



SAFE HARBOR AGREEMENT

**FOR PAHRUMP POOLFISH (*Empetrichthys latos*)
AT THE SPRINGS PRESERVE, LAS VEGAS,
CLARK COUNTY, NEVADA**

Prepared by

Las Vegas Valley Water District

and

U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office

October 2015

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SAFE HARBOR AGREEMENT SPRINGS PRESERVE

1.0 INTRODUCTION

This Safe Harbor Agreement (Agreement) is made and entered into between the Las Vegas Valley Water District (LVVWD; Landowner), owner of the Springs Preserve, and the U.S. Department of the Interior, Fish and Wildlife Service (Service); hereafter, collectively referred to as the “Parties” or singularly as “Party.” The purpose of this Agreement is to: (1) establish and maintain populations of the federally endangered Pahrump poolfish (*Empetrichthys latos*); (2) create and maintain habitat for the Pahrump poolfish on lands owned and managed by the Landowner; and (3) to provide Landowner the Safe Harbor assurances provided under applicable law. This Agreement follows the Service’s Safe Harbor Agreement policy (64 Federal Register (FR) 32717) and regulations (50 CFR 17.32(c)) and implements the intent of the Parties to follow the procedural and substantive requirements of section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended (Act).

Safe Harbor Agreements encourage voluntary conservation efforts by non-Federal landowners and provide them certainty that future property-use restrictions will not be imposed if those efforts attract covered species to their properties or result in increased numbers or distributions of covered species already present. In return for voluntary conservation commitments, the Safe Harbor Agreement will extend assurances to the landowner that allows future alteration or modification of the enrolled lands back to pre-agreement conditions (Baseline). Additionally, the Safe Harbor Agreement provides landowners similar assurances for management of enrolled lands to support the conservation of listed species while conducting certain other land-use practices.

The property owned by the Landowner subject to this Agreement is the Springs Preserve (Enrolled Property), a 180-acre environmental and cultural preserve with attractions designed to commemorate Las Vegas' dynamic history and to provide a vision for a sustainable future. The Springs Preserve is committed to operate in an environmentally sound and responsible manner, protect the natural and cultural resources in its care, and serve as a model of stewardship for the community. In addition to being listed in the National Register of Historic Places in 1978, the Enrolled Property is also an active groundwater pumping well field and an educational facility. The property is located entirely within the city of Las Vegas, Clark County, Nevada.

When signed, this Agreement will serve as the basis for the Service to issue the Landowner an enhancement of survival permit under section 10(a)(1)(A) of the Act (Permit), for the incidental take of the species covered in this Agreement while conducting Covered Activities, as described herein, including the potential future return of any enrolled lands to the Baseline condition. The Permit will authorize the Landowner to take individuals of covered species, and their progeny, that are introduced to the enrolled lands and have increased in numbers and/or distribution on those lands above the established Baseline conditions. Permit issuance will not preclude the need for the Landowner to abide by all other applicable Federal, State, and local laws and regulations.

2.0 SPECIES COVERED BY THIS AGREEMENT

This Agreement covers the Pahrump poolfish (*Empetrichthys latos*), formerly known as the Pahrump killifish (*Empetrichthys latos latos*), which is also referred to in this document as the “Covered Species.” Through issuance by the Service of an enhancement of survival permit, the Landowner would be provided incidental take coverage for the Covered Species.

Species status. — The Pahrump poolfish was listed as endangered on March 11, 1967, under the Endangered Species Preservation Act of 1966 (USFWS 1967). Its endangered status was retained with the passage of the Endangered Species Act in 1973. The Service approved a Recovery Plan for the species on March 17, 1980 (USFWS 1980). Critical habitat for the species has not been designated.

Species description. — The Pahrump poolfish was first fully described by Miller in 1948 (Miller 1948). It is 1 of only 2 known species within the genus *Empetrichthys* (Miller 1948; La Rivers 1994), and is the only extant species in this genus. Miller (1948) recognized 3 subspecies of *Empetrichthys latos* from 3 distinct springs within 7 miles of each other in Pahrump Valley, southern Nevada: Manse Ranch Pahrump poolfish (*Empetrichthys latos latos*) at Manse Spring; Pahrump Ranch Pahrump poolfish (*E. l. pahrump*) at Pahrump Spring; and Raycraft Ranch Pahrump poolfish (*E. l. concavus*) at Raycraft Spring. Both *E. l. pahrump* and *E. l. concavus* were extirpated in the 1950s when the springs they occupied either dried up or were drawn down due to excessive groundwater pumping for irrigation and subsequently filled in with soil for mosquito control (Minckley and Deacon 1968; Soltz and Naiman 1978; Miller et al. 1989; Minckley et al. 1991). Since *E. l. latos* is now the only extant representative of the species, the subspecific designation has been dropped (USFWS 2004, and references cited therein; Integrated Taxonomic Information System 2012) and the fish is now known simply as the Pahrump poolfish (*E. latos*).

The Pahrump poolfish is a small fish that obtains a maximum length of approximately 77 millimeters (mm) (3 inches), with females generally larger than males (USFWS 1980; Baugh et al. 1988; Heckmann 1988). The poolfish has a slender, elongate body with dorsal and anal fins placed far back on the body, pectoral fins typically with 16 to 18 rays, and no pelvic fins (Sigler and Sigler 1987; La Rivers 1994). These fish have a broad upturned mouth; a dark longitudinal streak that tends to disappear in older, larger individuals; and an orange ring around the eye. The body is generally greenish-brown with black mottling, but males may be silver-blue without mottling during the spawning season (Soltz and Naiman 1978; USFWS 1980). The dorsal, anal, and caudal fins are bright orange-yellow when the fish are in an environment of optimal temperature and dissolved oxygen (Selby 1977; Soltz and Naiman 1978).

Habitat description. — Manse Spring was historically a large, clear limnocrone (a spring originating from a large, deep pool of water) discharging at approximately 0.17 cubic meters per second (6 cubic feet per second [cfs]) in 1875 (Deacon and Williams 2010). Water temperature was a relatively constant 24 °C (75 °F) (range 23.3–25.0 °C [74–77 °F]) (Miller 1948; Deacon and Williams 2010) and the water was alkaline (USFWS 1980). The main spring pool was 9 m (29 feet) wide and 3 m (9 feet) deep at the head, 2 m (6.5 feet) wide and 0.3 m (1 foot) deep at the outlet, and 18 m (59 feet) long. A shallow ditch extended 3 to 6 m (10 to 20 feet) southward from

the main spring pool (Deacon and Williams 2010). Water current ranged from slow to absent in the main spring pond and shallow ditch to swift in the outflow channel. The spring pool had a silty bottom and was dense in areas with macrophytes, including watercress (*Nasturtium* sp.), stonewort (*Chara* sp.), and pondweed (*Potamogeton* sp.) (Deacon and Williams 2010).

Miller (1948) described the genus *Empetrichthys* as being frequently found in the deeper holes of warm desert springs, and usually uncommon in shallow spring-fed ditches or marshy areas. At Manse Spring, poolfish used all 3 of the different habitats described above: the spring pool, shallow ditch, and swifter outflow stream (Deacon and Williams 2010). Larger fish utilized the more open and deeper waters, and young fish utilized the near water surface layer in shallow areas with aquatic vegetation (USFWS 1980). After hatching, fry (young fish, post-larval stage) remained near the bottom or near other substrates, presumably for protection and to feed (USFWS 1980). Given the partitioning of habitat by age class, it is likely that different life stages (larvae, fry, juveniles, adults) use or need different resources (e.g., food items, cover for predator avoidance), and/or have different physiological tolerances or requirements.

Despite the nearly constant water temperatures of 24 °C (75 °F) found in the poolfish's ancestral habitat (Manse Spring, Nye County), transplanted populations have demonstrated the ability to tolerate a much wider range of water temperatures. At Corn Creek, poolfish survived at low temperatures of 4 °C (39.2 °F) under ice in a trough; and at Latos Pools, poolfish withstood annual water temperature fluctuations from below 10.5 °C to 25 °C (51 °F to 77 °F) (Selby 1977). At Lake Harriet, poolfish have been reported to enter torpor during winter (Baugh et al. 1988). Selby (1977), who investigated the thermal tolerance of this species in the laboratory, found that poolfish could tolerate temperatures from at least 1.5 °C (lower temperatures were not tested) to 40 °C (34.7 °F to 104 °F) for short periods of time, with specific tolerances depending on original acclimation temperatures. This same study found that poolfish are incapable of behavioral thermoregulation. Nonetheless, the wide thermal tolerance of poolfish has allowed it to be successful in transplant sites that differ substantially in temperature regime from its native Manse Spring (Selby 1977).

Pahrump poolfish also are capable of withstanding a wide range of dissolved oxygen, including low levels, at least for limited time periods. Selby (1977) found that Pahrump poolfish are able to withstand low levels of dissolved oxygen down to 1.0 parts per million, similar to its close relative *Crenichthys*. However, the poolfish has a body shape and mouth orientation that makes utilization of the surface water layer to obtain oxygen difficult; because of this, it is thought to not be able to survive extended periods of oxygen depletion (Selby 1977). Selby (1977) surmised that poolfish deaths at Corn Creek during his study were due to fish being trapped in an area with high vegetation respiration at night, which depleted the immediate environment of oxygen.

Population Dynamics. — Pahrump poolfish have a high degree of demographic resilience. The population at Manse Spring was able to grow from fewer than 50 adults to over 1,000 fish within a few years' time on 2 occasions during the 1960s (Deacon and Williams 2010). Additionally, refuge populations have shown the ability to grow considerably and rather rapidly from initial low stocking rates, and to rebound following rather large population declines (see below). It is not surprising that this species is capable of rapid population growth given its life history characteristics. Small body size, early maturation, short generation time, small clutch size but high

reproductive effort due to multiple spawning bouts over a protracted period, and low investment per offspring are characteristics that suggest high intrinsic rates of increase (Winemiller and Rose 1992; Winemiller 2005).

Life History. — Information about the ecology, behavior, life history, population dynamics, and habitat requirements of the Pahrump poolfish is based largely on historical information derived from its ancestral location at Manse Spring. The species occupies entirely different habitats today. Our knowledge of the poolfish also consists of limited information on life history and habitat characteristics at refugia sites and from laboratory (aquaria) settings. Caution must be exercised in interpreting this information because habitat differences at these various sites, and even within the same site over time, can lead to divergence of life history traits. For example, certain poolfish life history traits changed following the introduction of goldfish at Manse Spring in the 1960s (Deacon and Williams 2010). Even so, available information demonstrates that the Pahrump poolfish is a hardy and fairly adaptable fish. This adaptability is established by its ability to survive and reproduce at sites that are distinctly different from its native habitat; its ability to survive and reproduce at sites that vary widely in environmental characteristics; and its ability to rebound from severe population crashes caused by habitat alterations at its native Manse Spring or from unknown causes at refugia sites (e.g., 2003 population decline at Shoshone Ponds).

Given its small size, the Pahrump poolfish is probably short lived (e.g., 2 to 4 years; Sigler and Sigler [1987]). This species is unique among Goodeids in that it (and other members of the genus *Empetrichthys*) lay eggs and do not bear live young (Grant and Riddle 1995; Doadrio and Dominguez 2004; Webb et al. 2004). Parental care (e.g., protection of eggs or fry) has not been reported for this species (Soltz and Naiman 1978) and young and adults appear to use different habitats (USFWS 1980).

Pahrump poolfish spawning peaks in spring, but may occur in any season and for much of the year if proper conditions are present (USFWS 1980; Sigler and Sigler 1987; Williams 1996). At Manse Spring (1961–1965), Pahrump poolfish had a protracted reproductive period that extended from January through July with a peak in April based on the number of mature eggs in the ovaries of poolfish specimens collected during those years (Deacon and Williams 2010). Poolfish transplanted to new locations appear to adjust their spawning season to temperature conditions at the new sites, with delays in spawning observed at sites with cooler and more variable temperatures than the ancestral site (Selby 1977; Deacon and Williams 2010). For example, Shoshone Ponds is about 2.7 degrees latitude further north and about 914 meters (m) (3,000 feet) higher in elevation than Manse Spring. The Service's best scientific judgment is that poolfish reproduction peaks in June or July at this site (USFWS 2010).

Poolfish at Manse Spring apparently did not reach sexual maturity until they were over 30 mm (1.2 inches) Standard Length (SL) based on the absence of mature eggs in the ovaries of smaller fish (<30 mm [1.2 inches] SL) that were collected from 1961–1965 (Deacon and Williams 2010). Reproductive potential (measured as the mean number of mature eggs produced by each size class) increased substantially with size for fish ≥ 30 mm (1.2 inches) SL during the month of April, which was the peak period of reproduction. Deacon and Williams (2010) thus surmise that the number and proportion of larger female poolfish in the population during April was an important

determinant of reproductive potential at Manse Spring. Similarly, Baugh et al. (1988) found that in a laboratory aquaria setting, larger females (>46 mm [1.8 inches]) typically produced more eggs than smaller females.

Annual fecundity (the total number of eggs spawned by a female during a single spawning season) of Pahump poolfish is unknown. This species likely produces few eggs per spawning, but may spawn multiple times per season at sites with appropriate environmental conditions (Sigler and Sigler 1987). In the laboratory, Baugh et al. (1988) found that the number of eggs produced per female ranged from 0 to 28 over a 3-day trial period, and Deacon et al. (1964) reported that adult females produced 10–30 eggs per week for over 2 months. In the laboratory, eggs hatched in 7–10 days (average of 8 days) in water temperatures of 24 °C (75 °F) (Baugh et al. 1988), which was the approximate temperature of Manse Spring. Selby (1976) reported that poolfish eggs developed over a period of 2 to 3 weeks. Both egg and larval poolfish development will likely differ by site due to water temperature differences (e.g., slower development would be expected in cooler waters) (Baugh et al. 1988).

Young fish in transplanted populations are reportedly more active during the day and adults are more active at night (Selby 1976). Poolfish are reported to be inactive during winter at some transplant sites (e.g., Lake Harriet) when water temperature cools considerably (Baugh et al. 1988; NDOW 2009).

Pahump poolfish are opportunistic omnivores, eating a wide variety of animal (e.g., aquatic insects, snails) and plant material, while also ingesting large amounts of debris and inorganic material (Deacon 1984; Hobbs et al. 2003; Deacon and Williams 2010). These fish are able to adapt their diet to food item availability as determined by environmental conditions (Hobbs et al. 2003; Deacon and Williams 2010). For example, prior to the establishment of goldfish at Manse Spring, the relative volume of aquatic insects in the poolfish diet was high (Deacon and Williams 2010). Following goldfish establishment, a higher proportion of poolfish consumed plant material and the average volume of aquatic insects in the guts of samples declined. Deacon and Williams (2010) attributed this dietary shift to habitat changes caused by goldfish (e.g., higher turbidity, disturbance of aquatic macrophytes), which may have affected insect density and detectability. In a dietary study of transplanted poolfish populations in the early 1990s, Hobbs et al. (2003) found that debris and plant/algal material comprised the largest part of the poolfish's diet at Shoshone Ponds and Spring Mountain Ranch State Park, whereas insects and other animal items comprised a slightly larger part of the diet than debris and plant items at Corn Creek. Debris, such as sand or sticks, is generally coated with epiphytic bacteria or diatoms, providing nutrients to fish. Based on known diet at Manse Ranch and available food sources at Shoshone Ponds North, it has been suggested that larger zooplankton was likely an important food source for poolfish at Shoshone Ponds (Deacon et al. 1980).

Refugia. — In an attempt to prevent the extinction of the only remaining member of the genus *Empetrichthys*, refuge populations were established in Nevada at Los Latos Pools on the Colorado River near Lake Mojave (Colorado River Valley) in 1970; Corn Creek Springs in the Desert National Wildlife Refuge, Clark County (Las Vegas Valley) in 1971; and the Shoshone Ponds Natural Area (Middle Pond, North Pond, and Stock Pond) located in Spring Valley in White Pine County,

Nevada in 1976; and Spring Mountain Ranch State Park west of Las Vegas in Clark County, Nevada in 1985. Pahrump poolfish continue to persist today at all refuge sites except the Los Latos Pools:

- Los Latos Pools: Pahrump poolfish were introduced into the Los Latos Pools in 1970. The population was initially successful, but failed in the late 1970's due to flooding. Poolfish were not reintroduced to this location.
- Corn Creek: Pahrump poolfish were introduced into the Corn Creek refuge site in 1971, and initially flourished until the population dwindled in the mid-1970s following the invasion of non-native mosquitofish (*Gambusia affinis*). Poolfish were reintroduced in 1976, and once again flourished until the invasion of red swamp crayfish (*Procambarus clarkia*). The last free-living poolfish at Corn Creek were observed in 1998. In 2002, a viewing facility for poolfish was built at Corn Creek to provide an area free of crayfish and other exotic species. Poolfish were reintroduced to this aquarium-like setting, distinctly different from the Pahrump poolfish's ancestral home (Manse Spring), in 2003. As of August 2011, the Nevada Department of Wildlife (NDOW) reports an estimate of 105 fish (95% CI, 78–145) inhabiting the viewing facility. Specifically, there were 18 poolfish (95% CI, 10–34) inhabiting the North Tank and 87 poolfish (95% CI, 68–109) inhabiting the South Tank in August 2011.
- Shoshone Ponds: In 1972, Pahrump poolfish were established initially in the Shoshone Ponds but were soon extirpated as a result of vandalism. These ponds were identified as temporary refugia in the Recovery Plan. Poolfish were reintroduced in 1976, and continue to exist there today. Initially the fish became established in two ponds (North and Middle refuge ponds), and subsequently spread by unknown means to an adjacent outflow stream (from Well #2) and a nearby earthen stock pond. All of these habitats are formed from artesian well flow. Although the environment at Shoshone Ponds differs and is geographically distant from the Pahrump poolfish's ancestral home (Manse Spring), the species has survived at Shoshone Ponds for over 35 years. It should be noted that the Recovery Plan identifies Shoshone Ponds as a temporary refugia for Pahrump Poolfish. From 1989 to 2011, the estimated number of poolfish varied from 922 to over 8,100 fish, with a mean number of 4,217 fish. In 2012, the estimated number of poolfish was 3,481 (stock pond: 2,919 (95% CI 2,590–3,290); Middle refuge pond: 44 (95% CI 13–79); North Pond: extirpated; Well # 2 outflow: 518 (95% CI 281–1,103) (NDOW 2012).
- Lake Harriet at the Spring Mountain Ranch State Park: Pahrump poolfish were introduced to an irrigation reservoir known as Lake Harriett at Spring Mountain Ranch State Park in 1983. The poolfish population expanded throughout the lake, and fluctuated in response to changes in the lake's condition. The poolfish population has rebounded from fluctuations well, with estimated numbers of poolfish in 14 surveys from 1998 to 2011 varying from 3,594 to 58,041 fish, with a mean estimate of 17,839 fish. In 2012, the population estimate was 31,570 poolfish (95% CI 25,468–39,135) (NDOW 2012).

3.0 DESCRIPTION OF ENROLLED PROPERTY

History of the Springs Preserve. — The property subject to this Agreement (Enrolled Property) is owned and managed by the Landowner. The Enrolled Property is the 180-acre Springs Preserve, located entirely within the City of Las Vegas in Clark County, Nevada (Figure 1-2). The Preserve has been listed on the National Register of Historic Places since 1978.

Prior to Euro-American colonization, the Las Vegas Springs and Las Vegas Creek were used by the Ancestral Puebloans, Patayan, and Numa (Paiutes) peoples. In 1829, a New Mexican merchant, Antonio Armijo, led an expedition along the Virgin River to find a new trading route between New Mexico and California. During the trip, a teenage scout, Rafael Rivera, wandered away from the scouting party and ended up following the Las Vegas Wash to a mesa where he could see springs and meadows. Once Rivera had regained the caravan, he led the party to the lush meadows and springs. The route they followed became known as the Old Spanish Trail. The area Rivera discovered was named *Las Vegas*, meaning "the meadows" in Spanish. Captain John C. Fremont led a U.S. military expedition through the valley in 1844 and was the first to map the "Old Spanish Trail" route, which linked California and New Mexico. From 1847 to 1858, the Las Vegas Springs became a major campsite. Hundreds of wagon trains moved through the valley and camped by the springs.

In 1855, Mormon missionaries built a fort, known as the Old Las Vegas Mormon Fort, downstream of the springs near the Las Vegas Creek. They planted fruit and shade trees and established friendly relations with the Paiutes. The Mormon missionaries abandoned the fort in 1858. The abandoned Mormon Fort gained new life as "Los Vegas Rancho" when Octavius Decatur Gass of California developed the area. He and his friends restored the fort and developed small "ranches" near it.

At the springs and upper Las Vegas Creek to the west of the fort, James B. Wilson of Ohio and John Howell of New York worked together and filed for ownership of the 320 acres, which they called the Spring Rancho. Howell and Wilson raised cattle and horses on irrigated grassy meadows and planted fruit trees. In 1872, Gass filed on most of the water from the springs, citing prior water rights. By 1878, Gass owned all the land watered by the creek. Unable to sell the ranch when other land development plans failed, Gass borrowed money from Archibald Stewart. Gass planned to use money from his next crop to pay off the loan, but bad weather destroyed the crop and he turned over the property to Stewart. In 1882, Stewart and his family moved to Los Vegas Rancho, which they referred to as the Upper Rancho.

A gunfight with a hired-hand from another ranch killed Archibald Stewart in 1884. Stewart left behind his pregnant wife, Helen J. Stewart, and four children. Travelers continued to come to the ranch in search of water, food, and rest during their journeys, and Helen continued to run the ranch for the next 20 years. In 1902, Helen Stewart signed an agreement with Senator William A. Clark of Montana to sell the 1,864 acre Stewart Ranch and its water rights for \$55,000 to the San Pedro, Los Angeles, and Salt Lake Railroads (later known as Union Pacific). The railroad created the Las Vegas Land and Water Company to operate the first water distribution system in the valley. In

May 1905, the company auctioned off land, creating the town site of Las Vegas. The City of Las Vegas was officially incorporated in March 1911.

To supply the railroad and the new town with water, the Las Vegas Land and Water Company laid redwood pipes and constructed protective houses over the springs to keep people, cattle, and other polluting factors out of the water supply. Beginning in 1907, residents began drilling privately-owned wells, tapping into the underground aquifer. Often, such wells were not capped, allowing water to flow continuously due to artesian pressure. Within 40 years, the Nevada State Water Engineer declared Las Vegas groundwater overdrawn. As Las Vegas grew, the springs could not meet peak demands. The Las Vegas Land and Water Company complained about water waste and proposed metering water use, but the Nevada State Legislature opposed such measures. In 1923, the company drilled Well No. 1 near the Las Vegas Springs to help meet the new city's growing water needs.

The federal government's Hoover Dam project brought a huge influx of people to the area from 1928 until 1936. Drought and heavy demand for water put great pressure on the railroad's Las Vegas Land and Water Company. In 1935, Las Vegas Creek dried up in the summer. In 1936, the Las Vegas Land and Water Company drilled Well No. 2 into the spring mound south of the Las Vegas Creek, and piped the water to a reservoir. Only two years later, in 1938, a major water shortage occurred. By 1940, Las Vegas' population had grown to 8,422. The outbreak of World War II brought the defense industry, including the U.S. Army Aerial Gunnery Range (now Nellis Air Force Base) and Basic Management, Inc. (BMI). BMI was the first to import Colorado River water from Lake Mead. Prior to this, the valley relied solely on groundwater.

Residents went through another water shortage in 1947. Southern Nevada's population increased to 41,000 by 1950. Groundwater use increased to 35,000 acre feet per year, exceeding nature's ability to recharge the groundwater aquifer naturally. Frustrated with the Las Vegas Land and Water Company's inability to provide water as fast as the town grew, the people convinced the Nevada State Legislature to authorize the purchase of the entire water system. In 1953, the Union Pacific Railroad sold the Las Vegas Land and Water Company for \$2.5 million to the newly-created government entity, the Las Vegas Valley Water District (LVVWD).

By 1960, residents had drilled nearly 3,000 wells in the Las Vegas Valley. However, more than half of the groundwater came from less than 25 wells located within a mile of the Las Vegas Springs. By then, the population had increased to approximately 119,000. Increased well water use caused the groundwater level to decline about two to four feet per year. The Las Vegas Springs flows, once a hallmark of the valley's geography, stopped altogether by 1962.

In the 1970s, a portion of the spring site came close to being paved over by the Nevada Department of Transportation's plans for an expressway. An archaeological survey conducted in 1972 confirmed the long-term Native American occupation of the site. This discovery helped reroute US 95 around the Enrolled Property. Concerned citizens and the Landowner petitioned to add the Las Vegas Springs to the National Register of Historic Places. Under the National Historic Preservation Act of 1966, the Las Vegas Springs were designated an archaeological site and listed on the National Register in 1978.

By 1997, the LVVWD Board of Directors approved a plan to develop a preserve to protect and manage the cultural, natural, and water resources of the site. The Springs Preserve opened in June 2007.

Today, the Springs Preserve is a leader of cultural and environmental sustainability, having achieved national and international acclaim. Approximately 90 acres of degraded Mojave Desert plant communities have been restored since 2000 at the Enrolled Property. In addition to being listed in the National Register of Historic Places, the Springs Preserve museums have achieved LEED Platinum status, the highest level of certification from the U.S. Green Building Council. The Springs Preserve also recently received ISO 14001 certification for its Environmental Management System. As Las Vegas' cultural center, some 250,000 visitors a year come to the birthplace of Las Vegas to be entertained and enlightened about southern Nevada's archaeology, botany, geology, history, paleontology, and wildlife.

Springs Preserve Ponds. — In an effort to partially recreate portions of the Las Vegas Creek, the Landowner has created nine engineered ponds within the Enrolled Property. The Landowner has provided the design drawings for these ponds to the Service. The Landowner is developing sources of water for these ponds, which may include but are not limited to urban run-off through existing drainage channels, well flushings, fire hydrants, and existing or new shallow groundwater wells. The primary source of water for the ponds is intended to be the water that will be pumped from the existing constructed wetland in the Meadows Detention Basin, located within the Enrolled Property.

The Meadows Detention Basin is fed by urban run-off flowing down the Alta Channel. Although these flows are currently insufficient to irrigate both the existing constructed wetland and all nine ponds, future construction on the Alta Channel is expected to triple the geographic area draining into the Meadows Detention Basin, which would increase the amount of urban run-off available to be used. Currently, the Landowner holds Permit No. 82231 for 0.25 cfs of water from the Alta Channel. Until such a time as future work on the Alta Channel is completed, or other sources of water are available, it is estimated that the existing run-off water volume is sufficient to maintain three of the nine ponds constructed in the Las Vegas Creek within the Enrolled Property. If additional run-off water becomes available in the future, the Landowner would apply for additional water rights permits from the Nevada State Engineer.

Water will be pumped from the bottom of the second pond in the Meadows Detention Basin and/or a shallow groundwater well to the ponds harboring the Covered Species (Figure 3). The Meadows Detention Basin plant community serves as a biological filter, cleansing the water as it flows through the wetland. The Landowner does not intend to conduct any additional water quality treatment prior to moving water into the ponds. Drawing water from the bottom of the pond in the Meadows Detention Basin reduces, but does not eliminate, the potential of pumping surface contaminants, such as hydrocarbons, into the refugia ponds. However, a number of measures have been put into place to minimize the likelihood of such an occurrence, as discussed herein. Periodic water quality testing will occur in each pond inhabited by the Covered Species; data on dissolved oxygen, pH, conductivity, and water temperature will be recorded. These data will be used to assess the health of the pond ecosystems as part of an adaptive management strategy. As part of

the Landowner's current habitat suitability test with a surrogate species (see below), the Landowner is collecting water quality data from three ponds periodically, which will aid in data interpretation. Prior to initiating pumping to the ponds, a visual inspection for anything unusual (e.g., oil slick) in the source pond will be made. In the event of a short-term water shortage (due to unavailable water or water quality issue), the Landowner will pursue alternative means of obtaining water at the Enrolled Property, including but not limited to shallow groundwater wells, adjacent irrigation systems, and/or potable water. Currently, the Landowner has an application on file with the Nevada State Engineer to appropriate shallow groundwater to support the ponds (Application No. 84269).

Given the porous nature of the Springs Preserve geology, the ponds were constructed with reinforced 45 mil polypropylene liners set over a polyvinyl chloride (PVC) pipe frame. These liners are necessary, as the bed of the Las Vegas Creek is crossed by two faults and numerous fissures. The ponds are approximately 3 feet deep, with approximately 12 inches of soil in the bottom to accommodate an aquatic macrophyte community. Concrete berms serve as dams to retain water in the sloping creek bed where needed. Dams were constructed with overflow notches. Occasionally, sufficient water will be available (e.g., well flushing) to intentionally overflow the ponds, through screens as described below, and thus provide water to the aging Cottonwood trees that line the historic Las Vegas Creek. The overflow notches have stainless steel screens with 1/8 inch perforations to help retain all but the smallest aquatic organisms during flushing events. The surface areas of the nine ponds range from approximately 400–1,034 ft².

The ponds could become attractive breeding sites for the various mosquito species inhabiting the Enrolled Property. Given that certain mosquitoes can be a vector for West Nile Virus, the non-native mosquitofish is commonly used to control mosquito populations, as they consume mosquito larvae. Indeed, mosquitofish have thrived in the Meadows Detention Basin on the Enrolled Property since they were introduced by Clark County Vector Control in November 2003. However, since the Enrolled Property is managed as a nature preserve, the Landowner prefers to instead use a native fish to control mosquito populations. The Landowner wishes to participate in the conservation of the federally-listed endangered Pahrump poolfish, which likewise consumes mosquito larvae. In doing so, the Landowner will create refugia for this species, participate in the conservation for this species, and raise awareness of endangered and native species conservation efforts, while simultaneously controlling mosquito populations.

Currently, all nine ponds and associated piping have been constructed and tested; planting of riparian habitat in and around the first three ponds (South Fork ponds #1 and 2 and North Fork pond #3; Figure 3) has been completed. Construction of the intake / pump station to convey water from the Meadows Detention Basin to the system of pipes in the Las Vegas Creek has also been completed. This pump station was designed to prevent the pumping of mosquitofish from the Meadows Detention Basin to the refugia ponds. The Landowner is still investigating the feasibility of obtaining water from a shallow groundwater well on the Enrolled Property to augment flows. The three established ponds (i.e., with thriving plant and invertebrate communities) are being tested for habitat suitability with a surrogate species, the Moapa White River springfish (*Crenichthys baileyi moapae*), which were introduced on 22 August 2013. These fish will be removed and returned to their point of origin prior to any introduction of the Covered Species.

The Landowner has fulfilled all environmental compliance requirements for construction and operation, including, but not limited to: (1) Section 404 of the Clean Water Act; (2) Section 401 Water Quality Certification; and (3) a Nevada Temporary Working in Waterways Permit. The Landowner also fulfilled Section 106 National Historic Preservation Act compliance prior to construction of the ponds. The Enrolled Property is located in an area of high cultural resource value and, as previously mentioned, is entered into the National Register of Historic Places. In accordance with the Section 106 consultation process as approved by the Nevada State Historic Preservation Office (SHPO), the Landowner tested the ingress/egress and pond footprints via 132 shovel tests, and submitted the results to the SHPO. The SHPO concurred with a Finding of No Significant Impact, allowing work to proceed under a cultural resource monitoring plan.

4.0 BASELINE DETERMINATION

This Agreement provides a mechanism for the Landowner to enhance, restore, and manage parts of the Enrolled Property for the benefit of the Covered Species without incurring additional regulatory restrictions on the use of the Enrolled Property. The Agreement, however, does not release the Landowner from the responsibility to avoid take of the Covered Species already occupying portions of the property, if any. To receive the assurances regarding take of Covered Species specified in this Agreement, the Landowner must maintain the Baseline conditions on the Enrolled Property. Pahrump poolfish have never inhabited the Enrolled Property, and there is no existing poolfish population that could colonize and occupy the Enrolled Property other than through the deliberate introduction effort covered by this Agreement. Consequently, the Parties have agreed to set the Baseline conditions of zero (0) Pahrump Poolfish and no habitat (0 acres) for the Enrolled Property.

5.0 COVERED ACTIVITIES

The Parties have developed this Agreement to identify potential activities the Landowner can implement to promote the conservation and recovery of the Covered Species, referred to below as “Beneficial Management Activities.” This section also identifies as Covered Activities other potential activities involved in management of the Enrolled Property, which activities could give rise to incidental take of the Covered Species. The Service will issue Landowner an Enhancement of Survival permit, which will provide incidental take coverage for the Covered Activities described below.

Beneficial Management Activities

The following management activities would be beneficial to the Covered Species because they would create and maintain a fourth refugium for the Covered Species. This additional refugium will reduce the potential of an adverse effect from catastrophic events on the Covered Species, while contributing to research knowledge, management techniques, conservation strategies, and

public education and awareness. The Landowner would be covered under this Agreement for Covered Activities including, but not limited to:

- Prior to entering into this Agreement, the Landowner implemented several components of habitat enhancement, protection, and restoration on the Enrolled Property that create suitable habitat for the Covered Species. These include but are not limited to: (1) the construction of an engineered straw bale wall along the entire northern boundary of the Preserve that serves as a thermal, sound, and refuse barrier to US-95; (2) use of resin paving techniques on perimeter fire access roads to avoid hydrocarbon-based pavement run-off; (3) reduced the use of non-organic pesticides and herbicide use at the Preserve; (4) the construction of the Cienega wetland to serve as a biological filter for urban run-off entering the Meadows Detention Basin (Fig. 2); (5) installation of cable and split-rail fencing to reduce access by guests to sensitive resource areas; (6) removing invasive, noxious, non-native vegetation and replanting with appropriate native vegetation; (7) restoring approximately 90 acres of degraded meadow, riparian, mesquite bosque, creosote-bursage, and saltbush communities; (8) the removal and complete restoration of gravel roads to increase habitat patch sizes and decrease ecological edge effects; and (9) construction of the infrastructure for nine engineered ponds within the historic Las Vegas Creek bed; as well as, the water intake infrastructure in the Meadows detention basin, and adjacent pumping station (Fig. 3). Furthermore, the Preserve achieved ISO 14001 environmental certification in 2011. The Landowner will maintain or update these components based on a number of factors, including but not limited to facility life spans, adaptive Springs Preserve management, new information, and unknown events.
- The Landowner has created nine ponds in the historic Las Vegas Creek bed, 1 to 3 of which will be used initially as refugia for the Covered Species. As water availability allows, the number of ponds used as refugia could potentially expand during the period of the Agreement. The potential use of all nine ponds as refugia is covered by this Agreement.
- The Landowner will coordinate the transplanting of the Covered Species from Shoshone Ponds and Spring Mountain Ranch State Park to the Enrolled Property with the Service. The Landowner is covered by this Agreement to translocate the Covered Species between ponds on the Enrolled Property. A list of individuals authorized to translocate the Covered Species is included in Appendix I. The Landowner will monitor the establishment of the populations in the refugia ponds on the Enrolled Property to help ensure success.
- The Landowner will strive to maintain adequate water levels and flows in the refugia ponds at all times, but does not have control over the volume of available urban run-off, which could decrease unexpectedly. The Landowner also does not have control over the quality of water entering the ponds. However, the Landowner has put in place a number of measures to reduce (but not eliminate) the potential for contaminated water reaching the refugia ponds on the Enrolled Property: (1) aquatic macrophytes in a re-created Cienega ecosystem, within the Meadows Detention Basin, naturally filter the water; (2) water is pumped from a vault covered in sand at the bottom of the second pond in the Cienega ecosystem, which protects the pond intake from certain contaminants that are not water soluble (e.g., oils); and (3) a visual inspection of Meadows Detention Basin source ponds will be undertaken prior to

pumping water to the refugia ponds. The Landowner will be covered for take in the event that water levels decrease or contaminated water flows into the refugia ponds. In the event of a short-term water shortage, the Landowner will pursue alternative means of obtaining water at the Enrolled Property, including but not limited to shallow groundwater wells, adjacent irrigation systems, and/or potable water.

- The Landowner will create and maintain pond habitat in an effort to sustain the Covered Species. The Landowner may pursue a variety of habitat creation and maintenance activities, such as native plant transplantation and removal of excessive native algae, cattail and/or bulrush growth, to ensure balanced levels of aquatic cover and open water suitable to all life stages of the Covered Species. The Landowner will aerate the ponds to increase both circulation and availability of dissolved oxygen. The Landowner would be covered for mortalities as a result of natural predators such as, but not limited to, raccoons (*Procyon lotor*), kingfishers (*Ceryle alcyon*), and various species of herons and/or egrets.
- The Landowner will attempt to remove invasive species that might be introduced into the refugia ponds and adversely affect the Covered Species, such as bullfrogs (*Lithobates catesbeianus*) and crayfish.
- The Landowner will coordinate with the Service to conduct annual population surveys of the Covered Species on the Enrolled Property.
- The Landowner hosts visitors, schools, and other groups for education and outreach activities, which in the past have reached as many as 250,000 visitors per year. Interpretive signage would be installed by the Landowner to educate visitors frequenting the Springs Preserve trails about native and listed species that occur on the Enrolled Property, including the Pahrump poolfish, the habitats where these species occur, and what can be done to benefit these species.
- In addition to take coverage otherwise obtained under this Agreement for Covered Activities, the Landowner would be covered under the Agreement for any take resulting from *in situ* research suggested in the Recovery Plan (USFWS 1980) on the diet, genetics, growth, habitat, movements, physiology, reproduction, water quality, and/or survivorship of the Covered Species. The Landowner will submit all research proposals, including a description of the qualifications of the researchers, to the Service for review and approval prior to initiation of any research on the Covered Species at the Enrolled Property. No separate research/recovery permit shall be required for approved research on the Covered Species at the Enrolled Property.
- The Landowner may continue construction and maintenance of trails, bridges, and viewing platforms to further reduce visitor impact on species and habitats of conservation interest.
- Additional beneficial management activities in the ponds, or that may directly or indirectly affect the ponds, may be identified in the future. The Landowner will submit all additional

beneficial management activities proposals to the Service for review and approval prior to initiation of any such activities on the Covered Species at the Enrolled Property.

Other Management Activities

These management activities relate to future or ongoing Landowner activities at the Enrolled Property that are not related to establishment and maintenance of the Covered Species. The Landowner will receive incidental take coverage pursuant to this Agreement under an enhancement of survival permit for activities associated with such use of the Enrolled Property including, but not limited to, its use as a cultural, historical and environmental attraction, a community resource, and an active groundwater well field. The Landowner's management activities would be conducted in a way that would minimize interference with the implementation of the Beneficial Management Activities described above.

Landowner is covered under this Agreement for activities including but not limited to:

- The Landowner hosts visitors and has group events such as weddings, gatherings for non-profit groups, and educational field trips for schools. These visitors may walk, use bicycles, ride a passenger train, or other transportation devices on pathways located near the ponds.
- The Landowner will manage associated drainages, the Meadows Detention Basin, the water distribution system, and the refugia ponds for multi-use needs of the Enrolled Property.
- The Landowner will continue to use water sources that supply the ponds for a variety of different purposes on the Enrolled Property; water quality and levels in the ponds may vary.
- The Landowner uses the Enrolled Property for groundwater pumping and associated well-field activities that include, but are not limited to, well operation and maintenance, well flushing, well drilling, and pump tests. Well-field operations may cause groundwater level declines, but any such declines would not directly affect pond water levels due to the lining systems of the ponds themselves.
- The Landowner may undertake any and all activities associated with the operation and maintenance of water systems, equipment, and infrastructure used in the delivery of potable and non-potable water to various customers.
- The Landowner may manage flows in and out of the ponds as needed for management of the Enrolled Property.
- The Landowner may drain the refugia ponds for maintenance activities including, but not limited to, repairing leaks, removing invasive species, and enhancing ponds.
- The Landowner may grade and re-contour existing access roads within the Enrolled Property, as needed for road maintenance and fire access purposes.

- The Landowner may construct additional pipelines and power lines, and will continue to operate and maintain such facilities.
- The Landowner may extinguish fires or remove brush to prevent the spread of fires.
- The Landowner may clear debris from the refugia ponds such as, but not limited to, tree limbs, leaves, cattails, bulrushes, aquatic plants, and other detritus.
- In order to maintain public health and safety, the Landowner may implement mosquito control measures in and around the ponds.
- The Landowner may use herbicides or pesticides to control invasive and/or noxious weeds and invertebrate pests, as deemed necessary for the management of the Enrolled Property.

Avoidance and Minimization Measures

The Landowner agrees to implement the following measures to avoid and/or minimize potential impacts to the Covered Species from the Covered Activities:

- The Landowner will install interpretive signage informing visitors and event attendees frequenting the Springs Preserve trail system of the presence and protected status of the Covered Species in refugia ponds on the Enrolled Property.
- The Landowner will not intentionally introduce fish species that could prey upon or compete with the Covered Species in the manmade refugia ponds. Pumping infrastructure includes screens designed to prevent mosquito fish from being transferred from the Meadows Detention Basin to the Ponds. Prior to intentionally introducing any fish species into the ponds at the Enrolled Property, the Landowner will contact the Service to ensure such species will not adversely affect the Covered Species.
- If the Landowner needs to use pesticides or other chemicals to manage the Enrolled Property, the Landowner will select chemicals and applications to avoid or minimize adverse effects to the Covered Species.
- Periodic water quality testing will occur in each pond; data on dissolved oxygen, pH, conductivity, and water temperature will be recorded. These data will be used to interpret the health of the pond ecosystems as part of an adaptive management strategy.
- If the Landowner becomes aware of any contamination to water sources for the refugia ponds on the Enrolled Property, the Landowner will inspect and test water samples, if necessary, coordinate with the local regulatory agencies, and/or use alternate sources of water for the refugia ponds. The Landowner is developing alternative sources of water for these ponds, which may include but are not limited to urban run-off through existing drainage channels, well

flushings, fire hydrants, adjacent irrigation systems, potable water and existing or new shallow groundwater wells.

- If water supply becomes interrupted or the refugia ponds begin to leak, the Landowner will take actions to attempt to maintain adequate water levels and flows in the refugia ponds that the Covered Species inhabit. Measures may include, but are not limited to, using water from shallow groundwater wells, adjacent irrigation systems, and/or potable water.
- If the Landowner needs to drain refugia ponds or determines that it is unfeasible to maintain adequate water levels and flows in the refugia ponds, the Landowner will coordinate with the Service to either translocate the Pahrump poolfish to more appropriate refugia ponds on the Enrolled Property, or notify the Service in advance so that the Service can relocate the Covered Species.
- During any construction, operation, or maintenance activities, the Landowner, or other associated personnel, will exercise due diligence to avoid or minimize negative effects to Covered Species.
- Security patrols are conducted regularly throughout the Enrolled Property to protect the water supply and infrastructure. Security patrols will substantially reduce the potential for disturbance to the Covered Species and refugia habitat.

6.0 INCIDENTAL TAKE OF COVERED SPECIES

As used in this Agreement, incidental take refers to the unintentional or unavoidable killing or injuring of individuals of the Covered Species in the course of carrying out otherwise lawful activities. Section 3(19) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harassment is defined by the Service as an intentional or negligent action or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns that include, but are not limited to, breeding, feeding, or sheltering. Nothing in this Agreement authorizes the Landowner to deliberately kill or injure any such species.

Safe Harbor Agreements are written in anticipation that take of the Covered Species and their progeny could occur at some point in the future. Any take that occurs as a result of a reduction in the quality and/or quantity of the established Baseline on the Enrolled Property is not authorized. Under this Agreement, incidental take could occur as a result of the Covered Activities, including both Beneficial Management Activities and the Other Management Activities, described in Part 5 of this Agreement, and also as a result of the potential return to Baseline at the termination of the Agreement and its associated Permit. The Landowner may conduct these activities, even if such

use results in the incidental take of individuals of the Covered Species under this Agreement and as authorized in the Permit.

The Beneficial Management Activities have been developed with intent to increase the number of individuals of the Covered Species occurring at the Enrolled Property, while the Other Management Activities are not anticipated to impede this beneficial contribution to the status of the Covered Species. As the population of the Covered Species increases, individual specimens may be moved to additional ponds on the Covered Property. The Permit would authorize the Landowner, and persons associated with the Landowner, to incidentally take individuals of Pahrump poolfish and their progeny at the Enrolled Property as a result of the Beneficial Management Activities and the Other Management Activities. Such incidental take of Pahrump Poolfish on the Enrolled Property could occur as a result of the Covered Activities described in detail in Part 5 of this Agreement.

As a result of these activities, incidental take could occur in the form of direct mortality or injury to eggs, fry, juveniles, subadults, and/or adults through exposure, digging, stranding, planting, cutting, or trampling; as well as, accidental spills into the pond water or the presence of contaminants in source waters used to irrigate the ponds on the Enrolled Property, or any change in water levels of the ponds. The Permit would provide the Landowner incidental take coverage for individuals of Covered Species that could be taken as a result of the Covered Activities, including both Beneficial Management Activities and the Other Management Activities at the Enrolled Property during the term of the Agreement.

The Permit would authorize the Landowner, and persons associated with the Landowner, to incidentally take individual Pahrump Poolfish and their progeny as a result of activities associated with the return to Baseline conditions. Because the Baseline for the Covered Species on the Enrolled Property has been determined to be zero (0), activities that would result in a return to Baseline could include those activities that would reduce or remove all Covered species and all suitable habitats that have developed over the term of the Agreement.

The Parties expect that the maximum level of take, defined herein as 100% of the Covered Species on the Enrolled Property, authorized under this Agreement and Permit may never be realized because the Landowner will implement the avoidance and minimization measures in Part 5 of this Agreement to reduce the likelihood that take would occur. Additionally, the maximum level of take is not expected to be realized because, as identified in Part 8 of this Agreement, the Landowner is required to notify the Service of any planned activity that the Landowner reasonably anticipates will result in take of Pahrump poolfish on the Enrolled Property, including a return of the Enrolled Property to the Baseline conditions, and provide the Service the opportunity to capture and relocate any individuals that could potentially be affected. Incidental take of Pahrump poolfish could occur in the form of capture as a result of these activities.

7.0 NET CONSERVATION BENEFIT

In accordance with the Service's Safe Harbor Policy (64 FR 32717), "net conservation benefit" means that management activities that are part of the Agreement are expected to provide an

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increase in the Covered Species' population or distribution, and/or the enhancement, restoration, or maintenance of Covered Species habitat. The net conservation benefit will be sufficient to directly or indirectly contribute to recovery of the Covered Species.

The beneficial management activities and Avoidance and Minimization Measures described in Part 5 of this Agreement have been developed to support the conservation and recovery of the Covered Species. These activities include recovery actions, as identified in the recovery plan for the Pahrump Poolfish (USFWS 1980), such as the removal of non-native species, the maintenance of suitable habitat, and the creation and enhancement of habitat. Additionally, the Service recognizes that education and outreach activities promote the recovery and conservation of listed species. Therefore, management activities associated with this Agreement would benefit the Pahrump Poolfish by contributing to Pahrump Poolfish conservation and recovery. The Service anticipates that implementation of these management activities will produce a net conservation benefit to the Covered Species by:

- Providing refugia ponds where suitable habitat was created for the Covered Species.
- Providing refugia ponds for the Covered Species to increase in population numbers or distribution.
- Providing an additional refugium to reduce the potential of an adverse effect from catastrophic events.
- Contributing to research knowledge, management techniques, conservation strategies, and public education and awareness.

These activities will result in habitat protection and insurance against the loss of the Covered Species on the Enrolled Property, consistent with the terms of this Safe Harbor Agreement. The Landowner will conduct activities on the Enrolled Property that are beneficial to the Covered Species, as part of its normal management and operation of the Enrolled Property, which includes activities such as, but not limited to, drilling wells, creating or maintaining pipelines, and educational and recreational activities, as detailed in Part 5 of this Agreement ("Covered Activities"). The net conservation benefit to the Covered Species from this Agreement, and thus contribution to recovery, will remain in place for at least 15 years.

8.0 RESPONSIBILITIES OF THE PARTIES

In addition to carrying out the activities described in Part 5, the Landowner agrees to:

1. Notify the Service at least 30 days in advance of any planned activity that the Landowner reasonably anticipates will result in take of any individual of the Covered Species on the Enrolled Property, including a return of the Enrolled Property to Baseline conditions, and provide the Service the opportunity to capture and relocate any individuals that could potentially be affected.

2. Coordinate with the Service and use its best efforts to translocate and then conduct annual trapping surveys to assess the status of Covered Species populations in the refugia ponds on the Enrolled Property. The Service's agreement to assist is limited by its authorities and appropriated funds, as stated in Part 12.D of this Agreement.
3. Submit all additional beneficial management and/or research activity proposals to the Service for review and approval prior to initiation of any such activities on the Covered Species at the Enrolled Property. The Service agrees to complete its review within 30 days.
4. Monitor the implementation and progress of the beneficial management and/or research activities described in Part 5 of the Agreement, and provide the Service with the status of these activities in an annual report.
5. Allow reasonable access by the Service or another agreed-upon party onto the Enrolled Property for purposes related to this Agreement, including the capture and relocation of Covered Species.
6. Notify the Service 60 days prior to any transfer of ownership so that the Service can attempt to contact the new owner, explain the Baseline responsibilities applicable to the Enrolled Property, and seek to interest the new owner in signing the existing Agreement or a new one to benefit Pahrump Poolfish on the Enrolled Property.
7. Report to the Service any dead, injured, or ill specimens of the Covered Species observed on the Enrolled Property. Upon locating a dead or injured Covered Species, the Landowner will notify the Southern Nevada Field Office (4701 North Torrey Pines Drive, Las Vegas, Nevada 89130; (702) 515-5230) by telephone within 3 working days of its finding. The verbal notification must include the date, time, location, cause of injury or death if known, and any other pertinent information. An email message or written report containing the details from the verbal notification must be sent to the Southern Nevada Field Office with this information and, if possible, a photograph within 3 weeks of its finding. The person to whom the message is sent, and corresponding email address if applicable, would be determined at the time of the phone call.
8. Provide the Service with an annual summary of activities by February 28th of each year for the prior calendar year. The report will describe any habitat restoration activities and any substantial change in condition of previously established habitat for the Covered Species that occurred during the previous year, any surveys of the Covered Species coordinated by the Landowner during the previous year, the status of implementation of the beneficial management activities described in Part 5, and any incidental take of a Covered Species that has occurred.
9. Coordinate with the Service to develop a list of authorized individuals (Appendix I) that will be directly implementing activities in the ponds that may result in take of the Covered Species. The Landowner will request changes to Appendix I in writing to the Service at least 30 days prior to the requested effective date. The request shall include: names of each individual to be appended to Appendix I; resumes/qualifications statement of each person

to be appended to Appendix I, detailing experience with the Covered Species; and names of any individuals being deleted from Appendix I.

In consideration of the foregoing, Service agrees to:

- A. Upon execution of the Agreement and satisfaction of all other applicable legal requirements, issue a Permit to the Landowner, authorizing incidental take of the Covered Species as a result of lawful activities on the Enrolled Property in accordance with the terms of such Permit. Incidental take authorization will be provided for take resulting from the performance of the Covered Activities as described in Part 5 of the Agreement. The duration of the Agreement will be 15 years.
- B. As appropriate, provide the Landowner with a determination that it has satisfied the conservation measures within 1 year before the expiration of the Agreement.
- C. Provide the Landowner with technical assistance when requested, and provide information on Federal funding programs for wildlife habitat improvement, including those for threatened and endangered species.
- D. Monitor use of the refugia by the Covered Species, if the Service determines that such monitoring is needed.

9.0 AGREEMENT TERMINATION AND PERMIT DURATION

This Agreement becomes effective upon issuance of the Permit by the Service. The Agreement will be in effect for 15 years. If the Service determines that the conservation actions identified in the Agreement have been implemented, then the Landowner need not perform additional conservation activities on the property and the Permit may continue in effect following termination of the Agreement for an additional 2 years. In such case, the Permit authorizing incidental take of the Covered Species will be in effect for 17 years from the effective date of the Permit. The additional duration of the Permit following termination of the Agreement will continue Permit coverage for the Landowner for 2 years to allow a return of the Enrolled Property to its Baseline condition. Both the duration of the Agreement and the Permit may be extended upon mutual agreement among the Parties.

10.0 ASSURANCES TO THE LANDOWNER REGARDING TAKE OF COVERED SPECIES

This Agreement will provide the Landowner with assurances that efforts to promote conservation and recovery of the Covered Species on the Enrolled Property will not result in additional restrictions on the use of the Enrolled Property. As stated in the Safe Harbor policy (64 FR 32717), the Service recognizes and respects the landowner's right to request early termination of this voluntary Agreement and, herein, provides a mechanism to do so.

The Permit will authorize the Landowner, guests, and event attendees on the Enrolled Property, and the Landowner's authorized agents, contractors, or employees to take the Covered Species on the Enrolled Property incidental to the Covered Activities identified in Part 5 of this Agreement, provided that such take is consistent with maintaining the Baseline conditions identified in Part 4 of this Agreement. Additionally, the Permit will authorize the Landowner, and the Landowner's authorized agents, contractors, or employees to take the Covered Species on the Enrolled Property incidental to the return of Enrolled Property to Baseline conditions.

11.0 MODIFICATIONS

A. Modification of the Agreement. Either Party may propose amendments to this Agreement, as provided in 50 CFR 13.23, by providing written notice to, and obtaining the written concurrence of, the other Party. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence.

B. Termination of the Agreement. As provided for in the Service's Safe Harbor Policy (64 FR 32717), the Landowner may terminate the Agreement for circumstances beyond the Landowner's control. In such circumstances, the Landowner may return the Enrolled Property to Baseline conditions even if the net conservation benefit activities have not been fully implemented, provided that the Landowner gives the Service the notification required by Part 8 of this Agreement prior to carrying out any activity likely to result in the taking of the Covered Species. Upon return

to Baseline under these circumstances, the Permit will terminate. If the Landowner terminates the Agreement for any other reason, the Permit referenced in Part 8 of this Agreement shall immediately cease to be in effect.

C. Permit Suspension or Revocation. The Service may suspend or revoke the Permit referred to in Part 8 of this Agreement in accordance with the laws and regulations in force at the time of such suspension or revocation. The Service also, as a last resort, may revoke the Permit if continuation of permitted activities would likely result in jeopardy to any of the Covered Species (50 CFR 13.28(a)). In such circumstances, the Service will exercise all possible measures to avoid revoking the Permit.

12.0 OTHER MEASURES

A. Remedies. Each Party shall have all remedies otherwise available to enforce the terms of the Agreement and the Permit, except that no Party shall be liable in damages for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement, or any other cause of action arising from this Agreement.

B. Dispute Resolution. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

C. Succession and Transfer. As provided in Part 11 of the Service's Safe Harbor Policy (64 FR 32717), if the Landowner transfers its interest in the Enrolled Property to another non-Federal entity, the Service will regard the new owner or manager as having the same rights and responsibilities with respect to the Enrolled Property as the Landowner, if the new owner or manager agrees to become a party to the Agreement in place of the Landowner.

D. Availability of Funds. Implementation of this Agreement by the Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

E. Applicable Laws. All activities undertaken pursuant to this Agreement and its associated Permit must be in compliance with all applicable State, Federal, tribal, and local laws and regulations.

F. Relationship to the Act and other Authorities. The terms and conditions of this Agreement shall be governed by and construed in accordance with the Act and applicable Federal law. In particular, nothing in this Agreement is intended to limit the authority of the Service to seek penalties or otherwise fulfill its responsibilities under the Act. Moreover, nothing in this Agreement is intended to limit or diminish the legal obligations and responsibilities of the Service as an agency of the Federal government.

G. No Monetary Damages. No Party shall be liable in damages to any other Party or other person for any breach of this Agreement, any performance or failure to perform a mandatory or

discretionary obligation imposed by this Agreement, or any other cause of action arising from this Agreement.

H. No Third-Party Beneficiaries. This Agreement does not create any new right, interest, or cause of action for any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

I. Other Listed Species, Candidate Species, and Species of Concern. There is the possibility that other listed, proposed, or candidate species, or species of concern may occur in the future on the Enrolled Property as a direct result of the management actions specified herein. In the event that a non-covered species that may be affected by Covered Activities becomes listed under the Act, the Landowner and the Service will work together either to amend this Agreement, and the Permit described in Part 8 of this Agreement, to cover such other species or otherwise to confer upon the Landowner similar assurances with respect to such other species as are described above for Covered Species.

J. Notices and Reports. Any notices and reports, including monitoring and annual reports, required by this Agreement shall be delivered to the person at the address listed below:

U.S. Fish and Wildlife Service
Nevada Fish and Wildlife Office
4701 North Torrey Pines Drive
Las Vegas, Nevada 89130
Attn: Assistant Field Supervisor

K. Pursuant to Section 22, Title 41, United States Code, it is further mutually agreed that no member of or delegate to Congress or resident commissioner, after their election or appointment, and either before or after they have qualified and during their continuance in office, shall be admitted to any share or part of the Agreement, or to any benefit to arise thereupon; but this provision shall not be construed to extend to this Agreement if made with a corporation for its general benefit.

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Safe Harbor Agreement to be in effect as of the date that the Service issues the Permit.

U.S. Fish and Wildlife Service

By: _____
Field Supervisor
Southern Nevada Fish and Wildlife Office

Date

Las Vegas Valley Water District

By: _____
John Entsminger, General Manager
Las Vegas Valley Water District

Date

APPROVED AS TO FORM:

Dana R. Walsh, Director of Legal Services

LITERATURE CITED

- Baugh, T.M., J.E. Deacon, and P. Fitzpatrick. 1988. Reproduction and growth of the Pahrump poolfish (*Empetrichthys latos latos* Miller) in the laboratory and in nature. *Journal of Aquaculture and Aquatic Sciences* 5: 1–5.
- Deacon, J.E., T.B. Hardy, J. Landye, J. Pollard, W. Taylor, and P. Greger. 1980. Environmental analysis of four aquatic habitats in east-central Nevada, June–July, 1980. Interim summary report to HDR Sciences. Environmental Consultants, Inc. Las Vegas, Nevada. September 1980.
- Deacon, J.E. 1984. Recovery efforts for the Pahrump killifish; Shoshone North Pond. Unpublished report submitted to the Nevada Department of Wildlife. August 24, 1984.
- Deacon, J.E., and J.E. Williams. 2010. Retrospective evaluation of the effects of human disturbance and goldfish introduction on endangered Pahrump poolfish. *Western North American Naturalist* 70: 425–436.
- Doadrio, I., and O. Domínguez. 2004. Phylogenetic relationships within the fish family Goodeidae based on cytochrome *b* sequence data. *Molecular Phylogenetics and Evolution* 31: 416–430.
- Grant, E.C., and B.R. Riddle. 1995. Are the endangered springfish (*Crenicthys* Hubbs) and pupfish (*Empetrichthys* Gilbert) Fundulines of Goodeids?: A mitochondrial DNA assessment. *Copeia* 1995: 209–212.
- Heckmann, R.A. 1988. The adaptive characteristics and parasitofauna of the Pahrump poolfish, *Empetrichthys latos latos*. Unpublished report.
- Hobbs, B.M., J.E. Heinrich, and J.C. Sjoberg. 2003 (in prep). Summer food habits of the Pahrump poolfish (*Empetrichthys latos latos*). Unpublished report for the Nevada Department of Wildlife, Las Vegas, Nevada.
- La Rivers, I. 1994. Fishes and fisheries of Nevada. University of Nevada Press, Reno, Nevada.
- Miller, R.R. 1948. The cyprinodont fishes of the Death Valley system of eastern California and southwestern Nevada. *Miscellaneous Publications, Museum of Zoology, University of Michigan* 68: 1–155.
- Miller, R.R., J.D. Williams, and J.E. Williams. 1989. Extinctions of North American fishes during the past century. *Fisheries* 14: 22–38.
- Minckley, W.L., and J.E. Deacon. 1968. Southwestern fishes and the enigma of “endangered species.” *Science* 159: 1424–1432.
- Minckley, W.L., G.K. Meffe, and D.L. Soltz. 1991. Pages 247–282 in W.L. Minckley and J.E. Deacon (editors), *Battle Against Extinction: Native Fish Management in the American West*. University of Arizona Press, Tucson, Arizona.
- [NDOW] Nevada Department of Wildlife. 2009. Project report, Calendar Year 2009 Pahrump poolfish monitoring and recovery activities. Prepared by J. Goldstein and B. Hobbs. Las

Vegas, Nevada.

[NDOW] Nevada Department of Wildlife. 2012. Native fish and amphibians field trip report. Prepared by K. Guadalupe, S. Madill, and H. Weissenfluh. Las Vegas, Nevada.

Selby, D.A. 1977. Thermal ecology of the Pahrump killifish, *Empetrichthys latos latos* Miller. M.S. Thesis, University of Nevada, Las Vegas. May 1977.

Sigler, W.F., and J.W. Sigler. 1987. Fishes of the Great Basin: A natural history. University of Nevada Press, Reno, NV.

Soltz, D.L., and R.J. Naiman. 1978. The natural history of native fishes in the Death Valley system. Natural History Museum of Los Angeles County, Science Series 30: 24.

[USFWS] U.S. Fish and Wildlife Service. 1967. Native Fish and Wildlife, Endangered Species. Federal Register 32: 4001.

[USFWS] U.S. Fish and Wildlife Service. 1980. Recovery Plan for the Pahrump killifish. Endangered Species Program, Region 1, Portland, Oregon.

[USFWS] U.S. Fish and Wildlife Service. 2004. Endangered and threatened wildlife and plants; withdrawal of proposed rule to reclassify the Pahrump poolfish (*Empetrichthys latos*) from endangered to threatened status. Federal Register 69: 17383–17386.

[USFWS] U.S. Fish and Wildlife Service. 2010. Request to append the Shoshone Well No. 2 to the programmatic biological opinion for the Bureau of Land Management's Ely Resource Management Plan. April 16, 2010.

Webb, S.A., J.A. Graves, C. Macias-Garcia, A.E. Magurran, D.O. Foighil, and M.G. Ritchie. 2004. Molecular phylogeny of the livebearing Goodeidae (Cyprinodontiformes). Molecular Phylogenetics and Evolution 30: 527–544.

Williams, J.E. 1996. Threatened fishes of the world: *Empetrichthys latos* Miller, 1948 (Cyprinodontidae). Environmental Biology of Fishes 45: 272.

Winemiller, K.O. 2005. Life history strategies, population regulation, and implications for fisheries management. Canadian Journal of Fisheries and Aquatic Sciences 62: 872–885.

Winemiller, K.O., and K.A. Rose. 1992. Patterns of life-history diversification in North American fishes: implications for population regulation. Canadian Journal of Fisheries and Aquatic Sciences 49: 2196–2218.

Appendix I

Individuals authorized to translocate Pahrump poolfish between ponds at the Enrolled Property:

Aaron Ambos – Environmental Biologist II, Southern Nevada Water Authority

Thomas O'Toole – Preserve Supervising Zoologist, Springs Preserve

Tim Ricks – Environmental Biologist I, Southern Nevada Water Authority

Raymond Saumure – Environmental Biologist II, Southern Nevada Water Authority

David Syzdek – Environmental Biologist II, Southern Nevada Water Authority



Figure 1. Location of the Springs Preserve within Las Vegas, Clark County, Nevada.



Figure 2. Location of the Meadows Detention Basin (blue line) within the Springs Preserve (orange line), Clark County, Nevada.



Figure 3. Location, size, and shape of ponds in the North and South forks of the historic Las Vegas Creek, Springs Preserve, Clark County, Nevada.