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5	IN THE SUPERIOR COUR	T OF THE STATE OF ARIZONA
6	IN AND FOR THE C	COUNTY OF MARICOPA
7		
8	IN RE THE GENERAL	W-1, W-2, W-3, W-4 (Consolidated)
9	TO USE WATER IN THE GILA	Contested Case No. W1-106
10	<b>RIVER SYSTEM AND SOURCE</b>	ORDER GRANTING ADMISSION OF
11		ADDITIONAL EXHIBITS INTO EVIDENCE
12		AND
13		ORDER FOR ADWR TO REVISE
14 15		SUBFLOW ZONE DELINEATION FOR PORTIONS OF THE VERDE RIVER MAINSTEM AND TRIBUTARIES
16	CONTESTED CASE NAME: In ra Su	
17	<b>TECHNICAL REPORTS INVOLVED</b> : Arizona Department of Water Resources, Subflow Zone Delineation Technical Report for Verde River Mainstem & Sycamore	
18		
19	<i>Remainder of the Verde River Watershed</i>	(April 2023).
20	DESCRIPTIVE SUMMARY: Order	GRANTING admission into evidence the
21	additional emails provided by ADWR and requiring ADWR to amend subflow delineation for portions of the Verde River mainstem and tributaries by August 1, 2025. NUMBER OF PAGES: 22	
22		
23		
24	In a November 2017 order initiatin	g proceedings in the Verde River Watershed,
25	Special Master Harris directed ADWR to	develop a map and associated technical report
26	delineating a subflow zone for the Verde I	River Watershed. <sup>1</sup> The 2017 Order included
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28	<sup>1</sup> See WI-106, Order for Production of a Subflow Watershed ("2017 Subflow Order") at 2 (Nov. 27	Zone Delineation Technical Report for the Verde River , 2017).

specific instructions for ADWR regarding mapping of ephemeral reaches of otherwise
perennial and intermittent streams, assumptions regarding the lateral extent and saturation
value of the floodplain Holocene alluvium ("FHA"), geologic features not to be included
in the subflow delineation, setbacks, and specific instructions to consider conditions
"prior to regular, discernible diversion or depletion of stream flows resulting from human
activity," i.e. predevelopment conditions.<sup>2</sup>

On December 30, 2021, ADWR filed the Subflow Zone Delineation Report for
Sycamore Canyon and the Mainstem of the Verde River Watershed ("Mainstem Report")
that included delineations of the mainstem of the Verde River and Sycamore Canyon
tributaries. On April 28, 2023, ADWR filed the Subflow Zone Delineation Report for the
Remainder of the Verde River Watershed ("Remainder Report"), which includes
delineations for all other tributaries to the Verde River.

Objections to the Mainstem Report focused on ADWR's mapping of Horseshoe
and Bartlett Lakes.<sup>3</sup> Objections to the Remainder Report argued that the subflow zone
delineation for Upper Verde River instream reservoirs Watson Lake, Granite Basin Lake,
Sullivan Lake, and Willow Creek Reservoir did not appropriately consider
predevelopment conditions,<sup>4</sup> that ADWR incorrectly determined that all of Big Chino
Wash and Partridge Creek and portions of Williamson Valley Wash were intermittent

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 $<sup>^{2}</sup>$  *Id.* at 4.

 <sup>&</sup>lt;sup>3</sup> See Arizona State Land Department's Objection to the Subflow Zone Delineation Report for The Verde River Mainstem and Sycamore Canyon Subwatershed (May 2, 2022); Freeport Mineral's Objection to the Subflow Zone Delineation Report for The Verde River Mainstem and Sycamore Canyon Subwatershed (May 2, 2022); SRP's Objection to The Subflow Zone Delineation Report for the Verde River Mainstem and Sycamore Canyon Subwatershed (May 2, 2022).

<sup>&</sup>lt;sup>4</sup> See Arizona State Land Department's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("ASLD Objections") (Oct. 25, 2023); Arizona Water Company's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("AWC Objections") (Oct. 25, 2023); Freeport Mineral's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("Freeport Objections")(Oct. 27, 2023); SRP's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("SRP Objections") (Oct. 27, 2023); The Yavapai-Apache Nation's Objection to the Subflow

<sup>28</sup> Zone Delineation Report for the Remainder of the Verde River Watershed ("Yavapai-Apache Nation Objections") (Oct. 25, 2023).

under predevelopment conditions, <sup>5</sup> and that the subflow mapping of many tributary	
streams were inappropriately terminated. <sup>6</sup>	
Objections to reservoirs mapped in the Mainstem Report, i.e. Horseshoe and	
Bartlett Lakes, were resolved by an October 24, 2023 order, and objections concerning	
the reservoirs mapped in the Remainder Report were resolved by a January 22, 2024	
order. <sup>7</sup> Objections regarding Williamson Valley Wash were partially resolved when	
ADWR filed a Notice of Errata on July 3, 2024, stating that Williamson Valley Wash	
was inadvertently left off the list of stream reaches to be mapped by the USGS. <sup>8</sup> An	
August 2024 evidentiary hearing was conducted to resolve the remaining two issues:	
1) Did ADWR improperly conclude that Big Chino Wash and Partridge Creek	
were ephemeral under predevelopment conditions?	
2) Did ADWR improperly terminate mapping of the subflow zone for any of the	
Verde River tributary streams?	
I. SRP'S MOTION TO ADMIT ADDITIONAL EXHIBITS INTO EVIDENCE	
IS GRANTED.	
During the August 2024 hearing, ADWR informed the Special Master that the	
agency had discovered a number of documents responsive to a public records request by	
SRP <sup>9</sup> that were missed during the agency's initial production process. ADWR	
subsequently provided the additional documents to SRP and on November 15, 2024,	
SPR filed Joint Motion to Adopt Stipulated Procedure for Addressing ADWR's Recent	
<sup>5</sup> City of Phoenix's Objections to The Subflow Zone Delineation Report for the Remainder of the Verde	
River Watershed ("City of Phoenix Objections") (Oct. 27, 2023); SRP Objections; Yavapai-Apache Nation Objections.	
<sup>6</sup> SRP Objections; Yavapai-Apache Nation Objections.	
<sup>7</sup> Order Granting Partial Summary Judgment re Objections to Subflow Delineation Report for Verde Mainstem and Sycamore Canyon Subwatershed (Oct. 24, 2023); Minute Entry (Jan. 22, 2024).	
<sup>8</sup> SRP argues that the issue regarding Williamson Valley Wash is not fully resolved unless ADWR maps the full extent of Williamson Valley Wash <i>See</i> Joint Pretrial Statement at 6–7 (Aug. 5, 2024)	
<ul> <li><sup>9</sup> "SRP" refers to the Salt River Project Agricultural Improvement and Power District and Salt River Valley Water Users' Association.</li> </ul>	

1 Production of Documents ("Joint Motion"). On November 18, 2024, the Special Master 2 approved the procedure for addressing SRP's motion to admit fourteen documents into 3 evidence, permitting SRP to file arguments for the admission, and those parties in 4 objection to the evidence to file their arguments as well.

5 The documents in question include 14 internal ADWR emails and attachments. In evaluating each party's claims regarding the evidence, the Special Master did review 6 7 each document. Objections to admission of the documents under Rules 403 and Rule 8 802 of the Arizona Rules of Evidence are overruled and the documents are admitted into 9 evidence.

#### 10 **Arizona Rule of Evidence 403**

Objectors claim the additional exhibits have limited probative value and are 11 cumulative of evidence presented at trial.<sup>10</sup> Rule 403 of the Arizona Rules of Evidence 12 permits exclusion of evidence if its probative value is substantially outweighed by the 13 danger of wasting time or needlessly presenting cumulative evidence. Notwithstanding 14 the razor thin distinction between "cumulative" and "corroborative" offered by SRP, the 15 16 number and tone of internal discussions among ADWR employees is valuable in 17 understanding AWDR's process.

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**Arizona Rule of Evidence 802** 

19 Rule 802 precludes admission of hearsay unless an exception applies. Objectors claim with the exception of SRP Exhibit 591A,<sup>11</sup> the additional exhibits constitute 20 21 inadmissible hearsay, arguing the exceptions for business records (Rule 803(6)) and 22 public records (Rule 803(8)) do not apply to preliminary evaluations of agency staff members.<sup>12</sup> However, these emails are not preliminary memoranda or opinions, they are 23

<sup>25</sup> <sup>10</sup> City of Prescott, Town of Chino Valley, Town of Prescott Valley, Arizona State Land Department, and Chino Grande LLC's Joint Brief Regarding Additional Exhibits (Dec. 9, 2024).

<sup>26</sup> <sup>11</sup> SRP 591A is a 2016 ADWR final progress report describing ADWR's process for delineating subflow zones for mountain front streams in the San Pedro watershed. 27

<sup>&</sup>lt;sup>12</sup> Objectors reference Smith v. Isuzu Motors Ltd for the proposition that the public records exception is 28 inapplicable to preliminary memoranda that "embody the positions and opinions of individual staff members, which the agency ultimately declined to accept." 137 F.3d 859, 862 (5th Cir. 1998),

an internal discussion among colleagues. And while the nature of the documents as
"business records" may be tenuous, the emails are clearly public records documenting an
internal deliberative process.<sup>13</sup> The preliminary and tentative nature of the documents
does not exclude them from public records exception, however the weight of the
relevancy of the documents will be considered within the full context of the purpose and
development of the communications, and the final report they purport to discuss.

**THEREFORE, IT IS ORDERED** admitting into evidence SRP 590 throughSRP 597.

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#### **II. STANDARDS FOR SUBFLOW ZONE DELINEATION.**

Under Arizona law, groundwater is presumed to be percolating and therefore not 11 appropriable, unless the groundwater is a part of the subflow of a river.<sup>14</sup> Once a 12 13 subflow zone is established for a watercourse, wells located within the lateral limits of the subflow zone, the presumption shifts: The wells are instead presumed to be 14 pumping appropriable subflow.<sup>15</sup> The Arizona Supreme Court cautioned against using 15 "flawed or inaccurate" information for subflow zone determinations, declaring the "use 16 of an inaccurate test to determine whether a well is pumping subflow would improperly 17 shift the burden to the groundwater user to show that its well is not pumping 18 subflow."<sup>16</sup> 19

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Delineating the subflow zone for a watershed requires two steps: stream

 <sup>&</sup>lt;sup>13</sup> The Arizona Rules of Evidence define a "business record" as a "record was kept in the course of a regularly conducted activity of a business, [or] organization..." and the creation of the record is "a regular practice of that activity." Ariz. R. Ev. 803(B)–(C) (emphasis added).

<sup>24 &</sup>lt;sup>14</sup> Southwest Cotton, 39 Ariz. 65, 85 (1931) ("One making a determination that underground water is a part of a stream's sub flow must prove that fact by clear and convincing evidence.").

<sup>&</sup>lt;sup>15</sup> In re Gen. Adjudication of All Rights to Use Water in Gila River System & Source (*Gila II*), 175 Ariz.
<sup>26</sup> 382, 392 (1993).

 <sup>&</sup>lt;sup>16</sup> In re Gen. Adjudication of All Rights to Use Water in Gila River System & Source (Gila IV), 198
 Ariz. 330, 335 (2000) ("[D]eterminations based upon suspect information creates a "significant injustice," as well owners are "unable to mount a challenge [and] could effectively lose their right to pump percolating groundwater, simply because their wells were improperly presumed to be pumping

appropriable subflow.")

1	classification followed by subflow mapping. First, ADWR must identify all stream
2	reaches that were perennial or intermittent under predevelopment conditions. <sup>17</sup> Second, if
3	and only if a stream is determined to be intermittent or perennial under predevelopment
4	conditions, ADWR must determine the lateral extent of the floodplain Holocene alluvium
5	adjacent to the reach. <sup>18</sup> Objections regarding ADWR's decision to classify Big Chino
6	Wash and Partridge Creek as ephemeral under predevelopment conditions concern the
7	first step, while objections concerning ADWR's decision not to delineate a subflow zone
8	for certain reaches determined not ephemeral under predevelopment conditions concern
9	the second step. <sup>19</sup>
10	Those who assert that the subflow zone extends to a given area bear the burden of
11	proof. <sup>20</sup> Specifically, a party seeking to classify a stream as non-ephemeral under
12	predevelopment conditions must show that, during the "year or range of years
13	immediately prior to regular, discernable diversion or depletion of stream flows resulting
14	from human activity," the stream or reach was perennial or intermittent. <sup>21</sup>
15	Per Judge Goodfarb's 1994 order:
16	1) perennial streams "discharge water continuously through the year," and "[t]heir
17	source of supply is normally comprised of direct runoff and
18	baseflow"; <sup>22</sup>
19	2) intermittent streams, by contrast, "discharge water for long periods of time, but
20	seasonally," and "[d]uring seasons when baseflow is maintained, groundwater
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23	<sup>17</sup> W1-103, Order at 23–24 (June 30, 1994); W1-103, Order re Report of the Special Master on the Arizona Department of Water Resources' Subflow Technical Report San Pedro River Watershed and
24	Motion for Approval of the Report at 21 (Sept. 28, 2005).
25	<sup>18</sup> <i>Gila IV</i> , 198 Ariz. at 342. <sup>19</sup> See FN 6 supra
26	<ul> <li><sup>20</sup> Maricopa County Mun. Water Conservation Dist. No. One. v. Southwest Cotton Co., 39 Ariz. 65, 85 (1931)</li> </ul>
27	<sup>21</sup> W1-103, Order re Report of the Special Master on the Arizona Department of Water Resources' Subflow Technical Report. San Pedro River Watershed and Motion for Approval of the Report at 21
28	(Sept. 28, 2005).
	<sup>22</sup> W1-103, Order at 23–24 (June 30, 1994).

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is contributing to the stream,"<sup>23</sup> and

 ephemeral streams discharge "only in response to precipitation events or snowmelt, and do not have a baseflow component at any time of the year."<sup>24</sup>

# III. ADWR PROPERLY CLASSIFIED BIG CHINO WASH AS EPHEMERAL UNDER PREDEVELOPMENT CONDITIONS.

7 At trial, the parties relied on hydrologic data, historical accounts of water use, and 8 historical geographic data to support their respective conclusions regarding streamflow 9 permanence of Big Chino Wash during the predevelopment period. Ultimately, the 10 accounts of historical water users along Big Chino Wash provide persuasive evidence that Big Chino Wash was ephemeral under predevelopment conditions, while historical 11 12 geographic data loosely corroborate that finding. The hydrologic data presented by SRP 13 does not support a finding that Big Chino Wash was intermittent or perennial under 14 predevelopment conditions.

# 15 SRP's Hydrologic Theory Regarding Big Chino Wash Is Unsupported.

16 SRP asserts that Big Chino Wash was historically intermittent due to sporadic 17 connections between groundwater and surface water that would form in response to significant precipitation events.<sup>25</sup> SRP essentially argues that, historically, precipitation 18 19 events exceeding one inch, as measured at the Walnut Creek precipitation gage, caused 20 significant runoff to travel the full extent of Big Chino Wash downstream of Partridge Creek.<sup>26</sup> SRP asserts, in turn, that those events indicate saturation of the channel 21 comprising Big Chino Wash.<sup>27</sup> According to SRP, that saturation indicates that those 22 precipitation events would raise the water table above the bottom of the channel.<sup>28</sup> 23

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- $26 \int_{-24}^{24} Id.$

<sup>23</sup> Id.

- <sup>25</sup> [08272024:13–14 (Ford)].
- 27  $||^{26}$  Id.
- $28 \mid |^{27} Id._{28} Id.$

SRP's theory of intermittency suffers from multiple factual deficiencies. First, as
 multiple expert witnesses acknowledged, individual precipitation events are unlikely to
 raise the water table in the Big Chino subwatershed by any significant amount.<sup>29</sup> Instead,
 many precipitation events over time raise the water table.<sup>30</sup>

5 Second, SRP measured the trend between precipitation events at Walnut Creek precipitation gage and Paulden streamgage from 1963 through 2023, a period during 6 which Big Chino Wash was indisputably ephemeral.<sup>31</sup> Because the Paulden streamgage 7 8 collects flows from various other streams in the Big Chino and Little Chino 9 subwatersheds, it is difficult to infer flows in Big Chino Wash from measurements at the Paulden streamgage.<sup>32</sup> Further, because the observed trend was measured during the 10 post-development period, the trend is consistent with ephemeral flow in Big Chino 11 12 Wash. These factual deficiencies make SRP's theory of intermittency during the 13 predevelopment period untenable.

To the extent that SRP's factual theory is accurate, SRP's assertion that baseflow
in Big Chino Wash would come and go with large precipitation events contradicts Judge
Goodfarb's definition of intermittency, which requires flow for "long periods of time,
but seasonally." The sporadic flow suggested by SRP contradicts the requirement that
intermittent streams exhibit sustained, seasonal flow.

In sum, SRP's hydrologic data do not support a conclusion that Big Chino Wash
was intermittent under predevelopment conditions. Moreover, even if SRP proved the
existence of sporadic baseflow in Big Chino Wash, that would be inconsistent with the
requirement of sustained, seasonal flow.

## 23 || Historical Documents Establish that Big Chino Wash Was Ephemeral

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<sup>29</sup> [08212024:78–79 (Hadder); 08222024:27–28 (Holmes)]

27 || <sup>30</sup> [08212024:78–79 (Hadder)]

28  $||^{31}$  [SRP Exhibit 28 at PDF 2].

<sup>32</sup> [08272024:93–95 (Ford)].

Both ADWR and the parties supplemented the minimal hydrologic data for Big

1 Chino Wash and Partridge Creek during the predevelopment period with accounts of 2 water use found in newspaper articles, homestead filings, and administrative surface 3 water filings. Further, the parties presented historical topographic maps prepared by 4 USGS, brief geographic observations made by explorers and surveyors, as well as 5 evidence of vegetation historically residing along the Big Chino Wash. Emerging from this patchwork of historical documents is the fact that, during the predevelopment 6 7 period, Big Chino Wash provided little in terms of surface water resources. Apparent 8 universal reliance on flood flows and groundwater in the surrounding area and firsthand 9 observations by water users of irregular to absent flows indicate that Big Chino Wash 10 was ephemeral under predevelopment conditions.

#### 11

#### Accounts of Historical Water Users

At trial, ADWR and the parties pointed to various historical accounts of water use in the area surrounding Big Chino Wash, primarily newspaper articles and homestead filings. The parties also surveyed the limited number of administrative surface water filings associated with Big Chino Wash. Those documents describe the availability, or lack thereof, of surface water resources in the period before widespread development of the Big Chino Watershed.

18To start, nearly all the newspaper articles presented, published between the late1919th century and early 20th century, point to historical reliance on groundwater as well as20substantial experimentation with dryland farming. While the town of Chino Valley and21ADWR assert that the apparent dependence on wells and dryland farming supports the22ephemerality of Big Chino Wash, SRP claims that references in the articles to shallow23groundwater depths near Big Chino Wash support classifying the wash as intermittent.33

No less than three of the articles describe those residing along Big Chino Wash as
resorting to "dry farming methods."<sup>34</sup> One article states that a rancher "intended to go up
on the Big Chino and start growing corn by dry farming methods on an elaborate

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<sup>&</sup>lt;sup>33</sup> [08212024:45-46 (Hadder)]; [0822024:79-92 (Nicholls)]; [08272024:50–57 (Ford)]. <sup>34</sup> [08262024:87, 89–92 (Nicholls)]

scale."<sup>35</sup> Four articles describe ranchers' current and probable future dependence on
groundwater for irrigation.<sup>36</sup> Specifically, one article from 1890 states: "With water,
which could easily be brought to the surface, our great valleys can be made to support
large populations."<sup>37</sup> Only a single article describes anything resembling intermittent
flows. That article describes a proposal to build a storage dam in Big Chino wash, where
water flows "for several months in the year."<sup>38</sup>

Parties can only speculate over the veracity of the groundwater depths and flow
permanence claims made in the newspaper articles and whether those statements suggest
a historic hydraulic connection between Big Chino Wash and surrounding groundwater.
However, the articles clearly demonstrate that the large majority of water users who
settled along Big Chino Wash depended on groundwater during the predevelopment
period. That fact strongly supports ADWR's finding that Big Chino Wash was
ephemeral in the predevelopment period.

14 Parties also surveyed homestead documents and surface water filings associated with parcels along Big Chino Wash as evidence of streamflow permanence along Big 15 16 Chino Wash during the predevelopment period. The majority of homestead documents 17 indicate lack of water, no water, or the drilling of wells to obtain water. In particular, James Ashley's 1898 homestead affidavit stated that "[t]here is no water so I did not 18 cultivate, but used the property for grazing," and that the land would be "[m]ore valuable 19 for agriculture if water could be had."<sup>39</sup> Further, Claude Aiken's 1929 homestead filing 20 states that the land that he settled along the Big Chino Wash "contains no streams, 21 springs, or other bodies of water except dry watercourses that have water in them only 22 following precipitation."40 The parties submitted a further nine homestead affidavits, 23

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- 25 35 [08262024:89 (Nicholls)]
- $26 ||^{36} [08262024:79-86 (Nicholls)]$
- $||^{37}$  [08262024:84 (Nicholls)].
- 27  $||_{38}$  [08272024:55 (Ford)].

28 <sup>39</sup> [COP Exhibit 14 at PDF 4]; [08222024:33–35 (Holmes)].

<sup>40</sup> [SRP Exhibit 118 at PDF 18]; [08222024:41 (Holmes)].

eight of which do not mention an irrigation ditch.<sup>41</sup> The multiple declarations regarding
 the absence of surface water along the Big Chino Wash are persuasive evidence that the
 Big Chino Wash was ephemeral under predevelopment conditions.

Further, the homestead documents silence regarding irrigation ditches and other improvements that might utilize surface flows is telling.<sup>42</sup> In their place, the primary diversion structures that ADWR catalogued were "short, broad dams" or "spreader dams."<sup>43</sup> ADWR concluded that these structures were intended to spread "floodwaters from Big Chino Wash onto the broader floodplain."<sup>44</sup> Water users' reliance on spreader dams and apparent hesitance to invest in irrigation ditches is consistent with the other evidence indicating the absence of reliable flows in Big Chino Wash.

# 11

## Historical Geographic Data

ADWR relied primarily on two sources of data concerning historical hydrologic 12 13 conditions to classify Verde tributaries under predevelopment conditions: a map prepared by Geoffrey Freethey and T.W. Anderson in 1986 and another prepared by D.E. Brown 14 and N.B. Carmony in 1981.<sup>45</sup> Those maps identified only streams that were perennial 15 16 under predevelopment conditions, ignoring Big Chino Wash and other streams that may 17 have been intermittent. As a result, the trial focused on maps, surveys, expedition reports, 18 and photographs concerning Big Chino Wash prepared during the predevelopment period 19 or shortly after. As discussed below, these sources provide some limited insight regarding 20 streamflow permanence in the Big Chino Wash.

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 $28 ||^{44} Id.$ 

<sup>22 41 [08222024:32–50]; [</sup>COP Exhibits at 9–19].

<sup>&</sup>lt;sup>42</sup> [08222024:39 (Holmes)]. The single homestead filing referencing an irrigation ditch is the Harry W. Fritsche homestead patent. [SRP Exhibit 127 at PDF 17]; [08222024:158 (Holmes)]. Further, the associated "Notice of Location" recorded by Harry W. Fritsche in 1914 states an intent to appropriate "all the normal flow and unappropriated floodwater of the Chino Valley Wash." [SRP Exhibit 372 at PDF 25]; [08212024:74 (Hadder)]. It is likely that the ditch conveyed water from a storage reservoir rather than directly from the stream. [08222024:157–158] In addition, the "normal flow" referenced by Fritsche most likely refers to flows originating from a spring located some distance away from Big Chino Wash. [08272024:64 (Ford)].

<sup>27 || &</sup>lt;sup>43</sup> [08212024:48 (Hadder)]

<sup>&</sup>lt;sup>45</sup> [08212024:27–30 (Hadder)]; [COP Exhibit 2]; [COP Exhibit 24].

At trial, parties presented numerous maps from the late 19<sup>th</sup> century to mid-20<sup>th</sup>
 century as evidence of streamflow permanence. The "gold standard," as noted by SRP's
 expert Jon Ford,<sup>46</sup> were historical topographic maps produced by the United States
 Geological Survey ("USGS").<sup>47</sup>

5 Out of the twelve topographic maps presented at trial, seven classified Big Chino 6 Wash as intermittent,<sup>48</sup> three classified the stream as perennial,<sup>49</sup> and two did not depict 7 Big Chino Wash at all.<sup>50</sup> Individually, each classification provides little guidance as to 8 where Big Chino Wash fits under Judge Goodfarb's stream classification framework 9 because the historical USGS labels simply do not align with Judge Goodfarb's 10 definitions.<sup>51</sup> USGS's inconsistent classifications of Big Chino Wash throughout the 11 predevelopment period only compound that uncertainty.

The 1918 "Topographic Instructions of the United States Geological Survey", for instance, loosely directs mappers to label as intermittent any stream "having alternating pools and dry stretches" or "flowing only part of the year."<sup>52</sup> The 1928 instructions define intermittent streams as those that are "dry for a considerable amount of time each year, say for three months or longer."<sup>53</sup>

Neither definition provides useful information regarding baseflow contribution to
the stream. Further, neither definition helps narrow down a stream's classification under
Judge Goodfarb's "duration of flow" criteria: Intermittent and ephemeral streams under
Judge Goodfarb's criteria necessarily flow for "only part of the year" and may be dry "for

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26 <sup>49</sup> [COP Exhibit 28]; [SRP Exhibit 390]; [SRP Exhibit 556].

<sup>50</sup> [COP Exhibit 21]; [COP Exhibit 22].

27 51 [08222024:55–60 (Nicholls)]; [SRP Exhibit 367 at PDF 8]; [SRP Exhibit 365 at PDF 160, 174].

28 5<sup>52</sup> [SRP Exhibit 365 at PDF 160].

<sup>53</sup> [SRP Exhibit 367 at PDF 277].

<sup>&</sup>lt;sup>46</sup> [08272024:20 (Ford)],

 <sup>23
 &</sup>lt;sup>47</sup> [SRP Exhibit 377]; [SRP Exhibit 383]; [SRP Exhibit 390]; [SRP Exhibit 556]; [COP Exhibit 21];
 24 [COP Exhibit 22]; [COP Exhibit 28]; [COP Exhibit 37]; [COP Exhibit 40]; [COP Exhibit 54].

 <sup>&</sup>lt;sup>48</sup> [SRP Exhibit 377]; [SRP Exhibit 383]; [COP Exhibit 37]; [COP Exhibit 40]; [COP Exhibit 54]; [COP Exhibit 109]; [COP Exhibit 118].

three months or longer." As a result, the topographic maps presented at trial are weak
 evidence of streamflow permanence in Big Chino Wash during the predevelopment
 period.

In addition to USGS topographic maps, the parties presented the notes and journals of multiple expeditions and General Land Office ("GLO") surveys that took place during the mid to late 1800s.<sup>54</sup> Because the explorers and surveyors spent limited time along Big Chino Wash, accounts of observed flow provide some limited insight into predevelopment streamflow permanence. Available accounts of vegetation in and around Big Chino Wash provide no evidence of predevelopment streamflow permanence.

Accounts of the Carson and Whipple expeditions were presented at trial. The Carson expedition consisted of a fur trapping party that traveled from Northern New Mexico to California.<sup>55</sup> The Carson expedition traversed Chino Valley between the fall of 1829 and the winter of 1830.<sup>56</sup> The Whipple expedition, commissioned by the United States Government, surveyed lands for a proposed railroad route along the 35<sup>th</sup> parallel.<sup>57</sup> The Whipple Expedition explored Big Chino Watershed in January 1854.<sup>58</sup>

The General Land Office ("GLO") was a federal agency that commissioned
professional surveyors to divide land in the western United States into the section,
township, and range system used today.<sup>59</sup> The GLO surveyed Chino Valley over a
period of more than ten years from 1871 to 1883.<sup>60</sup> The surveys most pertinent to this
case, i.e. those likely to have directly encountered Big Chino Wash downstream of
Partridge Creek, took place over the course of twenty days in spring 1877 and one day in

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- <sup>54</sup> [08212024: 41, 53, 112 (Hadder)]; [ADWR Exhibit 3]; [ADWR Exhibit 4].

25 55 [08262024:30–31 (Nicholls)]

 $26 \int_{-56}^{56} [08262024:34 \text{ (Nicholls)}]$ 

<sup>57</sup> [08212024:44–45 (Hadder)].

- 27 58 [08262024:38 (Nicholls)]
- 28 || <sup>59</sup> [08222024:49–50 (Nicholls)].
  - <sup>60</sup> [08262024:50 (Nicholls)].

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November 1872.<sup>61</sup>

Between fall 1829 and winter 1830, the Carson expedition met dry conditions
along the Big Chino Wash. Carson noted that his party "suffer[ed] very much from want
of water" and that the "first four days' march was over a country, sandy, burned up and
not a drop of water."<sup>62</sup> Likewise, when Lieutenant Whipple encountered the Big Chino
Wash in January 1854, he observed "a dry river bed" with "a rich meadow bottom."<sup>63</sup> To
illustrate how the "rich meadow bottom" may have appeared, SRP presented a
photograph of the floodplain of Big Chino Wash taken by J.W. Simmons in 1932.<sup>64</sup>

GLO survey notes also universally describe dry conditions whenever reporting
about Big Chino Wash.<sup>65</sup> Specifically, at each township intersecting Big Chino Wash
south of Partridge Creek, surveyors declared the absence of springs, streams, and
running water.<sup>66</sup> Where surveyors crossed Big Chino Wash, they noted a "dry bed."<sup>67</sup>

The parties' arguments center on the significance of the explorers' and surveyors' accounts. While the City of Prescott argues that, if Big Chino Wash were intermittent, visitors during the fall and winter would have encountered flows, SRP argues that the visits were too infrequent and brief to allow for any conclusions regarding streamflow permanence. Further, the parties dispute the significance of "the rich meadow bottom" that the Whipple Expedition encountered during its crossing of Big Chino Wash.<sup>68</sup> Specifically, the City of Prescott asserts that timing of intermittent streamflow

 <sup>&</sup>lt;sup>61</sup> [CVPV Exhibit 15 at PDF 61]; [CVPV Exhibit 18 at PDF 60, 61]; [CVPV Exhibit 20 at PDF 29];
 [CVPV Exhibit 24 at PDF 33]; [CVPV Exhibit 25 at PDF 11, 15].

<sup>23 &</sup>lt;sup>62</sup> [CVPV Exhibit 54 at 4]; [08262024:34–35 (Nicholls)]

<sup>&</sup>lt;sup>63</sup> [COP Exhibit 144 at PDF 31–33]; [08262024:44–45 (Nicholls)].

<sup>24 64 [</sup>SRP Exhibit 375]; [08272024:75, 81 (Ford)].

<sup>25 65 [08262024:49–77 (</sup>Nicholls)].

<sup>&</sup>lt;sup>66</sup> [CVPV Exhibit 20 at PDF 29] ("no living springs or running water"); CVPV Exhibit 25 at 15 ("no living streams or springs"); [CVPV Exhibit 18 at PDF 60, 61] ("no springs or running water"); [CVPV Exhibit 15 at 61] ("no running streams or living springs"); [CVPV Exhibit 25 at PDF 33] ("no timber, springs, or running water").

<sup>28 67 [</sup>CVPV Exhibit 25 at 11].

<sup>&</sup>lt;sup>68</sup> [08222024:114–115 (Holmes)]; [08272024:81–83 (Ford)]

depends on the frequency of "regional precipitation events" and the intensity of 1 evapotranspiration.<sup>69</sup> Therefore, the City of Prescott contends that, beginning in fall and 2 continuing to spring, an intermittent stream in the Big Chino Watershed "hypothetically" 3 4 would be flowing.<sup>70</sup> During the middle of winter, when evapotranspiration is at a 5 minimum and precipitation is at its peak, the City of Prescott posits that an intermittent stream is nearly certain to be flowing.<sup>71</sup> SRP, in response, claimed that the flow in Big 6 Chino Wash can be easily missed by a short-term, infrequent occupation of the area.<sup>72</sup> 7 8 SRP concludes that, therefore, none of the expedition reports are reliable.<sup>73</sup>

9 Combined, the explorers' and surveyors' direct observations of Big Chino Wash occurred over the course of approximately three weeks. The Court knows for certain of a 10 single direct observation made in the winter, but this observation, made by the Whipple 11 12 Expedition, occurred over the course of a single day. While it is undisputed that an 13 intermittent stream in the Big Chino Watershed must flow during the winter for some amount of time, the relevant definition of "intermittent stream" does not require constant 14 15 flow, only flow for "long periods of time." On their own, a single observation of a dry 16 streambed during winter and a handful of observations on the margins of the wet season 17 are not inconsistent with that definition. Nonetheless, these observations help validate the previously discussed newspaper articles and homestead files. 18

In addition to disputing the significance of the explorers' and surveyors'
observations of the absence of flow in Big Chino Wash, the parties also dispute the
implications of the Whipple expedition's observation of a "rich meadow bottom" lining
the Big Chino Wash as well as the 1932 J.W. Simmons photograph illustrating the same.
Ultimately, the dispute boils down to whether the vegetation identified sheds light on
streamflow permanence.

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  <sup>69</sup> [08222024:114–115 (Holmes)].
  <sup>70</sup> Id.
  <sup>71</sup> Id.
  <sup>72</sup> [08272024:81–83 (Ford)].
  <sup>73</sup> Id.

The City of Prescott pointed out that grama grasses, the only vegetation identified in the floodplain of the Big Chino Wash, extend throughout the Verde Valley. SRP contested that the expanse of grasses described and photographed indicates water shallow enough to support growth.<sup>74</sup> Acknowledging the absence of a true riparian zone, SRP pointed out an intermittent reach of the San Pedro River classified as intermittent but surrounded only by "grassy plains with little riparian forestation."<sup>75</sup>

As ADWR pointed out at trial, riparian vegetation can be a useful clue for
classifying a stream, but is not a decisive factor.<sup>76</sup> Here, where the vegetation identified is
found "virtually everywhere," this factor is even less determinative.<sup>77</sup> As a result, the
Court assigns minimal weight to observations of grass along and within Big Chino Wash.

11 Archaeological Evidence

At trial, SRP presented evidence of archaeological sites along Big Chino Wash.<sup>78</sup>
SRP suggested that sufficient water existed to grow crops and meet the needs of the
Native groups who occupied these areas from about 900 to 1300 AD.<sup>79</sup>

The sites referenced were identified and characterized from establishments over a thousand years ago. Their presence suggests only that sufficient water was available to support the community for a period that ended long before the arrival of the predevelopment period, i.e. the "year or range of years immediately prior to regular, discernable diversion or depletion of stream flows resulting from human activity."<sup>80</sup>

#### 20 Conclusion

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In conclusion, a survey of the various historical accounts of water use along Big

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- 24 || <sup>75</sup> [08272024:74 (Ford)]; [SRP Exhibit 363 at 13].
- 25  $||_{-1}^{76}$  [08212024:117 (Hadder)].
- <sup>2.5</sup> [<sup>77</sup> [08222024:29 (Holmes)]
- 26 || <sup>78</sup> [08272024:47–49 (Ford)]

27 <sup>79</sup> SRP Objections at 8 (Oct. 27, 2023).

<sup>&</sup>lt;sup>5</sup> <sup>74</sup> [08222024:105 (Holmes)]; [08272024:76–77 (Ford)].

<sup>&</sup>lt;sup>80</sup> W1-11-103, Order re Report of the Special Master on the Arizona Department of Water Resources'
Subflow Technical Report, San Pedro River Watershed and Motion for Approval of the Report at 21 (Sept. 28, 2005).

Chino Wash reveals an almost complete dependence on wells, flood flows, and dry
 farming during the predevelopment period. While the suveryors' notes and explorers'
 journals, on their own, are less than persuasive, they bolster the conclusion that Big
 Chino Wash lacked seasonal, baseflow-driven flows during the predevelopment period.
 Therefore, ADWR did not err in classifying Big Chino Wash as ephemeral under
 predevelopment conditions.

THEREFORE, IT IS ORDERED that no additional subflow zone delineationmapping is required for Big Chino Wash downstream of its confluence with PartridgeCreek.

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# IV. ADWR DID NOT SUFFICIENTLY EXPLAIN ITS CLASSIFICATION OF BIG CHINO WASH.

13 The rationale underlying ADWR's classification of Big Chino Wash below 14 Partridge Creek and Partridge Creek itself are unclear. In the Remainder Report, ADWR 15 stated that the Big Chino Wash does not meet the criteria for a perennial or intermittent stream.<sup>81</sup> In support of that statement, ADWR cited a report by Mr. Mark Holmes and 16 provided a broad overview of its classification methodology.<sup>82</sup> Similarly, where ADWR 17 18 cites only a report by Mr. Mark Nicholls to support its statement that there is no current 19 or historic hydraulic connection between the surface water and groundwater systems of 20 Big Chino Wash.<sup>83</sup>

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ADWR's decision to use or reject any particular resource is well within the agency's authority as the technical expert for the General Stream Adjudication.<sup>84</sup>

<sup>24</sup>  $\left\| \frac{1}{81} \text{ Remainder Report at } 12 \text{ (Apr. 2023).} \right\|$ 

 <sup>&</sup>lt;sup>82</sup> Mark Holmes LLC, "Historical Documents and Evidence Supporting the Predevelopment State of the Big Chino Wash, Big Chino Subbasin, Upper Verde River, Gila River Watershed, Yavapai County, Arizona," (Nov. 2021). ("Holmes report").

 <sup>27 &</sup>lt;sup>83</sup> Remainder Report at 13; Haley & Aldrich, Inc., "Transmittal of Data and Information Describing Hydrologic Connections in Big Chino Wash, Yavapai and Coconino Counties, Arizona," (May 2022).
 28 ("Nicholls Report").

<sup>&</sup>lt;sup>84</sup> Arizona Revised Statutes § 415-256(A).

Nonetheless, ADWR must thoroughly explain agency decisions, including specifying
 procedures used for stream classification.

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# ADWR PROPERLY CLASSIFIED PARTRIDGE CREEK AS EPHEMERAL UNDER PREDEVELOPMENT CONDITIONS

In addition to downstream portions of Big Chino Wash, SRP's objections regarding ADWR's stream classifications also encompassed the "lower portion of Partridge Creek."<sup>85</sup> The primary evidence concerning Partridge Creek consisted of two journal entries from the Whipple Expedition<sup>86</sup> and two USGS topographic maps.<sup>87</sup>

Those lines of evidence have the same weaknesses here as they did with respect to Big Chino Wash. Namely, the GLO survey notes and Whipple Expedition journal entries are based on a few days' worth of observations, and the USGS maps label Partridge Creek inconsistently and contain streamflow permanence definitions that do not align with the definitions promulgated by Judge Goodfarb.

Despite its formal objection, SRP presented minimal evidence regarding streamflow permanence in Partridge Creek. Especially given the weaknesses associated with the evidence that it did present, SRP did not meet its burden to show that Partridge Creek, indisputably ephemeral today, was intermittent or perennial during the predevelopment period.

**THEREFORE, IT IS ORDERED** that no additional subflow zone delineation mapping is required for the lower portion of Partridge Creek.

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After ADWR identified all Verde tributary streams that were intermittent or

ADWR PREMATURELY TERMINATED THE SUBFLOW MAPPING OF

**CERTAIN TRIBUTARY STREAMS.** 

28 <sup>86</sup> [08262024:39–40 (Nicholls)]; [08262024:115–116 (Nicholls)]; [COP Exhibit 144 at PDF 31]. <sup>87</sup> [SRP Exhibit 383]; [SRP Exhibit 390].

<sup>27 85</sup> SRP Objections at 6 (Oct. 27, 2023).

1 perennial under predevelopment conditions, ADWR mapped the lateral limits of the 2 subflow zone along the streams. To obtain the geological information necessary for 3 mapping the subflow zone, i.e. the location of Holocene channel and floodplain alluvium 4 bordering the stream, ADWR contracted with the Arizona Geological Survey ("AZGS").<sup>88</sup> For each stream, ADWR provided general instructions regarding the points 5 at which to begin and end geological mapping.<sup>89</sup> AZGS mapped a minimum of one 6 additional mile beyond each start and end point.<sup>90</sup> Further, based on feedback from 7 8 AZGS, such as the existence of riparian vegetation upstream or downstream of the 9 prescribed start and end points, ADWR often extended the mapping length.<sup>91</sup> After 10 evaluating the geologic maps, ADWR mapped and included in the Remainder Report streams determined to be 1) perennial or intermittent and 2) bordered by Holocene 11 alluvium.92 12

At trial, SRP compared more than twenty maps from ADWR's "Floodplain Holocene Alluvium Delineation Map Series" with three drainage maps depicting currently perennial, currently intermittent, and historically perennial streams.<sup>93</sup> Those comparisons revealed that, for many streams, ADWR appears to have improperly terminated subflow mapping despite the existence of intermittent or perennial reaches and Holocene alluvium beyond the termination point.<sup>94</sup> According to testimony from AZGS, the improper cutoffs were the result of incomplete instructions from ADWR to

- 23 90 [08212024:136–137 (Cook)]
- 2.4  $9^{91}$  [08212024:139 (Cook)].

<sup>&</sup>lt;sup>88</sup> [ADWR Exhibit 5 at PDF 2].

<sup>22 [89 [</sup>ADWR Exhibit 5 at PDF 48–49]; [08212024:137–140 (Cook)].

 $_{28} ||^{93} [SRP Exhibit 2].$ 

<sup>&</sup>lt;sup>94</sup> [SRP Exhibit 2]; [08212024:152–174 (Cook)]; [08262024:153–168 (Colvin)].

AZGS.<sup>95</sup>

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**THEREFORE, IT IS ORDERED** that ADWR will reevaluate the mapping termination for all tributaries analyzed in the Remainder Report and extend portions of the subflow zone improperly terminated. ADWR and AZGS shall adhere to the following guidelines when performing the ordered revisions:

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• ADWR must provide explanations for unusual cutoffs of subflow mapping, especially where termination is the result of contractual instructions between agencies.

Most of the mapped areas in question are the furthest upstream reaches of the tributaries, many in very remote, mountainous areas with thin, if any, alluvial deposits.<sup>96</sup> The value of a precise subflow zone delineation there is limited, and safety is key. Simply because you can hike into a location does not mean you should.<sup>97</sup> Where field verification is imprudent or unsafe, ADWR should use their best professional judgement to establish a subflow zone using aerial photography.

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VII. ADWR MUST FINALIZE ITS SUBFLOW ZONE DELINEATION FOR WILLIAMSON VALLEY WASH.

In its objections, SRP asserted that ADWR failed to delineate a subflow zone for the entirety of Williamson Valley Wash.<sup>98</sup> Subsequently, in a Notice of Errata, ADWR stated that it "generally agrees that Williamson Valley Wash requires further mapping."<sup>99</sup> ADWR attached a map of the reaches of Williamson Valley Wash that it

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 $26 ||^{95} [082212024:151-152 (Cook)].$ 

 $^{96}$  *Id.* at 169-172.

27  $||^{97}$  As an avid hiker, this is not stated lightly.

 $28 ||^{98}$  SRP Objections at 3.

<sup>99</sup> ADWR Notice of Errata at 2 (July 3, 2024) ("Errata")

believes it had inadvertently omitted.<sup>100</sup> The Court subsequently stated that "Williamson 1 2 Valley Wash will not be a part of the evidentiary hearing," but that in the order 3 following the hearing regarding the Remainder Report, the Court would "require ADWR 4 to delineate a proposed subflow zone for Williamson Valley Wash."<sup>101</sup>

THEREFORE, IT IS ORDERED that ADWR will reevaluate the mapping 5 6 termination for Williamson Valley Wash and extend the subflow zone for that stream 7 where mapping was improperly terminated. At a minimum, ADWR will delineate a 8 subflow zone for the reaches indicated on Attachment A to its July 3, 2024 Notice of 9 Errata.

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## **VIII. CONCLUSION**

Mapping a subflow zone is difficult. ADWR must contend with evolving law, 13 science, and policy considerations, but the subflow zone delineation process will continue to iterate and improve. To the extent that the Addendum to the Verde River Subflow 14 Zone Delineation Reports adheres to this order and preceding orders concerning the 15 Verde River subflow zone, the Special Master will incorporate the addendum into her 16 17 final report on the Verde River subflow zone. Parties will file objections to the 18 Addendum, if any exist, with the Water Judge after the filing of the final report.

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20 **THEREFORE, IT IS ORDERED** that ADWR file no later than August 1, 2025, 21 an addendum to the Verde Mainstem and Remainder Reports containing:

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- Remainder Report.
- Extensions of any portions of the subflow zone in the Remainder Report improperly terminated.

A reevaluation of the mapping cutoffs for all tributaries analyzed in the

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- 27  $^{100}$  Id.

<sup>28</sup> <sup>101</sup> Order Denying Motion for Partial Summary Judgment on Legal Standards for Subflow Delineation on Verde Tributaries and Denial of Motion in Limine at 3 (July 17, 2024).

1	• Revisions to the subflow zone delineation around Bartlett and Horseshoo Lakas
2	pursuant to the October 24, 2023, Order Granting Partial Summary Judgment
3	re Objections to Subflow Delineation Report for Verde Mainstern and
4	Sycamore Canvon Subwatershed
5	<ul> <li>Revisions to the subflow zone delineation around Watson Lake Granita Pagin</li> </ul>
6	Lake, Sullivan Lake, and Willow Creek Reservoir pursuant to the minute entry
7	filed January 22, 2024.
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9	Signed this 5 day of March 2025
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11	Olly C.
12	Sherri L. Zendri Special Water Master
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14	n
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16	The original of the foregoing was delivered to the Clerk of the Maricona
17	County Superior Court on
18	filing and distributing a copy to all
19	persons listed on the Court Approved
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