

**IN THE SUPREME COURT OF THE STATE OF NEVADA**

\* \* \* \* \*

ADAM SULLIVAN, P.E., NEVADA  
STATE ENGINEER, DIVISION OF  
WATER RESOURCES, DEPARTMENT  
OF CONSERVATION AND NATURAL  
RESOURCES; SOUTHERN NEVADA  
WATER AUTHORITY; CENTER FOR  
BIOLOGICAL DIVERSITY; AND  
MUDDY VALLEY IRRIGATION CO.

Appellant,

v.

LINCOLN COUNTY WATER  
DISTRICT; et al.,

Respondents.

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Case No. 84739

(Consolidated with 84741, 84742,  
84809)

**OPPOSITION TO CENTER FOR BIOLOGICAL DIVERSITY'S  
EMERGENCY MOTION FOR STAY UNDER 27(E) AND JOINDER**

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## NRAP 26.1 DISCLOSURE STATEMENT

Pursuant to NRAP 26.1, the undersigned counsel of record certifies that the following are persons and entities as described in NRAP 26.1(a) and must be disclosed. These representations are made in order that the justices of the Supreme Court and the judges of the Court of Appeals may evaluate possible disqualification or recusal.

Respondent Georgia-Pacific Gypsum LLC (“Georgia-Pacific”) is a wholly-owned subsidiary of Koch Industries, Inc.

Respondent Republic Environmental Technologies, Inc. (“Republic”) is a wholly-owned subsidiary of Republic Services, Inc.

The following law firm has lawyers who appeared for Georgia-Pacific and Republic in the case or are expected to appear on their behalf in this Court:  
McDonald Carano LLP.

DATED: June 9, 2022.

MCDONALD CARANO LLP

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## MEMORANDUM OF POINTS AND AUTHORITIES

### I. INTRODUCTION

Respondents Georgia-Pacific Gypsum LLC and Republic Environmental Technologies, Inc. (collectively, “GP-R”) hereby oppose the Center for Biological Diversity’s (“CBD”) Emergency Motion for Stay. CBD presents many of the same arguments that Southern Nevada Water Authority (“SNWA”) presented in its Emergency Motion for Stay, which GP-R similarly opposed.

For example, CBD argues that increased pumping will cause an “imminent threat” to senior decreed rights. Mot. at 5. But like SNWA’s claims, CBD’s claims are based on mere speculation and lack evidence that increased pumping will actually occur or that additional pumping by CSI will occur at a volume that could directly affect Muddy River flows. CBD also argues that the 8,000 afa pumping limit that the State Engineer imposed in Order 1309 should remain in place because it was based on “the best available data.” Mot. at 9.<sup>1</sup> But like SNWA, CBD glosses over the fact that the State Engineer acted beyond his statutory authority and that the proceedings deprived the participants of their due-process rights. *See generally Findings of Fact, Conclusions of Law, and Order Granting Petitions for Judicial*

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<sup>1</sup> Notably, CBD made the exact *opposite* argument in its Petition for Judicial Review and Opening Brief, devoting a whole section of its brief to arguing that “the State Engineer’s conclusion that carbonate pumping can continue at 8,000 afa is based on a ‘steady-state’ hypothesis which is not supported by substantial evidence.” *See Exhibit 1* at 24-28 (CBS’s Opening Brief in district court).

*Review* (“Order”), attached as Exhibit 1 to CBD’s Appendix. CBD cannot separate the State Engineer’s finding that pumping should be limited to 8,000 afa from the unconstitutional procedure through which it was rendered and argue that specific factual findings contained in an unconstitutional order should stand.

What’s more, as GP-R pointed out to the District Court and also the State Engineer, there was no consensus at the hearing before the State Engineer regarding the appropriate pumping limit, and in fact some experts opined that up to 30,000 afa annually would be sustainable. *See Exhibit 2* at 18-19 (GP-R’s Opening Brief in Support of Petition for Judicial Review of Order 1309). The State Engineer’s Order even acknowledged this, finding that “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.” Order 1309 at SE ROA 58, attached as Exhibit 2 to CBD’s. GP-R and others (including CBD) appealed the State Engineer’s finding regarding the pumping limit, arguing that it was not based on substantial evidence. *See e.g.*, Ex. 1 at 24-28; Ex. 2 at 17-20. Thus, whether the 8,000 afa pumping limit is based on the best available science is very much in dispute.

Indeed, the District Court acknowledged the merits of GP-R and other respondents’ arguments on this issue in its Order, particularly as it relates to the impact of pumping on the Moapa dace. Specifically, the Court stated:

Although this Court refrains from analyzing whether or not 1309 is supported by substantial evidence, the Court notes that part of the State Engineer's 1309 decision of limiting use to 8,000 afa or less is based on the concern of adversely impacting the endangered Moapa Dace, located in the Muddy River Springs. This decision does not appear to take into account more nuanced effects of how pumping in each separate basin affects the Muddy River flows, no matter how far away the basin is from the river. In other words, reprioritization of each water rights holder in relation to the other (by prioritization date in the newly created superbasin) means that their standing (and more importantly, their potential for curtailment) is only by date. Water use in one basin may not have the same effect as another in reducing Muddy River flows; however, these distinguishing factors are all erased by combining all of the basins together for joint administration.

Order (attached as Exhibit 1 to CBD's Appendix) at 29, n.68.

So for the same reasons that Southern Nevada Water Authority's ("SNWA") Emergency Motion for Stay should be denied (articulated more fully in GP-R's Opposition, which it incorporates by reference herein), so too should CBD's Motion.

But there are a few new points in CBD's Motion that are worth noting, and directly refuting. First, CBD argues that the Memorandum of Agreement ("MOA") entered between several major water users in the Lower White River Flow System ("LWRFS") will not protect the Moapa dace. Mot. at 10-11. In the MOA, several parties agreed to mitigation measures at certain spring flow levels. CBD now argues that "[t]he State Engineer found, based on extensive expert analysis and testimony," that the levels agreed upon in the MOA are insufficient to protect the Moapa dace. Mot. at 10. But as more recent research shows, the Moapa dace population has significantly rebounded since the elimination of invasive predatory species, like

tilapia, from the Muddy River and tributaries where the dace populate. *See Exhibit 3* at 36-41 (“Moapa Dace Article,” attached to GP-R’s Request for Judicial Notice filed in district court). This is in direct contravention to assertions in CBD’s Motion that spring flows necessary to support the Moapa dace “continue[ ] to decline.” Mot. at 11. It also supports GP-R’s argument that Order 1309 was issued prematurely before adequate information had been collected to determine sustainable levels of water use in the LWRFS, further invalidating Order 1309.

CBD also argues that the MOA binds only the signatories and does not cover other water users who “have signaled an intention to increase pumping.” Mot. at 11. But as Nevada caselaw makes clear, “simply showing *some possibility* of irreparable injury is insufficient.” *Al Otro Lado v. Wolf*, 952 F.3d 999, 1007 (9th Cir. 2020); *see also Berryman v. Int’l Bhd. Elec. Workers*, 82 Nev. 277, 280, 416 P.2d 387, 389 (1966) (stating that in the context of an injunction, there should be a “reasonable probability that real injury will occur if the injunction does not issue”). CBD’s vague and unsupported speculation that other water users have “signaled” that they *might* increase pumping is insufficient to show irreparable harm.

Finally, CBD challenges the district court’s finding that Order 1309 deprived petitioners or their due-process rights, arguing that “several Respondents provided detailed technical input on the very issues for which they now claim lack of notice.” Mot. at 14. CBD grossly mischaracterizes the proceedings and understates the State

Engineer's due-process violations. As the district court found, not only did the State Engineer fail to put the parties on notice that the State Engineer would decide on a management protocol for the LWRFS at the end of the proceeding, but "the hearing itself failed to satisfy due process because the parties were not afforded a full and complete opportunity to address the implications of the State Engineer's decision to subject the LWRFS to conjunctive management and joint administration. Order at 30-31 (attached as Exhibit 1 to CBD's Appendix). What's more, the State Engineer ultimately developed six criteria to evaluate the connectivity of the basin, but failed to disclose those criteria before or during the Order 1303 proceedings. *Id.* The district court provided extensive and well-reasoned analysis on these due-process violations, which will likely be affirmed on appeal. *Id.* at 29-35.

Nothing SNWA or CBD can say now will change the fact that no statute confers on the State Engineer the authority to consolidate already-established hydrographic basins into one hydrographic superbasin, or that the proceedings deprived participants of their due-process rights. And CBD fails to provide any reason that would justify keeping an unconstitutional and unlawful order in place after the district court has already struck it down. Accordingly, Respondents GP-R

respectfully requests that this Court deny CBD's Emergency Motion for Stay.

DATED: June 9, 2022.

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## CERTIFICATE OF COMPLIANCE

Pursuant to NRAP 27(d), I hereby certify that this response to a motion complies with the formatting requirements of NRAP 32(a)(4), the typeface requirements of NRAP 32(a)(5) and the type-style requirements of NRAP 32(a)(6) because this motion has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point font, Times New Roman style. I further certify that this response to a motion complies with the page limits of NRAP 27(d)(2) because it does not exceed 10 pages.

Pursuant to NRAP 28.2, I hereby certify that I have read this response to a motion, and to the best of my knowledge, information, and belief, it is not frivolous or interposed for any improper purpose. I further certify that this response to a motion complies with all applicable Nevada Rules of Appellate Procedure. I understand that I may be subject to sanctions in the event that this motion is not in conformity with the requirements of the Nevada Rules of Appellate Procedure.

DATED: June 9, 2022.

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**CERTIFICATE OF SERVICE**

I hereby certify that I am an employee of McDonald Carano LLP, and on June 9, 2022, a true and correct copy of the foregoing **OPPOSITION TO CENTER FOR BIOLOGICAL DIVERSITY’S EMERGENCY MOTION FOR STAY UNDER 27(E) AND JOINDER** was e-filed and e-served on all registered parties to the Supreme Court’s electronic filing system:

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Dated: June 9, 2022.

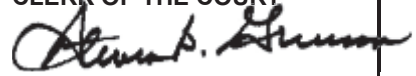
/s/Carole Davis  
An Employee of McDonald Carano LLC

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**EXHIBIT 1**

**EXHIBIT 1**



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14 **IN THE EIGHTH JUDICIAL DISTRICT COURT**  
15 **IN AND FOR THE COUNTY OF CLARK, STATE OF NEVADA**

16 LAS VEGAS VALLEY WATER DISTRICT,  
17 and SOUTHERN NEVADA WATER  
18 AUTHORITY,

19 Petitioners,

20 vs.

21 ADAM SULLIVAN, P.E., Nevada State  
22 Engineer, DIVISION OF WATER  
23 RESOURCES, DEPARTMENT OF  
24 CONSERVATION AND NATURAL  
25 RESOURCES,

26 Respondent.

Case No. A-20-816761-C

Dept. 1

Consolidated with Cases:

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A-20-818069-P  
A-21-833572-J

27 CENTER FOR BIOLOGICAL DIVERSITY,

28 Petitioner,

vs.

ADAM SULLIVAN, P.E., Nevada State  
Engineer, DIVISION OF WATER  
RESOURCES, DEPARTMENT OF  
CONSERVATION AND NATURAL  
RESOURCES,

Respondent.

Case No. A-20-817876-P

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Hearing Requested

**PETITIONER'S OPENING BRIEF**



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1 **INTRODUCTION**

2 Nevada is the Nation’s driest state, making the management and conservation of water  
3 resources a matter of utmost public concern. As the climate warms and the State’s population  
4 continues to grow, the deep regional aquifers of Southeastern Nevada face increasing demands on  
5 their limited groundwater resources. Not only do these waters support communities and agriculture  
6 throughout the region, but they also play a critical role in sustaining the State’s irreplaceable  
7 biodiversity. Spring systems fed by deep-water aquifers—such as the Muddy River Springs at  
8 issue in this litigation—provide habitat for species such as the endangered Moapa dace fish that  
9 exist nowhere else on Earth.

10 Nearly two decades ago, the Nevada State Engineer recognized that increasing demands  
11 on the Southeastern Nevada’s groundwater resources were unsustainable, and set out to determine  
12 how much water could be developed without harming senior water users and groundwater-  
13 dependent ecosystems. Specifically, the State Engineer sought to limit groundwater pumping in  
14 order to protect senior water users on the Muddy River as well as the Moapa dace, the entire global  
15 population of which is found near the river’s headwater springs.

16 Growing concern about impacts from groundwater development led the State Engineer in  
17 2019 to designate for joint administration the Lower White River Flow System (“LWRFS”), a  
18 seven-basin area in Southeastern Nevada that, due to a remarkable degree of hydrologic  
19 connectivity among its constituent basins, requires conjunctive management. Most of the  
20 groundwater in the LWRFS discharges from the Muddy River’s headwater springs. After  
21 designating the LWRFS, State Engineer then sought to determine, through stakeholder input and a  
22 public hearing, how much groundwater could be sustainably pumped throughout the system.

23 This process culminated on June 15, 2020 with the State Engineer’s Order 1309. Among  
24 other findings, Order 1309 recognized two important characteristics of the LWRFS that serve as  
25 limiting factors on groundwater development. First, Order 1309 recognized that Kane Springs  
26 Valley should be included in the LWRFS and jointly managed with the other basins, based on clear  
27 evidence of a hydrologic connection between Kane Springs Valley and adjacent Coyote Spring  
28 Valley. Put simply, Order 1309 acknowledged that Kane Springs and the other LWRFS basins

1 share a common supply of water. Second, the State Engineer recognized that the State’s obligation  
2 under the federal Endangered Species Act (“ESA”) to protect the Moapa dace is a primary limiting  
3 factor on groundwater development in the LWRFS. The State Engineer acknowledged that  
4 groundwater pumping in the LWRFS reduces springflows in the Muddy River’s headwaters and  
5 could therefore violate the ESA by causing unlawful “take” of the dace.

6 However, Order 1309 ultimately fails to protect the Muddy River, the Muddy River  
7 springs, the Moapa dace, and the public’s interest therein from the impacts of groundwater  
8 development. Specifically, the Order fails to cap groundwater pumping at a level sufficient to  
9 protect the Moapa dace and maintain flows in the Muddy River. Throughout the administrative  
10 proceedings leading up to Order 1309, substantial evidence was presented showing that  
11 groundwater pumping at then-current levels was depleting groundwater resources, lowering the  
12 Muddy River, and reducing the springflows on which the Moapa dace depend. Order 1309,  
13 however, allows this level of pumping to continue indefinitely, based on an unsupported  
14 assumption that the LWRFS aquifer is approaching a “steady state.”

15 The Center for Biological Diversity therefore seeks judicial review of Order 1309 on the  
16 grounds that the State Engineer’s conclusions therein are arbitrary, capricious, and not supported  
17 by substantial evidence.

## 18 **PARTIES AND JURISDICTION**

19 Petitioner, the Center for Biological Diversity (“the Center”), is a national, non-profit  
20 conservation organization incorporated in California and headquartered in Tucson, Arizona. The  
21 Center has over 84,000 members including members who reside in Nevada. The Center has staff  
22 and offices throughout the United States, including in Nevada. Many of the Center’s members who  
23 reside in Nevada and neighboring states live, visit, or recreate in and near areas directly affected  
24 by Order 1309. In particular, the Center and its members have educational, scientific, biological,  
25 aesthetic and spiritual interests in the survival and recovery of the Moapa dace. As noted, the  
26 Moapa dace is imperiled by diminishing spring flows caused by groundwater pumping in the  
27 LWRFS, and is listed as endangered under the Federal Endangered Species Act, 16 U.S.C. §§  
28 1531-1544. To protect its interests in the survival and recovery of the Moapa dace, the Center

1 submitted technical reports pursuant to Nevada State Engineer Order 1303 and participated in a  
2 public hearing before the State Engineer, held between September 23, 2019 and October 4, 2019,  
3 the ultimate outcome of which was Order 1309. The Center is aggrieved by the State Engineer's  
4 decision because the interests of the Center and its members in the survival and recovery of the  
5 Moapa Dace will suffer long-term harmful impacts from the groundwater drawdown and  
6 springflow reductions authorized under Order 1309. An order from this court granting the relief  
7 requested herein would redress this injury to the Center and its members.

8 Respondent Adam Sullivan, P.E. is the State Engineer of the State of Nevada. Mr. Sullivan  
9 is the successor to Tim Wilson, P.E., the previous Nevada State Engineer who issued Order 1309.  
10 Respondent Division of Water Resources, Department of Conservation and Natural Resources is  
11 a governmental division of the State of Nevada charged with managing and conserving the State's  
12 water resources.

13 This Court has jurisdiction over this action pursuant to NRS § 533.450 (Orders and  
14 decisions of the State Engineer subject to judicial review). The Court has the authority to review  
15 the State Engineer's Order, and grant the relief requested, pursuant to NRS § 533.450. All  
16 requirements for judicial review have been satisfied.

### 17 **STATUTORY BACKGROUND**

18 Nevada water law operates on the basis of prior appropriation, or "first in time, first in  
19 right." *See Reno Smelting, Milling and Reduction Works v. Stevenson*, 20 Nev. 269, 280-82, 21 P.  
20 317, 321-22 (1889); *see also Application of Filippini In re Waters of Duff Creek*, 66 Nev. 17, 22,  
21 202 P.2d 535, 537-38 (1949). However, this basic principle has been altered and supplemented by  
22 statute since it was first declared by the Nevada Supreme Court in *Reno Smelting*. In 1907, the  
23 Nevada legislature declared that all natural watercourses and natural lakes and the waters thereof,  
24 which were not held in private ownership, belong to the state and are subject to appropriation for  
25 beneficial uses. *See* NRS § 533.025; *Desert Irrigation, Ltd. v. State of Nevada*, 113 Nev. 1049,  
26 1059, 844 P.2d 835, 842 (1997).

27 Accordingly, a water right is characterized as a usufructuary right. Even those holding  
28 certificated, vested, or perfected water rights do not own or acquire title to water; they merely

1 enjoy the right to beneficial use. *Desert Irrigation*, 113 Nev. at 1059, 844 P.2d at 842 (citing NRS  
2 § 533.030). An appropriative right “may be described as a state administrative grant that allows  
3 the use of a specific quality of water for a specific beneficial purpose if water is available in the  
4 source free from the claims of others with earlier applications.” *Id.*

5 “Any person who wishes to appropriate any of the public waters, or to change the place of  
6 diversion, manner of use or place of use of water already appropriated,” must apply to the State  
7 Engineer for a permit to do so. NRS § 533.325. Upon receiving such an application, the State  
8 Engineer must give public notice of the details of the application. NRS § 533.360(1). Applications  
9 may be protested in writing by any person. NRS § 533.365. The State Engineer may hold hearings  
10 and require the filing of such evidence he deems appropriate. *Id.* A “full and fair hearing” is  
11 required. *Revert v. Ray*, 95 Nev. 782, 787-88, 603 P.2d 262, 265 (1979). The decision of the State  
12 Engineer following any such hearing must be in writing and include findings of fact, conclusions  
13 of law, and a statement of the underlying facts supporting the findings of fact, in sufficient detail  
14 to permit judicial review. *Id.*

15 An application to appropriate water must be denied, among other reasons, upon findings  
16 that existing surface water rights will be impaired, that the permit would be detrimental to the  
17 public interest, or if there is no water available from the proposed source of supply without  
18 exceeding the perennial yield or safe yield of that source. NRS § 533.370; *Pyramid Lake Paiute*  
19 *Tribe of Indians v. Washoe County*, 112 Nev 743, 747-48, 918 P.2d 697, 700 (1996)).

20 It is State policy to “manage conjunctively the appropriation, use, and administration of all  
21 waters of this state regardless of the source of the water.” NRS § 533.024(1)(e). In doing so, the  
22 State Engineer must “consider the best available science in rendering decisions concerning the  
23 availability of surface and underground sources of water in Nevada.” NRS § 533.024(1)(c).

24 Water rights are also “subject to regulation for the public welfare.” *Mineral Cty. v. Lyon*  
25 *Cty.*, 136 Nev. Adv. Rep. 58, 473 P.3d 418, 430 (Nev. 2020). “Pursuant to NRS § 533.370(3), the  
26 State Engineer must determine whether a proposed appropriation is detrimental to the public  
27 interest before issuing a water appropriation permit.” *Pyramid Lake Paiute Tribe*, 112 Nev. at 748,  
28 918 P.2d at 700. This requires the State Engineer to consider, among other things, “environmental

1 impact.” *Pyramid Lake Paiute Tribe*, 112 Nev. at 752, 918 P.2d at 702 (1996); *Mineral Cty.*, 473  
2 P.3d at 427. The environmental component of the “public interest” inquiry is separate from impacts  
3 to existing or senior water rights. *See Pyramid Lake Paiute Tribe*, 112 Nev. at 752, 918 P.2d at  
4 702. By requiring the State Engineer to consider the public interest in allocating water rights, the  
5 Nevada water statutes “satisfy[y] ‘the state’s special obligation to maintain the [public] trust [in  
6 water] for the use and enjoyment of present and future generations.” *Mineral Cty.*, 473 P.3d at 428.

7 As part of his obligation to consider the public interest, the State Engineer must also  
8 consider his obligations under the federal Endangered Species Act (“ESA”). “The plain intent of  
9 Congress in enacting [the ESA] was to halt and reverse the trend toward species extinction,  
10 whatever the cost.” *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184, 98 S. Ct. 2279, 2297 (1978). To  
11 receive the protections of the ESA, a species must first be listed by the Secretary of the Interior  
12 (“Secretary”) as “endangered” or “threatened.” *See* 16 U.S.C. § 1533. An “endangered species” is  
13 “any species which is in danger of extinction throughout all or a significant portion of its range.”  
14 *Id.* § 1532(6). A “threatened” species is “any species which is likely to become an endangered  
15 species within the foreseeable future throughout all or a significant portion of its range.” *Id.* §  
16 1532(20).

17 Section 9 of the ESA prohibits all “persons” from “taking” any endangered fish or wildlife  
18 species. *Id.* § 1538(a)(1). “Take” encompasses a broad spectrum of conduct; it is defined as “to  
19 harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in  
20 any such conduct.” 16 U.S.C. § 1532(19). “Harm” has further been defined in regulation to mean  
21 “an act which actually kills or injures wildlife [including] significant habitat modification or  
22 degradation where it actually kills or injures wildlife by significantly impairing essential  
23 behavioral patterns, including breeding, feeding, or sheltering.” 50 C.F.R. § 17.3. The term  
24 “person,” is broadly defined to include:

25 [A]n individual, corporation, partnership, trust, association, or any other private  
26 entity; or any officer, employee, agent, department, or instrumentality of the  
27 Federal Government, of any State, municipality, or political subdivision of a State,  
or of any foreign government; any State, municipality, or political subdivision of a  
State; or any entity subject to the jurisdiction of the United States.

28 16 U.S.C. § 1532(13).



1 Courts have repeatedly held that government regulations authorizing third parties to engage  
2 in harmful actions can constitute an illegal taking under Section 9 of the ESA. *See Strahan v. Coxe*,  
3 127 F.3d 155, 158, 163-64 (1st Cir. 1997), cert. denied, 525 U.S. 830 (1998) (state agency caused  
4 takings of the endangered right whale because it “licensed commercial fishing operations to use  
5 gillnets and lobster pots in specifically the manner that is likely to result in violation of [the  
6 ESA]”); *Defenders of Wildlife v. Administrator, Env’tl. Protection Agency*, 882 F.2d 1294, 1300-  
7 01 (8th Cir. 1989) (federal agency caused takes of endangered black-footed ferret through its  
8 “decision to register pesticides” even though other persons actually distributed or used the  
9 pesticides); *Loggerhead Turtle v. County Council of Volusia County*, 148 F.3d 1231, 1253 (11th  
10 Cir. 1998) (county’s inadequate regulation of beachfront artificial light sources may constitute a  
11 taking of turtles in violation of the ESA). Courts have found that habitat modification conducted  
12 or carried out by a State agency, which injures or kills listed species, may amount to an unlawful  
13 taking. *See, e.g., Palila v. Hawaii Dep’t of Land & Natural Res.*, 471 F. Supp. 985, 999 (D. Haw.  
14 1979), aff’d, 639 F.2d 495 (9th Cir. 1981). And at least one court has expressly held that State  
15 water rights do not prevail over the restrictions on habitat modification set forth in the ESA. *United*  
16 *States v. Glenn-Colusa Irrigation District*, 788 F. Supp. 1126, 1134 (E.D. Cal. 1992). This holding,  
17 combined with the “proximate cause” view of causation expressed in cases such as *Cascadia*  
18 *Wildlands v. Kitzhaber*, 911 F. Supp. 2d 1075 (D. Or. 2012), and *Strahan*, 127 F.3d 155, indicates  
19 that States may incur liability under the ESA based on the issuance of water rights.

20 Thus, a significant portion of the “public interest” that must be considered in the State  
21 Engineer’s analysis involves consideration of whether the issuance or development of water rights  
22 would cause “take” of endangered species.

### 23 STANDARD OF REVIEW

24 Any party “aggrieved” by an order of the State Engineer may have the order reviewed by  
25 the district court. NRS § 533.450(1); *Town of Eureka v. State Engineer*, 108 Nev. 163, 165, 826  
26 P.2d 948, 949 (1992). The statutes specify that any such review is “in the nature of an appeal.”  
27 *Revert*, 95 Nev. at 786, 603 P.2d at 264. While the State Engineer’s decision is “prima facie  
28 correct,” it is not binding, and will be reversed if it is arbitrary, capricious, or not supported by

1 substantial evidence. *State Engineer v. Morris*, 107 Nev. 699, 701, 819 P.2d 203, 205 (1991);  
2 *Pyramid Lake Paiute Tribe*, 112 Nev. at 751, 918 P.2d at 702.

3 The question on review is whether the whether the evidence in the record supports the State  
4 Engineer’s decision. *Revert*, 95 Nev. at 786, 603 P.2d at 264; *State Engineer v. Curtis Park Manor*  
5 *Water Users Association*, 101 Nev. 30, 32 692 P.2d 495, 497 (1985).

6 The State Engineer’s interpretation of applicable law is persuasive, but not controlling.  
7 *Pyramid Lake Paiute Tribe*, 112 Nev. at 751, 918 P.2d at 702. A court is free to decide purely legal  
8 questions without deference to the State Engineer’s decision. *Town of Eureka*, 108 Nev. 165-66,  
9 826 P.2d 949-50.

### 10 PROCEDURAL BACKGROUND

11 On March 8, 2002, the State Engineer issued Order 1169, which held in abeyance all  
12 pending groundwater rights applications in the following hydrographic basins: Coyote Spring  
13 Valley, the Black Mountains Area, Garnet Valley, Hidden Valley, the Muddy River Springs Area,  
14 and the Lower Moapa Valley. SE ROA 4. The State Engineer found that it would not be prudent  
15 to issue additional rights to groundwater in these basins until a test could be performed to determine  
16 whether development of the pending applications would adversely impact existing water rights or  
17 the environment. *Id.* To evaluate the likely impact of the pending applications, the State Engineer  
18 ordered that at least 50 percent of then-existing groundwater rights in Coyote Spring Valley, or a  
19 total volume of 8,050 acre-feet annually (“afa”), be pumped for at least two consecutive years.<sup>1</sup> *Id.*

20 On April 18, 2002, the State Engineer issued Ruling 5115, which added a seventh  
21 hydrographic basin—California Wash—to the Order 1169 study area. *Id.*

22 Following the issuance of Orders 1169 and Ruling 5115, the U.S. Fish and Wildlife Service  
23 (“FWS”) expressed concern that current rates of groundwater pumping, coupled with the  
24 additional volumes required by Order 1169 and Ruling 1551, would reduce springflows in the  
25

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26  
27 <sup>1</sup> An acre-foot is a unit of volume equal to the volume of a sheet of water one acre in area and one  
28 foot in depth; it is equal to 43,560 cubic feet.

1 Muddy River Springs Area (“MRSA”) and adversely impact the endangered Moapa dace (*Moapa*  
2 *corciacea*). Due to these concerns, on April 20, 2006, the Southern Nevada Water Authority  
3 (“SNWA”), FWS, Coyote Springs Investment, LLC (“CSI”), the Moapa Band of Paiute Indians  
4 (“MBOP”) and the Moapa Valley Water District (“MVWD”) entered into a Memorandum of  
5 Agreement (“MOA”). SE ROA 5. The MOA includes voluntary measures intended to protect the  
6 Moapa dace from the impacts of increased groundwater pumping. *Id.*

7 The pumping test required under Order 1169 began on November 15, 2010. SE ROA 6.  
8 On December 21, 2012, the State Engineer issued Order 1169A, declaring that the pumping test  
9 would be complete on December 31, 2012, and inviting stakeholders to file reports with the  
10 Division of Water Resources (“DWR”) to present information gained from the test and estimate  
11 the groundwater available to support additional development. SE ROA 6.

12 On January 25, 2014, after reviewing the pumping test results and stakeholder reports, the  
13 State Engineer issued Rulings 6254-6261, which set forth the State Engineer’s factual findings  
14 regarding the pumping test results. *See* SE ROA 726-948. The Orders also denied all pending water  
15 rights applications in the six-basin area on the grounds that: there is no unappropriated  
16 groundwater in the area; the applications would conflict with senior rights; and the proposed  
17 groundwater withdrawals would threaten the water resources on which the Moapa dace depend.  
18 *See generally id.*

19 On January 11, 2019, the State Engineer issued Interim Order 1303, designating the  
20 LWRFS, a multi-basin joint administrative unit which, during the Order 1169 pumping test, was  
21 shown to share a close hydrologic connection among its subsurface carbonate-rock aquifers. SE  
22 ROA 11. The Interim Order defined the LWRFS to include: Coyote Spring Valley, the Muddy  
23 River Springs Area (“MRSA”), California Wash, Hidden Valley, Garnet Valley, and a portion of  
24 the Black Mountains Area. *Id.* Under Interim Order 1303, all water rights within the LWRFS were  
25 to be administered jointly based on their respective dates of priority. *Id.* Interim Order 1303 also  
26 invited stakeholders with interests in water right development in the LWRFS to file reports with  
27 the Office of the State Engineer addressing five specific matters: (1) the geographic boundary of  
28 the LWRFS; (2) aquifer recovery following the Order 1169 pumping test; (3) the long-term annual

1 quantity and location of groundwater that may be pumped from the LWRFS; (4) the effect of  
2 moving groundwater rights between the shallow “alluvial” aquifers and deeper carbonate-rock  
3 aquifers in the LWRFS; and (5) any other matter relevant to the State Engineer’s analysis. *Id.*

4 Pursuant to Interim Order 1303, the State Engineer scheduled a public hearing in Carson  
5 City, Nevada between September 23, 2019 and October 4, 2019. SE ROA 12. The purposes of the  
6 hearing were to afford stakeholders who submitted reports in response to Interim Order 1303 an  
7 opportunity to provide testimony regarding the five topics listed in the Interim Order and to test  
8 the conclusions offered by the stakeholder participants through cross-examination. *Id.* Participants  
9 in the hearing were: CSI, FWS, the National Park Service (“NPS”) MBOP, SNWA, the Las Vegas  
10 Valley Water District (“LVVWD”), MVWD, Lincoln County Water District and Vidler Water  
11 Company (“Lincoln/Vidler”), the City of North Las Vegas (“CNLV”), the Center, Georgia Pacific  
12 Corporation and Republic Environmental Technologies, Inc. (“Georgia Pacific”), Nevada  
13 Cogeneration Associates Nos. 1 and 2 (“NCA”) the Muddy Valley Irrigation Company (“MVIC”),  
14 Western Elite Environmental, Inc. and Bedroc Limited, LLC (“Bedroc”), the Church of Jesus  
15 Christ of Latter-Day Saints, Technichrome, Apex Holding Company, LLC and Dry Lake Water,  
16 LLC (“Apex”), and NV Energy. *Id.* Following the conclusion of the Interim Order 1303 hearing,  
17 stakeholder participants were permitted to submit written closing arguments. SE ROA 12.

18 On June 15, 2020, the State Engineer issued Order 1309. SE ROA 2-67. Order 1309  
19 responded to the stakeholder reports, testimony, and closing arguments submitted pursuant to  
20 Order 1303 and set forth the State Engineer’s factual findings regarding the five issues for which  
21 the State Engineer had requested stakeholder input. In Order 1309, the State Engineer found: (1)  
22 the LWRFS consists of Kane Springs Valley, Coyote Spring Valley, the Muddy River Springs  
23 Area, California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black  
24 Mountains Area; (2) the LWRFS carbonate aquifer has not recovered from the Order 1169  
25 pumping test but may be approaching a “steady state”; (3) the maximum quantity of groundwater  
26 that may be pumped from the LWRFS is not more than 8,000 afa and may be less; and (4) the high  
27 degree of hydrological connectivity among the LWRFS basis will be the “principle factor” in  
28 determining the movement of water rights. SE ROA 47-67.

## FACTUAL BACKGROUND

### I. The Moapa Dace

The Moapa dace (*Moapa coriacea*) is endemic to the upper spring-fed reaches Muddy River. SE ROA 5. It is the only member of the genus *Moapa* and is found nowhere else on Earth. SE ROA 47159-60. The dace is thermophilic, meaning it requires warm waters, and reaches its greatest extent at temperatures between 82.4 and 86.0° F. SE ROA 47160. Approximately 95 percent of the total population occurs within 1.78 miles of one major tributary system that flows from three high-elevation spring complexes within the MRSA. SE ROA 47169. Reproduction occurs year-round and is confined to the upper portions of these spring-fed tributaries. SE ROA 47160.

The dace was federally listed as endangered under the Endangered Species Preservation Act of 1966 on March 11, 1967, and has been protected under the ESA since its passage in 1973. SE ROA 5. FWS—the federal agency responsible for administering the ESA—has assigned the species its highest recovery priority because of (1) its unique biology and taxonomy; (2) the high degree of threat to its continued existence; and (3) the high potential for its recovery. SE ROA 5.

Between 1933 and 1950, the Moapa dace was abundant in the Muddy River and was estimated to inhabit as many as 25 individual springs and up to 10 miles of stream habitat. SE ROA 47169. However, by 1983, the species only occurred in springs and two miles of spring outflows. *Id.* Dace populations steadily declined from the mid-1980s to the mid-2000s. Between 1984 and 1987, FWS’s Seattle National Fisheries Research Center extensively surveyed Moapa dace habitats and estimated the adult Moapa dace population to be between 2,600 and 2,800 individuals. SE ROA 47167. In January 2001, a total of 934 Moapa dace were recorded by a consortium of agencies, including the Nevada Department of Wildlife, the U.S. Geological Survey, SNWA, and FWS. SE ROA 47167. In February 2002 and 2003, annual surveys identified approximately 1,085 and 907 individuals, respectively. SE ROA 47167. While dace numbers had increased to about 1,500 by September 2019, the species is still far from meeting FWS’s population-recovery criteria of 6,000 individuals. SE ROA 53119.

1 Threats to the Moapa Dace include non-native predatory fishes, habitat loss from water  
2 diversions and impoundments, wildfire risk from non-native vegetation, and groundwater  
3 development in the LWRFS which, as explained herein, decreases spring flows in the MRSA. SE  
4 ROA 47160. Springflow from the Muddy River springs is a limiting factor on the dace’s recovery,  
5 and reductions in springflow from groundwater pumping may result in “take” of the species. *See*  
6 SE ROA 53117. The Moapa dace is also vulnerable to unpredictable catastrophic events due to its  
7 limited distribution and small population size. SE ROA 47160.

8 As noted, several parties to this litigation, including SNWA, CSI, and MVWD, as well as  
9 MBOP, entered into an MOA with FWS in 2006 designed to maintain springflows for the benefit  
10 of the dace through the Order 1169 pumping test. *See* SE ROA 53437. The MOA contains a variety  
11 of “monitoring, management and conservation measures,” which can loosely be grouped into two  
12 categories—measures designed to preserve springflows and measures designed to restore and  
13 improve Moapa dace habitat. *See* SE ROA 47157-59. Most relevant to the current proceedings,  
14 the MOA contains a series of springflow “triggers” requiring action from the signatories (including  
15 some pumping reductions) at certain flow levels. SE ROA 47158-59. The highest of these—3.2  
16 cubic feet per second (“cfs”)—is the minimum needed to maintain the current dace population of  
17 approximately 1,500 individuals.<sup>2</sup> SE ROA 53120, 53449. It is likely not a sufficient level to  
18 recover the dace to a point at which ESA protection is no longer needed. SE ROA 53120, 53449.

19 While the MOA provides some stop-gap protection for the dace, it does not insulate its  
20 signatories or the State Engineer’s office from liability for take under Section 9 of the ESA. The  
21 terms of the MOA were based on the information available before the Order 1169 pumping test,  
22 and therefore appear to underestimate impacts to springflows from groundwater pumping. *See* SE  
23 ROA 53448-49. And although FWS engaged in a “formal consultation” process with the MOA  
24

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25  
26 <sup>2</sup> Like afa, cfs is a measurement of water volume over time. One cfs is equal to 724 afa. The MOA  
27 triggers refer to streamflows as measured at the Warm Springs West gage on the Moapa  
28 National Wildlife Refuge.

1 signatories that analyzed the impacts of the MOA in a biological opinion, neither the MOA nor  
2 the biological opinion exempt the signatories from ESA liability for any taking of the Moapa dace  
3 caused by groundwater pumping. *See Ctr. for Biological Diversity v. United States Fish & Wildlife*  
4 *Serv.*, 807 F.3d 1031, 1041-42 (9th Cir. 2015).

## 5 **II. Groundwater Over-Appropriation in the LWRFS and the Order 1169 Pumping** 6 **Test.**

7 In the early 2000s—and possibly even before that—demand for groundwater in  
8 Southeastern Nevada exceeded supply. *See* SE ROA 10890. By early 2002, the State Engineer had  
9 received several applications to appropriate groundwater from Coyote Spring Valley, the Black  
10 Mountains Area, Garnet Valley, Hidden Valley, California Wash, and the Muddy River Springs  
11 Area. SE ROA 665. Order 1169 held all of these applications in abeyance until the amount of  
12 available water in the regional carbonate aquifer system could be ascertained. *Id.* The Order  
13 reflected the State Engineer’s concern that insufficient groundwater supplies existed to satisfy the  
14 new applications, or possibly even the full amount of then-existing groundwater rights in the  
15 affected basins. *See* SE ROA 663-665.

16 In Order 1169, the State Engineer explained that “a large portion of the State of Nevada  
17 consisting of approximately 50,000 square miles” sits atop a geologic layer of carbonate rock (e.g.,  
18 limestone or dolomite), which contains “significant, but undetermined quantities of groundwater.”  
19 SE ROA 659. This carbonate-rock layer is continuous enough to transmit groundwater “over  
20 distances exceeding 200 miles” via “two major regional flow systems” running from north to  
21 south—the Ash Meadows-Death Valley system and the White River-Muddy River Springs system.  
22 SE ROA 661. The southern portion of the White River-Muddy River Springs system comprises  
23 the LWRFS. Many warm-water springs, including the Muddy River Springs at issue in this  
24 litigation, discharge from these regional carbonate-aquifer flow systems. SE ROA 660-61, 53056,  
25 53062.

26 In 2002, when Order 1169 was issued, the hydrologic and geologic properties of the  
27 carbonate aquifer systems were not well understood. *See* SE ROA 660. Order 1169 acknowledged  
28 that carbonate water development was “risky,” and that “[l]arge-scale development (sustained

1 withdrawals) of water from the carbonate-rock aquifers” would likely deplete the regional aquifer  
2 and reduce springflows on the surface, a result that would be “disastrous,” for both senior water  
3 users and the environment. SE ROA 660-61.

4 At the time the State Engineer issued Order 1169, numerous permits to appropriate  
5 groundwater had already been granted in the LWRFS, authorizing in total the direct withdrawal of  
6 50,465 afa. SE ROA 664. However, only a fraction of this water had actually been developed and  
7 most of the carbonate water permitted to be pumped remained in the ground. *Id.*

8 The State Engineer explained in Order 1169 that he did not believe it prudent to issue  
9 additional groundwater rights in the LWRFS until a significant portion of then-existing rights were  
10 pumped for a substantial period of time to determine how development of those water rights would  
11 affect senior water users and the environment. SE ROA 665. Based on a review of several different  
12 models and analyses, the State Engineer projected that the development of significant carbonate  
13 groundwater resources in the area would adversely impact the Muddy River Springs, which form  
14 the source of the fully decreed Muddy River and provide all of the known habitat for the Moapa  
15 dace. SE ROA 663-664.

16 In order to ascertain the hydrologic and geologic properties of the LWRFS, Order 1169  
17 required that at least 50 percent of existing groundwater rights in Coyote Spring Valley, or 8,050  
18 afa, be pumped and the carbonate aquifer impacts monitored for at least two consecutive years. SE  
19 ROA 661.

20 The Order 1169 pumping test began in November 2010 and concluded in December 2012.  
21 SE ROA 6. During the test an average of 5,290 afa was pumped from Coyote Spring Valley—  
22 significantly less water than called for in the State Engineer’s Order and less than half of the  
23 groundwater rights already granted—and a cumulative total of 14,535 afa was pumped throughout  
24 the Order 1169 study basins. SE ROA 7; 737-38. The pumping test results demonstrated that there  
25 is a “unique” and “direct” hydraulic connection between the regional carbonate aquifer complex  
26 and the Muddy River Springs, and that groundwater pumping from anywhere within the  
27 interconnected carbonate aquifer system captures water that would otherwise discharge from the  
28 Muddy River Springs into the Muddy River. SE ROA 8-12; 751.



1 Groundwater levels throughout the six-basin, 1,100 square-mile study area declined in  
2 near-unison during the pumping test, demonstrating that the effects of pumping at any particular  
3 point will radiate quickly throughout the entire system. SE ROA 7, 34537. Typically, groundwater  
4 around a pumped well forms what is called a “cone of depression”—a localized area in which  
5 groundwater elevations slope gradually downward towards the point at which water is extracted.  
6 *See* SE ROA 11501, 50135. The size and shape of the cone of depression depend to a large degree  
7 on the ease with which water moves through the geologic structures, a property referred to by  
8 hydrologists as “transmissivity.” *Id.*; *see also* SE ROA 34501. Where transmissivity is low, the  
9 cone of depression will be narrow and steep; where transmissivity is high, it will be wide and  
10 shallow. SE ROA 34501, 50135 During the Order 1169 pumping test, declining groundwater  
11 levels formed more of a flat surface than a slope, revealing exceptionally high transmissivity  
12 throughout the system. SE ROA 47-48, 34537. As explained by the Center’s hydrological expert,  
13 Dr. Tom Myers, “almost all [technical] reports” filed with the State Engineer in the administrative  
14 proceeding below described a water table “that was more like the lowering of a lake than a cone  
15 of depression.” *Id.* “[T]he aquifer responded as if it were pond[,] with water level changes  
16 transmitted quickly throughout.” SE ROA 34503. Water levels “dropped about 2 feet” throughout  
17 the entire study area, with some limited exceptions. *Id.*; *see also* SE ROA 7.

18 Equally dramatic were the impacts on springflow. As noted, the Muddy River Springs are  
19 directly connected to, and discharge from, the regional carbonate aquifer. SE ROA 73-75, 34545,  
20 53062. Because of this connection, flows from the springs are dependent on the elevation of  
21 groundwater within the carbonate aquifer, can change rapidly in direct response to changes in  
22 carbonate groundwater levels. SE ROA 60-61, 34545. As carbonate groundwater levels decline,  
23 springflows decrease, beginning with the highest-elevation springs. SE ROA 46, 34545. Put  
24 differently, groundwater withdrawals from anywhere within the carbonate aquifer complex  
25 intercept, or “capture,” water that would otherwise flow from the Muddy River Springs and into  
26 the Muddy River. SE ROA 60-61. As Dr. Myers explained, pumping from the carbonate aquifer  
27 captures discharge—including springflows—at nearly a one-to-one ratio over the long-term. SE  
28 ROA 34545.

1           The pumping test caused “sharp declines” in groundwater levels and flows from the  
2 highest-elevation Muddy River Springs, which are considered the “canary in the coalmine”  
3 regarding the impacts of groundwater pumping on Muddy River flows and Moapa dace habitat.  
4 SE ROA 8-12, 751. The flow rate at the highest-elevation Pederson Spring declined about 63  
5 percent during the test, and the nearby Pederson East spring declined about 45 percent. SE ROA  
6 34505. The U.S. Department of the Interior estimated that the Pederson spring would have run dry  
7 in 1.5 years, and the Pederson East in 2.5 to 3 years had pumping continued at the same levels. SE  
8 ROA 10889. Lower-elevation springs also showed declines in flow, indicating that the effects of  
9 pumping were propagating throughout the spring system within a relatively short period of time.  
10 SE ROA 10889, 34506. Flows at the Warm Springs West gauge on the Moapa National Wildlife  
11 Refuge declined by about 9 percent during the test. SE ROA 10889, 34505. These impacts to  
12 springflows, combined with the exceptionally even drawdown of groundwater levels throughout  
13 system, confirm that pumping anywhere within the carbonate system will capture water that would  
14 otherwise discharge from the springs and into the river.

15           The results of the Order 1169 pumping test confirmed the State Engineer’s earlier  
16 projections that an increasing amount of carbonate pumping within the LWRFS would adversely  
17 affect the Muddy River Springs, the Moapa dace, and senior decreed water rights. *See* SE ROA  
18 34507. The pumping test results also suggest that carbonate groundwater in the LWRFS is  
19 essentially a finite, nonrenewable resource. Southern Nevada is generally very dry, meaning  
20 average recharge—or the amount of water added to the aquifer from precipitation and other  
21 sources—is very low. SE ROA 34493. In addition, there appears to be a “steady state inflow” to  
22 the carbonate groundwater system. SE ROA 34506. In some groundwater systems, pumping from  
23 a well will create a negative pressure gradient, which draws additional water toward the well from  
24 more distant sources. *See id.* Here, however, due to the system’s unique geology, the amount of  
25 inflow to the system likely remains constant regardless of how much water is extracted. *Id.*; *see*  
26 *also* SE ROA 10889. Finally, and most importantly, the water stored in the carbonate aquifer  
27 system accumulated over an extremely long period of time. SE ROA 54953. Mean ages of  
28 groundwater in the system range from 1600 to 34,000 years, with the oldest waters exceeding

1 100,000 years old. SE ROA 49533. “[I]f depleted, [this water] would be replenished very slowly  
2 or not at all.” SE ROA 54953.

3 Carbonate groundwater levels have not recovered since the completion of the Order 1169  
4 pumping test and continued to decline through 2019 despite a subsequent decrease in groundwater  
5 pumping. SE ROA 34505, 34519, 34539-40. Groundwater levels at the EH-4 monitoring well—a  
6 key location for evaluating pumping impacts to the Muddy River springs—reached an all-time low  
7 point on November 9, 2018. SE ROA 34539.

8 This lack of recovery over an eight-year period strongly indicates that the depletion of the  
9 carbonate aquifer from the pumping test was essentially permanent—a new baseline from which  
10 minimal recovery will occur, even in the absence of groundwater pumping. SE ROA 34506. To  
11 put this in hydrological terms, the pumping test drew from “storage” rather than “discharge.” *Id.*  
12 Within any groundwater system, there is some amount of flow out of the system, known as  
13 “discharge,” as well as flow into the system, known as “recharge.” *See* SE ROA 36948. The total  
14 amount of water in the system, however, is generally much greater than either recharge or  
15 discharge. This greater amount of water is called “storage.” Thus, a groundwater system may be  
16 compared to a large lake or reservoir. Streams flowing into the reservoir represent recharge,  
17 streams flowing out represent discharge, and the water stored within the reservoir represents  
18 storage.

19 Groundwater pumping can draw from, or “capture,” discharge, storage, or both. *See* SE  
20 ROA 36948. When pumping captures discharge, the system remains in relative equilibrium. *See*  
21 generally SE ROA 11268-76. When pumping captures storage, however, groundwater levels  
22 decline, just as the water levels in a reservoir decline in response to overuse or drought. SE ROA  
23 53618. Capture of storage represents a long-term or permanent depletion of the groundwater  
24 resource, sometimes referred to as “groundwater mining.” *Id.*; *see also* SE ROA 50133.

25 In the case of the Order 1169 pumping test, an estimated 80 to 90 percent of the  
26 groundwater pumped came from storage. SE ROA 10889, 34506. This indicates that continued  
27 pumping at levels observed during the pumping test would have continued to decrease springflow  
28 as pumping continued to remove water from storage and lowered carbonate groundwater levels,

1 which, as noted, have a direct relationship to springflow. Even after the cessation of pumping,  
2 springflows would be expected to continue declining until the system reaches a new steady state,  
3 because water would be diverted from spring discharge to replenish the storage that was removed  
4 by pumping. SE ROA 34506.

5 To summarize, the pumping test results demonstrated that any amount of carbonate  
6 pumping removes water from the MRSA, at nearly a one-to-one ratio. SE ROA 34513, 34545.  
7 Because of the limited recharge and steady-state inflow to the system, carbonate pumping in the  
8 LWRFS is not sustainable over the long term, and any further withdrawals from the carbonate  
9 aquifer will impact both the Moapa dace and senior decreed water rights on the Muddy River.

### 10 **III. Orders 6254-6261**

11 On January 25, 2014, after reviewing the pumping test results and stakeholder reports, the  
12 State Engineer issued Rulings 6254-6261, which set forth the State Engineer’s factual findings  
13 regarding the pumping test results. The State Engineer found that “pumping under the Order 1169  
14 test measurably reduced flows in headwater springs of the Muddy River,” and that, “if pending  
15 water right applications were permitted and pumped in addition to existing groundwater rights in  
16 Coyote Spring Valley and the other Order 1169 basins, headwater spring flows would be reduced  
17 in tens of years or less to the point that there would be a conflict with existing rights.” SE ROA  
18 751. The State Engineer also found that, “to permit the appropriation of additional groundwater  
19 resources in the Coyote Spring Valley . . . would impair protection of these springs and the habitat  
20 of the Moapa dace and therefore threatens to prove detrimental to the public interest.” *Id.* Finally,  
21 the State Engineer concluded that only a small portion of existing water rights may be fully  
22 developed without negatively affecting the Moapa dace and its habitat or the senior decreed rights  
23 on the Muddy River. *See id.*

24 The Orders denied all pending water rights applications in the LWRFS on the grounds that:  
25 there is no unappropriated groundwater in the system; the applications would conflict with senior  
26 rights; and the proposed groundwater withdrawals would “threaten the water resources on which  
27 the Moapa dace are dependent.” *See* SE ROA 726-948.

1 **IV. Interim Order 1303**

2 Rulings 6254-6261 dealt only with pending applications for new water rights. There was  
3 further evidence from the pumping test that a significant portion of existing rights could not be  
4 developed without adversely impacting senior rights and the Muddy River Springs. The State  
5 Engineer noted that “the pre-development discharge or 34,000 [afa] of the Muddy River system,  
6 which is fully appropriated, plus the more than 38,000 [afa] of groundwater appropriations within  
7 the LWRFS greatly exceed the total water budget within the flow system.” SE ROA 79. However,  
8 the “precise extent of the development of existing [water rights] within the LWRFS that may occur  
9 without conflicting with the senior rights of the fully decreed Muddy River [had] not been  
10 determined.” SE ROA 80.

11 The State Engineer therefore issued Interim Order 1303 in January 2019. The Order  
12 recognized that:

13 [T]here exist[ed] a need for further analysis of the historic and ongoing  
14 groundwater pumping data, the relationship of groundwater pumping within the  
15 LWRFS to spring discharge and flow of the fully decreed Muddy River, the extent  
16 of impact of climate conditions on groundwater levels and spring discharge, and  
17 the ultimate determination of the sustainable yield of the LWRFS.

18 SE ROA 80. Order 1303 solicited additional stakeholder reports and called for public meetings to  
19 determine “the appropriate long-term management of groundwater pumping that may occur in the  
20 LWRFS by existing holders of water rights without conflicting with existing decreed rights or  
21 adversely affecting the endangered Moapa dace.” SE ROA 81. The State Engineer sought  
22 stakeholder input on five specific matters:

- 23 (1) The geographic boundary of the hydrologically connected groundwater and  
24 surface flow water systems comprising the Lower White River flow  
25 System;
- 26 (2) The information obtained from the Order 1169 aquifer test and subsequent  
27 to the aquifer test and Muddy River headwater spring flow as it relates to  
28 aquifer recovery since the completion of the aquifer test;
- (3) 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  
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,

1 (5) Any other matter believed to be relevant to the State Engineer’s analysis.  
2 SE ROA 82-83. Stakeholders with “interests that may be affected” by groundwater development  
3 in the LWRFS were invited to file reports on these five matters, and a public hearing was  
4 scheduled. SE ROA 83.

5 Throughout the Interim Order 1303 proceedings, the Center presented expert reports and  
6 testimony from Dr. Tom Myers explaining that Kane Springs Valley should be included in the  
7 LWRFS, and that any additional carbonate pumping would reduce both groundwater levels and  
8 flows from the Muddy River Springs, affecting both the Moapa dace and senior decreed water  
9 rights.

10 Dr. Myers explained that Kane Springs Valley should be included in the LWRFS because  
11 the “hydraulic gradient”—or difference in elevation of the carbonate aquifer—is “very low”  
12 between Kane Springs Valley and adjoining portions of Coyote Spring Valley. SE ROA 34508.  
13 Because of this very low hydraulic gradient, any pumping in Kane Springs Valley that reduces  
14 carbonate groundwater levels would decrease the rate of inter-basin groundwater flow to Coyote  
15 Spring Valley “in a time frame measured in less than a few years.” *Id.* Additionally, “because of  
16 the very low perennial yield in Kane Springs Valley and the lack of inflow to the valley from  
17 upgradient valleys,” pumping in Kane Springs Valley could potentially decrease groundwater  
18 levels such that inter-basin groundwater flows reverse, causing water to flow backward from  
19 Coyote Spring Valley into Kane Springs Valley. *Id.* If this were to happen, effects would spread  
20 rapidly throughout the LWRFS carbonate aquifer system due to its high transmissivity, reducing  
21 springflows and impacting senior water rights. *Id.*; *see also* SE ROA 34533-38 (technical  
22 memorandum rebutting Lincoln/Vidler’s argument that Kane Springs Valley should be excluded  
23 from the LWRFS).

24 Dr. Myers also explained that the LWRFS carbonate aquifers did not reach a steady state  
25 between the conclusion of the Order 1169 pumping test and the Order 1303 hearing in September  
26 2019, and that due to the unique properties of the LWRFS carbonate aquifer system, any  
27 groundwater pumping within the system will ultimately reduce groundwater levels and  
28 springflows in the MRSA. Dr. Myers’s conclusions in this regard are based on the fundamental

1 hydrologic principle that in any groundwater system the amount of discharge (water flowing out  
2 of the system) must equal the amount of recharge (water flowing into the system). SE ROA 34541-  
3 43. Pumping upsets this balance by removing groundwater that would otherwise exit the system  
4 as springflow or some other form of discharge. SE ROA 34541-43. Over time, the system may  
5 reach a new equilibrium or “steady state” in which the reduction in discharge equals the amount  
6 being pumped. SE ROA 34543. But unless and until this occurs pumping will continue to reduce  
7 the amount of water that exits the system. SE ROA 34543. In the context of the Lower White River  
8 Flow system, the application of this principle is that carbonate groundwater pumping will reduce  
9 springflows in the MRSA unless and until the system reaches a steady state. SE ROA 34543. Put  
10 differently, if the system is not in a steady state, springflows and water levels will continue to  
11 decline.

12 Dr. Myers’s reports and testimony explained that the Lower White River Flow System has  
13 not reached a steady state because groundwater levels and springflows continue to decline despite  
14 recent reductions in pumping and increasing annual precipitation rates. SE ROA 53615. After the  
15 conclusion of the Order 1169 pumping test, and especially since 2014, total carbonate pumping  
16 has decreased and remained between 7,000 and 8,000 acre-feet per year—roughly equivalent to  
17 1995-97 levels. SE ROA 56, 34538. Annual precipitation, meanwhile, increased from 2014  
18 through 2018. SE ROA 34519. Despite this reduction in pumping and increase in precipitation,  
19 carbonate groundwater levels and springflows steadily declined through 2019. SE ROA 34519. As  
20 Dr. Myers explained, these decreases indicate that the system has not reached a steady state, and  
21 that even with current pumping levels, “it is only a matter of time before the spring flow on which  
22 the [Moapa] dace depends decreases significantly or is completely lost.” SE ROA 34514, 34543-  
23 44.

24 Dr. Myers explained that there is very little recharge in the LWRFS, meaning that very  
25 little water enters the carbonate aquifer system from precipitation and other sources. SE ROA  
26 34520, 34533. Springflows will, therefore, not recover significantly even if pumping is stopped,  
27 and any damage done to the Moapa dace and its habitat from excessive pumping rates will be long-  
28 term and possibly irreversible. SE ROA 34544.

1 Dr. Myers also explained how carbonate pumping impacts Muddy River flows:

2 [C]arbonate pumping would eventually dry the Muddy River Springs, but  
3 carbonate groundwater flow also supports basin fill water through direct discharge  
4 from the carbonate to the basin fill and secondary recharge of springflow into the  
5 basin fill. . . . Because [discharge from the carbonate aquifer] is directly  
6 responsible for Muddy River flows, preventing any additional carbonate pumpage  
7 is also necessary for protecting downstream water rights.

8 SE ROA 34515.

9 Several of the other parties to the Order 1303 proceedings agreed with Dr. Myers. As  
10 summarized by the State Engineer, “numerous participants advocated to include Kane Springs  
11 Valley in the LWRFS basins.” SE ROA 52. The State Engineer found these parties to be  
12 “persuasive,” noting that “while attenuated, the general hydrographic pattern observed in southern  
13 Kane Springs Valley reflects a response to the Order 1169 pumping, consistent with a close  
14 hydraulic connection with the LWRFS.” SE ROA 53.

15 Several of the stakeholders also concurred with Dr. Myers regarding aquifer recovery  
16 following the Order 1169 pumping test, the lack of evidence for the aquifer being at “steady state,”  
17 and the need to reduce pumping in order to maintain springflows and serve senior decreed rights.  
18 For example, the Southern Nevada Water Authority (“SNWA”) and the Las Vegas Valley Water  
19 District (“LVVWD”) concluded in their report that carbonate groundwater pumping ultimately  
20 captured Muddy River flow at a one-to-one ratio, regardless of where that pumping was located  
21 within the system. SE ROA 42013. SNWA and LVVWD also agreed with Dr. Myers regarding  
22 the lack of full recovery from the pumping test and continuing declines in groundwater levels and  
23 springflows. Most critically, they acknowledged that since 2016, water levels in both the carbonate  
24 aquifer and the springs have continued to decline. SE ROA 41995. They attributed these declines  
25 to “carbonate groundwater production” and further observed that declines have continued even  
26 though “winter-season precipitation during 2017 and 2019 was above average.” SE ROA 41995.

27 The National Park Service (“NPS”) also concurred in this analysis. As summarized by the  
28 State Engineer, “NPS reviewed the available data,” and concluded 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 factor.” SE ROA 30. NPS’s analysis showed that it will take many



1 years, if not decades for the LWRFS carbonate-rock aquifer to reach equilibrium, particularly at  
2 the current groundwater pumping rates. SE ROA 51449, 51464-65, 52887-88.

3 Other parties argued against the idea that groundwater levels and springflows were  
4 continuing to decline, but failed to identify evidence showing that the aquifer was approaching  
5 equilibrium or a “steady-state.” For example, while FWS expressed an opinion that the aquifer  
6 may be approaching equilibrium, it did so in the context of a “conceptual model” of the aquifer  
7 system. FWS also did not “directly opine their view on [aquifer] recovery.” SE ROA 38. And, in  
8 hearing testimony, FWS acknowledged that the data it relied on showed a continuing downward  
9 trend in water levels after the Order 1169 pumping test. SE ROA 53119.

10 NV Energy repeatedly stated that the system was approaching equilibrium at current  
11 pumping rates. *See* SE ROA 52912-17. However, NV Energy also acknowledged that “water  
12 levels regionally were still declining due to existing pumping,” SE ROA 41876, and in testimony  
13 explained that “[w]e need more time to observe the system to really be certain that we are in fact  
14 reaching equilibrium in the Muddy River Springs area.” SE ROA 53723. NV Energy further  
15 admitted that “pumping from the carbonate aquifer anywhere in the Lower White River Flow  
16 System will capture Muddy River Flows,” SE ROA 53729, and that it was “possible” for the first  
17 MOA trigger of 3.2 cfs to be reached with “current pumping.” SE ROA 53728. Ultimately, NV  
18 Energy’s position on groundwater recovery was characterized primarily by uncertainty. Its expert  
19 witness stated: “I don’t think that [our] data disagree with SNWA’s conclusion all that much. But  
20 I do think that we need a little more time to know for sure.” SE ROA 53729. NV Energy also failed  
21 to consider precipitation as a factor in groundwater and springflow levels. As noted, groundwater  
22 levels and springflow have continued to decline despite multiple above-average precipitation  
23 years. SE ROA 53347.

24 Similar to NV Energy, the Moapa Valley Water District (“MVWD”) argued that the  
25 LWRFS is “at or near steady-state conditions.” SE ROA 26-27. But MVWD also “acknowledge[d]  
26 that ‘actual safe pumpage’” e.g., the sustainable level of pumping “is less than current pumping  
27 rates.” SE ROA 27. And, like the other parties arguing in favor of the “steady-state” hypothesis,  
28

1 MVWD acknowledged that “additional data [are] required to verify” the current “state” or  
2 “condition” of the carbonate aquifer. SE ROA 53459.

3 **V. Order 1309**

4 On June 15, 2020, the State Engineer issued Order 1309, which set forth the State  
5 Engineer’s conclusions regarding the four factual matters on which the State Engineer sought  
6 stakeholder input through the hearing process. The State Engineer agreed with the Center and other  
7 stakeholders that Kane Springs Valley should be included in the LWRFS. SE ROA 66. However,  
8 the State Engineer’s conclusions regarding aquifer recovery from the Order 1169 pumping test and  
9 the amount of water that may be pumped from the LWRFS diverged from the evidence presented  
10 during the Order 1303 proceedings.

11 While Order 1309 acknowledged that groundwater levels in the regional carbonate aquifer  
12 have “not recovered to pre-Order 1169 test levels,” and that insufficient data exist to determine  
13 whether groundwater levels were approaching a “steady state,” SE ROA 58, the State Engineer  
14 nevertheless “agreed” with a minority of stakeholders who argued that water levels in the MRSA  
15 “may be approaching steady state.” SE ROA 58.

16 The State Engineer also acknowledged that current pumping is capturing Muddy River  
17 flows, noting that Muddy River flows in the river’s headwaters at the Moapa Gage have declined  
18 by over 3,000 afa. SE ROA 62. However, the State Engineer made a finding that “capture or  
19 potential capture of the waters of a decreed system does not constitute a conflict with decreed right  
20 holders if the flow of the source is sufficient to serve decreed rights.” SE ROA 61. The State  
21 Engineer provided a discussion of how those rights could potentially be met even with reduced  
22 headwater flows and then concluded that up to 8,000 acre-feet per year could continue to be  
23 pumped from the regional carbonate aquifer without impacting the fully decreed water rights in  
24 the Muddy River, stating “reductions in flow that have occurred because of groundwater pumping  
25 in the headwaters basins [are] not conflicting with Decreed rights.” SE ROA 62. In basing his  
26 decision on the hypothetical ability to satisfy senior rights, the State Engineer failed to consider  
27 whether 8,000 afa of pumping—or any level of pumping—was sufficient to maintain springflows  
28 at 3.2 cfs and thus prevent impacts to, or unlawful “take” of, the Moapa Dace.

## ARGUMENT

### I. The State Engineer's Conclusion That Carbonate Pumping Can Continue at 8,000 afa is Based on a "Steady-State" Hypothesis Which is Not Supported by Substantial Evidence.

The State Engineer's decision on the maximum allowable quantity of groundwater pumping in Order 1309 is based on the assumption that the LWRFS is approaching an hydrological "steady state" after the impacts of the Order 1169 pumping test. *See* SE ROA 58. However, there is very little data in the record supporting the State Engineer's "steady-state" hypothesis. Rather, the available data indicates that groundwater levels and springflows in the LWRFS continued to decline between 2016 and 2019, despite above-average precipitation and slight reductions in pumping. SE ROA 34519, 41995, 51449, 51464-65, 52887-88. This shows that the system is not in fact in a "steady state," but rather that groundwater pumping continues to have negative impacts on springflows and senior decreed rights. Because the available evidence demonstrates a groundwater decline rather than equilibrium, and because those arguing in favor of equilibrium acknowledged that the evidence was not sufficient to support that conclusion, the State Engineer's decision is not supported by substantial evidence.

This court must determine in its review if "substantial evidence supports the State Engineer's decision." *Pyramid Lake Paiute Tribe*, 112 Nev. at 751, 918 P.2d at 702. Substantial evidence is "that which 'a reasonable mind might accept as adequate to support a conclusion.'" *Bacher v. Office of the State Eng'r of Nev.*, 122 Nev. 1110, 1121, 146 P.3d 793, 800 (2006). Put differently, the court must determine "whether the evidence upon which the engineer based his decision supports the order." *Morris*, 107 Nev. at 701, 819 P.2d at 205.

In Order 1309, the State Engineer determined that carbonate aquifer levels and spring flows "may be approaching steady state." SE ROA 64. Based on this determination, the State Engineer found that the "maximum amount of groundwater that can continue to be developed over the long term in the LWRFS is 8,000 afa." *Id.* But the State Engineer acknowledged that this determination was not supported by evidence. Specifically, the State Engineer explained that the apparent stabilizing "trend" was "of insufficient duration to make this determination . . . and continued

1 monitoring is necessary to determine if this trend continues or if water levels continue to decline.”  
2 SE ROA 58.

3 In fact, there was very little evidence of any kind of a stabilizing trend, and the  
4 overwhelming weight of evidence in the Order 1303 proceedings showed that, contrary to the State  
5 Engineer’s determination, carbonate pumping at levels less than 8,000 afa were continuing to  
6 decrease groundwater elevations and springflows despite above-average precipitation in the years  
7 leading up to the Order 1303 hearing. SE ROA 34519, 41995, 51449, 51464-65, 52887-88. As the  
8 Center explained in its reports and testimony, data from streamflow gages and monitoring wells  
9 since 2015 show a slight but steady declining trend in groundwater levels. SE ROA 53615. This  
10 means the system is not in equilibrium, and discharge rates will continue to decline until such a  
11 state is reached. *See* SE ROA 34543.

12 Declines have continued since 2015 despite wetter-than-average climactic conditions, and  
13 despite a slight reduction in pumping. SE ROA 34519, 41995, 51449, 51464-65, 52887-88. Thus,  
14 the apparent “leveling” of aquifer data must be read in context. As the Department of the Interior’s  
15 expert witnesses explained during the Order 1303 hearing, the carbonate aquifer appears to exhibit  
16 a response to wet conditions but not dry conditions. SE ROA 53071; 53183. So in the absence of  
17 stresses such as pumping, water levels would be expected to increase in wet years and stay  
18 relatively steady in dry years. Additionally, if the system reached equilibrium at a certain rate of  
19 pumping, springflows would increase in response to declines in pumping, as formerly “captured”  
20 discharge was re-routed from the wells back to the springs. That has not occurred. Between 2016  
21 and 2018, carbonate groundwater production in the LWRFS declined from 7,800 afa to 7,344 afa,  
22 SE ROA 53347, yet water levels continued to decline. This demonstrates that pumping continues  
23 to remove water from storage, that the system is not in equilibrium, and that additional pumping  
24 at current rates will continue to reduce groundwater levels and spring flows.

25 It must be emphasized here that the “steady-state” conclusion is a characterization, not a  
26 conclusion drawn from data. Even if water levels had appeared to stabilize between 2016 and 2018,  
27 there would not be enough data to declare the system “stable.” More observation would be needed.  
28 All of the parties who argued in favor of the “steady state” acknowledged this. *See* SE ROA 53723

1 (NV Energy explaining that “[w]e need more time to observe the system to really be certain that  
2 we are in fact reaching equilibrium in the Muddy River Springs area”); SE ROA 39261 (MVWD  
3 stating that “additional data is required to verify the steady-state “conclusion”); SE ROA 53118  
4 (FWS acknowledging continuing declines in groundwater levels and stating that “there are too  
5 many outstanding questions right now to predict the sustain[able] level of total pumping”). While  
6 the “steady-state” hypothesis presents a useful conceptual framework for parties seeking to  
7 continue current levels of groundwater production, it cannot be said that it truly reflects the data  
8 that was presented to the State Engineer in the proceedings below.

9       Being unable to definitively state that the aquifer was in or approaching a steady state,  
10 proponents of the “steady-state” hypothesis argued in favor of a “wait-and-see” approach, under  
11 which current levels of pumping would continue and water levels would be monitored for future  
12 changes. *See, e.g.*, SE ROA, 39261 (MVWD) 53723 (NV Energy), 53118 (FWS). The State  
13 Engineer ultimately adopted this approach. *See* SE ROA 63. Although the State Engineer found  
14 “the evidence and testimony projecting continual future decline in springflow at the current rate of  
15 pumping” to be “compelling,” he ultimately ruled that “the maximum amount of groundwater that  
16 can continue to be developed over the long term in the LWRFS is 8,000 afa.” SE ROA 64. He  
17 added, however, that this “approximate limit” would need to be “refine[d] and validate[d]” through  
18 “continued monitoring of pumping, water levels, and spring flow.” SE ROA 63.

19       There are two problems with this conclusion in light of the data presented below. First, the  
20 system was not in a steady state, as Dr. Myers’s analysis showed. The system cannot be in a steady  
21 state if springflows are declining. SE ROA 34543. Any additional production at “current” rates  
22 will continue to reduce springflows and impact senior decreed water rights. SE ROA 34514,  
23 34543-44. Second, the State Engineer’s “wait and see” approach ignores the unique nature of the  
24 carbonate aquifer system in the LWRFS, and the nature of the likely impacts on the Moapa dace  
25 and senior water rights should water level declines continue into the future.

26       As discussed above, the carbonate aquifer system of the LWRFS is extraordinarily  
27 connected and transmissive. At the same time, recharge throughout the system is extremely low,  
28 and likely does not occur in years of below-average precipitation. SE ROA 34493; 53071; 53183.

1 Because of these properties, any withdrawals of groundwater result in effectively permanent  
2 impacts that propagate quickly throughout the system. SE ROA 7, 34537, 54953. Nearly all of the  
3 parties to the proceedings below recognized these properties, and concluded based on the pumping  
4 test data that withdrawals from the carbonate aquifer capture springflows in the MRSA on nearly  
5 a one-to-one basis. *See* SE ROA 34545 (Center), 42013 (SNWA & LVVWD); 53729 (NV Energy)  
6 SE ROA 53221-22 (NPS). Consequently, any reductions in carbonate groundwater levels will have  
7 nearly immediate, and potentially irreversible impacts on Moapa dace habitat and senior decreed  
8 water rights.

9 In a different aquifer system, the declines in groundwater levels like those observed from  
10 2015 through 2019 might not be a source of concern. For instance, in a less transmissive system,  
11 impacts would be more localized, and thus could be more easily managed by controlling the  
12 location of pumping. In a system with greater recharge, groundwater and surface flow reductions  
13 would be less permanent. And in a system where surface discharge was not fully appropriated, or  
14 did not provide essential habitat for an endangered species, some loss of surface flow could be  
15 tolerated and managed. But the LWRFS is different. As noted, there is very little recharge to the  
16 system, the entire flow of the Muddy River has been appropriated by decree, and any reduction in  
17 springflow in the MRSA will impact the survival and recovery of the Moapa Dace. SE ROA 53443.  
18 Simply put, there is no additional water to spare in this system.

19 For all of these reasons, the State Engineer's adoption of the "steady-state" hypothesis,  
20 despite "compelling" evidence of continued declines, and his determination that 8,000 afa could  
21 be sustainably pumped, were arbitrary, capricious, and not supported by substantial evidence. At  
22 the time the State Engineer made this decision, springflows at the Warm Springs West gage were  
23 approaching 3.2 cfs, which was established as the minimum volume necessary to avoid adverse  
24 impacts to Moapa dace habitat. SE ROA 46, 53617. As the State Engineer acknowledged in Order  
25 1309, this level of flow "is not necessarily sufficient to support the rehabilitation of the Moapa  
26 dace." SE ROA 46. And because carbonate pumping captures spring flows at nearly one-to-one  
27 ratio, any reduction in springflow constitutes an infringement of senior water rights. For both of  
28 these reasons, 8,000 afa is not a "safe" or "sustainable" level of pumping.

1 While the State Engineer’s decision is entitled to deference, it is not binding, and must be  
2 reversed if it is arbitrary, capricious, or not supported by substantial evidence. *Morris*, 107 Nev. at  
3 701, 819 P.2d at 205. It is this court’s duty to determine “whether the evidence upon which the  
4 engineer based his decision supports the order.” *Id.* In this case, it does not. Based on the evidence  
5 presented, a the long-term withdrawal of 8,000 afa from the Lower White River Flow System will  
6 cause significant and potentially irreversible impacts to senior decreed water rights and the  
7 endangered Moapa dace. Pumping at such a level will also prevent attainment of FWS’s recovery  
8 goals for the dace, as springflow is currently the limiting factor on dace abundance. SE ROA  
9 53436. This court should therefore reverse the State Engineer’s determination that 8,000 afa may  
10 be sustainably pumped from the Lower White River Flow System.

11 **II. The State Engineer’s Decision to Allow 8,000 afa of Carbonate Pumping to Continue**  
12 **Failed to Consider the Environmental Factors Including Survival of the Moapa Dace.**

13 As noted, the State Engineer determined in Order 1309 that pumping at the “current” level  
14 of roughly 8,000 afa was sustainable based on his determination that “the current flow in the  
15 Muddy River is sufficient to serve all decreed rights,” and that “reductions in flow that have  
16 occurred because of groundwater pumping in the headwaters basins is not conflicting with Decreed  
17 rights.” SE ROA at 62. And as discussed above, the State Engineer’s determination that 8,000 afa  
18 represented a “safe” level of pumping was based on the assumption that the carbonate aquifer was  
19 at or approaching a “steady state.”

20 But neither the alleged “steady state” of the carbonate aquifer, nor the alleged absence of  
21 conflicts with senior decreed rights relate to whether the level of groundwater pumping ultimately  
22 selected (or any particular level of groundwater pumping) will provide sufficient flow from the  
23 Muddy River Springs (at least 3.2 cfs) to ensure the long-term survival and recovery of the Moapa  
24 dace. Thus, the State Engineer failed to explain the basis for his conclusion that pumping at current  
25 levels will adequately protect the Moapa dace, and failed to comply with Nevada water law, which  
26 requires him to consider environmental impacts as a component of the public interest.

27 The Nevada Legislature has declared that “[t]he water of all sources of water supply within  
28 the boundaries of the State whether above or beneath the surface of the ground, belongs to the

1 public.” *Mineral Cty.*, 473 P.3d at 425 (quoting NRS § 533.025). This provision “recognize[s] that  
2 the public land and water of this state do not belong to the state to use for any purpose, but only  
3 for those purposes that comport with the public’s interest in the particular property, exemplifying  
4 the fiduciary principles at the heart of the public trust doctrine.” *Lawrence v. Clark County*, 127  
5 Nev. 390, 400, 254 P.3d 606, 613 (2011).

6 “[W]ater rights are subject to regulation for the public welfare and are characterized by  
7 relative, nonownership rights.” *Mineral Cty.*, 473 P.3d at 430. “Pursuant to NRS § 533.370(3), the  
8 State Engineer must determine whether a proposed appropriation is detrimental to the public  
9 interest before issuing a water appropriation permit.” *Pyramid Lake Paiute Tribe*, 112 Nev. at 748,  
10 918 P.2d at 700.

11 This requires the State Engineer to consider, among other things, “environmental impact.”  
12 *Id.* And “the State Engineer . . . must reject any permit applications detrimental to the public  
13 interest.” *Mineral Cty.*, 473 P.3d at 427 (citing NRS 533.370(2)-(3)). The Nevada Supreme Court  
14 has recognized that the State Engineer’s duty in this regard serves to implement the public trust  
15 doctrine, which “operates simultaneously with the doctrine of prior appropriation” and “forms the  
16 outer boundaries of permissible government action with respect to public trust resources.” *Mineral*  
17 *County v. State, Dep’t of Conservation*, 117 Nev. 235, 247, 20 P.3d 800, 808 (2001) (Rose, J.,  
18 concurring) (internal footnotes omitted) (internal citations omitted). Put differently, NRS §  
19 533.370 and other water statutes “satisf[y] ‘the state’s special obligation to maintain the trust for  
20 the use and enjoyment of present and future generations.” *Mineral Cty.*, 473 P.3d at 428.

21 Here, the State Engineer’s obligation to consider the public interest includes consideration  
22 of the State’s responsibility to avoid “take” of a federally listed endangered species. Habitat  
23 modification conducted, carried out, or authorized by a state agency may amount to an unlawful  
24 “taking” under the ESA. *Palila*, 471 F. Supp. At 999; *Strahan*, 127 F.3d at 163-64.

25 The State Engineer agreed with this basic framework in Order 1309:

26 Based on *Strahan* and similar decisions, the act of issuing a permit to withdraw  
27 groundwater that reduces the flow of the springs that form the habitat of the Moapa  
28 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.



1 SE ROA 46. The State Engineer further determined that “a minimum [springflow] rate of 3.2 cfs”  
2 is necessary “in order to maintain habitat for the Moapa dace. A reduction of flow below this rate  
3 may result in a decline in the dace population.” SE ROA 46. However, the State Engineer failed  
4 to consider what level of groundwater pumping in the LWRFS would provide adequate springflow  
5 to ensure the survival and recovery of the Moapa dace, and thus failed to adequately consider the  
6 public interest.

7 As noted, the State Engineer’s decision in Order 1309 was based on two primary factors:  
8 the supposed “steady-state” of the carbonate aquifer and a lack of identifiable impacts to senior  
9 decreed rights. SE ROA 58-61. But as discussed above, the State Engineer’s “steady-state”  
10 hypothesis is inconsistent with the evidence in the record, which shows continuing declines in  
11 springflows at current pumping rates. If springflows are declining, the system cannot be in a steady  
12 state. And if the system is not in a steady state, there will continue to be adverse impacts to the  
13 Moapa dace’s habitat.

14 Nor are impacts to senior decreed rights, as evaluated by the State Engineer in Order 1309,  
15 an adequate proxy for impacts to Moapa dace habitat. The State Engineer’s conclusion with respect  
16 to senior decreed rights is based on “whether senior decreed rights are being served,” not whether  
17 groundwater pumping is causing declines in springflow or the overall amount of water in the  
18 Muddy River. SE ROA 61. As the State Engineer explained in Order 1309, he does not believe  
19 that “capture or potential capture of the waters of a decreed system . . . constitute[s] a conflict with  
20 decreed right holders” as long as “the flow of the source is sufficient to serve decreed rights.” SE  
21 ROA 61. Thus, under the State Engineer’s decision, springflows could continue to decline  
22 unabated so long as senior water users are being served on a season-by-season basis. Indeed, this  
23 is already occurring. “[T]he sum of diversion rates” under the decree “greatly exceeds” the current  
24 flow of the river, “but all users are still being served through a rotation schedule managed by the  
25 water master.” SE ROA 61. Meanwhile, springflows continue to decline in response to  
26 groundwater pumping throughout the system. SE ROA 34519, 41995, 51449, 51464-65, 52887-  
27 88.

1           Moreover, impacts to senior rights can be mitigated far more easily than impacts to the  
2 Moapa dace. The current rotation schedule for senior users is one example of a mitigation strategy  
3 that protects senior rights without accounting for impacts to springflows. Other examples discussed  
4 during the Order 1303 hearing include supplementation from out-of-basin sources and cash  
5 payments. *See, e.g.*, SE ROA 53400 (discussing mitigation options for senior rights). For a variety  
6 of reasons, the impacts to the dace from declining springflows cannot be mitigated through  
7 irrigation management in the MRSA, monetary payments, or the provision of alternative water  
8 sources.

9           The survival and recovery of the dace is entirely dependent on the unique conditions  
10 created by discharge from the carbonate aquifer in the MRSA. For instance, the dace is  
11 thermophilic, requiring water temperatures between 82.4 and 86.0° F. SE ROA 47160.  
12 Reproduction occurs only at the high end of this range. *Id.* Consequently, the dace is confined to  
13 the upper reaches of the Muddy River’s tributary streams, in close proximity to streams where  
14 warm carbonate groundwater flows to the surface. *See id.* Reductions in springflows from the  
15 carbonate source will cause the streams to cool more rapidly as they travel downstream, thereby  
16 decreasing the available spawning habitat. SE ROA 47197. The dace is also dependent on unique  
17 “hydraulic conditions” near the springs that “create a diversity of habitat.” SE ROA 47194. Any  
18 further reductions in springflow will alter these conditions and imperil the dace.

19           “Perhaps the most prominent impact that could occur,” according to FWS, “is the reduction  
20 in the overall volume of water that will be available to the species.” *Id.* Research has demonstrated  
21 that “Moapa dace size is scaled to water volume.” *Id.* “[L]arger water volumes provide the habitat  
22 necessary for increased food production and subsequently larger fish, therefore greater fecundity.  
23 Hence, more numerous, larger eggs provide a better opportunity for the long-term survival of the  
24 species.” *Id.* Conversely, lower volumes of water mean smaller dace, fewer eggs, and a reduced  
25 chance of survival.

26           The State Engineer did not consider any of these factors in Order 1309. And under the State  
27 Engineer’s reasoning, all of the impacts described above could occur even if senior decreed rights  
28 remain fully served. In sum, there is no guarantee that by protecting senior decreed rights, Order

1 1309 protects the Moapa dace. For these reasons, the 8,000 afa figure selected by the State  
2 Engineer does not adequately account for the public’s interest in the survival and recovery of the  
3 Moapa dace, or the State’s responsibility under the ESA to avoid “take” of an endangered species.

4 This deficiency is further exacerbated by the “wait and see” approach adopted in Order  
5 1309. The State Engineer has stated that “continued monitoring of pumping, water levels, and  
6 spring flow is essential to refine and validate” the 8000 afa limit. SE ROA 63. But this, too, ignores  
7 substantial evidence presented at the Order 1303 hearing that any reductions in springflow from  
8 carbonate groundwater pumping are likely to be of long duration or even permanent. The response  
9 throughout the system to the Order 1169 pumping test indicates that most of the water pumped is  
10 being removed from storage, and thus reducing the overall amount of water in the system. Because  
11 of the extremely low rate of recharge in southern Nevada, the system has not recovered from those  
12 losses. As the Center explained in its report to the State Engineer below, Carbonate groundwater  
13 levels have not recovered since the completion of the Order 1169 pumping test and continue to  
14 decline despite a subsequent decrease in groundwater pumping. SE ROA 34505, 34519, 34539-  
15 40. Groundwater levels at the EH-4 well reached an all-time low point on November 9, 2018. SE  
16 ROA 34539. Spring flows have also exhibited a declining trend in recent years. As of fall 2019,  
17 flows at Warm Springs West were approximately 3.2 cfs, demonstrating a prolonged lack of  
18 recovery. SE ROA 53617.

19 In sum, substantial evidence indicates that current rates of groundwater pumping present  
20 an imminent and serious threat to the Moapa dace. The State Engineer’s decision to ignore this  
21 evidence and authorize the pumping of up to 8,000 afa runs contrary to his acknowledgement in  
22 Order 1309 that the State of Nevada could face liability for “take” under ESA Section 9 for  
23 authorizing groundwater withdrawals that reduce springflows in the MRSA. *See* SE ROA 46. After  
24 the completion of various habitat restoration actions under the 2006 MOA, springflow is now the  
25 limiting factor on dace abundance, and “impacts to the flows in the upper streams are the major,  
26 primary threat to the existence of the Moapa dace.” SE ROA 53436. Consequently, any pumping  
27 that reduces springflows may cause unlawful “take” of the Moapa dace. SE ROA 53443.

1 The State Engineer therefore failed to consider the public interest because he ignored  
2 substantial evidence that pumping at the “current” level of 8,000 afa would have ongoing, adverse  
3 impacts on springflows and potentially result in unpermitted “take” of the Moapa dace. Nevada  
4 law holds that while the decision of the State Engineer is “prima facie correct,” it is not binding,  
5 and must be reversed if it is arbitrary, capricious, or not supported by substantial evidence. *Morris*,  
6 107 Nev. at 701, 819 P.2d at 205 (1991); *Pyramid Lake Paiute Tribe*, 112 Nev. at 751, 918 P.2d  
7 at 702. And according to the U.S. Supreme Court, a decision by an administrative agency is  
8 “arbitrary and capricious” if:

9 [T]he agency has relied on factors which [the legislature] has not intended it to  
10 consider, entirely failed to consider an important aspect of the problem, offered an  
11 explanation for its decision that runs counter to the evidence before the agency, or  
is so implausible that it could not be ascribed to a difference in view or the product  
of agency expertise.

12 *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43, 103 S. Ct. 2856,  
13 2867 (1983).

14 Here, the State Engineer clearly failed to consider an “important aspect of the problem,”  
15 namely, impacts to the Moapa dace’s survival and recovery from declining springflows at the  
16 “current” level of groundwater pumping. The State Engineer also failed to consider the low  
17 likelihood of aquifer recovery following drawdown, and the ways in which managing impacts to  
18 senior decreed rights will not necessarily protect the dace over the long-term. For all of these  
19 reasons, the State Engineer’s decision is arbitrary and capricious, and must be reversed.

## 20 CONCLUSION

21 For all of the reasons discussed herein, the State Engineer’s conclusions in Order 1309  
22 regarding aquifer recovery following the Order 1169 pumping test and the amount of groundwater  
23 that can be sustainably pumped from the LWRFS are arbitrary, capricious, and not supported by  
24 substantial evidence. *Morris*, 107 Nev. at 701, 819 P.2d at 205 (1991); *Pyramid Lake Paiute Tribe*,  
25 112 Nev. at 751, 918 P.2d at 702.

26 The Center respectfully requests that this Court enter an order amending Order 1309 to  
27 remove or strike findings made therein regarding the amount of water that can be sustainably  
28 pumped from the Lower White River Flow System; directing the State Engineer to fully consider

1 the environmental consequences of groundwater pumping within the Lower White River Flow  
2 System, including on the endangered Moapa dace; and directing the State Engineer to prohibit all  
3 carbonate groundwater pumping within the geographic boundary of the Lower White River Flow  
4 System, including Kane Springs Valley, until a new sustainable limit is determined by the State  
5 Engineer after remand.

6  
7 **Affirmation:** The undersigned do hereby affirm that the preceding document and/or  
8 attachments do not contain the social security number of any person.

9  
10 Dated this 27th day of August, 2021.

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**CERTIFICATE OF SERVICE**

1 I certify that I am an employee of the Center for Biological Diversity, and that on this 27th  
2 day of August 2021, I served a true and correct copy of the foregoing by electronic service to the  
3 participants in this case who are registered with the Eighth Judicial District Court’s Odyssey  
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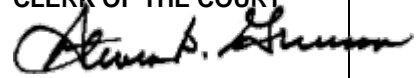
/s/ Scott Lake

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# EXHIBIT 2

# EXHIBIT 2



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16 **CLARK COUNTY, NEVADA**

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18 **GEORGIA-PACIFIC GYPSUM LLC,**  
19 **AND REPUBLIC ENVIRONMENTAL**  
20 **TECHNOLOGIES, INC.**

21 Petitioners,

22 vs.

23 **TIM WILSON, P.E. Nevada State Engineer,**  
24 **DIVISION OF WATER RESOURCES, and the**  
25 **DEPARTMENT OF CONSERVATION AND**  
26 **NATURAL RESOURCES,**

27 Respondent.

CASE NO.: A-20-816761-C (Lead Case)

DEPT. NO.: 1

**Consolidated with:**

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A-20-818015-P  
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A-20-817840-P  
A-20-817876-P  
A-21-833571-J

**OPENING BRIEF IN SUPPORT OF  
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*Great Basin Water Network v. State Eng’r*,  
126 Nev. 187, 234 P.3d 912 (2010)..... 2

*Howell v. Ricci*,  
124 Nev. 1222, 197 P.3d 1044 (2008)..... 24

*Id. a*,  
t 273, 772 P.2d ..... 32

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5823, 128 Nev. 232, 277 P.3d 448 (2012)..... 4

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127 Nev. 72, 249 P.3d 501 (2011)..... 25

*Jones v. Rosner*,  
102 Nev. 215, 719 P.2d 805 (1986)..... 3

1	<i>McLaughlin v. Hous. Auth. of the City of Las Vegas,</i>	
2	227 P.2d 206 (1951).....	25
3	<i>Pawlik v. Deng,</i>	
4	134 Nev. 83, 412 P.3d 68 (2018).....	25, 26
5	<i>Public Serv. Comm'n of Nev. v. Southwest Gas Corp.,</i>	
6	99 Nev. 268, 772 P.2d 624 (1983).....	28, 32
7	<i>Town of Eureka v. Office of State Eng'r of State of Nev., Div. of Water,</i>	
8	<i>Res.</i> , 108 Nev. 163, 826 P.2d 948 (1992).....	2, 4
9	<i>Wilson v. Pahrump Fair Water, LLC,</i>	
10	137 Nev., Adv. Op. 2, 481 P.3d 853, (2021).....	3, 4, 23
11	<b>Statutes</b>	
12	16 U.S.C.A. §1536.....	35
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16	NRS 533.024.....	22
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18	NRS 533.110(7).....	33
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20	NRS 533.450(1).....	1
21	NRS 534.110.....	30
22	NRS 534.110(7).....	27
23	<b>Rules</b>	
24	NRAP 28(e).....	39
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1 **INTRODUCTION:**

2           Petitioners Georgia-Pacific Gypsum LLC (“Georgia-Pacific”) and Republic  
3 Environmental Technologies, Inc. (“Republic”) (collectively, “Petitioners”), by and through  
4 counsel Sylvia Harrison, Esq., Lucas Foletta, Esq., and Sarah Ferguson, Esq. of the law firm of  
5 McDonald Carano LLP, hereby submit this Opening Brief (Points and Authorities) in support  
6 of their Petition for Judicial Review filed on July 15, 2021 of Order 1309 issued by Respondent  
7 Tim Wilson, P.E. Nevada State Engineer, Division of Water Resources, Department of  
8 Conservation and Natural Resources on June 15, 2020 (ROA 2-69, Ex. 1).<sup>1</sup>

9 **I. JURISDICTIONAL STATEMENT**

10           Pursuant to NRS 533.450(1), any order or decision of the State Engineer is subject to  
11 judicial review “in the proper court of the county in which the matters affected or a portion  
12 thereof are situated.” NRS 533.450(1). As described below, the real property to which the water  
13 at issue in this appeal is appurtenant is situated within Clark County, Nevada, making the  
14 Eighth Judicial District Court of Nevada in and for Clark County the proper venue for judicial  
15 review.

16 **II. STANDARD OF REVIEW**

17           An aggrieved party may appeal a decision of the State Engineer pursuant to NRS  
18 533.450(1). NRS 533.450(1). As to questions of fact, the State Engineer’s decision must be  
19 supported by “substantial evidence in the record[.]” *Eureka Cty. v. State Eng’r of Nev.*, 131  
20 Nev. 846, 850, 359 P.3d 1114, 1117 (2015) (quoting *Town of Eureka v. Office of State Eng’r of*  
21 *State of Nev., Div. of Water Res.*, 108 Nev. 163, 165, 826 P.2d 948, 949 (1992)). Where a  
22 decision is arbitrary and capricious it is not supported by substantial evidence. *See Clark*  
23 *County Educ. Ass’n v. Clark Cty. Sch. Dist.*, 122 Nev. 337, 339-40, 131 P.3d 5, 7 (2006)  
24 (concluding that an arbitrator’s award was “supported by substantial evidence and therefore not  
25 arbitrary, capricious, or unsupported by the arbitration agreement”).

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26  
27 <sup>1</sup> Each citation to the record includes both a citation to the bates range from the Record on  
28 Appeal (“ROA”) and a citation to the exhibit number from the Appendix of Exhibits, filed  
concurrently with this brief.

1 As to questions of law, the State Engineer’s decision cannot be contrary to law or in  
2 excess of the State Engineer’s statutory authority. *E.g., Great Basin Water Network v. State*  
3 *Eng’r*, 126 Nev. 187, 198-99, 234 P.3d 912, 919-20 (2010) (concluding the State Engineer  
4 violated his duty by failing to act on water appropriation applications within one year of the  
5 closing of the protest period as required by statute and remanding to the district court to remand  
6 to the State Engineer to re-notice the applications and reopen the related protest period); *Wilson*  
7 *v. Pahrump Fair Water, LLC*, 137 Nev., Adv. Op. 2, 481 P.3d 853, 856, (2021) (explaining that  
8 “[t]he State Engineer’s powers thereunder are limited to ‘only those . . . which the legislature  
9 expressly or implicitly delegates’”) (quoting *Clark Cty. v. State, Equal Rights Comm’n*, 107  
10 Nev. 489, 492, 813 P.2d 1006, 1007 (1991)). In determining the existence of reversible legal  
11 error, the district court “decide[s] ‘pure legal questions without deference to an agency  
12 determination.’” *City of Reno v. Bldg. & Const. Trades Council of N. Nev.*, 127 Nev. 114, 119,  
13 251 P.3d 718, 721 (2011) (quoting *Jones v. Rosner*, 102 Nev. 215, 217, 719 P.2d 805, 806  
14 (1986)); *see also In re Nev. State Eng’r Ruling No. 5823*, 128 Nev. 232, 238-39, 277 P.3d 448,  
15 453 (2012) (noting that a presumption of correctness does not extend to “purely legal  
16 questions”). Thus, a reviewing court may “undertake independent review of the construction of  
17 a statute” in determining the existence of legal error. *Town of Eureka*, 108 Nev. at 165, 826  
18 P.2d at 949; *see also In re Nev. State Eng’r Ruling No. 5823*, 128 Nev. at 238-39, 277 P.3d at  
19 453 (stating that when there are “purely legal questions, such as the construction of a statute . . .  
20 the reviewing court may undertake independent review”) (internal quotations omitted). As to  
21 the scope of the State Engineer’s authority, that “is a question of statutory interpretation,  
22 subject to de novo review.” *Pahrump Fair Water*, 137 Nev., Adv. Op. 2, 481 P.3d at 856.

23 As demonstrated below, Order 1309 is neither supported by substantial evidence nor  
24 supported by law.

25 **III. ISSUES PRESENTED**

26 1. Whether the State Engineer did not have on substantial evidence in ordering the  
27 consolidation of Kane Springs Valley, Coyote Spring Valley, Muddy River Springs Area,  
28 California Wash, Hidden Valley, Garnet Valley, and the northwest portion of the Black



1 Mountains Area hydrographic basins into the single hydrographic basin of the Lower White  
2 River Flow System.

3 2. Whether the State Engineer failed to rely on substantial evidence in determining the  
4 maximum sustainable quantity of groundwater that could be pumped from the LWRFS.

5 3. Whether the State Engineer exceeded his authority in consolidating the hydrographic  
6 basins thus reordering the priority of holders of Petitioners' water rights.

7 4. Whether the State Engineer violated Petitioners' due process rights in failing to provide  
8 notice to Petitioners or an opportunity to comment on the administrative policies inherent in the  
9 basin consolidation.

10 5. Whether the State Engineer engaged in *ad hoc* rulemaking in consolidating the basins.

11 6. Whether the State Engineer exceeded his authority in making a ruling on the federal  
12 Endangered Species Act.

#### 13 **IV. STATEMENT OF FACTS**

14 Pursuant to Order 1309, the Nevada State Engineer consolidated several administrative units  
15 ("hydrographic basins") consisting of the Kane Springs Valley, Coyote Spring Valley, Muddy  
16 River Springs Area, California Wash, Hidden Valley, Garnet Valley, and the northwest portion  
17 of the Black Mountains Area into a single hydrographic basin, designated as "The Lower White  
18 River Flow System" or "LWRFS." As discussed below, the Order is not supported by  
19 substantial evidence, was made without authority, is contrary to law, and significantly impairs  
20 Petitioners interests.

#### 21 **Petitioners' Interests Affected by Order 1309**

22 Both Georgia-Pacific and Republic are long-established businesses located in Garnet  
23 Valley that use and rely on certificated, proven or otherwise fully used groundwater rights to  
24 support their operations. Both Georgia-Pacific and Republic participated in the proceedings  
25 before the State Engineer that resulted in the issuance of the Order 1309.

26 Georgia-Pacific has gypsum wallboard, gypsum plaster and polymer extrusion  
27 manufacturing operations located twenty miles north of the City of Las Vegas, Nevada, along  
28 U.S. Highway 91, in Apex, Nevada (the "Facility"), which has been in operation for four

1 decades. This facility is a very important asset for Georgia Pacific and employs approximately  
2 156 employees.

3 The wallboard operation consists of crushers, screens, calciners, aggregate dryers,  
4 impeller mills, mixers, storage bins, conveyors, and a board dryer to manufacture wallboard.  
5 The plaster operation produces two grades of plaster designated as alpha and beta and consists  
6 of crushers, screens, calcining units, and packaging equipment. The polypropylene resin mat  
7 operation consists of a vacuum loader, hopper dryer, pigment feeder, resin extruder and die  
8 head, water tank cooling and forming system, cutter/slitter, and winder. The Facility currently  
9 employs approximately 150 people.

10 This Facility has one permitted on-site well which is the only source of water available  
11 for production and domestic water usage. The facility is permitted to withdraw 47 million  
12 gallons per year. The majority of the permitted water is used in wallboard production with the  
13 remainder being used in the polymer extrusion process as well as the site's domestic water  
14 uses.

15 Republic's Apex Regional Landfill complex ("Apex Landfill") is located at 13550 N  
16 Highway 93, Las Vegas, Nevada and encompasses over 2,200 acres. Apex Landfill performs  
17 the critical task of providing environmentally safe and reliable daily waste disposal services for  
18 nearly 3 million residents and hundreds of businesses in the cities of Las Vegas, North Las  
19 Vegas, and Henderson, as well as Clark County. Additionally, the Apex Landfill site includes a  
20 sand and gravel operation operated by Las Vegas Paving Corp. which is Nevada's top heavy  
21 civil construction company. To ensure the highest quality of service for its customers, Apex  
22 Landfill operates twenty-four hours per day, seven days per week, fifty-two weeks per year.  
23 Republic safely disposes of over 8,000 tons of waste per day at Apex Landfill through its  
24 resources of 478 trucks, more than 1200 employees and 2 transfer stations.

25 To perform the daily operations, the site utilizes approximately 150 million gallons of  
26 water per year from its six permitted wells. A predictable and stable water supply is critical to  
27 allow Apex Landfill to continue to provide uninterrupted service for its millions of customers,  
28 as well as plan for meeting the increasing demand for future disposal capacity.

1 As discussed below, the State Engineer’s issuance of Order 1309 will impermissibly  
2 limit Petitioners’ right to appropriate water, long established under Nevada law, immediately  
3 deprives Petitioners’ of the relative priority of their water rights, and will seriously jeopardize  
4 the viability of their operations and threaten the loss of the significant benefits they provide to  
5 the State and local economies.

### 6 **Background to Issuance of Order 1309**

7 The general rule in Nevada is that one acquires a water right by filing an application to  
8 appropriate water with the Nevada Division of Water Resources (“DWR”). If DWR approves  
9 the application, a “Permit to Appropriate” issues. Nevada has adopted the principle of “first in  
10 time, first in right,” also known as “priority.” The priority of a water right is determined by the  
11 date a permit is applied for (the “Application Date”). If there is not enough water to serve all  
12 water right holders in a particular hydrographic unit, “senior” appropriators are satisfied first in  
13 order of priority: the rights of “junior” appropriators may be curtailed. The amount of  
14 groundwater available for appropriation historically has been administered in Nevada based  
15 upon “hydrographic basins,” which are generally defined by topography, more or less reflecting  
16 boundaries between watersheds. The priority of groundwater rights is determined relative to  
17 the water rights holder within the individual basins.

18 This administrative structure has worked reasonably well for basins where groundwater  
19 is pumped from “basin fill” aquifers or alluvium, where the annual recharge of the groundwater  
20 historically has been estimated based upon known or estimated precipitation data - establishing  
21 the amount of groundwater that is recharged annually and can be extracted sustainably from a  
22 basin - the “perennial yield.” In reality, many hydrographic basins are severely over-  
23 appropriated, due to inaccurate estimates, over pumping, domestic wells, changing climate  
24 conditions, etc.

25 Administration of groundwater rights is made particularly complex when the main  
26 source of groundwater is not “basin fill” or alluvium, but aquifers found in permeable geologic  
27 formations lying beneath the younger basin fill, and which may underlie large regions that are  
28 not well defined by the present-day hydrographic basins. This is the case with Nevada’s

1 “Carbonate Aquifer.”

## 2 **The “Carbonate Aquifer”**

3 Much of the bedrock and mountain ranges of Eastern Nevada are formed from a  
4 sequence of sedimentary rocks laid down during the Paleozoic Era (spanning a period roughly  
5 542 million years ago to 251 million years ago). Many of these formations are limestones or  
6 dolomites, commonly referred to as “carbonates,” due to the chemical composition of the  
7 minerals composing the rocks. While limestone and dolomite are not particularly permeable,  
8 these formations have been extensively deformed through folding and faulting caused by  
9 geologic forces. This deformation has caused extensive fracture and fault systems to form in  
10 these carbonate rocks, with permeability enhanced by the gradual solution of minerals. The  
11 result is an aquifer system that over time has accumulated large volumes of water with some  
12 apparent degree of connection throughout the much of area. *See generally* ROA 36062-67, Ex.  
13 14; ROA 661, Ex. 8.

14 The valley floors in the basins of Eastern Nevada are generally composed of alluvium  
15 comprised largely of relatively young (<5 million years) unconsolidated sands, gravels, and  
16 clays. This sequence is loosely referred to as the “Alluvial Aquifer,” the aquifer for most  
17 shallow wells in the area.

18 Most of the water in the Carbonate Aquifer is present due to infiltration of water  
19 thousands of years ago; recent recharge from present day precipitation may represent only a  
20 fraction of the water stored.

21 Significant pumping of the Carbonate Aquifer in the LWRFS began in the 1980s and  
22 1990s. Initial assessments of the water available in the Aquifer suggested it would provide a  
23 new abundant source of water for Southern Nevada. Because the prospective water resources  
24 of the LWRFS carbonate appeared to be substantial, nearly 100 water right applications for  
25 over 300,000 acre feet were filed in SE’s office. ROA 4, Ex. 1. By 2001, the State Engineer  
26 had granted more than 40,000 acre feet of applications in the LWRFS. These applications were  
27 apparently granted based more on optimism than science. Concerned over the lack of  
28 information regarding the sustainability of water resources from the Carbonate Aquifer, the

1 State Engineer began hearings in July and August 2001 on water right applications. *Id.* On  
2 March 8, 2002, the State Engineer issued Order 1169, holding applications in abeyance in the  
3 LWRFS pending further studies. *Id.*; *see also* ROA 659-69, Ex. 8 (Order 1169). The Order  
4 applied to Hydrographic Basins 210, 215, 216, 217, 219, and 220. ROA 664-65, Ex. 8. Basin  
5 218 was subsequently added to this order. ROA 659-69, Ex. 8; *see also* ROA 654, Ex. 7.

### 6 **Order 1169A**

7 Order 1169A, issued December 21, 2012 (ROA 654-58, Ex. 7), set up an ambitious test  
8 to “stress” the Carbonate Aquifer through two years of aggressive pumping, combined with  
9 examination of water levels in monitoring wells located throughout the LWRFS. Participants in  
10 the Aquifer test were Southern Nevada Water Authority (“SNWA”)/Las Vegas Valley Water  
11 District (“LVVWD”), Moapa Valley Water District, Coyote Springs Investments, LLC, Moapa  
12 Band of Paiutes, and Nevada Power Company. Pumping included 5,300 acre feet per annum  
13 (“afa”) in Coyote Spring Valley, 14,535 afa total carbonate pumping, and 3,840 afa alluvial  
14 pumping.<sup>2</sup> ROA 6, Ex. 1. Pumping tests effects were examined at 79 monitoring wells and 11  
15 springs and streamflow monitoring sites. *Id.*

16 The State Engineer’s conclusions from the pump test found an “unprecedented decline”  
17 in high-altitude springs, an “unprecedented decline” in water levels, and that additional  
18 pumping in the central part of Coyote Spring Valley or the Muddy River Spring Area could not  
19 occur without conflict with existing senior rights, including decreed surface water rights on the  
20 Muddy River, or the habitat of the Moapa Dace. The State Engineer attributed observed  
21 decreases in water levels in other areas of the basins to the pumping during the Order 1169 test  
22 and concluded that the test demonstrated connectivity within the Carbonate Aquifer of the  
23 LWRFS. On this basis, the State Engineer determined that the five basin LWRFS should be  
24 jointly managed.

25 ///

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26  
27 <sup>2</sup> The Order uses the term acre-foot per year (afy), but for consistency with common usage,  
28 Petitioners use the equivalent term acre feet per annum.

1 **Interim Order 1303 Proceedings**

2 Faced with the problem of resolving the competing interests for water resources in the  
3 LWRFS, then-State Engineer Jason King issued Interim Order 1303 on January 11, 2019.  
4 ROA 635-53, Ex. 6. The ordering provisions in Interim Order 1303 provide in pertinent part:

5 1. The Lower White River Flow System consisting of the Coyote  
6 Spring Valley, Muddy River Springs Area, California Wash, Hidden Valley,  
7 Garnet Valley, and the portion of the Black Mountains Area as described in  
8 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.

9 Any stakeholder with interests that may be affected by water right  
10 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

11 Reports filed with the Office of the State Engineer should address the  
12 following matters:

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

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

17 c. The long-term annual quantity of groundwater that may be pumped  
18 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;

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

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

23 ROA 647-48, Ex. 6.

24 In July and August 2019, reports and rebuttal reports were submitted discussing the four  
25 matters set forth in Interim Order 1303. On July 25, 2019, the State Engineer issued a Notice  
26 of Pre-Hearing Conference. ROA 513-18, Ex. 4. On August 9, 2019, the State Engineer held a  
27 prehearing conference. ROA 519-22, Ex. 5. On August 23, 2019, the State Engineer issued a  
28 Notice of Hearing (which it amended on August 26, 2019), noting that the hearing would be

1 “the first step” in determining how to address future management decisions, including policy  
2 decisions, relating to the LWRFS. ROA 263, Ex. 2 (Notice); ROA 285, Ex. 3 (Amended  
3 Notice). The Hearing Officer also made it clear that “any other matter believed to be relevant”  
4 as specified in ordering paragraph 1(e) of Order 1303 would not include any discussion of the  
5 administrative impacts of consolidating the basins or of any policy matters affected by this  
6 decision – as described more fully below in Section V(D).

7 The State Engineer conducted a hearing on the reports submitted under Order 1303  
8 between September 23, 2019 and October 4, 2019.

### 9 **Order 1309**

10 The State Engineer issued Order 1309 on June 15, 2020. *See generally* ROA 2-69, Ex.  
11 1. Notably, following the submission by the participating stakeholders of closing statements at  
12 the beginning of December 2019, the State Engineer engaged in no additional public process  
13 whatsoever and solicited no additional input regarding “future management decisions,  
14 including policy decisions, relating to the Lower White River Flow System basins.” *See* ROA  
15 285, Ex. 3. Thus, the Order 1303 Hearing was not just the first step in the State Engineer’s  
16 decisions concerning the LWRFS basin management set forth in Order 1309, it was the only  
17 step.

18 The first three ordering paragraphs state as follows:

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

28 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.

1 The Order provides no guidance whatsoever as to how the new “single hydrographic basin”  
2 will be administered and no clear analysis as to the basis for the 8000 afa number for the  
3 maximum sustainable yield.

4 As a result of the consolidation of the basins, the relative priority of all water rights  
5 within the seven affected basins will be reordered and the priorities considered in relation to all  
6 water rights holders in the consolidated basins, rather than in relation only to the other users  
7 within the original separate basins. Petitioners’ water rights are some of the earliest priority  
8 rights relative to other users within the Garnet Valley hydrographic basin – a priority that  
9 would have protected their right to use water for the foreseeable life of their facilities. Order  
10 1309 results in the immediate loss of Petitioners’ priority relative to other water users in the  
11 consolidated administrative basins and significantly affects their security in this critical  
12 resource. Taken together with the arbitrary determination of the maximum pumping volume  
13 ordered in Paragraph 2, the reordering of priorities will subject any water rights with a priority  
14 date of March 31, 1983 or later to possible curtailment, based upon the volume of prior  
15 “senior” rights. This cutoff date would subject the Georgia Pacific water right (with a priority  
16 date of October 28, 1986) to curtailment, as well as all of Republic’s rights, other than two  
17 1981 priority permits. The detrimental impact on Republic and Georgia Pacific of the Order’s  
18 reordering priorities is illustrated by the following summary of the relevant water rights  
19 appropriations, as reflected in the State Engineer’s 2017 spreadsheet of water rights by priority  
20 with pumpage inventory. ROA 35556-58, Ex. 11.

21 The first permitted water appropriation from Garnet Valley was filed by Technichrome  
22 in July 1959 for 3 acre feet, followed by a filing in July 1967 for 133.8 acre feet by Chemical  
23 Lime Company. This was followed by a permit for 74.57 with a priority date of July 30, 1980,  
24 and a permit for 100 acre feet with a priority date of October 20, 1981. Republic  
25 Environmental Technologies, Inc. filed applications on that same day for a for a total of 194  
26 acre feet. Two other applications were filed on that same day for an additional 14 acre feet.  
27 No other permits were issued for Garnet Valley until Georgia Pacific’s permit for 144 acre feet  
28 with a priority date of October 28, 1986, followed by an appropriation in March, 1987 for 156



1 acre feet, and then Republic’s nine permits dated October 3, 1988. The cumulative duty for  
2 the basin was approximately 700 acre feet at that time – the new Republic permits added  
3 approximately 275 acre feet. Thus, by 1988, Republic and Georgia Pacific had established  
4 among the most senior water rights in the Garnet Valley hydrographic basin, with  
5 approximately 380 acre feet held by others. *See* ROA 35556-58, Ex. 11.

6 The magnitude of the effect of the application of the reordering of priorities resulting  
7 from Order 1309 is thrown into focus by the fact that between 1981 (Republic’s first priority  
8 date) and 1986 (Georgia Pacific’s priority date), the State Engineer issued permits for  
9 appropriations totaling more than 17,000 acre feet, primarily to Coyote Springs Investment  
10 LLC and SNWA, virtually all from groundwater with diversion points in the Coyote Springs  
11 hydrographic basin. The cumulative duty from the combined LWRFS basins in 1981 was  
12 about 7300 acre feet. By 1986, it was more than 24,500 acre feet. *See* ROA 35556-58, Ex. 11.

13 In short, Order 1309 not only deprives Georgia Pacific and Republic of the value of  
14 their priority dates, it relegates their rights to a position junior to more than 17,000 acre feet of  
15 now-senior rights – more than twice the 8000 acre feet that the Order 1309 concludes can be  
16 sustainably pumped from the combined LWRFS.

### 17 **Subsequent Events**

18 The perverse effects of Order 1309 on priorities are underscored by the following recent  
19 developments. In the fall of 2020, Nevada Power Company dba NV Energy filed applications  
20 with the Division of Water Resources to change the place of diversion of 1515.38 afa of water  
21 rights currently having sources in shallow alluvial aquifers in the Muddy River Springs Area to  
22 deep wells sourced in the carbonate aquifer in Garnet Valley (the “NPC Applications”). The  
23 water was formerly utilized for the now de-commissioned Reid Gardner coal plant. Georgia  
24 Pacific and Republic filed protests of these applications on the basis that in previous rulings,  
25 including the most recent “pre-Order 1309” Ruling 6256 (ironically ruling on a Nevada Power  
26 application among others), the State Engineer had determined that there was no unappropriated  
27 water in Garnet Valley Basin, and accordingly, the Applications should be denied. *See* ROA  
28 813-14, Ex. 9. The proposed new wells are located near Petitioners’ wells and new pumping

1 could affect their water supply. The NPC rights have priority dates considerably senior to those  
2 of Republic and Georgia Pacific, and Petitioners argued that if the NPC Applications were  
3 granted, they should therefore be treated as new appropriations under NRS 533.370 with a new  
4 priority date. *See* Request for Judicial Notice, Exs. 3-15.<sup>3</sup>

5 The Southern Nevada Water Authority (“SNWA”) filed protests on very similar  
6 grounds, arguing that the rights should be retired and that further pumping from the carbonate  
7 aquifer would exacerbate the overdraft of the carbonate aquifer within the LWRFS. The City of  
8 North Las Vegas (“CNLV”) also protested the applications. Request for Judicial Notice, Ex.  
9 15. NPC responded to the protests, arguing that under Order 1309, Garnet Valley was now part  
10 of the LWRFS administrative basin, that the sustainable yield was therefore 8000 afa, and that  
11 the transfer could not be considered an “interbasin” transfer as Order 1309 had determined the  
12 combined basins to be “the same source of supply.” Request for Judicial Notice, Ex. 16. To  
13 date, the State Engineer has taken no action on the applications. It seems apparent that but for  
14 the effect of Order 1309, the NPC Applications would have been summarily denied. *Id.*

15 On July 15, 2021, the Southern Nevada Water Authority Board unanimously approved  
16 an agreement entered into among SNWA, the City of North Las Vegas, and NV Energy.  
17 Pursuant to the July 15, 2021 agreement, SNWA and CNLV will withdraw their protests to the  
18 NPC Applications, and instead will cooperate in furthering the applications. If the NPC  
19 Applications are approved, NV Energy will make some of the water rights available to CNLV  
20 to provide it senior water rights to serve its Apex area customers. The parties to the agreement  
21 intend to develop a Garnet Valley Groundwater Management Plan that will set a “sustainable  
22 yield” for long-term pumping, limited to 2000 afa for *all water rights holders*. Neither of  
23 Petitioners has been contacted or consulted regarding this agreement. Ironically, the agreement  
24 relies on Order 1309 for the grounds that would allow approval of the NPC Applications, but  
25 treats Garnet Valley as a separate basin with a limited sustainable yield. Motion, SNWA

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26  
27 <sup>3</sup> Petitioners concurrently filed a Request for Judicial Notice in support of this brief, requesting  
28 that this Court take judicial notice of several public documents. Petitioners attached these  
documents to their Request for Judicial Notice, and cite these exhibits herein.

1 Agreement. If the agreement is implemented as planned, Petitioners' water rights would not  
2 only be junior to water rights within the LWRFS, but suddenly junior to an additional 1515 afa  
3 within the Garnet Valley "subbasin" while the sustainable yield would be only 2000 afa.

#### 4 **V. ARGUMENT**

##### 5 **A. The State Engineer Did Not Have Substantial Evidence in Ordering the** 6 **Consolidation of the LWRFS Hydrographic Basins into a single Hydrographic** 7 **Basin and Therefore Order Is Arbitrary, Capricious, and an Abuse of Discretion.**

8 The questions posed for stakeholder input in the Order 1303 proceedings presumed  
9 the findings in Interim Order 1303 were correct in seeking to establish a new consolidated  
10 hydrographic basin. The State Engineer did not directly solicit input as to the hydrologic  
11 connection among the basins, and only requested input as to the boundary of this proposed  
12 basin. At no time during the Order 1303 proceedings did the State Engineer disclose the  
13 criteria he would use in evaluating the connectivity of the basins and determining the new  
14 consolidated basin boundary. Remarkably, these criteria are explicitly disclosed for the first  
15 time in Order 1309. No opportunity was afforded the participants to directly address these  
16 criteria in their presentations, or critically, to address the appropriateness of these criteria.  
17 Revealing these criteria only after stakeholders had engaged in the extensive investigations,  
18 expert reporting, and the intense factual hearing pursuant requested by Order 1303 is an  
19 egregious violation of the participants' due process rights. Moreover, as discussed below, the  
20 criteria themselves are logically flawed, inconsistently applied and disregard other significant  
21 scientific data. Following are the criteria as presented in the Order:

22 The State Engineer has considered this evidence and testimony [regarding basin  
23 inclusion and basin boundary] on the basis of a common set of criteria that are  
24 consistent with the original characteristics considered critical in demonstrating a  
25 close hydrologic connection requiring joint management in Rulings 6254-6261  
26 and more specifically, include the following:

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

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.

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

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

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

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

20 ROA 48-49, Ex. 1.

21 Beginning with criterion number 1, each of these criteria is based simply upon  
22 “consistency,” overlooking the obvious need to consider their probative value. It is a  
23 fundamental principle of logic that mere consistency of an observation with a hypothesis does  
24 not prove the hypothesis: “consistency” does not eliminate other possibilities. Number 2 is  
25 illogical. The criterion indicates groundwater may respond to “climate, pumping, or some  
26 other dynamic.” Water levels in hydrologically separated basins could respond with a  
27 “similar temporal pattern” as a result of climate or as a result of similar pumping volumes in  
28 proximity to the separate wells. The causes of these patterns would have nothing whatsoever  
to do with a hydrologic connection. A similar criticism applies to number 3. Similar  
drawdown and recovery of water levels in discrete separate basins could occur without any  
connection between the basins, for example based upon regional climatic signals. As to  
number 4, a steep hydraulic gradient could be created in the “cone of depression” resulting  
from a significant volume of groundwater being pumped from a single location. Wells in the  
vicinity of the cone of depression could have very different groundwater levels reflecting a  
steep hydraulic gradient because they have a good hydraulic connection, not a “poor” one.  
This is a phenomenon observed throughout Nevada in the case of mine dewatering, for

1 example. With respect to number 5, the record illustrates cases where carbonate aquifer is  
2 juxtaposed against lower permeability rock, creating not a basin boundary, but a preferential  
3 groundwater flow path *within* a basin. *See e.g.*, ROA 35628, 35634, 35638, Ex. 13.

4 Not only are these criteria logically flawed, the State Engineer glosses over the  
5 challenges of developing reliable data to support them. With the exception of criterion  
6 number 5, each of these criteria depend on the accurate measure of groundwater levels, yet the  
7 Order ignores testimony regarding factors that could affect this accuracy. For example, Dr.  
8 Peter Mock, representing Vidler Water Company and Lincoln County Water District (“LC-  
9 V”), testified on the challenges posed by attempting to measure one-foot incremental changes  
10 at water levels more than a thousand feet below ground surface, particularly where different  
11 measuring devices were used at different times during the Order 1169 pump test. He noted  
12 that water levels obtained from transducers could differ from those measured by sounders by  
13 as much as a foot. In short, “working at the edges” [of the area covered by the 1169 pump  
14 test] the data are unreliable. ROA 53564, Ex. 28 (Hr’g Tr. at 1410:2-1411:23).<sup>4</sup> Dwight  
15 Smith, testifying for the City of North Las Vegas, noted the importance of factoring in  
16 barometric pressure, which can result in seasonal water level fluctuations, and noted these had  
17 not been taken into consideration. ROA 53574-75, Ex. 28 (Hr’g Tr. at 1452:18-1455:13).  
18 Given the small magnitude of water level changes being examined in the LWRFS, these small  
19 deviations could have a significant impact on the correct interpretation of hydrologic  
20 connectivity. The Order does not address these issues.

21 Correctly interpreting water level fluctuations also depends on accurate pumping data.  
22 The significance of inaccurate records was dramatically underscored by Mr. Smith’s criticism  
23 of the model SNWA used to argue the existence of “one to one” connectivity throughout the  
24 LWRFS. Mr. Smith demonstrated that the input data SNWA used to calibrate its multi-  
25 linear regression model of pumping trends was based on highly inaccurate historical

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26  
27 <sup>4</sup> To ensure accurate citations, citations to the Hearing Transcripts include an additional citation  
28 to the original transcript page and line numbers.

1 pumping records from Garnet Valley. This error invalidated SNWA’s analysis and the  
2 reported correlation. The error not only caused a false relationship to Garnet Valley  
3 pumping, but also impacted all the other reported correlations, or lack thereof, for all  
4 simulated pumping centers in the SNWA model. ROA 52183-87, Ex. 24; ROA 53573, Ex.  
5 28 (Hr’g Tr. at 1446:2-1448:20).

6 The application of criteria numbers 5 and 6 obviously depends on a correct  
7 interpretation of geology. Except where there is a surface expression, the complex geology of  
8 the LWRFS bedrock can be inferred only from geologic mapping or explored through remote  
9 sensing (geophysical) methods.<sup>5</sup> Some participants undertook extensive sophisticated  
10 geophysical studies specifically in response to Order 1303, including, for example, LC-V  
11 (ROA 36220-29, Ex. 15) and Coyote Springs Investment, LLC (ROA 35563, Ex. 12), or relied  
12 on prior geophysical studies, like the U.S. National Park Service (ROA 51894-95, Ex. 22).  
13 While the Order notes these studies in its summary of the participants’ presentations, the Order  
14 is devoid of any explicit discussion or examination of the merits or weight of evidence gathered  
15 through these tools. All of the geologic interpretations in the Order are simply conclusory  
16 findings, without any underlying analysis. Based upon the conclusions reached, these new  
17 studies may have been entirely disregarded and the State Engineer’s conclusions based only on  
18 inferences drawn from surface maps.

19 Not only are his criteria poorly developed and applied, the State Engineer ignored other  
20 significant factors which many participants employed in evaluating inter-basin connectivity,  
21 including groundwater temperature and chemical signatures. These factors were considered by  
22 each of the Moapa Band of Paiute Indians (ROA 38157-63, Ex. 16; ROA 38927-29, Ex. 17;  
23 ROA 38979-82, Ex. 18), U.S. National Park Service (ROA 51948-49, Ex. 23), and U.S. Fish

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24  
25 <sup>5</sup> For example, a major study undertaken in cooperation with SNWA of the White River Flow  
26 System emphasized the importance of these geophysical methods: “However, geologic maps  
27 that focus on mineral or groundwater resources need more accurate assessments of the  
28 subsurface geology via geophysical methods and well data. The SNWA contracted for new  
gravity surveys, new AMT profiles, and analysis of available aeromagnetic data with the USGS  
office in Menlo Park, California. These data were used to prepare the geologic cross sections of  
this report.” ROA 35957, Ex. 14.

1 and Wildlife Service (“USFWS”) (ROA 49533, Ex. 21), among others. The importance of  
2 these factors is underscored by the State Engineer’s decision to omit the Lower Meadow Valley  
3 Wash from the administrative unit. The USFWS presented evidence based upon water  
4 chemistry and temperature that strongly suggested deep geologic formations underlying the  
5 Lower Meadow Valley Wash (“LMVW”) could be a significant source of water feeding Big  
6 Muddy Spring, which supplies approximately 30% of the flow of the Muddy River. ROA  
7 53120-23, Ex. 27 (Hr’g Tr. at 403:9-414:2). If this hypothesis were proven, it would be a  
8 compelling argument for the inclusion of LMVW into the LWRFS unit. However, the State  
9 Engineer justifies its exclusion by finding “that *data do not exist to apply his criteria*, and  
10 therefore [LMVW]... cannot be considered for inclusion into the LWRFS.” ROA 55, Ex. 1  
11 (emphasis added). In other words, by arbitrarily omitting temperature and chemistry from his  
12 criteria, the State Engineer was able to ignore these factors.<sup>6</sup>

13 Groundwater temperature, chemical signatures and water age are well-established factors in  
14 the study of groundwater flow paths. Indeed, multiple studies considering these factors have  
15 been conducted within the LWRFS with results having direct application to the matters  
16 addressed in Order 1303. *See e.g.*, ROA 51948-53, Ex. 23, ROA 49218-25, Ex. 20, ROA  
17 49533, Ex. 21. The State Engineer’s decision to ignore these criteria is inexplicable<sup>7</sup> – the very  
18 definition of arbitrary and capricious.

19 **B. The State Engineer Failed to Rely on Substantial Evidence in Determining**  
20 **the Maximum Sustainable Quantity of Groundwater that could be pumped from**

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21 <sup>6</sup> Remarkably, excluding the LMVW is further justified by criteria not among those enumerated  
22 in the Order:

23 Regarding the hydraulic connection between the Lower Meadow Valley Wash  
24 alluvial aquifer and the LWRFS, the State Engineer agrees with USFWS that a  
25 connection exists, but finds that any *impacts related to water development* in the  
26 Lower Meadow Valley Wash alluvial aquifer *are localized*, and *unrelated to the*  
27 *carbonate rock aquifer*, and can be *appropriately managed outside the LWRFS*  
28 joint management process.

ROA 51, Ex. 1 (emphasis added).

<sup>7</sup> . . . unless these criteria were only developed “after the fact” to support the State Engineer’s  
predetermined preferred outcome.

1                   **The LWRFS and Therefore the Order is Arbitrary, Capricious and an Abuse of**  
2                   **Discretion**

3                   With respect to the critical question of the maximum sustainable yield, Order 1309  
4 includes no clear analysis as to the basis for the 8000 acre feet per annum (“afa”) number set  
5 forth in Ordering Paragraph 2. Indeed, the Order acknowledges “the evidence and testimony  
6 presented at the 2019 hearing did not result in a consensus among experts of the long-term  
7 annual quantity of groundwater that can be pumped. Recommendations range from zero to  
8 over 30,000 afa.... There is a near consensus that the exact amount that can be continually  
9 pumped for the long term-term *cannot be absolutely determined with the data available and*  
10 *that to make that determination will require monitoring of spring flow, water levels, and*  
11 *pumping over time.”* ROA 58, Ex. 1 (emphasis added). Further, “...there is almost unanimous  
12 agreement among experts that data collection is needed to further refine with certainty the  
13 extent of groundwater development that can continually pumped over the long term.” ROA 63,  
14 Ex. 1. However, the State Engineer discounts this uncertainty and finds “that the current data  
15 are adequate to establish an approximate limit on the amounts of pumping that can occur within  
16 the system, but [further data are] essential to refine and validate this limit.” *Id.* But the Order  
17 does not present actual data to support the “approximate” limit of 8000 afa. Rather, the Order  
18 cites a number of estimations from other participants that exceed this number, a few that are  
19 less, and then simply lands on 8000 afa, apparently based on amounts of current pumping from  
20 the carbonate aquifer and the possibility that the spring flow “may be approaching steady  
21 state.” ROA 64, Ex. 1.

22                   Moreover, Order 1309 does not present the 8000 afa limitation as a temporary  
23 “approximation” subject to validation, but as an absolute limitation with immediate weighty  
24 consequences and, further, keeps the Petitioners and all other stakeholders in suspense as to  
25 what exactly those weighty consequences might be. As discussed above, the Order is devoid of  
26 any direction or guidance as to any future refinement or modification of this limitation. *Id.*

27                   Underscoring the arbitrariness of the conclusion in Ordering Paragraph 2, the Order  
28 adds the Kane Springs Valley hydrographic basin to the joint administrative unit but fails to



1 acknowledge the additional water resources available from the Kane Springs basin. Since  
2 Interim Order 1303 did not include the Kane Springs Valley hydrographic basin, the  
3 participants' assessment of the sustainable water resources of the LWRFS generally did not  
4 quantify Kane Springs water resources and the State Engineer made no effort to collect  
5 evidence on this issue. According to the Division's Hydrographic Basin Abstract as set forth  
6 prior to issuance of the Order, the Kane Springs Valley Hydrographic Basin (Basin 206) has a  
7 perennial yield of 1000 afa; the contribution to the LWRFS may be more than 4000 afa.<sup>8</sup>  
8 Nothing in the Order indicates that the State Engineer considered this resource in determining  
9 the LWRFS limitation.

10           Given the immediate and far-reaching consequences of Order 1309, the public deserves  
11 a careful and considered analysis of the limitation imposed supported by substantial evidence  
12 and not an arbitrary "guestimate," or, in the alternative, the State Engineer should provide a  
13 process for determining a limitation that can be adequately supported by empirical evidence.

14           Perhaps even more arbitrary and capricious is the Order's application of this 8000 afa  
15 limit across the entire LWRFS without regard to the location of pumping. Just as the Order  
16 emphasizes the uncertainty associated with the determination of the sustainable pumping limit,  
17 the Order emphasizes the uncertainty of the relative effect of the location of groundwater  
18 extractions (ROA 60, Ex. 1), and notably, makes *no finding* that the location of pumping is  
19 irrelevant.

20           Determining the amount and behavior of groundwater in the deep subsurface of a  
21 complex geologic system is not simple, as clearly recognized by Order 1303 and the procedures  
22 established by the State Engineer ostensibly to gather evidence over a course of months  
23 culminating in a two-week hearing. Stakeholders presented expert interpretations of  
24 groundwater levels detected in monitoring and production wells, extrapolations of surface

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25  
26 <sup>8</sup> "SNWA (2007) assessed local and regional flow in southeastern Nevada and found regional  
27 inflow to Coyote Spring Valley was 50,700 AFY, of which . . . Kane Springs Valley  
28 contributes 4,190 AFY. . . SNWA (2007) estimated local recharge to be 2,130 AFY." ROA  
35648, Ex. 13 (citing Southern Nevada Water Authority, *Water-Resources Assessment and  
Hydrologic Report for Cave, Dry Lake, and Delmar Valleys* (June 2007)).

1 geology to interpret the subsurface character of the Carbonate Aquifer, results of sophisticated  
2 remote sensing techniques to infer geologic structures that might control groundwater flow,  
3 highly detailed studies of groundwater chemistry, and complex hydrologic models to advance  
4 their positions. Yet, despite the thousands of pages of exhibits and expert testimony, Order  
5 1309 is virtually devoid of any independent examination of the relative merits and validity of  
6 any of this information. Most of the Order consists of selective and imprecise summaries of the  
7 participants' presentations. There is no technical analysis, no detailed consideration of the  
8 weight of evidence, nor discussion or evaluation of the numerous models proposed or  
9 challenged by the participants relevant to the factual questions posed. Indeed, most of the  
10 Order reads as if the Office of the State Engineer simply took a poll of the participants'  
11 positions.

12 Pursuant to NRS 533.024, the Legislature has declared that:

13 1. It is the policy of this State:

14       ....  
15       (c) To encourage the State Engineer to consider the *best available science* in  
16 rendering decisions concerning the available surface and underground sources of  
17 water in Nevada." (emphasis added)

18 Far from using the "best available science," the State Engineer in Order 1309 has  
19 adopted a limited set of illogical criteria which cannot be consistently applied nor supported by  
20 reliable data. He has arbitrarily ignored scientific information that would help identify and  
21 define groundwater flow paths critical to an understanding of the LWRFS. He has discounted  
22 sophisticated new geophysical studies specifically undertaken to create a better understanding  
23 of the geology of the LWRFS, apparently in favor of simplistic interpretations of geologic  
24 maps. Although the Order is replete with findings as to "the weight of the evidence," these  
25 findings are virtually unsupported as to what evidence was "weighed" and why some evidence  
26 weighed more than other evidence.

27 **C. The State Engineer Exceeded His Authority in Deciding to Engage in**  
28 **Conjunctive Management and Joint Administration of the Hydrographic Basins**  
**that Make Up The LWRFS.**

29 The State Engineer relied on a single statute, NRS 533.024(1)(e), in determining to  
30 subject the LWRFS to "conjunctive management and joint administration" of the various

1 groundwater basins that make up the LWRFS and re-ordering the priority of the rights therein  
2 on that basis. ROA 43, Ex. 1. Because NRS 533.024(1)(e) is not a grant of authority, the State  
3 Engineer’s reliance on it to upend the priority of certificated and proven water rights whose  
4 priorities have been in place for nearly 39 years was misplaced.

5         The Nevada Supreme Court has made it clear that the State Engineer is a creature of  
6 statute and his or her actions must be within a statutory grant of authority. *Pahrump Fair*  
7 *Water*, 137 Nev., Adv. Op. 2, 481 P.3d at 856 (explaining that “[t]he State Engineer’s powers  
8 thereunder are limited to ‘only those . . . which the legislature expressly or implicitly  
9 delegates’” (quoting *Clark Cty.*, 107 Nev. at 492, 813 P.2d at 1007)); *see also Howell v. Ricci*,  
10 124 Nev. 1222, 1230, 197 P.3d 1044, 1050 (2008) (holding that the State engineer cannot act  
11 beyond his or her statutory authority). In deciding to subject the LWRFS to conjunctive  
12 management and joint administration, however, the State Engineer failed to identify a specified  
13 statutory grant of authority upon which to make that determination, citing merely to a statutory  
14 statement of policy.

15         For this reason, the State Engineer erred in relying on NRS 533.024(1)(e) as the sole  
16 basis upon which to base his decision as to how to manage the LWRFS and re-order rights in  
17 the various LWRFS groundwater basins. The statute confers no authority to the State Engineer  
18 whatsoever—let alone to re-order the priority of water rights. The statute is not a water  
19 management tool in and of itself; it is merely a declaration of the Legislature’s intent that,  
20 insofar as the State Engineer exercises existing management authority, he or she should do so  
21 consistent with the policy of the state to “[t]o manage conjunctively the appropriation, use and  
22 administration of all waters of this State, regardless of the source of the water.” NRS  
23 533.024(1)(e). As a statement of policy, NRS 533.024(1)(e) does not constitute a grant of  
24 authority to the State Engineer; Statements of policy from the Legislature do not serve as a  
25 basis for government action, but rather inform the interpretation of statutes that authorize  
26 specific action. *See, e.g., Pawlik v. Deng*, 134 Nev. 83, 85, 412 P.3d 68, 71 (2018).

27         In *Pawlik*, the Nevada Supreme Court expressed the relevance of statements of policy in  
28 terms as follows: “if the statutory language is subject to two or more reasonable interpretations,

1 the statute is ambiguous, and we then look beyond the statute to the legislative history and  
2 interpret the statute in a reasonable manner ‘in light of the policy and the spirit of the law.’” *Id.*  
3 (quoting *J.E. Dunn Nw., Inc. v. Corus Constr. Venture, LLC*, 127 Nev. 72, 79, 249 P.3d 501,  
4 505 (2011)). And while such statements of policy are accorded deference in terms of statutory  
5 interpretation, the Nevada Supreme court has specifically held that they are not binding. *See*  
6 *McLaughlin v. Hous. Auth. of the City of Las Vegas*, 227 P.2d 206, 93 (1951) (“It has often  
7 been said that the declaration of policy by the legislature, though not necessarily binding or  
8 conclusive upon the courts, is entitled to great weight, and that it is neither the duty nor  
9 prerogative of the courts to interfere in such legislative finding unless it clearly appears to be  
10 erroneous and without reasonable foundation.”); *see also Clean Water Coal. v. M Resort, Ltd.*  
11 *Liab. Co.*, 127 Nev. 301, 313, 255 P.3d 247, 255 (2011) (“The State acknowledges that when  
12 legislative findings are expressly included within a statute, those findings should be accorded  
13 great weight in interpreting the statute, but it points out that such findings are not binding and  
14 this court may, nevertheless, properly conclude that section 18 is a general law despite the  
15 Legislature's declaration to the contrary.”). Thus, statements of policy set forth by the  
16 Legislature are not operative statutory enactments, but rather tools to be used in interpreting  
17 operative statutes—and only then where such statutes are ambiguous on their face. *See Pawlik*,  
18 134 Nev. at 85, 412 P.3d at 71; *see also Cromer v. Wilson*, 126 Nev. 106, 109-10, 225 P.3d  
19 788, 790 (2010) (if the plain language of a statute “is susceptible of another reasonable  
20 interpretation, we must not give the statute a meaning that will nullify its operation, and we  
21 look to policy and reason for guidance”).

22         Here, the State Engineer identified no such underlying source of authority to make the  
23 decision he did. Nor is there any such authority. While Nevada law provides certain tools for  
24 the management of water rights in, for example, over appropriated basins, *e.g.*, NRS 534.110(7)  
25 (authorizing the State Engineer to “designate as a critical management area any basin in which  
26 withdrawals of groundwater consistently exceed the perennial yield of the basin”), there is  
27 nothing in the law that authorizes the re-prioritization of water rights on the basis of  
28 conjunctive management or joint administration. Indeed, the fact that the State Engineer had to

1 resort to a vague statement of policy to support his decision to dramatically depart from  
2 traditional water management tools in making his LWRFS is evidence of the extremity of his  
3 departure from statutory water management tools. Thus, the State Engineer exceeded his  
4 authority in subjecting the LWRFS to conjunctive management and joint administration.

5 **D. The State Engineer Violated Petitioners’ Due Process Rights in Failing to**  
6 **Provide Notice to Petitioners or an Opportunity to Comment on the**  
7 **Administrative Policies Inherent in the Basin Consolidation.**

8 The notice and hearing procedure employed by the State Engineer failed to satisfy the  
9 requirements of due process because the notice failed to put the parties on notice that the State  
10 Engineer would decide on a management protocol for the LWRFS at the conclusion of the  
11 proceeding. Additionally, the hearing itself failed to satisfy due process because the parties  
12 were not afforded a full and complete opportunity to address the implications of the State  
13 Engineer’s decision to subject the LWRFS to conjunctive management and joint  
14 administration.

15 The Nevada Supreme Court has held that “[a]lthough proceedings before administrative  
16 agencies may be subject to more relaxed procedural and evidentiary rules, due process  
17 guarantees of fundamental fairness still apply.” *Dutchess Bus. Serv. ’s, Inc. v. Nev. State Bd. of*  
18 *Pharmacy*, 124 Nev. 701, 711, 191 P.3d 1159, 1166 (2008). In *Dutchess*, the Nevada Supreme  
19 Court noted further that “[a]dministrative bodies must follow their established procedural  
20 guidelines and give notice to the defending party of ‘the issues on which decision will turn and  
21 . . . the factual material on which the agency relies for decision so that he may rebut it.’” *Id.*  
22 With respect to notice and hearing, the Nevada Supreme Court has held that “[i]nherent in any  
23 notice and hearing requirement are the propositions that the notice will accurately reflect the  
24 subject matter to be addressed and that the hearing will allow full consideration of it.” *Public*  
25 *Serv. Comm’n of Nev. v. Southwest Gas Corp.*, 99 Nev. 268, 271, 772 P.2d 624, 626 (1983).

26 As stated above, the notice of hearing and amended notice of hearing (“Notice”) noticed  
27 an opportunity for the parties that submitted Order 1303 reports to explain their positions and  
28 conclusions with respect to the questions posed for consideration in Order 1303. *See* ROA  
262-82, Ex. 2; ROA 284-301, Ex. 3. Specifically, the notice as amended included the

1 following summary:

2 On August 9, 2019, the State Engineer held a pre-hearing conference regarding the  
3 hearing on the submission of reports and evidence as solicited in Order 1303.... The  
4 State Engineer established that the purpose of the hearing on the Order 1303 reports was  
5 to provide the participants an opportunity to explain the positions and conclusions  
6 expressed in the reports and/or rebuttal reports submitted in response to the Order 1303  
7 solicitation. The State Engineer directed the participants to limit the offer of evidence  
8 and testimony to the salient conclusions, including directing the State Engineer and his  
9 staff to the relevant data, evidence and other information supporting those conclusions.  
10 ***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.***

11 ROA 285, Ex. 3 (emphasis added).

12 The questions posed in Order 1303 did not relate to how to management the LWRFS—  
13 conjunctive or joint administration—but rather related to factual inquiries. As stated above,  
14 Order 1303 specifically authorized stakeholders to file reports addressing four specific areas  
15 none of which related to the management of the LWRFS. ROA 647-48. Ex. 6. Thus, in  
16 noticing the hearing to consider the reports submitted pursuant to Order 1303, there was no  
17 mention of consideration of the prospective management of the LWRFS—*i.e.*, whether it  
18 would be appropriately managed conjunctively and as a joint administrative unit.

19 Indeed, this was consistent with the Hearing Officer’s opening remarks at the August 8,  
20 2019, prehearing conference in which the State Engineer actively put participants off of  
21 providing input regarding that very question. The hearing officer stated as follows at the  
22 August 8 prehearing conference:

23 And so, and I’m going to talk about this and we’ve spoken about this before, is that  
24 really this is a threshold reporting aspect, that this is part of a multi-tiered process in  
25 terms of determining the appropriate management strategy to the Lower River Flow  
System.

26 ***This larger substantive policy determination is not part of the particular proceeding.  
27 That’s part of later proceedings....”***

28 ROA 522, Ex. 5 (Hr’g Tr. at 10:6-20) (emphasis added).

1 The hearing officer gave additional consistent guidance at the outset of the September  
2 23 hearing, further directing the parties not to address policy issues even in relation to the fact  
3 that Order 1303 authorized stakeholders to include in their reports “[a]ny other matter believed  
4 to be relevant to the State Engineer's analysis.” ROA 648, Ex. 6. Specifically, the Hearing  
5 Officer directed as follows:

6 And while that fifth issue is [as set forth in Ordering Paragraph 1(e) of Order 1303] not  
7 intended to expand the scope of this hearing into making policy determinations with  
8 respect to management of the Lower White River Flow System basin’s individual water  
9 rights, those different types of things, *because those are going to be decisions that  
10 would have to be made in subsequent proceedings* should they be necessary.  
11 ROA 52962, Ex. 26 (Hr’g Tr. 6:4-15) (emphasis added).

12 Thus, not only did the notice not adequately notify the parties of the possibility of the  
13 consideration and resolution of policy issues, but the Hearing Officer consistently directed the  
14 parties to avoid the subject, compounding the due process violation; notwithstanding the  
15 Hearing Officer’s admonitions and the plain language of the notice, the State Engineer  
16 ultimately issued a dramatic determination regarding management of the LWRFS. In doing so,  
17 the State Engineer precluded the participants from providing input that would have allowed for  
18 the full consideration of the issue.

19 Participants and experts did not have the opportunity to, and were actively discouraged  
20 from addressing policy issues critical to the management of the LWRFS, including, but not  
21 limited to: whether Nevada law allows the State Engineer to conjunctively manage multiple  
22 hydrographic basins in a manner that modifies the relative priority of water rights due to the  
23 administration consolidation of basins; whether the State Engineer would establish a “critical  
24 management area” pursuant to NRS 534.110 and, if so, whether he would develop a  
25 groundwater management plan or defer to the stakeholders to develop one; whether Nevada  
26 law gives the State Engineer authority to designate a management area that encompasses more  
27 than one basin; whether “safe-yield” discrete management areas should be established within  
28 the proposed administrative unit; whether water rights holders enjoy a “property right” in the  
relative priority of their water rights such that impairing that right may constitute a “taking”;  
whether unused (or only sporadically used) senior water rights take precedence over

1 certificated or fully used junior rights, particularly where these junior rights are in continuous  
2 use to support economically significant enterprises; whether States compel quantification of  
3 federal reserved rights by a date certain; and whether the State Engineer should approach the  
4 legislature to seek different or additional management tools or authority. *See* ROA 52801-10,  
5 Ex. 25 (Georgia Pacific and Republic Closing Argument, outlining policy questions for  
6 consideration by the State Engineer at later proceedings, proceedings that never took place).  
7 The refusal to consider these issues ensured that the State Engineer’s decision was not based on  
8 a fully developed record.

9         Ironically, the State Engineer acknowledged as much in Order 1309 itself. There, the  
10 State Engineer noted the fact that Georgia-Pacific and Republic raised concerns over the  
11 sufficiency of the scope of the proceedings at hearing but inexplicably asserted that a to-be-  
12 determined management scheme would be developed to address “management issues” in the  
13 LWRFS:

14                 Georgia-Pacific and Republic asserted that boundaries are premature  
15 without additional data and without a legally defensible policy and management  
16 tools in place. They expressed concern that creating an administrative unit at this  
17 time inherently directs policy without providing for due process. The State  
18 Engineer has considered these concerns and agrees that additional data and  
19 improved understanding of the hydrologic system is critical to the process. He  
20 also believes that the data currently available provide enough information to  
21 delineate LWRFS boundaries, and that an *effective management scheme* will  
22 provide for the flexibility to adjust boundaries based on additional information,  
23 retain the ability to address unique management issues on a sub-basin scale, and  
24 maintain partnership with water users who may be affected by management  
25 actions throughout the LWRFS.

26 ROA 54, Ex. 1 (emphasis added).

27         This language reflects a serious misjudgment of the effect of Order 1309. Insofar as  
28 Order 1309 subjects the LWRFS to conjunctive management and joint administration, resulting  
in reordering of priority of water rights in the LWRFS, the order effectuates a management  
scheme with far reaching consequences. Thus, agreeing on the one hand that an “effective  
management scheme” will be necessary to address challenges in the LWRFS, but contending it  
will be developed in the future, reveals a lack of awareness of the implications of the order to  
the detriment of not only the participants but all water rights holders in the LWRFS basins.



1 Without consideration of the implications of the management decision contained in the order, it  
2 cannot be based on a fully consideration of the issues presented. In affirmatively limiting the  
3 scope of the proceeding to include a full consideration of the issues, the State Engineer clearly  
4 violated due process. Both the notice and the hearing procedures employed failed to comport  
5 with due process.

6 **E. In Subjecting the LWRFS to Conjunctive Management and Joint**  
7 **Administration, the State Engineer Engaged in Ad Hoc Rulemaking.**

8 The decision to subject the LWRFS to conjunctive management and joint  
9 administration constituted ad hoc rulemaking because it imposed a standard of general  
10 applicability to the LWRFS and water rights therein with far-reaching consequences such that  
11 it could only legitimately be made in a rulemaking.

12 The Nevada Administrative Procedure Act defines a regulation as an “agency rule,  
13 standard, directive or statement of general applicability which effectuates or interprets law or  
14 policy, or describes the organization, procedure[,] or practice requirements of any agency.”  
15 NRS 233B.038. The Nevada Supreme Court has distinguished interpretive rulings from  
16 regulations by evaluating the significance and breadth of the policy concern at issue. In  
17 *Public Service Commn v. Southwest Gas Corp.*, the Public Utilities Commission used a utility  
18 rate increase case as a forum for imposing a new rate design affecting the manner in which  
19 public utilities charged various categories of customers. 99 Nev. at 270-71, 772 P.2d at 625.  
20 The Nevada Supreme Court held that the commission engaged in rulemaking despite the fact  
21 that the order specifically applied to Southwest Gas, because it “is of such major policy  
22 concern and of such significance to all utilities and consumers that it cannot be characterized  
23 as a simple adjudication in a contested case . . . .” *Id.* at 273, 772 P.2d at 627.

24 The State Engineer’s decision to subject the LWRFS to conjunctive management and  
25 joint administration is clearly a decision of “major policy concern.” Not only did the decision  
26 re-prioritize the water rights across multiple hydrographic basins, but it will necessarily result  
27 in complex and controversial management decisions going forward. To this point, since  
28 issuing Order 1309, the State Engineer has held one workshop and tentatively scheduled three

1 others to “work toward community and stakeholder derived solutions” to the management  
2 challenges in the LWRFS. The State Engineer has identified a number of potential options for  
3 addressing the management challenges including the most severe water management tools in  
4 Nevada law, “Reduction of active groundwater rights through relinquishments, cancellation,  
5 forfeiture, abandonment” and potentially establishing a “Critical Management Area  
6 Designation pursuant to NRS 533.110(7).” Request for Judicial Notice, Ex. 17. Thus, there  
7 can be no question of the significant and far-reaching consequences of the decision.

8           What’s more, the conjunctive and joint management of the LWRFS will be unique.  
9 The State Engineer has never managed multiple basins purported to be overprescribed by way  
10 of a determination that the basins be managed conjunctively or through joint administration.  
11 That the State Engineer has already acknowledged that a new “effective management scheme”  
12 is needed to address future challenges is evidence of the unique character of the regulatory  
13 approach providing further support for the conclusion that the State Engineer engaged in  
14 rulemaking. Subjecting the LWRFRS to conjunctive management and joint administration  
15 should be done, if at all, in the context of a rulemaking, not a proceeding styled as a factual  
16 inquiry into the nature of the LWRFS in connection with which the parties were prevented  
17 from fully addressing the consequences of the determination.

18           **F. The State Engineer Does Not Have Authority To Make A Ruling On The**  
19           **Federal Endangered Species Act and Failed to Provide Adequate Notice;**  
20           **Therefore, The Factual Underpinning Of The Order Is Arbitrary, Capricious, And**  
21           **The Order Was Made Upon Unlawful, Unconstitutional Procedure.**

22           Ordering Paragraph 3 states “The maximum quantity of water that may be pumped from  
23 the Lower White River Flow System Hydrographic Basin may be reduced if it is determined  
24 that pumping will adversely impact the endangered Moapa dace.” ROA 66, Ex. 1. This portion  
25 of the Order is underpinned by the following specific findings:

26           **WHEREAS**, based upon the testimony and evidence offered in response to Interim  
27 Order 1303, it is clear that it is necessary for spring flow measured at the Warm Springs  
28 West gage to flow at a minimum rate of 3.2 cfs in order to maintain habitat for the  
Moapa dace.<sup>261</sup> 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.

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

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

12 ROA 46-47, Ex. 1.

13       In other words, Ordering Paragraph 3 is based upon the State Engineer’s unauthorized  
14 and unsupported conclusion that groundwater users, the State Engineer, and the State of  
15 Nevada would be liable for a take under the Endangered Species Act (“ESA”) if flow levels at  
16 the Warm Springs West gage to flow fall below a minimum rate of 3.2 cubic feet per second  
17 (“cfs”). The ESA, of course, is a federal law, administered by the U.S. Fish Wildlife Service  
18 (“USFWS”). See ESA 16 USC § 1537a. The State Engineer has not provided (and could not  
19 provide) the basis for his authority to determine when and under what circumstances a “take”  
20 of the Moapa dace would occur.<sup>9</sup> Notably, during the hearing, the USFWS expressly *declined*  
21 to endorse the conclusions stated in the State Engineer’s findings quoted above. ROA 53140-  
22 41, Ex. 27 (Hr’g Tr. at 483:10-484:15).

23       Moreover, the State Engineer’s “factual” conclusion that “it is necessary to maintain  
24 flow at minimum rate of 3.2 cfs in order to maintain habitat for the Moapa dace” is far from  
25 “clear.” The USFWS has reached agreements with several parties for implementation of  
26 mitigation measures triggered by much lower flow rates at the Warm Springs West gage (*see*  
27 *e.g.*, ROA 10089, Ex. 10), and evidence was introduced at the Hearing of factors such as

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28 <sup>9</sup> 16 U.S.C.A. §1536, cited by the State Engineer as authority for “shared [ESA] responsibility” with the federal government, confers no authority or responsibility to States whatsoever, except in the context of consideration of *exemptions* from application of the ESA. The “shared responsibility” cited by the State Engineer is expressly referred to in the code as required cooperation between federal agencies to enforce the ESA.

1 temperature and presence of predators that may be more determinative of dace success. It has  
2 certainly not been conclusively established that groundwater pumping anywhere in the LWRFS  
3 will impact Warm Springs flows, particularly pumping in the far distal locations of Petitioners'  
4 wells. Including these findings and order in Order 1309 is a completely *ultra vires* act; nothing  
5 empowers the State Engineer to make a determination when a "take" has occurred under the  
6 ESA.

7 In addition to the State Engineer's lack of authority under the ESA, no notice was  
8 provided to the public or to the Interim Order 1303 Hearing participants that the State Engineer  
9 intended to determine the flow levels at the springs purportedly necessary to maintain the dace,  
10 that this would be a purpose of the proceeding, or that the State Engineer intended to prioritize  
11 protection of the dace over other competing uses of water resources with the LWRFS.  
12 Moreover, as discussed above, all questions of policy or procedure were off-limits during the  
13 Hearing according to the State Engineer's and Hearing Examiner's ground rules, and no  
14 opportunity has been afforded the participants to comment on such findings.

15 As a result of the lack of notice, the State Engineer failed to gather factual evidence or  
16 develop an adequate record to support his findings. Notably, the USFWS has not issued a  
17 biological opinion based on analysis of the effects on Moapa dace from groundwater pumping  
18 by users within the Garnet Valley hydrographic basin or other portions of the LWRFS beyond  
19 three specific users in Coyote Spring Valley and California Wash, and in the Muddy River  
20 Spring Area. ROA 42073-77, Ex. 19. The State Engineer, however, made no distinction  
21 regarding the location of groundwater pumping within the new administrative unit as it relates  
22 to his findings of potential take or curtailment. Yet his own findings require consideration of  
23 this factor:

24 The State Engineer finds that data support the conclusion that pumping  
25 from locations within the LWRFS that are distal from the Warm Springs area  
26 can have a lesser impact on spring flow than pumping from locations more  
27 proximal to the springs. The LWRFS system has structural complexity and  
28 heterogeneity, and some areas have more immediate and more complete  
connections than others. ... [T]here 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.

1           In short, the State Engineer has no authority to determine when and whether a “take”  
2 could occur under the ESA, failed to provide due process regarding this issue and regarding  
3 factual findings affecting the dace, and arbitrarily applied those findings to all groundwater use  
4 and users within the consolidated basin, regardless of location.

5 **IV. CONCLUSION**

6           As set forth above, in issuing Order 1309, the State Engineer failed to rely on  
7 substantial evidence, and issuing the Order was arbitrary, capricious, and an abuse of  
8 discretion. The State Engineer lacked authority for the consolidation of the hydrographic  
9 basins, violated Petitioners’ due process rights, and engaged in ad hoc rule-making. The State  
10 Engineer had no cognizable authority to determine groundwater pumping within the LWRFS  
11 would violate the Endangered Species Act. Accordingly, Petitioners respectfully request the  
12 Court grant the following relief:

13           A. That the Order be set aside in its entirety;

14           B. That, in the event Ordering Paragraph 1 stands, the State Engineer should be  
15 precluded from reordering the priority of water rights except in relation to their original  
16 hydrographic basin, unless and until and fair and defensible administrative procedure can be  
17 developed that protects the expectation of Petitioners in the security of their water rights;

18           C. That in the event any portion of the Order stands, Ordering Paragraph 2 and the  
19 related findings be stricken;

20           D. That in the event any portion of the Order stands, Ordering Paragraph 3 and the  
21 related findings be stricken;

22           E. That the Court issue such other relief as it deems necessary and proper; and  
23

24 ///

25 ///

26 ///

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///

1 F. That the Court enter judgment in favor of Petitioners and against the State  
2 Engineer, the Division of Water Resources and the Department of Conservation and Natural  
3 Resources.

4 DATED this 27th day of August, 2021.

5 MCDONALD CARANO LLP

6 By: /s/Lucas Foletta  
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**AFFIRMATION**

(Pursuant to NRS 239B.030)

The undersigned does hereby affirm that the preceding does not contain the social security number of any person.

/s/Lucas Foletta  
*SYLVIA HARRISON*  
*LUCAS FOLETTA*  
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*Attorneys for Georgia-Pacific Gypsum LLC*  
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Date: August 27, 2021

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**CERTIFICATE OF COMPLIANCE**

I hereby certify that I have read this **PETITIONER’S OPENING BRIEF IN SUPPORT OF PETITION FOR JUDICIAL REVIEW OF ORDER 1309** and to the best of my knowledge, information and belief, it is not frivolous or interposed for any improper purpose. I further certify that this brief complies with all applicable Nevada Rules of Appellate Procedure, in particular NRAP 28(e), which requires every assertion in the brief regarding matters in the record to be supported by appropriate references to the record on appeal. I understand that I may be subject to sanctions in the event that the accompanying brief is not in conformity with the requirements of Nevada Rules of Appellate Procedure.

DATED this 27th day of August, 2021.

*/s/Lucas Foletta*  
\_\_\_\_\_  
*SYLVIA HARRISON*  
*LUCAS FOLETTA*  
*SARAH FERGUSON*  
*Attorneys for Georgia-Pacific Gypsum LLC*  
*and Republic Environmental Technologies, Inc.*



**CERTIFICATE OF SERVICE**

I hereby certify, under penalty of perjury, that I am an employee of McDonald Carano LLP and that on August 27, 2021, a true and correct copy of **OPENING BRIEF IN SUPPORT OF PETITION FOR JUDICIAL REVIEW OF ORDER 1309** was electronically submitted to the Clerk of the Court via the Clark County District Court Electronic Filing Program which will provide copies to all counsel of record registered to receive such electronic notification. The parties below were also served via U.S. Mail, postage-prepaid:

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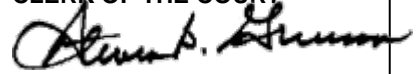
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/s/Carole Davis  
An Employee of McDonald Carano LLP

# EXHIBIT 3

# EXHIBIT 3



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14 *and Republic Environmental Technologies, Inc.*

15 **DISTRICT COURT**  
16 **CLARK COUNTY, NEVADA**

17 \* \* \* \*

18 LAS VEGAS VALLEY WATER DISTRICT,  
19 and SOUTHERN NEVADA WATER  
20 AUTHORITY,

21 Petitioners,

22 vs.

23 TIM WILSON, P.E. State Engineer, State of  
24 Nevada, Department of Conservation and Natural  
25 Resources, Division of Water Resources,

26 Respondent.

27 CASE NO.: A-20-816761-C (Lead Case)

28 DEPT. NO.: 1

**Consolidated with:**

A-20-817765-P  
A-20-818015-P  
A-20-817977-P  
A-20-818069-P  
A-20-817840-P  
A-20-817876-P  
A-21-833571-J

29 **REQUEST FOR JUDICIAL NOTICE IN SUPPORT OF OPPOSITION TO LVVWD**  
30 **AND SNWA'S MOTION FOR STAY PENDING APPEAL**

31 Georgia-Pacific Gypsum, LLC ("Georgia-Pacific") and Republic Environmental  
32 Technologies, Inc. ("Republic") (collectively, "Petitioners" or "GP-R"), by and through their  
33 counsel, Sylvia Harrison, Lucas Foletta, and Sarah Ferguson of McDonald Carano, LLP, hereby  
34 submit this Request for Judicial Notice in support of their concurrently filed Opposition to Las

1 Vegas Valley Water District’s (“LVVWD”) and Southern Nevada Water Authority’s (“SNWA”)  
2 Motion for Stay Pending Appeal (“Opposition”). Petitioners sought judicial notice of the same  
3 documents contained in this request when they filed their Answering Brief. The Court denied  
4 Petitioners’ request because the documents post-dated the State Engineer’s Order 1309, and the  
5 Court therefore found that they were not facts in issues under NRS 47.130(1). This reasoning  
6 does not apply here because this Court’s review of LVVWD’s and SNWA’s Motion for a Stay is  
7 not limited to the record on appeal, but rather requires this Court to consider current and future  
8 conditions. Thus, while this Court did not find that judicial notice was appropriate in the limited  
9 context of reviewing the State Engineer’s *previous* order, it can find that judicial notice is  
10 appropriate in the context of reviewing a *forward-looking* motion, for the reasons stated more  
11 fully below.

12 **MEMORANDUM OF POINTS AND AUTHORITIES**

13 **I. Request for Judicial Notice.**

14 Petitioners move the Court pursuant to NRS 47.150 to take judicial notice of the following  
15 publicly available documents that are cited in Petitioner’s Opposition filed concurrently herewith,  
16 incorporated by reference in the record, and germane to the issues presented in the Answering  
17 Brief:

- 18 • Screenshot of and excerpts from 2021 Annual Determination Report, prepared by  
19 Hydrologic Review Team (August 2021), publicly posted on:  
20 <http://water.nv.gov/LWRFS/Annual%20HRT%20Reports/2021%20HRT%20Annual%20Determination%20Report.pdf>, attached hereto as **Exhibit 1**;<sup>1</sup>
- 21 • Moapa Dace Numbers Tick Up Once Again, The Progress, publicly posted on  
22 <https://myprogress.com/2021/08/24/moapa-dace-numbers-tick-up-once-again/>  
and attached hereto as **Exhibit 2**.

23 **II. Legal Standard.**

24 A court must take judicial notice “if requested by a party and supplied with the necessary  
25 information.” NRS 47.150(2); *Mack v. Est. of Mack*, 125 Nev. 80, 91, 206 P.3d 98, 106 (2009).

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27 <sup>1</sup> Due to the large size of this report, Petitioners do not attach the entire report, but instead attach  
28 a screenshot showing the location of this file online, as well as relevant excerpts.

1 Facts that are subject to judicial notice “are facts in issue or facts from which they may be  
2 inferred.” NRS 47.130(1). To be judicially noticed, a fact must be “[g]enerally known” or  
3 “capable of accurate and ready determination by resort to sources whose accuracy cannot  
4 reasonably be questioned.” NRS 47.130(2); *see Mack*, 125 Nev. at 91, 206 P.3d at 106; *Sheriff,*  
5 *Clark County v. Kravetz*, 96 Nev. 919, 919, 620 P.2d 868, 869 (1980) (“[F]act, not reasonably  
6 open to dispute, should be judicially noticed.”). A court may also take judicial notice of matters  
7 of law, NRS 47.140, and certain public documents. *Andolino v. State*, 99 Nev. 346, 351, 662 P.2d  
8 631, 633-34 (1983) (courts may take judicial notice of official government publications); *Barron*  
9 *v. Reich*, 13 F.3d 1370, 1377 (9th Cir. 1994) (courts may take judicial notice of documents  
10 obtained from administrative agencies); *Greeson v. Imperial Irr. Dist.*, 59 F.2d 529, 531 (9th Cir.  
11 1932) (courts may take judicial notice of “public documents”).

12 **III. Arguments in Support of Request for Judicial Notice.**

13 The above-listed documents are appropriately subject to judicial notice because all of the  
14 documents are posted publicly on the Internet and are “capable of accurate and ready  
15 determination by resort to sources whose accuracy cannot reasonably be questioned.” NRS  
16 47.130(2). The report excerpted in Exhibit 1 is the Annual Determination Report (referred to  
17 herein as the “HRT Report”), dated August 2021, prepared by the Hydrologic Review Team  
18 established under the Memorandum of Agreement dated April 20, 2006, which included, among  
19 others, SNWA.<sup>2</sup> As illustrated by the screenshot presented as the first page in Exhibit 1, the  
20 Division of Water Resources has located the HRT Report under “News” and the folder titled  
21 “LWRFS” (*See Ex. 1 at 1*), which is publicly available online. *Andolino*, 99 Nev. at 351, 662 P.2d  
22 at 633-34; *Greeson*, 59 F.2d at 531 (9th Cir. 1932).

23 The HRT Report includes a monitoring report prepared for the Moapa Valley Water  
24 District which presents spring flow data from 2012 through calendar year 2020 and demonstrates

25 \_\_\_\_\_  
26  
27 <sup>2</sup> Other members of the Hydrologic Review Team include United States Fish and Wildlife Service  
28 (“FWS”); Coyote Springs Investment LLC (“CSI”), a Nevada limited liability company; (d) Moapa Band of Paiute Indians (“Tribe”); and (e) Moapa Valley Water District (“MVWD”), a political subdivision of the State of Nevada.

1 that spring flows in the Muddy River Springs Area are generally stable relative to the levels  
2 following the Order 1169 pumping, and in some cases are increasing, not declining. The HRT  
3 Report is the result of extensive data collection, monitoring, and other analytical activities during  
4 2020. SNWA was involved in preparing the HRT Report, yet in direct contravention of the data  
5 contained in the report it helped prepare, SNWA now attempts to argue the opposite is true in its  
6 Motion for Stay. Specifically, SNWA argues that increased pumping will cause irreparable harm  
7 to SNWA and will threaten the Moapa Dace population. (Mot. at 4-5.) The HRT Report  
8 demonstrates why SNWA’s claim of future harm is misguided and unsupported, making the report  
9 directly relevant to the facts in issue here. *See Ragland v. U.S. Bank Nat’l Assn.*, 147 Cal. Rptr.  
10 3d 41, 52 (Cal. Ct. App. 2012) (explaining that courts may take judicial notice of the existence of  
11 audit reports, websites, and blogs); *see also Sowell v. State*, No. 81586-COA, 2021 WL 978515  
12 at \*1 (Nev. App. 2021) (district court did not err in taking judicial notice of probation report).

13 Exhibit 2 is a news article published by Vernon Robison of The Progress, an  
14 independently-owned newspaper in northwest Clark County, titled *Moapa Dace Numbers Tick*  
15 *Up Once Again* (“Moapa Dace Article”). *See* Ex. 2. Citing research conducted by SNWA, US  
16 Fish and Wildlife Service (“USFWS”), and Nevada Department of Wildlife, the article concludes  
17 that the Moapa dace population has significantly rebounded since the elimination of invasive  
18 predatory species, like tilapia, from the Muddy River and tributaries where the dace populate. *Id.*  
19 As discussed in Petitioners’ Opposition, SNWA ignores its own research when it suggests that  
20 Order 1309 is the *only tool* protecting the Moapa Dace population, when in fact several factors  
21 affect the health of the Moapa Dace population. As the Moapa Dace Article shows, conservation  
22 efforts *unrelated* to spring flows and *unrelated* to the unconstitutional and unlawful Order 1309  
23 are successfully improving survival prospects for the dace population. Like the HRT Report, the  
24 article presented in Exhibit 2 supports Petitioners’ argument that SNWA’s claim for irreparable  
25 harm is unsupportable and simply incorrect given the recent research.

26 Petitioners’ request is consistent with the caselaw cited above and Nevada’s “flexible”  
27 application of the rule regarding judicial notice. *See Mack*, 125 Nev. at 91-92, 206 P.3d at 106  
28 (explaining that the rule for judicial notice of records in related proceedings “is flexible in its

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application”). For these reasons, Petitioners request the Court take judicial notice of Exhibits 1 and 2 of this Motion.

**AFFIRMATION**

Pursuant to NRS 239B.030, the undersigned do hereby affirm that the preceding document does not contain the personal information of any person as defined in NRS 603A.040.

DATED this 9th day of May, 2022.

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**INDEX OF EXHIBITS**

<b>EXHIBIT #</b>	<b>DESCRIPTION</b>	<b>NUMBER OF PAGES</b>
1	Excerpts from 2021 Annual Determination Report (including screenshot of file on DWR website)	26
2	Moapa Dace Numbers Tick Up Once Again	4

**CERTIFICATE OF SERVICE**

I hereby certify, under penalty of perjury, that I am an employee of McDonald Carano LLP and that on May 9, 2022, a true and correct copy of REQUEST FOR JUDICIAL NOTICE IN SUPPORT OF OPPOSITION TO LVVWD AND SNWA’S MOTION FOR STAY PENDING APPEAL was electronically submitted to the Clerk of the Court via the Clark County District Court Electronic Filing Program which will provide copies to all counsel of record registered to receive such electronic notification. The parties below were also served via U.S. Mail, postage-prepaid:

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/s/Carole Davis  
An Employee of McDonald Carano LLP

EXHIBIT 1

EXHIBIT 1



# State of Nevada Division of Water Resources

Site Search

## News

Recent	General	Recent Presentations	Hearings, Adjudications, and Orders	Well Driller and Surveyor News	Water Right
Humboldt Announcements	Humboldt Orders	Humboldt Presentations	Walker River Curtailment	Diamond Valley GMP	LWRFS
AB 62 Regulations	Order 1307	Proposed Orders	NSC Water Law Commission	Hearings Exhibits	

/LWRFS/Annual HRT Reports

- LWRFS
  - Annual HRT Reports
    - 2021 HRT Annual Determination Report.pdf
    - HRT Report 2007\_Baseline Pumping Report.pdf
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  - Order 1309
  - Public Meetings
  - Rulings
  - Written Public Comment

2006 Memorandum of Agreement

# Hydrologic Review Team

## 2021 Annual Determination Report

August 2021



# 2021 Annual Determination Report

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## Introduction

This Annual Determination Report, dated August 2021, was prepared by the Hydrologic Review Team (HRT) established under the Memorandum of Agreement (MOA) dated April 20, 2006, among: (a) Southern Nevada Water Authority (SNWA), a political subdivision of the State of Nevada; (b) United States Fish and Wildlife Service (FWS); (c) Coyote Springs Investment LLC (CSI), a Nevada limited liability company; (d) Moapa Band of Paiute Indians (Tribe); and (e) Moapa Valley Water District (MVWD), a political subdivision of the State of Nevada (MOA Signatories). This report was prepared in accordance with requirements set forth in Section 6(d) and 6(e) of the MOA.

## 2021 Annual Determination

The HRT recommends no change to the pumping restrictions set forth in the MOA at this time. Extensive data collection and analytical efforts have occurred since 2006 when the MOA was signed, including the completion of the Order 1169 Study and subsequent data collection and analyses presented during the NSE Lower White River Flow System administrative hearing in September 2019. The MOA Signatories are continuing to work to refine and share their analyses with the goal of furthering the objectives of the MOA and protecting the Moapa dace.

The MOA Signatories have also unanimously agreed that inclusion of the very lengthy Regional Baseline Pumping Report, completed by the HRT in October 2007, as an appendix to the Annual Determination Report is unnecessary, notwithstanding Section 6(e) of the MOA, because the Regional Baseline Pumping Report is a public document available upon request.

## Objectives of the HRT

The objectives and responsibilities of the HRT are set forth in Section 6(b) of the MOA, which states:

*The objectives of the HRT shall be: (1) to identify opportunities and make recommendations for the purpose of coordinating and ensuring accuracy, consistency and efficiency in monitoring, other data collection, and analytical activities performed under the Regional Monitoring Plans; (2) to establish technically sound analyses of impacts on Muddy River Springs and Muddy River flows resulting from regional groundwater pumping; (3) to assess based thereon whether the pumping restrictions, but not the Trigger Ranges, under paragraphs I(5)(c) through (g) above (or any successors thereto) should be adjusted to better reflect the extent to which regional groundwater pumping by the respective Parties causes, or is likely to cause, impacts on Muddy River Springs and Muddy River flows;*

and (4) to adopt by consensus appropriate adjustments to such restrictions, if warranted.

## Purpose of Annual Determination Report

Sections 6(d) and 6(e) of the MOA state the purpose and guidelines for the Annual Determination Report:

*d. Annual Determination. Based on the Regional Baseline Pumping Analysis, and no later than one year after preparation of that analysis and annually thereafter, the HRT shall endeavor to determine by consensus ("Annual Determination") whether the groundwater pumping restrictions, but not the Trigger Ranges, under paragraphs I(5)(c) through (g) above (or any successors thereto) should remain in place, or whether and how any of such restrictions should be adjusted ("Pumping Restriction Adjustments") to better reflect the extent to which regional groundwater pumping by the respective Parties causes, or is likely to cause, impacts on Muddy River Springs and Muddy River flows. However, no Pumping Restriction Adjustments will be made within the first five years following the Effective Date of this MOA. All Annual Determinations (including any Pumping Restriction Adjustments adopted by HRT consensus) shall be final and binding on all Parties, except that by consensus the HRT may at any time modify or vacate any Annual Determination.*

*e. Annual Determination Reports. Each Annual Determination shall be set forth and explained in a written Annual Determination Report which includes as appendices the Regional Baseline Pumping Analysis, all previously submitted Annual Technical Representative's Reports, and any other data or analytical materials considered by the HRT. If the Annual Determination is not made due to lack of consensus or any other reason, the positions thereon of the HRT Representatives shall be set forth and explained in the Annual Determination Report. Furthermore, if the HRT fails to adopt Pumping Restriction Adjustments recommended in a timely submitted Annual Technical Representative's Report, the Annual Determination Report shall briefly explain why such recommendation was not adopted.*

## HRT Calendar Year 2020 Activities

The MOA Signatories continue to collect and share groundwater level, spring/stream discharge, precipitation and pumping data to monitor and allow for interpretation of hydrologic changes related to groundwater pumping in fulfillment of Section 6(b) of the MOA. Data collected and available in calendar year 2020 (described in the next section) met Nevada Division of Water Resources (NDWR) water-right permit requirements and/or the provisions of the MOA.

A representative of the office of the NDWR typically attends HRT meetings. The participants share data and information and discuss trends and analyses with each other and the NDWR.



## Hydrologic Monitoring Activities

Table 1 lists the frequency of groundwater level, spring/stream discharge, and precipitation data collected for monitoring sites that were available to the HRT for review and interpretation during calendar year 2020, including data collected and reported by others. The monitoring locations are depicted on Figure 1. Groundwater level data collected at these sites were submitted to NDWR and are available on the NDWR website at <http://water.nv.gov/mapping/order1169/>. The spring and stream discharge data collected by the U.S. Geological Survey are available at <http://waterdata.usgs.gov/nv/nwis/current/?type=flow>, with the exception of discharge data collected by MVWD at Jones and Baldwin springs, which are available on the NDWR website.

Additional groundwater level data not listed in Table 1 are available for review on the NDWR website for broader regional interpretations.

Much of the monitoring by the MOA signatories for specific water-right permits is part of a larger monitoring program administered by NDWR. This program was updated in 2020. Appendix A outlines the locations and frequency of monitoring required by NDWR as of 2020.

The SNWA and MVWD submitted calendar year 2020 annual monitoring reports to the NDWR which document and summarize the groundwater level, precipitation, production and streamflow data collected by these agencies. These reports are included in Appendices B and C.

## Groundwater Rights and Pumping

Groundwater rights subject to curtailment under the MOA are in Coyote Spring Valley (hydrographic area [HA] 210) and California Wash (HA 218) in the volumes listed below. These volumes represent potential pumping from the regional carbonate-rock aquifer.

CSI	4,140 afy Coyote Spring Valley
SNWA	9,000 afy Coyote Spring Valley
Tribe	2,500 afy California Wash

Actual development of the rights has varied over time. In 2020, a small fraction of the permitted rights was utilized to pump groundwater from the carbonate-rock aquifer. The SNWA, MVWD, CSI, and Tribe reported production data to the NDWR quarterly. Figures 2 through 5 depict the groundwater produced by CSI, SNWA and the Tribe from the carbonate-rock aquifer in Coyote Spring Valley and California Wash. Figures 6 and 7 depict groundwater production by MVWD in Muddy River Springs Area (HA 219).

**MUDDY SPRINGS AREA MONITORING REPORT  
FOR JANUARY 2020 THROUGH DECEMBER 2020**



**Prepared for:  
Moapa Valley Water District  
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In cooperation with:  
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National Park Service

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## INTRODUCTION

In January 1996, the Moapa Valley Water District (MVWD) submitted the Muddy Springs Area Monitoring Plan to the Nevada Division of Water Resources for approval. This plan was prepared in cooperation with the U.S. Department of Interior's National Park Service, U.S. Fish and Wildlife Service (USFWS), and Nevada Energy (formerly Nevada Power Company). In September 1997, the plan was approved by the Nevada State Engineer. In 2002, the plan was revised to change some trigger levels and monitoring frequencies. This report covers the results of monitoring for the calendar year of 2020.

The locations of monitoring sites are shown in Figures 1 and 2. Table 1 provides summary information on the baseline discharge rates for springs and baseline water levels for monitoring wells. Included in Table 1 are the trigger levels that were developed as part of the monitoring effort. Initial trigger levels were established that, if reached, would lead to the notification of each cooperating organization so that the cause of the spring discharge or water level decline could be determined along with the appropriate actions. Mitigation trigger levels were also established for each monitoring station; if these levels are reached, mitigation measures can be implemented following approval by the cooperating organizations. Pursuant to a request by the U.S. Fish and Wildlife Service, the trigger levels were modified in March 1999 to establish a less arbitrary set of action levels.

## SPRING DISCHARGE AND TEMPERATURE MONITORING

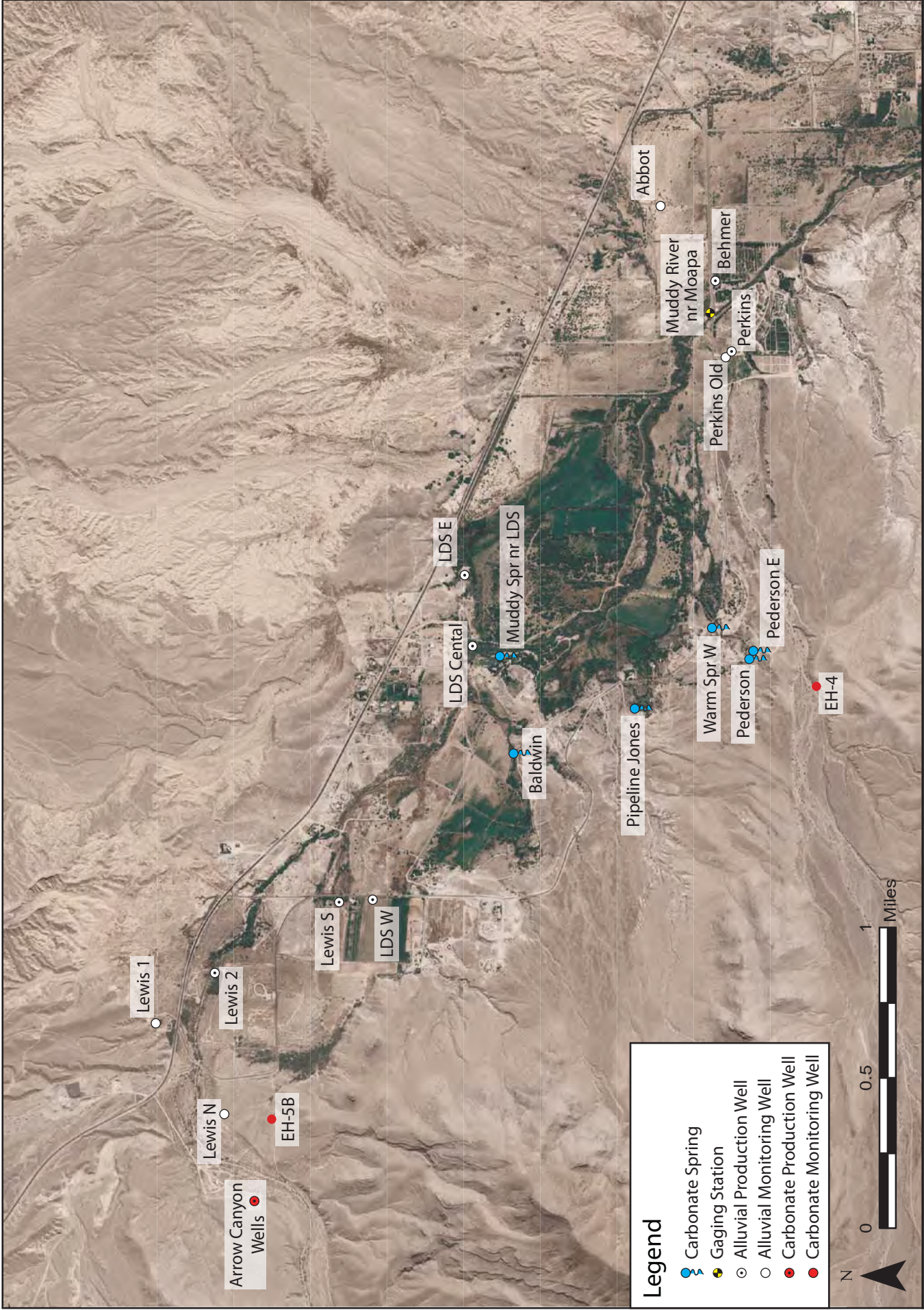
The USFWS monitors discharge at Pederson Spring and Warm Springs West and temperature at Pederson Spring. Final discharge data for Pederson Spring, Pederson East Spring, Warm Springs West and Muddy Spring at LDS were obtained from the USGS for the period of January 1, 2020 to December 31, 2020. Changes in spring discharge since the completion of the Order 1169 pumping test, December 31, 2012, are summarized in Table 2.

### *Pederson Spring*

The Pederson Spring gage was damaged in the fire of 1994 and the reliability of the discharge records was subsequently brought into question after the disturbance caused by the mechanical removal of palm trees around the station. The gage was replaced, and other restoration activities were completed in April 2004. In addition, a gage was installed at the Pederson East Spring. Beginning in May 2004, records for this new location became available and are evaluated along with the information from springs with longer periods of record.

The long-term discharge records for Pederson Spring and Pederson East Spring are shown on Figure 3. During 2020, the daily discharge at Pederson Spring ranged from 0.07 to 0.16 and averaged 0.12 cfs. There is no discharge trigger level for Pederson Spring.

At Pederson East Spring, the discharge ranged between 0.10 to 0.16 cfs. The average for the year was 0.13 cfs. There are no trigger levels associated with this spring gage. The record for both Pederson East and Pederson Spring showed a decrease in discharges in 2012/2013. The declines in discharge at both Pederson Springs can most likely attributed to the Southern Nevada Water Authority (SNWA) pumping test of MX-5 that began in fall 2010, since MVWD diversions have changed comparatively little (see Figure 9). Discharge shows a recovery trend from the pumping test beginning in late 2013.

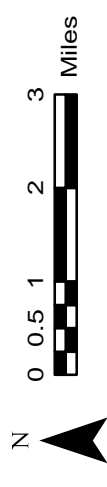
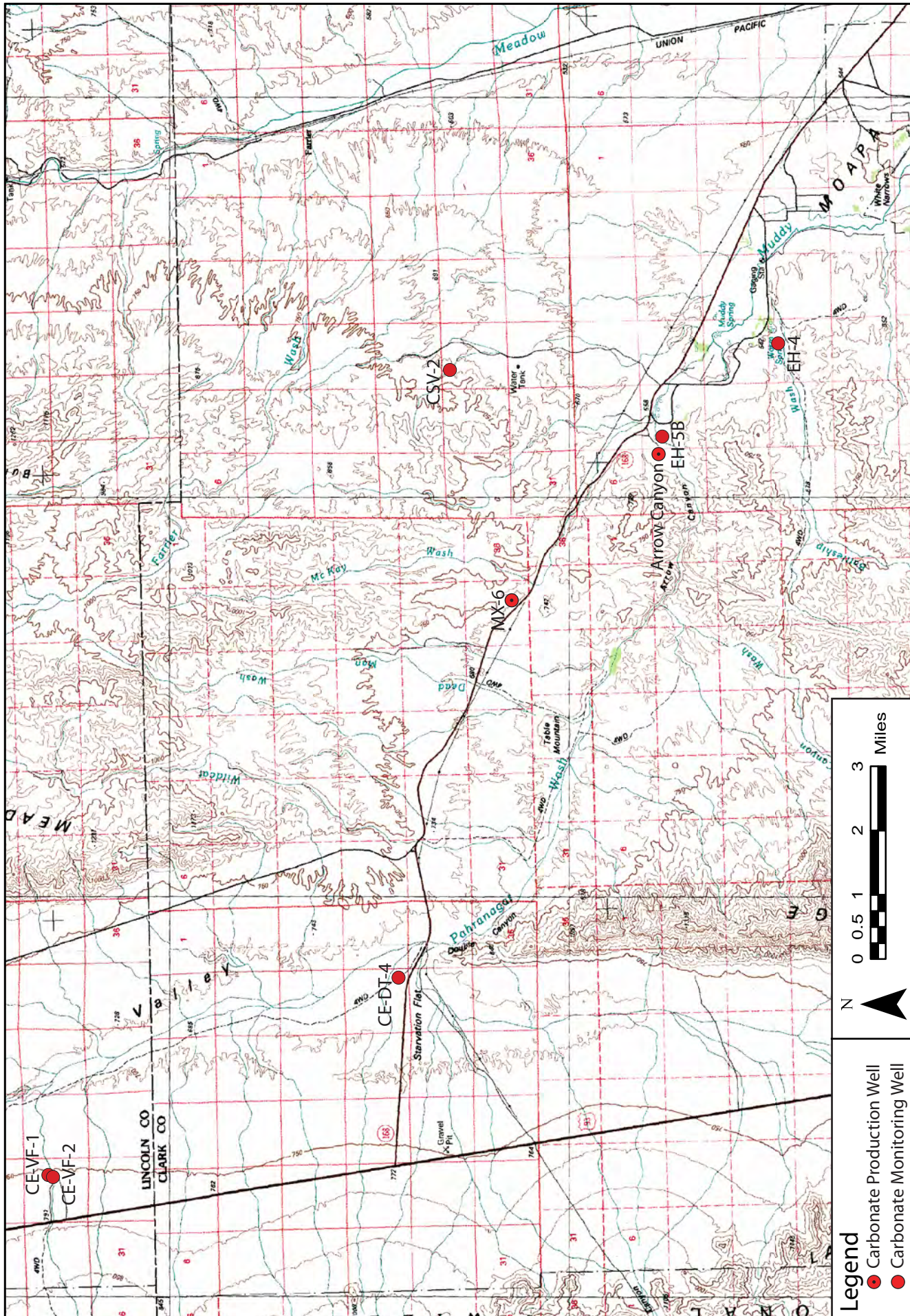


### Muddy Springs Area Annual Monitoring Report

Figure 1: Location of Alluvial & Carbonate Wells, Carbonate Springs, and River Gage within ~2.5 Miles of the Moapa Valley National Wildlife Refuge



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- Legend**
- Carbonate Production Well
  - Carbonate Monitoring Well

**Muddy Springs Area Annual Monitoring Report**  
 Figure 2: Location of Carbonate Production and Monitoring Wells in Muddy River and Coyote Springs Valley Area



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**Table 1. Baseline conditions and trigger levels**

Spring or Well or River		Source Aquifer	Baseline Conditions Discharge or Minimum Water Level ( <b>cfs</b> or <i>ft bls</i> )		Upstream Diversions	Transmission Losses	Trigger Levels (cfs, degrees C, or ft below land surface)	
			30-day min	annual mean			Initial	Mitigate
Baldwin Spring	S	Carbonate	n/a	n/a	No	No	none	none
Pipeline Jones Spring	S	Carbonate	n/a	n/a	No	No	none	none
Muddy Spring	S	Carbonate	6.43	7.38	Yes	Yes	5.79 (60 days)	5.14 (30 days)
Pederson Spring	S	Carbonate	n/a	n/a	No	No	30°C (60 days)	28°C (30 days)
Warm Spring West	S	Carbonate	3.14	3.59	No	Yes	3.17 30°C (60 days)	2.94 28°C (30 days)
Muddy River at Moapa	R	n/a	28.0	42.7	Yes	Possible Seasonal	30.3 (annual)	22.4 (30-day)
EH-5B	W	Carbonate	29	n/a	n/a	n/a	34	39
EH-4	W	Carbonate	117	n/a	n/a	n/a	122	127
CSV-2	W	Carbonate	392	n/a	n/a	n/a	397	402
CE-DT-4	W	Carbonate	354	n/a	n/a	n/a	359	364
MX-6	W	Carbonate	n/a	n/a	n/a	n/a	tbd	tbd
Lewis 1 (Old)	W	Alluvial	40	n/a	n/a	n/a	43	50
Lewis 2	W	Alluvial	42	n/a	n/a	n/a	45	52
Lewis North	W	Alluvial	33	n/a	n/a	n/a	36	43
Perkins Old	W	Alluvial	29	n/a	n/a	n/a	32	39
CE-VF-1	W	Carbonate	550	n/a	n/a	n/a	553	560
CE-VF-2	W	Carbonate	612	n/a	n/a	n/a	615	622

n/a not available or not applicable  
tbd - to be developed, baseline data lacking

### ***Warm Springs West***

Long-term discharge records for Warm Springs West are shown in Figure 3. The discharge at Warm Springs West varied between 3.22 and 3.47 cfs during 2020. The baseline conditions for this spring are 3.14 cfs (30 day min) and 3.59 cfs (annual mean). The mean annual discharge for the period was 3.35 cfs.

### ***Muddy Spring***

The long-term discharge records for Muddy Spring near LDS are shown in Figure 3. The discharge at Muddy Spring ranged between 6.73 and 8.25 cfs during 2020. Discharge rates during this period were all above the trigger level of 5.79 cfs. The average discharge in 2020 was 7.40 cfs.

### ***Baldwin Spring***

The District monitors monthly discharge at Baldwin Spring. During 2020, the average monthly discharge rate from the spring varied dramatically from 0.29 to 2.79 cfs and averaged 2.33 cfs. The long-term record for Baldwin Spring is shown in Figure 4. Baldwin Spring does not have a trigger level. Breaks in the record are associated with meter failures, and anomalous decreases or increases in discharge following meter replacements may represent differences in meters rather than actual changes in discharge. Due to a malfunction meter display screen, the December 2020 spring discharge was estimated from SCADA. This inconsistency in data reporting is likely responsible for the anomalously low discharge estimates in March (0.29 cfs) and April (1.34 cfs).

### ***Pipeline Jones Spring***

The District also monitored monthly discharge at Pipeline Jones Spring. The average monthly discharge rate ranged from 1.50 to 5.18 cfs with an overall average of 1.89 cfs for 2020. The March discharge estimate is likely due to malfunctioning equipment, as our records indicate the highest ever previous discharge was 2.08 cs in 1997. The Pipeline Jones Spring does not have a trigger level. The long-term record for Pipeline Jones Spring is shown in Figure 4.

### ***Rogers Spring and Blue Point Spring***

The National Park Service contracts with the USGS to monitor spring discharge rates at Rogers Spring and Blue Point Spring in Lake Mead National Recreation Area. Data for Rogers Spring were available online via the USGS Water Data for the Nation website. Rogers Spring recorded a mean discharge of 1.61 cfs in 2020, an increase in overall discharge from 1.53 cfs in 2019. Blue Point Spring showed a brief peak in discharge in early 2011 after which discharge declined below the long-term average (Appendix 3). However, since 2015, discharge was steadily increasing toward the mean. In 2020, average discharge again fell by nearly 10% to 0.50 cfs. Please refer to (Appendix 3) for the hydrograph of Blue Point Spring. Please note, mean annual discharge for Rogers and Blue Point Spring is not averaged over the traditional calendar year, but the USGS water year which runs from October to September.



**Table 2. Comparison of monthly average discharge at springs within Moapa Valley and the Muddy River since completion of Order 1169 pumping test on December 31, 2012.**

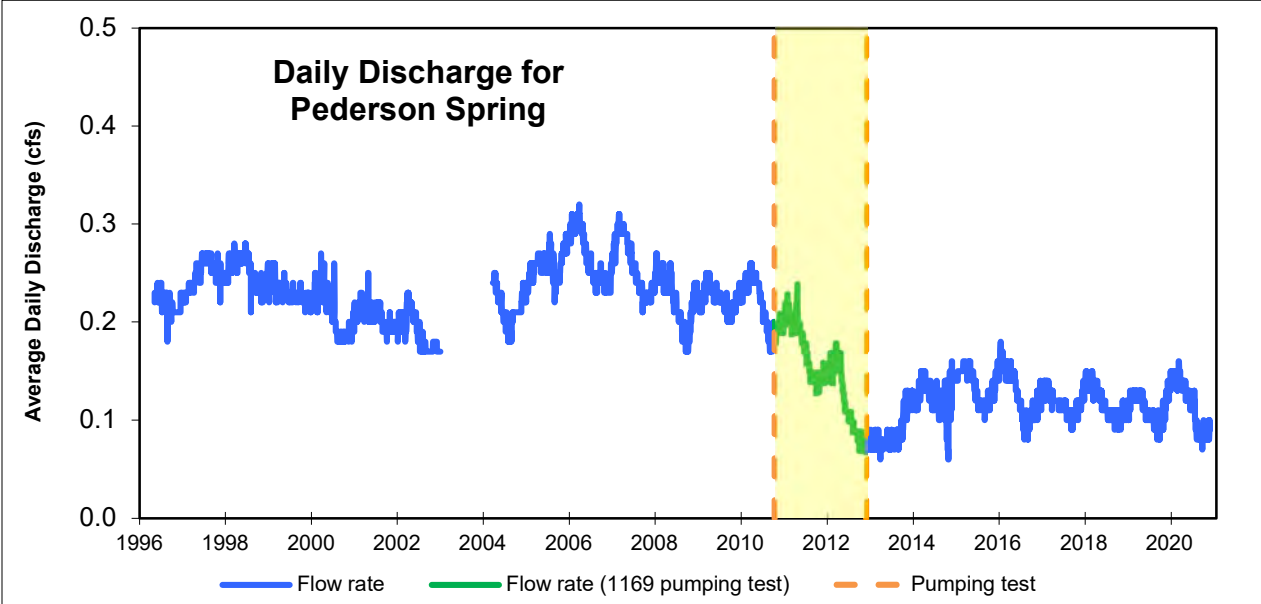
Measurement Point	Source Aquifer	Average discharge (cfs)		Δ in discharge (cfs)
		January 2013	December 2020	
Baldwin Spring	Carbonate	2.63	2.61	0.02
Pipeline Jones Spring	Carbonate	1.58	1.69	0.11
Muddy Spring	Carbonate	7.70	7.74	0.04
Pederson Spring	Carbonate	0.08	0.09	0.01
Pederson East Spring	Carbonate	0.13	0.12	0.01
Warm Spring West	Carbonate	3.40	3.25	0.15
Rogers Spring	Carbonate	1.65	1.56	0.09
Blue Point Spring	Carbonate	**0.47	***0.51	0.04
Muddy River at Moapa		43.55	44.14	0.59

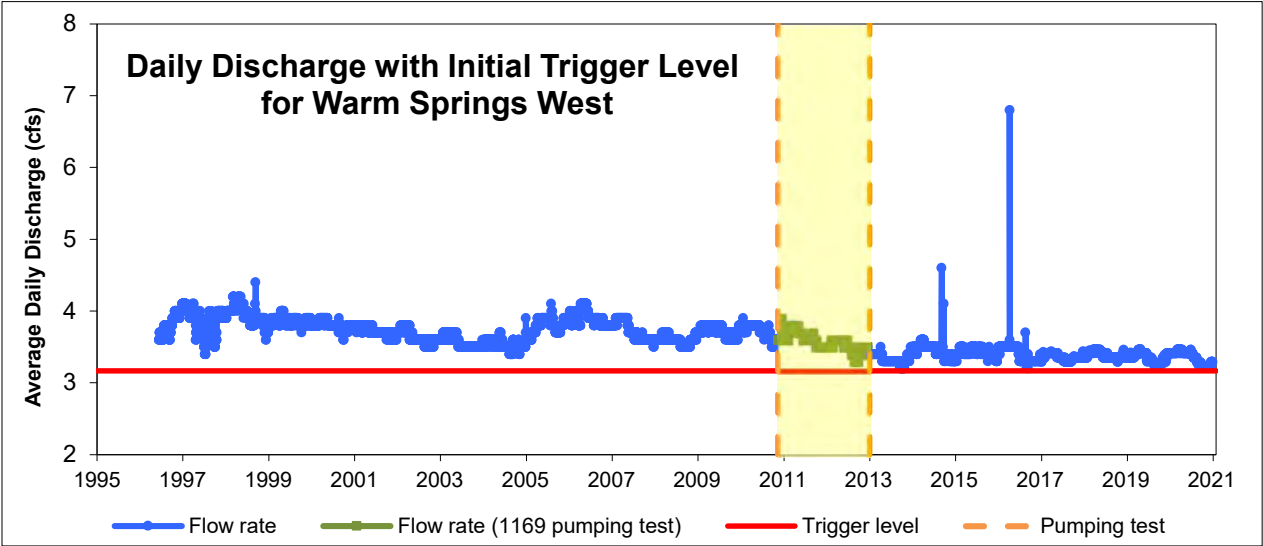
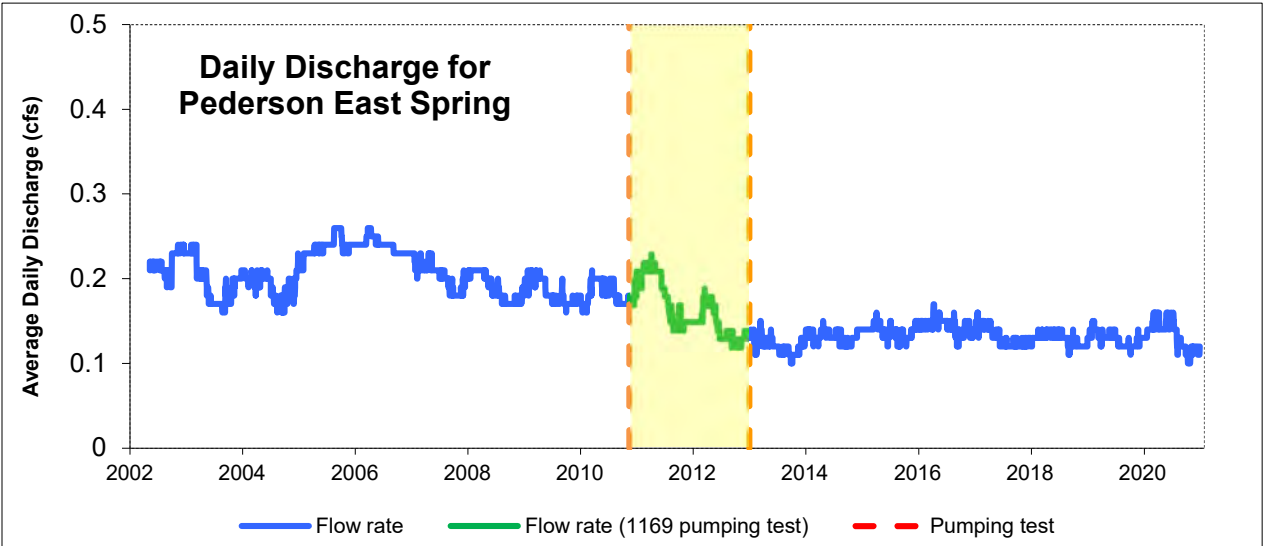
Red = decreased discharge; Green = increased discharge; Black = no change in discharge

\*Display is not working on meter – average daily discharge estimated from SCADA

\*\*Average data for January 2013 comes from measurements from January 29-31, 2013

\*\*\*December 2020 data is currently unavailable; data shown above is from September 2020, the end of the USGS water year.





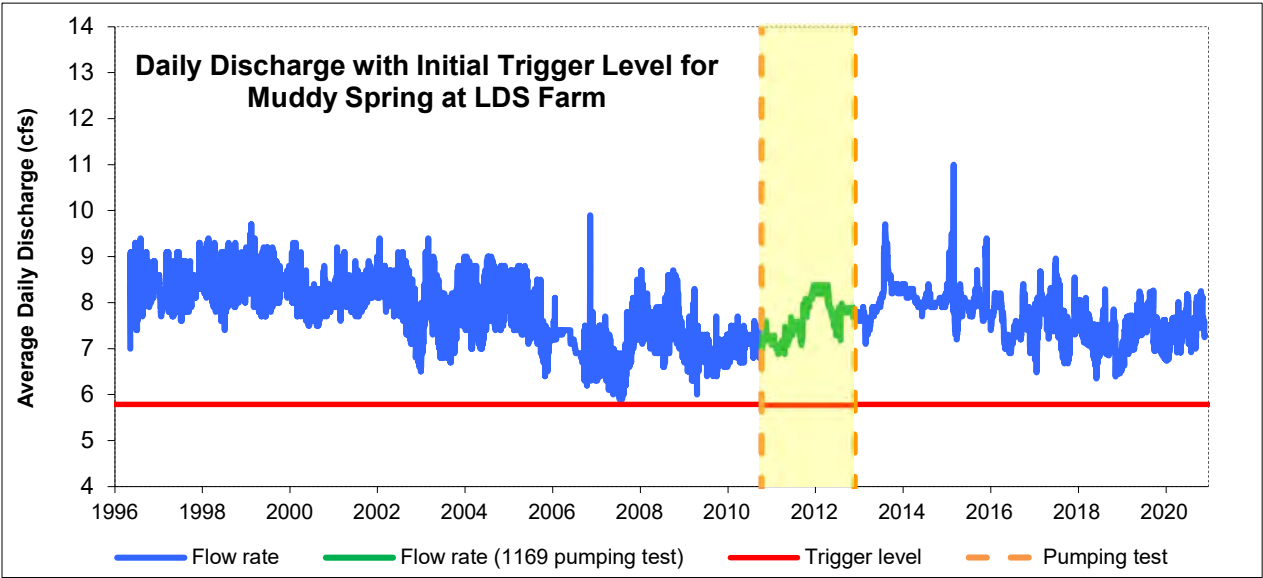
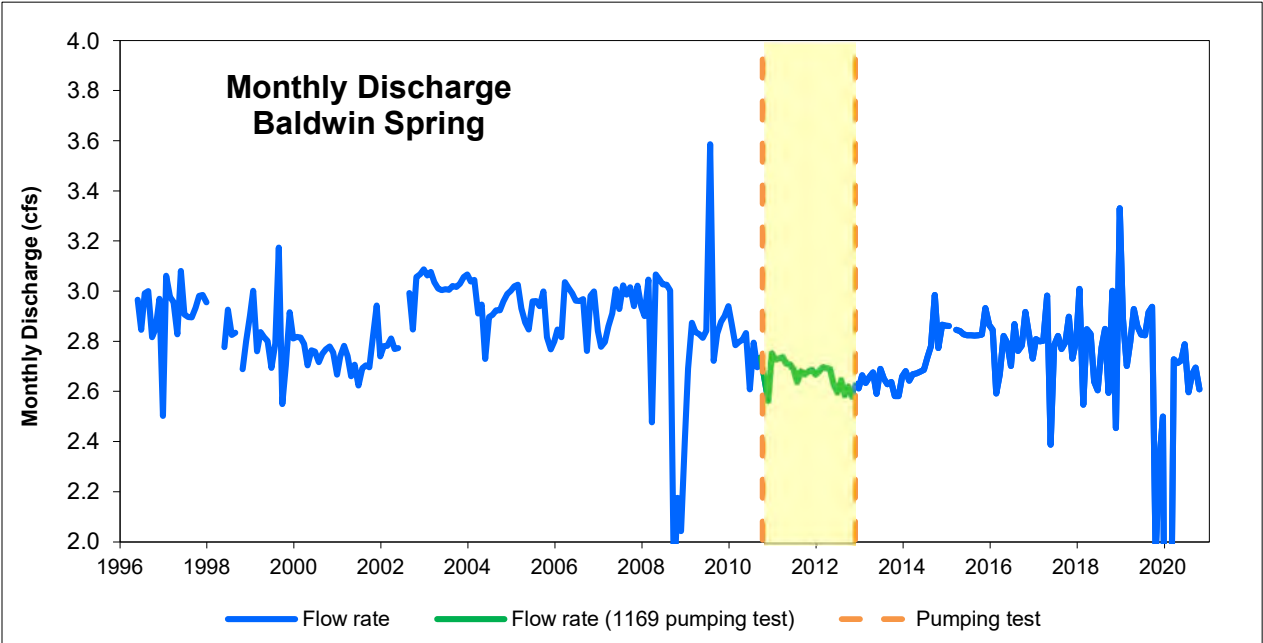


Figure 3. Daily Discharge at the Monitoring Springs.



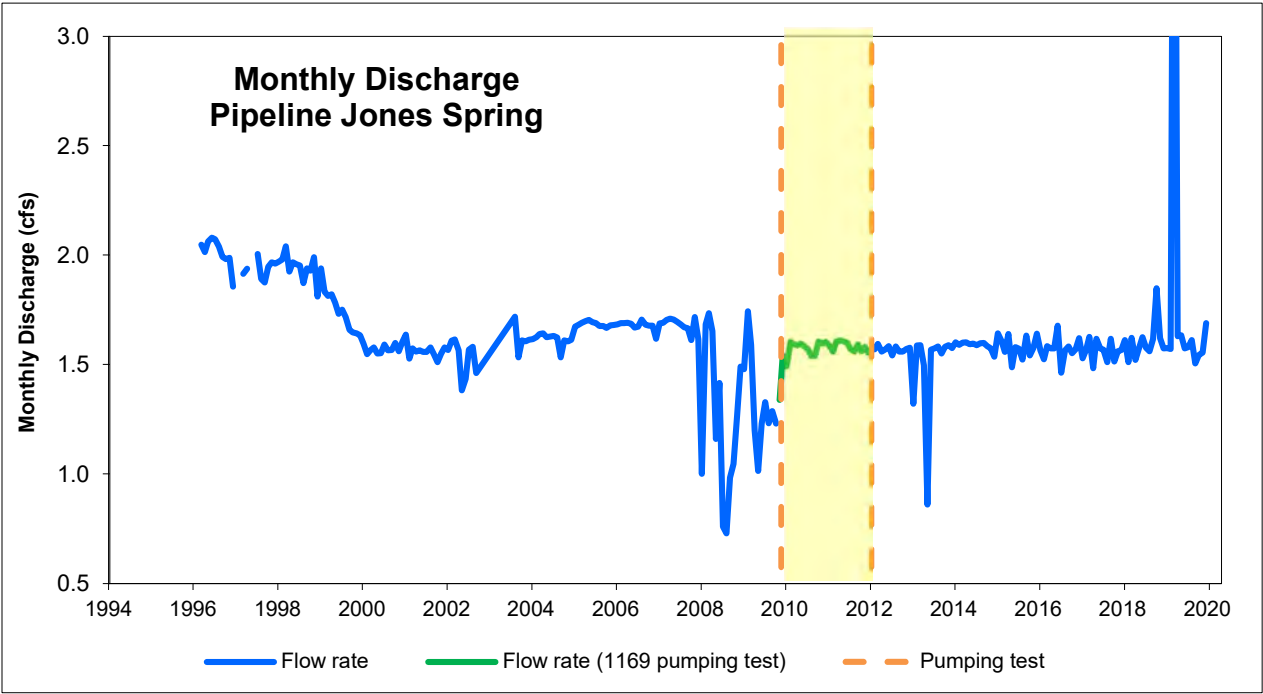


Figure 4. Discharge at Baldwin Spring and Pipeline Jones Spring

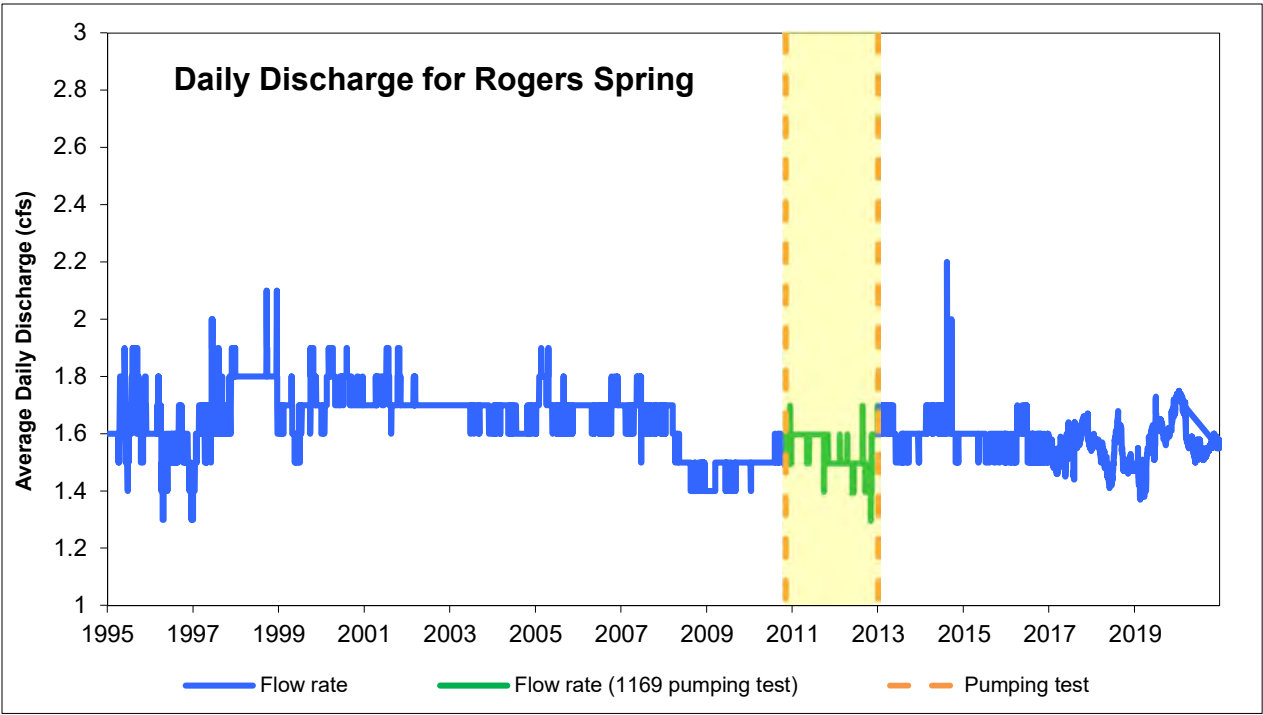


Figure 5. Discharge at Rogers Spring from the USGS website.

**WATER LEVEL MONITORING**

The District monitored water levels on a monthly basis at Arrow Canyon and MX-6 wells during 2020. NVE continued their extensive water level monitoring program and provided the monthly water level data for wells in the upper Muddy River Valley that are included within the Muddy Springs Area monitoring network. Water levels in Coyote Spring Valley at CE-DT-4 and in the Muddy Spring area at CSV-2 were obtained from the USGS website.

***Carbonate Aquifer Monitoring***

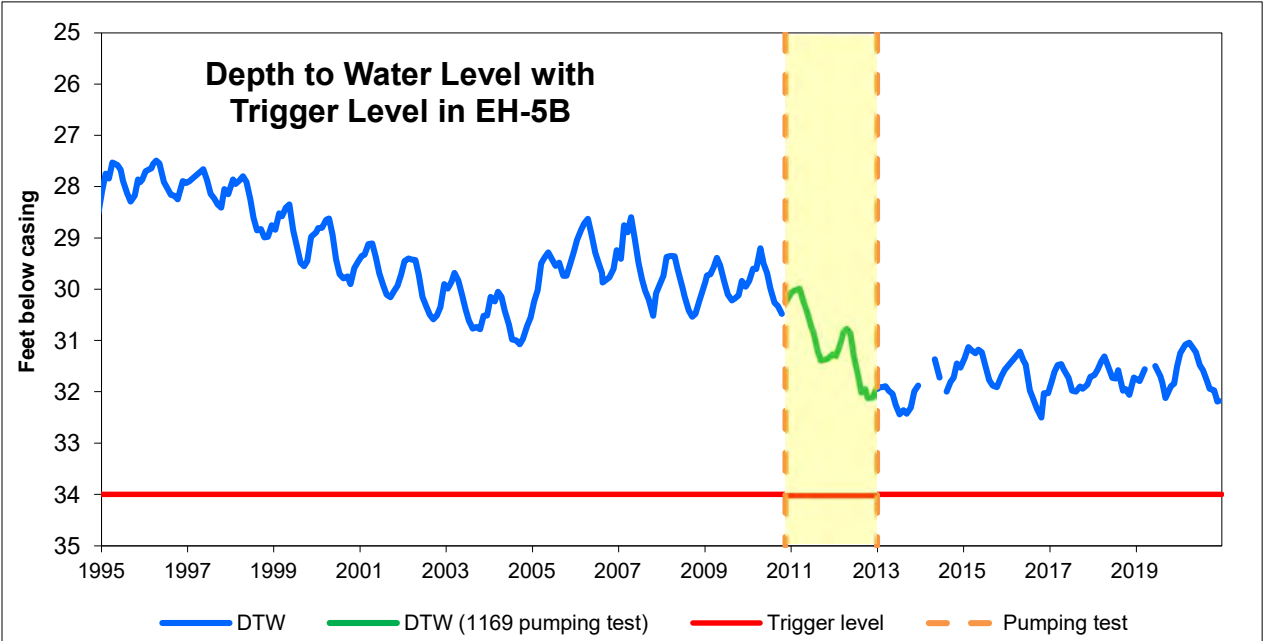
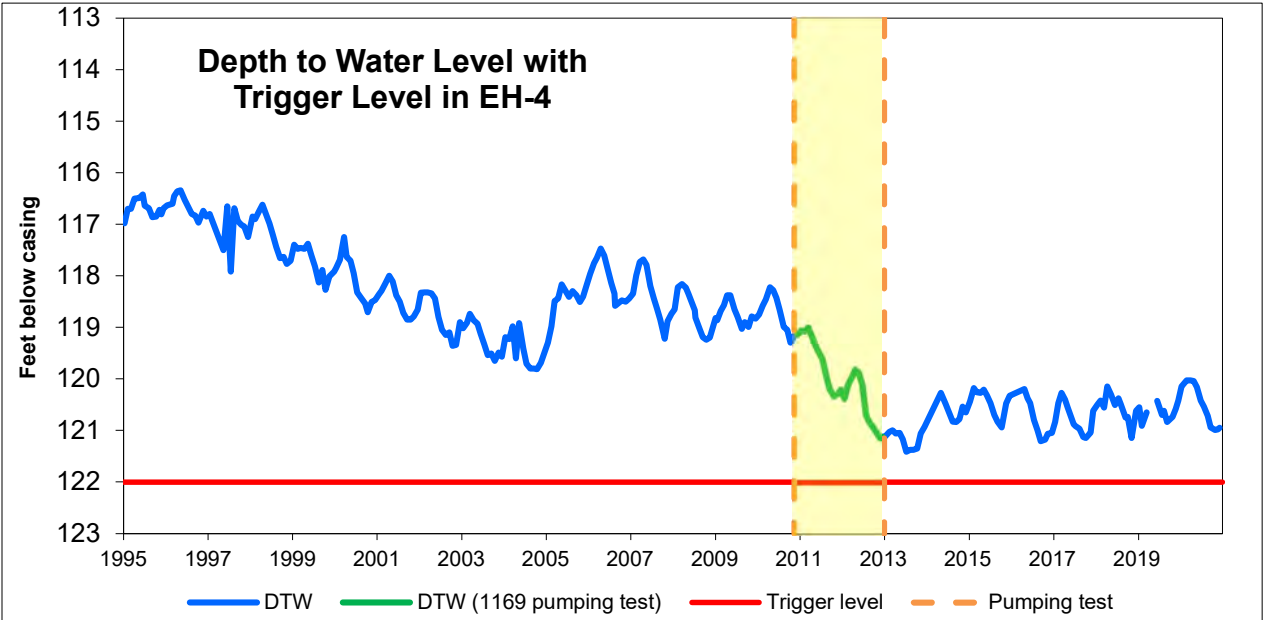
The results of monitoring of the carbonate aquifer are presented as hydrographs in Figure 6 and Table 3. Data for EH-5B and EH-4 were collected monthly by NVE, while data for CSV-2 and CE-DT-4 represent daily averages obtained from the USGS. At CE-VF-2, the USGS measured water levels approximately six times per year; the last reading available is 7/31/2009. Because of the lack of current data this well is excluded from the report.

Records for all wells showed approximately 1-foot fluctuations between the minimum and maximum depth to water. All wells had water levels above the initial trigger levels. The decline in water levels since 2010/2011 can most likely be attributed to the SNWA pumping test of MX-5 that began in fall 2010. All wells are showing signs of recovery beginning in late 2013.

**Table 3: Depth to Water Levels (ft) for Carbonate Wells in 2020.**

Well	Minimum	Maximum	Annual Average	Initial Trigger
EH-5B	31.04	32.19	31.57	34
EH-4	120.03	120.99	120.50	122
CSV-2*	394.94	396.43	395.67	397
CE-DT-4*	355.69	357.11	356.51	359

\*Values reported from USGS daily measurements.



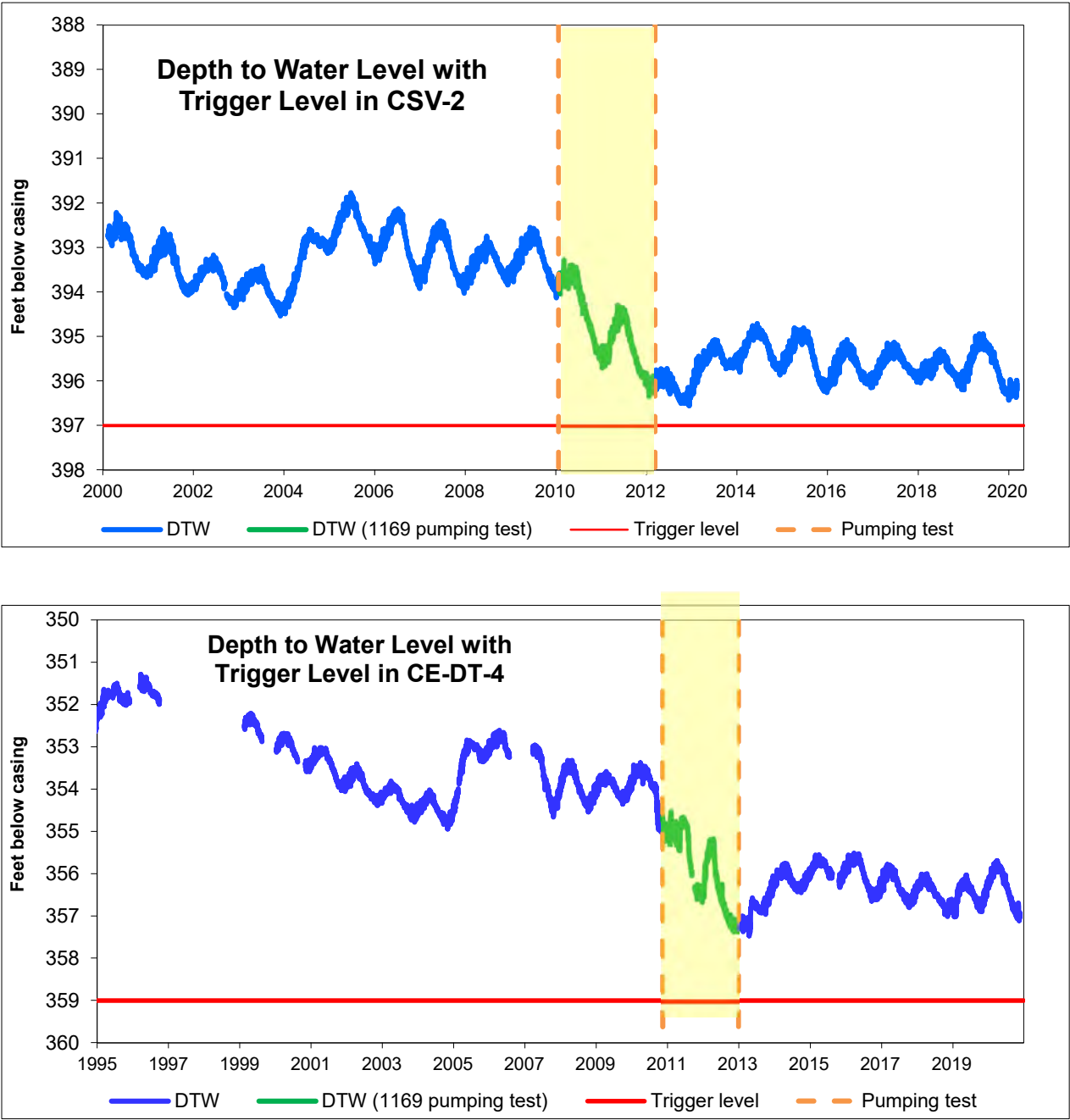


Figure 6. Hydrographs for Monitoring Wells in the Carbonate Aquifer

**Alluvial Aquifer Monitoring**

The results of monitoring of the alluvial aquifer are presented as hydrographs in Figure 7 and Table 4. These hydrographs are based on monthly water level measurements provided by NVE.

Lewis North showed greater seasonal fluctuations than in previous years. All water levels were above trigger levels. Lewis 1 & 2 had higher water levels than in 2013/2014 with lower magnitude fluctuations than in previous years. Perkins Old water levels are likely related to nearby Perkins production well withdrawals, which had increased from 2010 through 2013, but dropped in 2014. There has been no production from the Perkins well field since late 2017. Overall, the recovery of

the alluvial water levels is likely related to reduced pumping from the aquifer by NVE, as shown by Figure 7.

**Table 4: Depth to Water Levels (ft) for Alluvial Wells in 2020.**

Well	Minimum	Maximum	Annual Average	Initial Trigger
Lewis N.	34.15	35.56	34.91	36
Lewis 1 (Old)	29.36	31.12	30.33	43
Lewis 2	28.15	29.91	29.16	45
Perkins Old	20.23	23.31	21.94	32

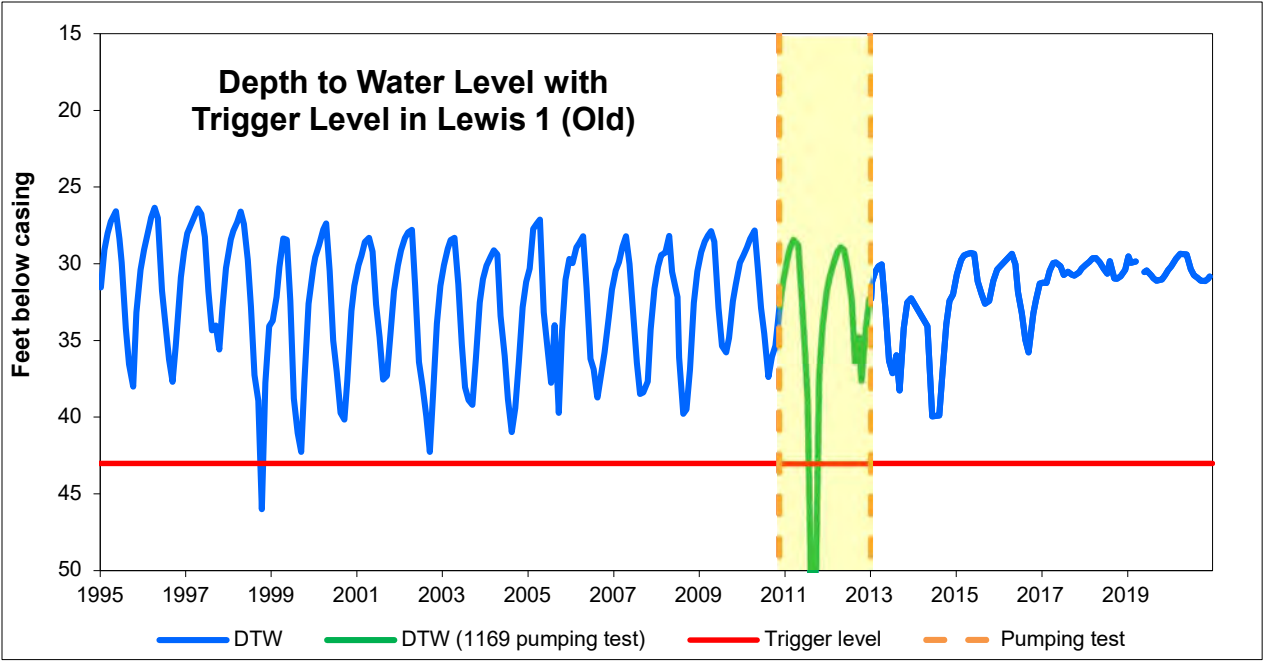
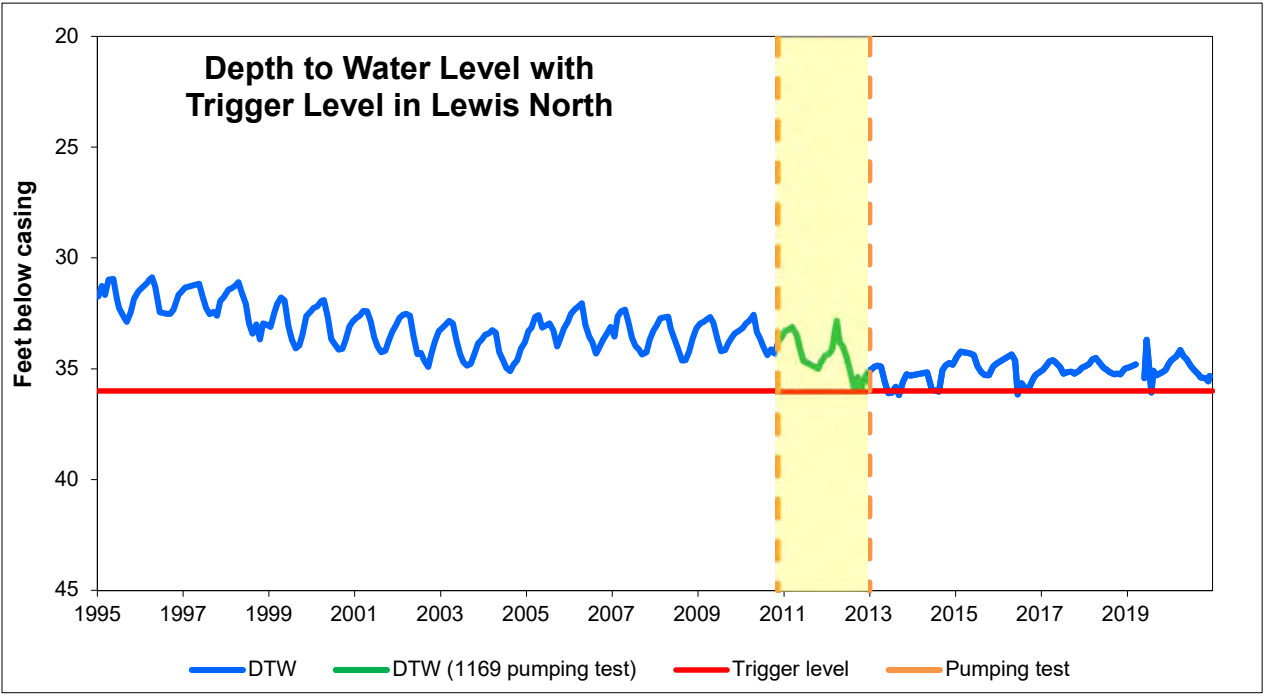
**Table 5. Comparison of monthly depth to water (DTW) measurements for carbonate and alluvial wells within Moapa Valley since completion of Order 1169 pumping test on December 31, 2012.**

Measurement Point	Source Aquifer	Depth to Water (ft)		Δ in depth to water (ft)
		January 2013	December 2020	
EH-5B	Carbonate	31.93	32.18	0.25
EH-4	Carbonate	121.11	120.95	0.16
CSV-2	Carbonate	396.01	*396.19	0.18
CE-DT-4	Carbonate	357.20	356.97	0.23
Lewis N.	Alluvial	35.07	35.32	0.25
Lewis 1 (Old)	Alluvial	31.74	30.84	0.90
Lewis 2	Alluvial	29.87	29.46	0.41
Perkins Old	Alluvial	39.78	21.84	17.94

Red = lower ground water level; Green = higher ground water level; Black = no change in water level

\*Data only available through November 23, 2020





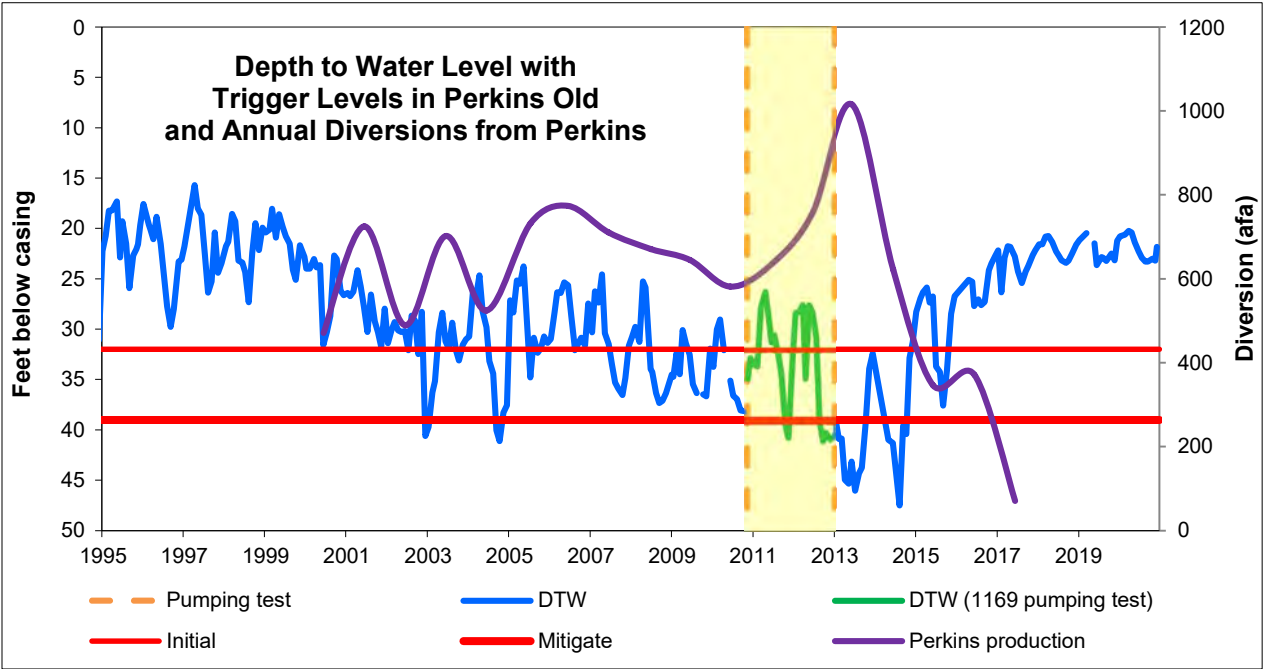
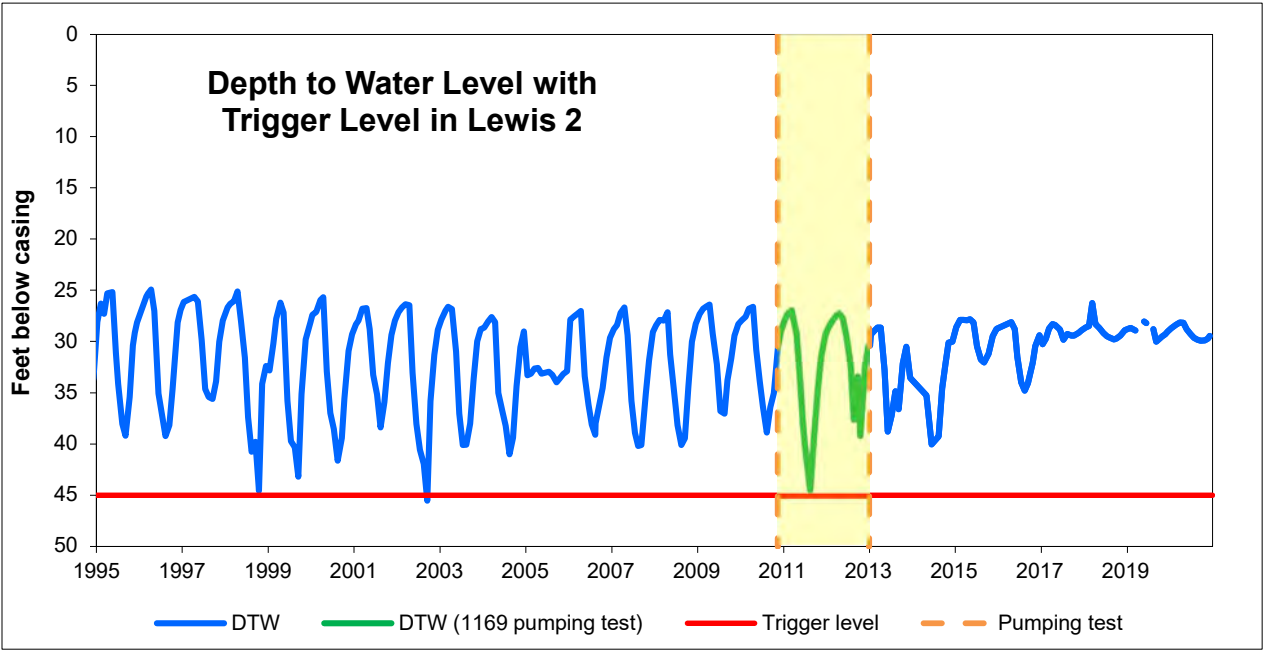
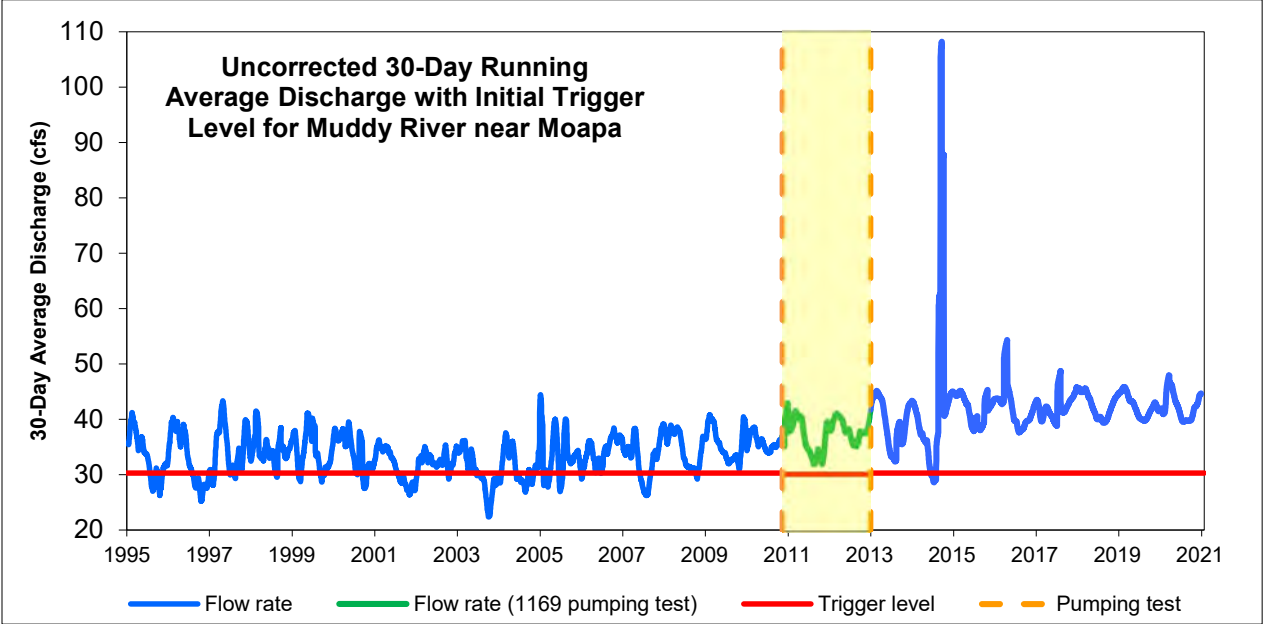


Figure 7. Hydrographs of Monthly Water Levels for Monitoring Wells in the Alluvial Aquifer

**RIVER DISCHARGE MONITORING**

The USGS continued monitoring the daily discharge of the Muddy River at the gage near Moapa (USGS 09416000 MUDDY RV NR MOAPA, NV). During 2020, the minimum unadjusted 30-day average discharge rate was 39.55 cfs, well above the mitigating trigger of 22.4 cfs (Figure 8). The annual average unadjusted discharge was 42.39 cfs, above the respective trigger level of 30.30 cfs. Because these discharges were already above the trigger levels, no adjustments were made.



**Figure 8. Thirty-day Running Average Discharge for the Muddy River near Moapa Uncorrected for Upstream Diversions**

**PRECIPITATION MONITORING**

The District continued Sheep Range precipitation measurements in 2020, and data for 2019/2020 is shown in Table 6.

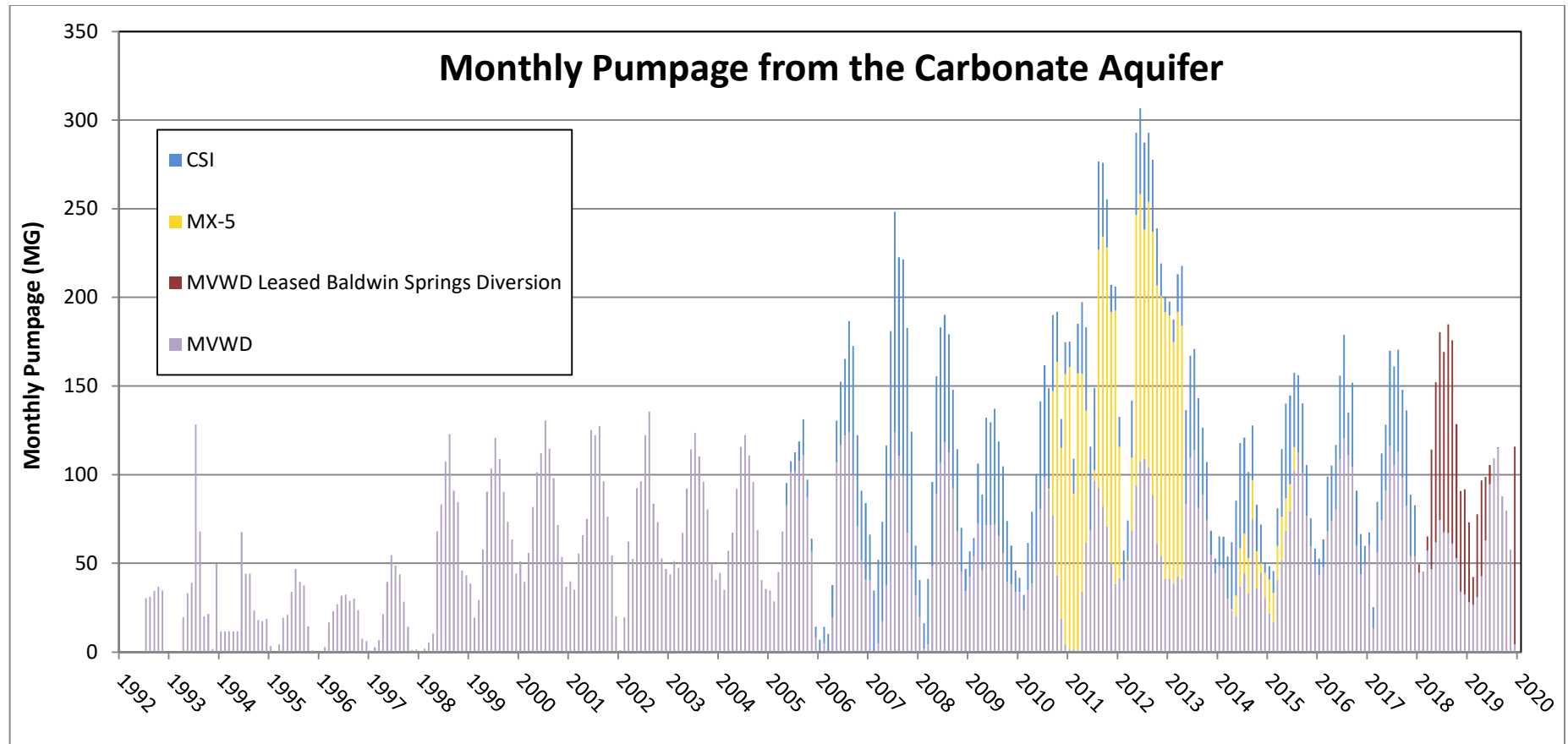
**Table 6: Sheep Range precipitation data collected by the Moapa Valley Water District (in.)**

2019						2020					
Elevation (ft)						Elevation (ft)					
Date	4000	5000	6000	7000	8000	Date	4000*	5000	6000	7000	8000**
4/23/2019	5.51	5.1	0	0.64	0						
8/30/2019	2.14	0	5.2								
10/2/2019	1.7	3.7	4.5	4.45	2.45	6/9/2020	0	6.67	7.29	8.68	3.19
						7/10/2020	0	0	0		
						10/15/2020	0	0	^	7.40	^
<b>Total</b>	9.35	8.8	9.7	5.09	2.45	<b>Total</b>	0	6.67	7.29	16.08	3.19

\*Swapped out display; \*\*Need to take bigger pack to bring old gauge back from 8000' gauge;  
 ^Dead batteries

**GROUND WATER WITHDRAWALS**

Ground water withdrawals from the carbonate aquifer from the Southern Nevada Water Authority (SNWA), Coyote Springs Investment, LLC (CSI), and MVWD are shown in Figure 9. Total MVWD diversions for 2020 are shown in Table 7. Historic diversions from MVWD are shown in Table 8.



**Figure 9: Carbonate pumpage (millions of gallons) from the Carbonate Aquifer in the Muddy River and Coyote Springs Valley by the District (MVWD), Coyote Springs Investment, LLC (CSI) and Southern Nevada Water Authority (MX-5). 2020 pumping data for CSI and MX-5 are not available at this time.**

**Table 7: Total Water Diversions by the Moapa Valley Water District in 2020.**

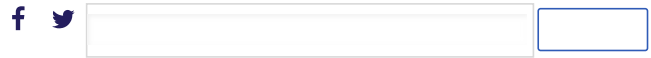
Source	Acre Feet
Arrow Canyon Wells	2672.28
MX-6 Well	0.00
Baldwin Spring	318.57
Pipeline Jones Spring	0.00
Total Diversions	2,990.85

**Table 8: Historic Diversions by the Moapa Valley Water District**

Calendar Year	Permitted Withdrawals	Actual Withdrawals (Ac-ft)
1995	2.0 cfs 1,464 afy	304
1996	3.2 cfs 2,342 afy	274
1997	3.9 cfs 2,855 afy	501
1998	4.5 cfs 3,294 afy	1,969
1999	5.2 cfs 5,068 afy	2,434
2000	6.0 cfs 5,937 afy	2,777
2001	6.0 cfs 5,937 afy	2,434
2002	6.0 cfs 5,937 afy	2,264
2003	6.0 cfs 5,937 afy	2,468
2004	6.0 cfs 5,937 afy	2,505
2005	6.0 cfs 5,937 afy	2,289
2006	6.0 cfs 5,937 afy	1,971
2007	6.0 cfs 5,937 afy	1,844
2008	6.0 cfs 5,937 afy	1,888
2009	6.0 cfs 5,937 afy	2,033
2010	6.0 cfs 5,937 afy	1,815
2011	6.0 cfs 5,937 afy	1,835
2012	6.0 cfs 5,937 afy	2,460
2013	6.0 cfs 5,937 afy	2,241
2014	6.0 cfs 5,937 afy	1,442
2015	6.0 cfs 5,937 afy	2,395
2016	6.0 cfs 5,937 afy	2,798
2017	6.0 cfs 5,937 afy	2,819
2018	6.0 cfs 5,937 afy	2,781
2019	6.0 cfs 5,937 afy	2,588
2020	6.0 cfs 5,937 afy	2,991

EXHIBIT 2

EXHIBIT 2



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# Moapa Dace Numbers Tick Up Once Again

AUGUST 24, 2021 BY VROBISON — LEAVE A COMMENT

By VERNON ROBISON

*The Progress*

There are still plenty of fish in the stream. In fact, more than have been seen in nearly three decades, according to biologists.

The annual summer count of the endangered Moapa dace, which took place on Aug. 10-11, tallied a total of 2,444 of the finger-sized fish currently living in the Warm Springs headwaters of the Muddy River.



"It was the highest count since 1994," said Southern Nevada Water Authority (SNWA) biologist David Syzdek. "It was a 4 percent increase from the August 2020 count and an 85 percent increase over August 2019."

The count brought together scientists from Southern Nevada Water Authority, US Fish and Wildlife and Nevada Department of Wildlife. The group also received support from Coyote Springs personnel who helped to gather and record the data during the two-day count.



**NDOW biologist Kevin Guadalupe (left) calls out his observations to Michael Yetter (right) during the annual summer dace count. PHOTO BY VERNON ROBISON/The Progress.**



**NDOW biologist Kevin Guadalupe snorkels the stream counting Moapa dace during a fish count in the Warm Springs area on Aug. 11. PHOTO BY VERNON ROBISON/The Progress.**

The biologists donned wetsuits, masks and snorkels and plunged into the stream. Over the two days they methodically swam, crawled or waded through more than six miles of streams counting every fish they could see. A data-taker accompanied each snorkeler, clipboard in hand, recording the data and keeping careful notes about stream conditions.

On Wednesday, Aug. 11, NDOW biologist Kevin Guadalupe was found crawling his way up the

Lower Pederson Stream at the Warm Springs Natural Area, a former ranch operation now owned by SNWA.

Guadalupe would surface every few seconds and call out the number of dace he had just observed. Right behind him, Michael Yetter, also from NDOW, was wading through the stream recording Guadalupe's observations.

Though it appeared to be entirely natural, this segment of stream was actually an artificial channel designed and built by biologists in 2008 to re-create the ideal dace habitat. The new stream segment had replaced a failed irrigation ditch that had not been able to support the dace.

That morning, Guadalupe and Yetter counted 502 dace in that segment of the stream alone. Syzdek explained that the Moapa dace are typically found in pockets of "slack water" that are immediately adjacent to faster-moving stream flows. When a food object, such as a small invertebrate or piece of algae, floats by, the dace darts into the fast water to grab the tasty morsel. Then it moves back to the slack water to await the next meal drifting by.

"That makes them fairly easy to count," Syzdek said. "The snorkeler crawls up the stream and when a dace, or school of dace, are seen, they are counted. When the snorkeler crawls further up the stream the fish will swim around the snorkeler. Due to the current, and the narrow width of the streams, the dace can't really pass the snorkeler and won't be double-counted."

The dace are counted twice each year. Once in August and again in February. "August numbers are generally higher than February due to recently hatched larval fish," Syzdek explained.

This month, the scientists counted 1,836 adult dace, 484 juveniles and 124 larvae.

"That indicates that we are likely to have good numbers for our next count in February 2022," Syzdek said.

Perhaps the best news for the scientists is that the dace seem to be expanding their habitat. They are being found in more reaches of the stream and in greater numbers. And most importantly, the fish are beginning to use the main stem of the river as a more permanent habitat.

For many years, the dace had not been seen in the main stem. Early on, it was a perilous place because it was frequented by tilapia, an invasive predator fish. Then between 1998 and 2014, a fish barrier was put in place to keep the tilapia out of the tributaries where the dace had retreated.

Eventually, scientists were able to eradicate the non-native tilapia from the main stem and the fish barriers were removed. That allowed the dace to return to the main stem of the river. But it has taken a long time for the fish to find their way back.

"While we knew that dace would occasionally move between tributaries using the river, they were not staying in this habitat and we were unsure why," Syzdek said. "However, this summer count was different."

Many of the deeper areas of the main stem actually had large, adult dace observed feeding in the current. Nearly sixty dace were counted in the three reaches of the main stem. That is a marked increase from the 24 fish counted in those reaches in the 2020 summer count. In 2019, the number found there was less than 5.

"This is exciting because we think that life in the tributaries is hard for these fish," Syzdek said. "It is close to their thermal limit and is energetically expensive. Fish in the cooler water of the main stem should grow bigger, live longer and produce more eggs."

The Warm Springs Natural Area (WSNA) will be open again for the season on Sept. 7. Visiting hours will be Tuesday through Sunday from 7 am to 3 pm.

Guided one-hour tours of the WSNA will occur on Sept. 25, Oct. 2 and Nov. 6 at 10 am, 12 pm, and 2 pm each day. Visitors can sign up for the tours at the kiosk at WSNA.

The WSNA will also be hosting a planting event for the public to help restore wildlife habitat on Saturday, Oct. 9. Lunch will be provided. Registration can be done at [www.eventbrite.com/e/warm-springs-natural-area-green-up-tickets-165045528619](http://www.eventbrite.com/e/warm-springs-natural-area-green-up-tickets-165045528619).

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