureaus Order 1169 Muddy River Springs Partial
NSE Ex. No. 317	2/27/2014 Tetra Tech Cover Letter
NSE Ex. No. 318	Responses Tetra Tech Model final

NSE Ex. No. 319	Lincoln County/Vidler Water Company Response to National Park Service
NSE Ex. No. 320	Settlement Agreement between the Nevada State Engineer, Lincoln County and Vidler Water Company
NSE Ex. No. 321	Clearing the Waters: Unraveling Hydrologic Trends in the Muddy River Springs Area, Tim Mayer, U.S. Fish and Wildlife Service, March, 2008, NWRA Annual Meeting
NSE Ex. No. 322	Geologic Map of Lincoln County
NSE Ex. No. 323	Geologic Map of Clark County
NSE Ex. No. 324	April 26, 2019, United States Fish and Wildlife Service Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 325	May 2, 2019, NDWR Letter Seeking Responses to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 326	May 2, 2019, Coyote Springs Investment, LLC Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 327	May 2, 2019, Moapa Band of Paiutes Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 328	May 6, 2019, Centers for Biological Diversity Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 329	May 8, 2019, Las Vegas Valley Water District and Southern Nevada Water Authority Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 330	May 9, 2019, Dry Lake Water Response to Request for Extension of Time to submit Order 1303 Reports
NSE Ex. No. 331	March 5, 2018, Memorandum by Stetson Engineer Inc. to Coyote Spring Investment, LLC Re: Review of Nevada State Engineer's Ruling #6255 and Order 1169 Pumping Test in the Coyote Spring Valley
NSE Ex. No. 332	Evaluation of boundary fluxes for the ground-water flow model being prepared as part of the NDPLMA-5 project by James R. Harrill, December 31, 2007
NSE Ex. No. 333	Muddy River Decree
NSE Ex. No. 334	8/21/2019 Vidler Water Company Quarterly Update of Ongoing Data Collection in Kane Springs Valley Hydrographic Basin (206)

IN THE OFFICE OF THE STATE ENGINEER
OF THE STATE OF NEVADA

IN THE MATTER OF THE ADMINISTRATION AND MANAGEMENT OF THE LOWER WHITE RIVER FLOW SYSTEM WITHIN COYOTE SPRING VALLEY HYDROGRAPHIC BASIN (210), A PORTION OF BLACK MOUNTAINS AREA HYDROGRAPHIC BASIN (215), GARNET VALLEY HYDROGRAPHIC BASIN (216), HIDDEN VALLEY HYDROGRAPHIC BASIN (217), CALIFORNIA WASH HYDROGRAPHIC BASIN (218), AND MUDDY RIVER SPRINGS AREA (AKA UPPER MOAPA VALLEY) HYDROGRAPHIC BASIN (219).	**NOTICE OF PRE-HEARING CONFERENCE**

PLEASE TAKE NOTICE that a pre-hearing conference in the above-referenced matter will begin promptly at **9:00 a.m., on Thursday, August 8, 2019, to be held at the Nevada Division of Water Resources, Tahoe Hearing Room, 901 South Stewart, Second Floor, Carson City, Nevada**.

The State Engineer issued Interim Order 1303 *Designating the Administration of all Water Rights within Coyote Spring Valley Hydrographic Basin (210), a Portion of Black Mountains Area Hydrographic Basin (215), Garnet Valley Hydrographic Basin (216), Hidden Valley Hydrographic Basin (217), California Wash Hydrographic Basin (218), and Muddy River Springs Area (AKA Upper Moapa Valley) Hydrographic Basin (219) as a Joint Administrative Unit, Holding in Abeyance Applications to Change Existing Groundwater Rights, and Establishing a Temporary Moratorium on the Review of Final Subdivision Maps* on January 11, 2019. Order 1303 further directed stakeholders with interests that may be affected by water right development in the Lower White River Flow System (LWRFS), who so wished, to file a report and/or rebuttal reports with the State Engineer addressing five matters: (1) the geographic boundary of the hydrologically connected groundwater and surface-water systems comprising the LWRFS; (2) the information obtained from the Order 1169 aquifer test and subsequent to the aquifer test and Muddy River headwater spring flow as it relates to aquifer recovery since the completion of the aquifer test; (3) the long-term annual quantity of water that may be pumped from the LWRFS, including the relationships between the location of pumping on discharge to the Muddy River Springs, and the capture of Muddy River flow; (4) the effects of movement of water rights between alluvial wells and carbonate wells on deliveries of senior decreed rights to the Muddy River; and, (5) any other matter believed to be relevant to the State Engineer's analysis. Order 1303 further ordered that an administrative hearing would be held within the month of September 2019 to take comment on the submitted reports.

The hearing will be limited to taking evidence and testimony on the submitted reports by those parties whom either submit initial and/or rebuttal reports in response to the directive of the State Engineer in Order 1303. Stakeholders or interested persons who do not submit a report in

response to Order 1303 will be allowed the opportunity to introduce comments during the public comment period during the September 2019 hearing.

At the August 8, 2019, pre-hearing conference, the parties should be prepared to discuss the following issues:

1. The timing and length of the hearing;
2. The sequence of the presentation of the participating parties reports and evidence; and
3. The timing for disclosures of witnesses and evidence anticipated to be relied upon during the hearing.

As set forth in Nevada Administrative Code Chapter 533, the pre-hearing conference will be reported by a certified court reporter. The court reporter will file an original and one copy of the transcript with the State Engineer. The costs of the transcript will be borne equally by all the parties. Anyone wanting a copy of the transcript should make arrangements with the court reporter.

We are pleased to make reasonable accommodations for members of the public who are disabled and wish to attend the pre-hearing conference. If special arrangements are necessary, please notify the undersigned at the Nevada Division of Water Resources, 901 South Stewart, Suite 2002, Carson City, Nevada, 89701, or by calling (775) 684-2800.

Micheline N. Fairbank

MICHELINE N. FAIRBANK
Deputy Administrator

Dated this 25th day of

July, 2019.

SERVICE LIST

Notice of Pre-hearing Conference in the matter of *In The Matter of the Administration and Management of the Lower White River Flow System.*

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