

September 29, 2011

DECLARATION OF
JOHN L. McKERN

PREPARED FOR THE
KENNEWICK IRRIGATION DISTRICT

SUBJECT: AMON WASTEWAY

I, JOHN L. McKERN, being first duly sworn, state and declare as follows:

The following facts are within my personal knowledge and, if called as a witness, I could and would testify competently thereto.

A. EDUCATIONAL AND PROFESSIONAL BACKGROUND

1. I hold a B.S. in Wildlife Science (1968), and a M.S. in Fisheries Science (1971), both from Oregon State University (Corvallis, OR). My Master's thesis was on "Steelhead Trout Otoliths for Age, Race, and Stock Analysis." From 1968 through 1970, I was employed by the Fish and Wildlife Department at OSU as a Biological Aide. I taught Economic Ichthyology lab sessions during the school year and assisted other graduate students with their research throughout the year. Among other duties, I assisted with a research project on the effectiveness of aquatic herbicides in controlling aquatic plants without harming fish. I also worked on farm pond studies that included the use of mosquitofish (*Gambusia affinis*) for mosquito control (see Attachment 1).

2. Upon receiving my M.S. degree in 1971, I was hired as a Fisheries Biologist by the Walla Walla District, United States Army Corps of Engineers (Corps). Because I had degrees in Wildlife Science and Fisheries Science, I was reclassified to Fish and

Wildlife Biologist. I progressed to Chief, Fish and Wildlife Section by 1980, Chief of Environmental Resources Branch from 1981 through 1987, Special Assistant to the Commander for Environmental Resource Policy (1988), and Chief of the Fisheries Management Unit (1988 until retirement in June 2000). Upon retirement, I became a consultant as the owner of Fish Passage Solutions, LLC. As a consultant I specialize in fish passage concepts for manmade and natural obstructions, although I also prepare environmental and permitting documents for various clients.

3. The principal issues that I will focus on in this declaration are the development of mosquito control and the development of a catch basin and overflow channel where the Amon Wasteway flows across Corps of Engineers property at the Yakima River Delta (Richland, WA). In the early 1970s, I was becoming acquainted with fish and wildlife issues pertaining to my duties, which had been expanded to include among other environmental issues mosquito control. Ice Harbor Project Office (responsible for the management project lands and waters of the upper half of McNary Reservoir, Ice Harbor Dam and reservoir, and Lower Monumental Dam and reservoir) requested assistance with a problem where the Amon Wasteway crosses Corps property at the Yakima Delta.

4. At that time, the problem described to me was that periodic discharges from irrigation canals that feed the Amon Wasteway, or natural precipitation events in the stream basin upstream of Columbia Park Trail, caused flooding in the Yakima Delta. The Wasteway most likely follows an ancient channel formed during the Missoula Floods of last ice age as the ice dam at Wallula Gap broke and the Pasco Basin Lake drained. It was my understanding that flow in the 1970s from the Wasteway was small and flooded

the delta area on an infrequent basis. The area was under lease from the Corps of Engineers to the Washington Department of Game (now the Washington Department of Fish and Wildlife). They managed the area primarily for brooding areas for Canada geese. Their method of management was to graze the area with cattle so that in the spring, tender green vegetation (a principal food of juvenile geese) would be available. However, they allowed the owner of the cattle to set the grazing rates, and the area was significantly over grazed resulting in severe infestation of Russian olive trees. In addition to low areas in what, before McNary Reservoir filled, had been farm fields, cattle hoof prints and wallows provided additional pool areas for mosquito production when the area flooded.

5. Ice Harbor Project personnel were cooperating with the Benton County Mosquito Control District in spraying and treating mosquito production areas. The Amon Wasteway emptied onto the delta, and because the natural drainage was a small channel that ran from the delta under the Atomic Energy Commission (so named at that time) railroad and flowed down a natural channel between the railroad grade and Highway 240 to the Yakima River. Any surplus flow overloaded the culvert under the railroad causing flooding of the delta upstream of the railroad fill.

6. As an alternative to chemical control of mosquitoes, I recommended two actions. The first was to try to diminish the flooding caused by the Wasteway. To do this, a Corps engineer (Jim Perry – now deceased) and I came up with the concept of constructing a berm to create a catch basin where the wasteway comes under Columbia Park Trail (attached Figure 1). In an effort to maintain flow down the natural channel between the railroad and Highway 240, a culvert was placed through the berm of the

catch basin. As I recall, it was probably an 18-inch culvert, so the normal flow expected at that time was substantially less than now. An overflow channel was constructed from the catch basin northeast to the Yakima River. The channel was excavated with a small bulldozer grading the channel from the catch basin to the river and constructing earthen berms along either side. Because the channel was to be an overflow channel for infrequent relief from flooding, the berms were not protected with rock armor, nor were flow control weirs provided. It was intended that the channel would be revegetated sufficient to prevent erosion during flood events. The alignment was surveyed before and during construction, and may have followed an old ditch line or naturally lower alignment to provide a natural grade for the overflow channel. Construction occurred in late summer of 1972, and probably took a couple of weeks to complete. Jim Perry (now deceased) oversaw the design and field layout of the channel and the catch basin, and Tom Tate (now deceased) oversaw the field construction for the Corps.

7. The natural channel between the railroad and Highway 240 to the Yakima River was only a few feet wide and a few inches deep, but wetted what we felt was riparian habitat worth preserving. From the catch basin, an overflow channel was constructed to the northeast to the Yakima River. A riprap weir at the head of the channel was to be the control point. When flows exceeded the capacity of the culvert to the natural channel, water would be diverted down the overflow channel to the Yakima River. The overflow channel was not intended to have continuous flow as it does now.

8. Construction was funded and carried out by the Corps by a hired labor/equipment contract as a normal operation and maintenance project. It was not a formalized contract with contract drawings and detailed specifications, but a field

designed with field notes and records. While there was a contract for the actual construction, those files have been purged from the Corps records in Operations Division, Contracting Division, and at Ice Harbor Project Office. Although any records of the design and contract have been lost, it is quite likely that the contractor was Humbert Excavating from Milton-Freewater, OR. At that time, state and federal environmental laws now in effect had not been enacted, so environmental reviews and permitting now required was not necessary.

9. The second part of the mosquito control plan was to use mosquitofish (*Gambusia affinis*) where possible in the ponds (like the ones upstream of the Columbia Park Trail, in the delta where the railroad intersects the Columbia Park Trail, and between the railroad and Highway 240 near the Columbia Park Trail) instead of aerial spraying or chemicals placed in puddles and pools. At about that time, we (the Corps) consulted with the Washington Department of Game local fisheries biologist (Dick Simons – now deceased) and the Assistant Director of Fisheries (Cliff Millenbach – now deceased) to establish a mosquitofish control area in the State of Washington which was the only state other than Alaska that did not allow use of mosquitofish for mosquito control at that time. At the Corps' request, the Oregon Fish and Wildlife Extension Agent (Andy Landforce – now deceased) and a representative of the Oregon Health Department (Bob McHugh – now deceased) attended a meeting in Walla Walla and presented information on the use of *Gambusia* and how they were not a threat to fisheries management. As a result, the Department of Game set a mosquito fish control zone but only included wetlands and waters adjacent to McNary Reservoir. Benton County Mosquito Control District agreed to use mosquitofish as an environmentally acceptable alternative to chemicals wherever

practical and continues to use them to this day. Mosquito control in the permanent ponds at the Yakima Delta includes use of mosquitofish (see Attachment 1).

10. The catch basin, bypass channel, and flow control culvert were constructed between 1973 and 1976 (I was not able to determine the exact date because the Corps of Engineers has purged old files at the Ice Harbor Project office and at the Walla Walla District office). However, aerial photography from the Corps and the mosquito control district from 1971 and 1973 show the catch basin and new channel were absent, and in 1976 that they were present (Figures 2, 3 and 4). Nineteen seventy six aerial photography of the area shows the overflow channel in place before vegetation had regrown over the construction scars. A year or so later, on a field inspection of the area, I found that a control gate had been placed on the culvert and flow down the natural channel had been shut off by the Benton County Mosquito Control District. They apparently decided that the flow should all be routed down the overflow channel on a permanent basis and it continues to serve as the Amon Wasteway channel across Corps of Engineers land to the Yakima River. Evidence of the original channel is still there (Figure 5), but it is now longer a flowing watercourse.

11. Subsequent to the above described attempt to improve mosquito control in the delta, the Washington Department of Game relinquished their lease on the area. Their reason was that the area did not provide much hunting opportunity, and because their management was funded on license sale revenues, they no longer wanted responsibility for managing the area. At issue at the time was construction of the Interstate 182 Bridge across the Yakima River through part of the leased wildlife area. The Department of Game wanted mitigation at a site far removed from the impact area on Corps property but

the Corps could not support that concept. Upon the Department of Game relinquishing the lease, the Corps reclassified the area to a habitat management unit to be managed by Corps' Natural Resources personnel. The Corps cleared some Russian olive patches, put in food plots, hiking trails, bridges (including two over the overflow channel), and public access parking areas. Based on discussions with Ian Courter of Cramer Fish Sciences and Scott Revell, Planning Manager of KID, there has been erosion and down cutting in the channel downstream of the catch basin, and the channel has "naturalized" to some extent. The catch basin has silted in, and is overgrown primarily by Russian olive trees (Figures 6 and 7), and on inspection on February 28, 2011, the old bypass culvert was not visible. The weir intended to control flow down the overflow channel is still evident (Figure 8). The channel just downstream of the bridge below the catch basin is eroded down to gravel substrate (Figure 9). According to Scott Revell, the berms further down the overflow channel have been reinforced, presumably by Mosquito Control District personnel, to prevent flooding in the delta. The area is currently managed as a public access wildlife habitat area by the Corps.

12. It is apparent that the Amon Wasteway discharge into the Yakima Delta is substantially greater now than it was in the early 1970s. At that time, the normal flows could be accommodated by a small culvert (probably 18-inches in diameter), and the natural return channel to the river (between the railroad and Highway 240) was only a few feet wide and a few inches deep. Upon visiting the site on February 28, 2011, an estimated flow of 20 cubic feet per second was running from the Wasteway (Figure 10) under the Columbia Park Trail through a culvert at least 3-feet in diameter (Figure 11), and the culvert was full almost to the top. That is at least four times the capacity of the

culvert we installed in the early 1970s, and KID personnel with me said that what we saw was probably the low flow level. During irrigation season, seepage and runoff from the vast urban development (as indicated in Figures 1 and 3) and Meadow Springs Golf Course in the canyon above the delta would more than quadruple that flow.

13. On February 28, 2011, the flow in the overflow channel (now the permanent channel) was 1 to 2 feet deep and 12 to 15 feet wide (Figure 9). At issue is whether this is a natural stream and whether fish populations should be restored. The purpose of this declaration is to provide documentation on how the channel came to be and to document that it is a man-made channel that has over time, with increased flows caused by urban development seepage and surface flows into the Amon Wasteway, transformed from a small, intermittent watercourse into a larger more permanent watercourse.

DONE this 29th day of September 2011.



John L. McKern

ATTACHMENTS

1. Mosquitofish description from Benton County Mosquito District web page:

“[Mosquitofish](#), or [Gambusia](#), are small, darkly colored, guppy-looking fish. They have voracious appetites for the larvae of mosquitoes. In certain areas they seem to be quite effective, but they are not 100% reliable and water sites where introduction is allowed are limited. *Gambusia* have shown to be quite effective for watering troughs and decorative ponds. Benton County MCD has a permission to transport the fish (for the purpose of larval mosquito control) by the Washington Department of Fish and Wildlife.”

FIGURES

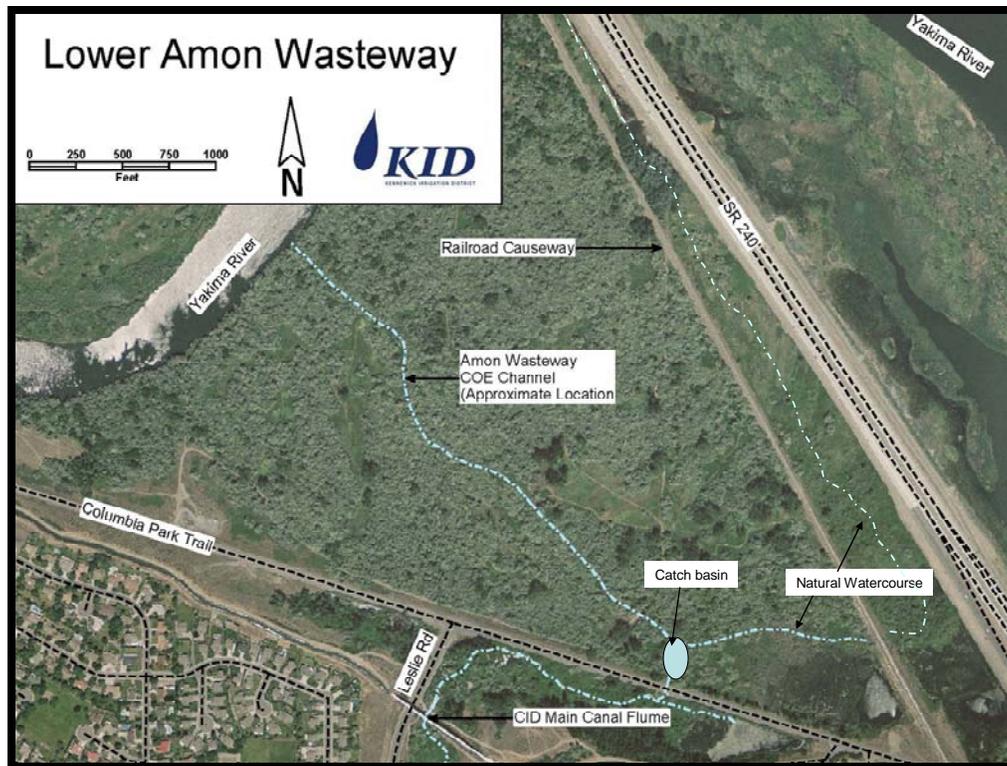


Figure 1: KID aerial layout of Amon Wasteway features at the Yakima River Delta, provided 2011.



Figure 2: Nineteen seventy one aerial photo prior to construction of a catch basin and overflow channel for the Amon Wasteway (Benton County Mosquito Control District, provided 2011).



Figure 3: Nineteen seventy three aerial photo prior to channel and catch basin construction showing scant development (bottom half of photo) in Amon Wasteway drainage area (Corps of Engineers, provided 2011).

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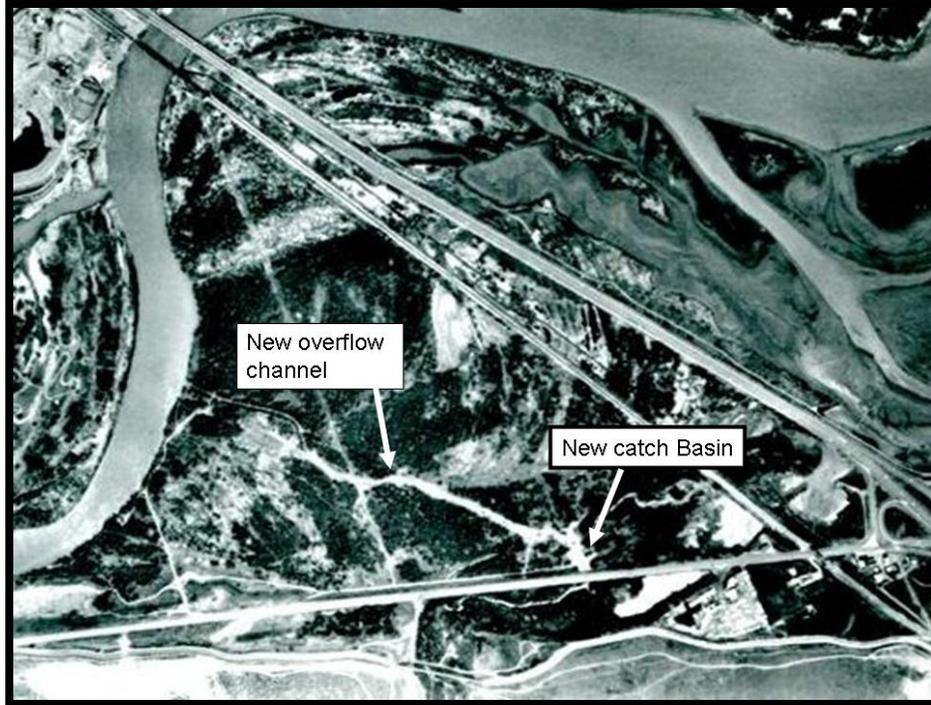


Figure 4: Nineteen seventy six aerial photo shortly after construction of a catch basin and overflow channel for the Amon Wasteway (Corps of Engineers, provided 2011).



Figure 5: Natural watercourse for Amon Wasteway from catch basin to railway right-of-way, Yakima River Delta (abandoned ~ 1972), February 2011.



Figure 6: Westerly end of catch basin as seen from Columbia Park Trail, February 2011.



Figure 7: Easterly end of catch basin showing overgrown and silted in conditions, February 2011.

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Figure 8: Easterly end of catch basin showing riprap weir that acted as the control prior to shutting off the natural channel between the railway fill and Highway 240 after 1976, February 2011.



Figure 9: Over flow channel (now the permanent channel) looking northeast from the bridge northeast of the catch basin, Amon Wasteway, Yakima River Delta, February 2011.

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Figure 10: Amon Wasteway upstream from Columbia Park Trail before passing through culvert to the Yakima River Delta, February 2011.



Figure 11: Amon Wasteway passing right to left through large (approximately 3 – foot) culvert under Columbia Park Trail to enter the catch basin east of the road in the Yakima River Delta, February 2011.

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