COOPERATIVE DROUGHT CONTINGENCY PLAN

HUALAPAI RESERVATION

Submitted to:

United States Bureau of Reclamation

Lower Colorado Region

P.O. Box 61470

Boulder City, NV 89006-1470

Prepared by:

Dr. Kerry Christensen

Hualapai Tribe

Department of Natural Resources

P.O. Box 300

Peach Springs, AZ 86434

December, 2003

1.0 INTRODUCTION

The Hualapai people have dealt with periodic drought for time immemorial. Much of the Hualapai culture was tied to permanent and ephemeral water sources in this arid portion of what is now the southwestern United States. The Colorado River, Meriwhitica springs, Diamond Creek springs, Grass springs and various other water sources were focal points of Hualapai activities especially during periods of drought.

Today, the Hualapai economy is based on tourism, big-game hunting, cattle grazing and forestry. Drought has a significant impact on each of these areas and has the potential to negatively affect the livelihood of many Hualapai Tribal Members. Through creation of a Drought Contingency Plan, the Hualapai Tribe will hopefully prevent catastrophic effects of future drought conditions thereby improving economic conditions for the Hualapai Tribe and its members.

The responsibility for water monitoring, response to drought and drought mitigation lie primarily with the Hualapai Department of Natural Resources (HDNR) and the Hualapai Public Works Department. In addition, the Hualapai Tribe coordinates and cooperates with various outside agencies such as the U.S. Bureau of Indian Affairs (BIA), U.S. Bureau of Reclamation, the U.S. Department of Agriculture, the U.S. Geologic Survey, the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management and the Arizona Game and Fish Department during periods of severe drought.

This Cooperative Drought Contingency Plan (Plan) was prepared with funding from the United States Bureau of Reclamation under authority provided by the Reclamation States Emergency Drought Relief Act of 1991 as identified as Public Law 102-250. The Act authorizes the Secretary of the Interior to “undertake construction, management, and conservation activities that will minimize, or can be expected to have an effect in minimizing, losses and damages resulting from drought conditions”. It is the intent of the Hualapai Tribe to use this Plan, consistent with the law, to be self-determined in the declaration of drought on the Hualapai Reservation and to implement the identified drought mitigation activities. This Plan will be reviewed and amended as needed every two years.

1.1 Objectives

The objectives of this plan are fourfold. First, to identify individuals, programs, departments and agencies that will respond to drought and identify the monitoring and response activities that each of these entities is responsible for performing under various drought conditions. Second, to identify sources of water to be utilized in the event of drought. Third, to establish monitoring protocols to provide information

regarding the status of water availability and range conditions and fourth to identify potential mitigation projects to alleviate the effects of future drought.

Upon approval of this Plan, the Plan will be announced to the Hualapai Tribe and its members through publication of an announcement in the Gamyu newsletter and by presentation to the Hualapai Tribal Council. Following announcement, a test of the plan will be implemented as coordinated by the Hualapai Tribe and coordinating agencies.

1.2 Drought Task Force

The Hualapai Tribal Council, by resolution, created the Hualapai Drought Task Force (HDTF) to initiate preparation of this plan and to guide implementation of drought monitoring, response and mitigation activities. The HDTF consists of the Water Resources Program Manager, the BIA Fire Management Officer, Wildlife, Fisheries and Parks Program Manager, Agriculture Program Manager, Air Quality Program Manager, a Tribal Elder, the Assistant Agriculture Program Manager and willing Presidents of the livestock associations. The names, phone numbers and addresses of the current members of the Task Force can be found in Appendix A. In addition, the contacts for state and federal agencies that work with drought related issues is also given in Appendix A. The relationship of the Drought Task Force to the other entities within the Hualapai Tribal Community is given in Figure 1.

1.3 Public Information

During drought conditions, the Hualapai Department of Public Works publishes notices of drought conditions to the Peach Springs Community through the local newsletter, the Gamyu and through fliers requesting community water conservation. In addition, the Hualapai Department of Natural Resources notifies the cattle districts as to drought conditions and works with them to find options for amelioration of the effects of the drought. The U.S. Bureau of Indian Affairs (BIA) Forestry Program also notifies the Peach Springs Community regarding the dangers of wildfire during times of drought. In addition, BIA forestry imposes fire restrictions on the Hualapai Reservation such that campfires, burning of trash and weeds and smoking are restricted across the reservation. BIA Forestry, in conjunction with the Hualapai Wildlife Conservation Department, enforce road closures during periods of extreme wildfire danger.

1.4 Drought Prioritization

During times of extreme and extended drought, priorities for water delivery to various water users of the Hualapai Reservation must be identified due to a potential shortage of water. The Hualapai Tribe has identified municipal water use as the

number one priority followed by the use of water for fire suppression. The next priority is cattle and wildlife followed by recreation.

2.0 BACKGROUND

2.1 Geography

The Hualapai Reservation is located in northwestern Arizona and includes nearly one-million acres (1,562 mi^2) of land including 108 miles of the Colorado River in Grand Canyon (Figure 2). The reservation is at the southwestern edge of the Colorado Plateau physiographic province. The northernmost boundary is 108 miles of the Colorado River from National Canyon to one mile above Columbine Falls in Grand Canyon. Tribal headquarters are located in Peach Springs on Route 66 at the southern boundary of the reservation. The majority of tribal members residing on the reservation live in Peach Springs. Approximately 2000 individuals reside on the Hualapai Reservation.

Two satellite areas of the main reservation are both about 1.5 mi^2 in size. One is located in Valentine, AZ about 15 miles west of Peach Springs on Route 66 and the other is located on the Big Sandy River near Wickieup, AZ about 50 miles south of Peach Springs.

2.2 Drought History

Drought has periodically affected the Hualapai Reservation for time immemorial. In the 1930's and 1950's, wide-spread drought affected much of the United States including northwestern Arizona. More recently, lengthy periods of drought occurred in the late 1980's and we have been experiencing extreme drought for the past several years. In 2002, we lost over 40 head of elk and 30 cattle due to drought conditions. It is unknown how many other wildlife species were affected. Although the Hualapai Department of Natural Resources hauls water and feed to remote locations during extended periods of drought, loss of wildlife and livestock continue to occur.

2.3 Topography

The topography of the reservation varies greatly because of its location at the southwestern edge of the Colorado Plateau province. The northeastern and northwestern parts of the reservation are characterized by deeply incised canyons and high plateaus that have steep to near-vertical cliffs typical of the western end of Grand Canyon. To the west and southwest, is a small range of mountains with moderate slope lying on top of prominent cliffs that mark the western edge of the Colorado Plateau. To the south and southeast are broad, flat plateaus interrupted by generally north-south trending cliffs. The elevations on the reservation range from as much as 8,500 feet on the eastern portion to 1,175 feet on the Colorado River above Columbine Falls (depending on the elevation of Lake Mead).

2.4 Climate

The climate throughout the Hualapai Reservation is generally mild and arid although extremes associated with microclimates in Grand Canyon are common. Average daily maximum temperatures vary from the mid 90's during the summer and to the mid 50's during the winter. Summer temperatures along the Colorado River, however, typically exceed 100-105^{o} F. Temperature extremes of over 110^{o} F in the summer and below 0^{o} F during the winter have been recorded. Annual precipitation is light and averages about 11 inches per year. Most of the precipitation occurs during isolated monsoonal thunderstorms in the summer months. Substantial accumulations of snow can occur in the winter months at higher elevations. As with other areas of the Colorado Plateau, the Hualapai Reservation experiences drought conditions that can last for several years followed by much shorter periods of above normal precipitation. Current climatological data are available for the reservation at Peach Springs. Additional climate data are collected by the tribe at sites in Valentine, Peach Springs and Grand Canyon West on the far western end of the reservation.

2.5 Socioeconomics

The Hualapai Tribe depends on tourism, timber harvest, hunting and cattle ranching as the main source of income on the Hualapai Reservation. Nearly 100,000 tourists visit Grand Canyon West per year to experience the beauty of Grand Canyon and the Colorado River and enjoy an outdoor picnic lunch. In addition, the Hualapai Lodge is the headquarters for a river-rafting enterprise where visitors are provided a 55 mile white-water rafting trip from Diamond Creek to Pearce Ferry on the Colorado River.

Ponderosa pine covers over 53,000 acres of land on the eastern portion of the reservation where 25 timber harvest compartments have been delineated. The Hualapai Forestry Program manages silvicultural activities for the tribe. The schedule is for one compartment to be harvested per year on a rotating basis.

Members of the general public pay various permit fees to hunt desert bighorn sheep, elk, antelope and turkey on the Hualapai Reservation. The fees can be substantial as the reservation supports trophy wildlife populations and offers unique Grand Canyon hunting experiences. Each hunter is led by a certified Hualapai big-game guide who are also substantially compensated. Overall, there are approximately 1,734 elk, 284 desert bighorn sheep, 840 mule deer, 147 antelope and 645 turkey. Drought has minimal effects on the selling of big game hunting permits as there are always more people seeking permits than are available. If, however, the drought persists for such a long duration and is of severe enough intensity to decrease the trophy quality of the animals on the reservation, then there may be much more severe impacts to this source of revenue for the Hualapai Tribe.

A total of 3,920 animal unit months (AUM’s) are available across the five cattle

districts of the Hualapai Reservation. Under normal conditions, the districts utilize up to 80% of the allowed AUM's. Under severe drought conditions, it is recommended that the districts limit their stocking rates to a maximum of 50% of the available AUM's to prevent over-grazing (Boles 2003). In 2001-2, the districts reduced their herds by 30% as a result of the continuing drought. This reduction in herd size caused an overall economic loss of nearly $500,000 over the past three years to cattle ranchers on the Hualapai Reservation (Annette Morgan, personal communication).

2.6 Grazing

During drought conditions, cattle ranchers move their cattle to pastures that facilitate delivery of water to the cattle using a water truck or trailer. Each of the five cattle districts have individuals identified to provide water delivery services to the cattle during drought conditions. Water is obtained from Frazier Wells, Thornton Tower, Peach Springs and Westwater well and pipeline. In addition, and as described above, during periods of extreme drought, the cattle owners are forced to reduce the size of their herds. In 2003, it was found through trend plot monitoring that the majority of the Hualapai Reservation had been over-grazed and there was a recommendation to further reduce herd sizes to allow the vegetation to recover (Boles 2003).

2.7 Wildfire Suppression

The Forestry Program of the U.S. Bureau of Indian Affairs, Truxton Canon Field Office is responsible for wildfire suppression on the Hualapai Reservation. In conjunction with the tribe, this program recently adopted a Fire Management Plan that identifies wildfire suppression strategies and policies. Currently, this program utilizes permanent and temporary employees to fight fires. More than 50 fires per year occur on the Hualapai Reservation (Hualapai Tribe, Fire Management Plan 2003). Historically, water for fighting fires on the eastern portion of the reservation comes from Thornton Tower, the ponds at the endangered fish-rearing facility and any available waters from stock tanks (see Appendix B). On the west side of the reservation, water is obtained from the Westwater well and pipeline, the Mud Tank Well and pipeline, stock tanks and the storage tank at New Water.

2.8 Water Conservation

Once drought conditions have been declared, voluntary water conservation measures will be implemented in Peach Springs. These measures include limiting watering of vegetation, washing of cars and washing down driveways/walkways. In addition, the Hualapai Department of Housing is being urged to install low-flow shower heads on new or re-modeled housing units and low-volume flush toilets. The Hualapai

Public Works Department also posts signs requesting that community members conserve water as much as possible during drought conditions. Water conservation, however, is encouraged under all conditions.

2.9 Water Sources

A description of the above-ground storage tanks, earthen dams and catchments of the Hualapai Reservation are given in Appendix B.

2.10 Aquifer and Water Information

For aquifer information, precipitation data, stream gauge data and water quality data, see the Hualapai Tribe's 305b report (Hualapai Tribe 2000).

2.11 Demand Summary

Primary demands on water supplies on the Hualapai Reservation are the Peach Springs Community, fire suppression activities, cattle grazing, tourism and wildlife. During drought, water is delivered from Peach Springs to the various grazing districts using a 2,500 gallon water truck. A load of water is typically delivered to four sites within each cattle district every other day during severe drought. Thus, among all the sectors, 2,627,025 gallons of water are needed per day during drought emergencies (See Appendix C). This demand, along with that of increased water use due to greater use of evaporative coolers during summer months, places a severe strain on the capabilities of the Truxton Well from which the town of Peach Springs gets its water. In addition, fire suppression activities during the summer fire season add another considerable demand on all water supplies. For these reasons, we outline mitigation projects below that will allow the Tribe to increase its capacity and infrastructure to provide adequate water supplies during times of drought.

2.12 Types of Drought

Drought can be defined as a complex physical and social process of widespread significance where soil moisture and surface and ground waters are depleted for an extended period of time. Below, we describe four types of drought.

2.12.1 Meteorological Drought

This type of drought is often defined by a period of substantially diminished precipitation duration and/or intensity. The commonly used definition of meteorological drought is an interval of time, generally of the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.

2.12.2 Agricultural Drought

Agricultural drought occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after meteorological drought but before hydrological drought and can also affect livestock and other agricultural operations.

2.12.3 Hydrological Drought

Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured as streamflow, snowpack, and as lake, reservoir and groundwater levels. There is usually a time lag between lack of rain or snow and less measurable water in streams, lakes and reservoirs, making hydrological measurements not the earliest indicators of drought.

2.12.4 Socioeconomic Drought

Socioeconomic drought occurs when physical water shortages start to affect the health, well-being, and quality of life of the people of an area or when the drought starts to affect the supply and demand of an economic product.

3.0 DROUGHT INDICES

3.1 Palmer Drought Severity Index

The Palmer Drought Severity Index (PDSI) is one index to be used as a basis for identifying the severity of drought conditions. The PDSI is a meteorological index that responds to weather conditions that have been abnormally wet or dry. The PDSI is calculated based on precipitation, temperature and available water content of the soil. The PDSI varies from + 6.0 (very wet) to - 6.0 (very dry). Table 1 reflects the range and extent of the PDSI classification system.

Table 1. Classification criteria related to the Palmer Drought Severity Index.

4.00 or more	extremely wet
3.00 to 3.99	very wet
2.00 to 2.99	moderately wet
1.00 to 1.99	slightly wet

0.50 to 0.99	incipient wet
0.49 to -0.49	near normal
-0.50 to -0.99	incipient dry
-1.00 to -1.99	mild drought
-2.00 to -2.99	moderate drought
-3.00 to -3.99	severe drought
-4.00 or lower	extreme drought

3.2 Standardized Precipitation Index

The Standardized Precipitation Index (SPI) is another index that compliments the PDSI and will be used together to identify drought conditions. The SPI is designed to quantify the precipitation deficit for multiple time scales. These time scales reflect the impact of drought on the availability of the different water resources. Because of its multiple scale flexibility, the SPI can often detect the emergence of droughts much better than the PDSI. A drought event is defined as any time the SPI is continuously negative and reaches an intensity where the SPI is - 1.0 or lower. The drought event ends when the SPI becomes positive. The classification criteria are given in Table 2.

Table 2. SPI classification criteria.

SPI Values	Drought Category	Time in Category
-0.50 to -0.99	Mild Drought	17.1%
-1.0 to -1.49	Moderate Drought	9.2%
-1.5 to -1.99	Severe Drought	4.4%
-2.00 or less	Extreme Drought	2.3%

Table 2 shows the percent of the time that the SPI is in each of the drought categories based on an analysis of available station data. The 2.3% of SPI values within the *Extreme Drought* category is a percentage that is typically expected for an *extreme* event. In contrast, the PDSI reaches its *extreme* category more than 10% of the time. The standardization of the SPI allows the SPI to determine the rarity of a current drought as well as the probability of the precipitation necessary to end the current drought (New Mexico Drought Plan 1998)

3.3 Drought Data

3.3.1 PDSI and SPI data

The Hualapai Department of Natural Resources monitors PDSI and SPI data from the National Drought Mitigation Center and the National Climatic Data Center via the internet. The internet address for the National Drought Mitigation center is http://www.drought.unl.edu. The internet address for the National Climatic Data Center is http://www.ncdc.noaa.gov. In the future, we may decide to use the National Drought Monitor for use in monitoring drought conditions if the PDSI, SPI and tank monitoring prove insufficient.

4.0 DROUGHT DECLARATION

4.1 Triggering Mechanisms

Below, using a combination of the PDSI and the SPI indices, triggering criteria for declaring a particular category of drought or non-drought are given. The criteria were adopted from the New Mexico State Drought Plan.

Table 3. Drought triggering criteria across drought categories.

Drought Stage	Characteristics
Normal	PDSI between -0.9 and +5.0, Six month SPI positive.
Alert (mild drought)	PDSI is between -1.0 and -1.9 for greater than 2 months or between -2.0 and -2.9 for 1 month. Six month SPI between 0 and -0.99.
Warning (moderate drought)	PDSI is between -1.0 and -1.9 for 9 months or more, -2.0 to -2.9 for at least 2 months, or -3.0 or less for at least 1 month.

	Six month SPI declining and between -1.00 and -1.49.
Emergency (severe to extreme drought)	PDSI is between -2.0 to -2.9 for 9 months or more, -3.0 to -3.9 for at least 2 months, or -4.0 or less for at least one month. Six month SPI declining and less than -1.5.

4.2 Assessment

Assessment of water availability, reservoir levels, soil water content and precipitation levels will be performed by the Hualapai Department of Natural Resources and the Hualapai Department of Public Works. On a monthly basis, data from the National Climatic Data Center will be compiled regarding the Palmer Drought Severity Index and the Standardized Precipitation Index. In addition, water storage levels for all of the earthen tanks and storage containers will be recorded on a monthly basis by the Range Water Technician.

In addition to the use of the PDSI and SPI as indicators of drought stages on the Hualapai Reservation, we also propose to use water storage levels as an additional indicator of drought conditions. Below, we propose water storage levels associated with each stage of drought. As mentioned above, we may also choose to incorporate the National Drought Monitor as a monitoring tool if the PDSI, SPI and tank monitoring triggers prove insufficient.

Table 4. Water storage levels associated with the various drought conditions.

Drought Stage	Storage Level
Normal	Average storage $\geq$ 60 %
Alert	Average storage = 40-59 %
Warning	Average storage = 25-39 %
Emergency	Average storage $\leq$ 25 %

5.0 DROUGHT VULNERABILITY

5.1 Meteorological Drought

The Hualapai Reservation is moderately susceptible to meteorological drought as we typically receive the majority of our precipitation during winter storms and summer monsoon rains. The reservation, however, only receives an average of eleven inches of precipitation per year making us somewhat vulnerable to dry years when the precipitation is below average.

The Hualapai Tribe receives precipitation data from several nearby sources

including the weather stations at the Thornton Tower, Kingman airport, at the Peach Springs and Grand Canyon West meteorological stations and the Seligman weather station. The availability of multiple sources of meteorological data decreases the vulnerability of the reservation to drought.

The typical drought duration for the Hualapai Reservation is two to three years. There are, however, longer droughts including the 1999-2003 drought. This moderate drought duration adds to the vulnerability of the reservation to drought.

The severity of drought on the Hualapai Reservation also adds to the vulnerability to drought. There are times where livestock and wildlife perish due to drought conditions. This vulnerability also comes in the form of the increased probability of wildfires on the reservation.

The supply of water on the reservation tends to vary gradually and not suddenly. This reduces the vulnerability of the reservation to drought and allows time to prepare for drought amelioration.

5.2 Institutional Drought

Over the past ten years, the Hualapai Tribe has worked to develop multiple sources of water across the reservation that help to reduce the vulnerability of the reservation to drought (Figure 2). The Westwater well and pipeline, the Frazier Wells wells and pipelines, the Mud Tank well and pipeline and the Grand Canyon West deep well all provide reliable sources of water for the reservation. These waters are primarily used for cattle and wildlife, but also for tourism at Grand Canyon West. These sources are in addition to the main source of water for the Peach Springs community at the Truxton Well (Figure 3). In addition, we are currently restoring the Peach Springs pump house and pipeline to the Peach Springs community to provide a secondary water supply for domestic use.

The security at the Truxton Well is very good so that the likelihood of contamination or vandalism is low. This results in lower vulnerability. The security at other wells across the reservation is not as good thus leading to increased vulnerability in those areas. Fires, floods and earthquakes are not likely to affect the sources of water across the Hualapai Reservation.

5.3 Water Use Patterns

The Hualapai Reservation has not seen a great increase in growth or population leading to a greater demand for water. The supply of water to the Peach Springs is not very vulnerable due to the size of the aquifer on which it draws. The increases that the reservation may realize in the future relate mostly from increased tourism at Grand

Canyon West on the rim of Grand Canyon. Plans for a resort hotel, golf course and other tourist attractions may increase the vulnerability of certain areas of the reservation to drought. Increasing the number of wells on the west side of the reservation will hopefully reduce the level of vulnerability at Grand Canyon West. In fact, with emergency drought relief funding from the Bureau of Reclamation, the tribe was recently able to drill an additional well at Mud Tank that will tie into the Westwater pipeline that provides water to Grand Canyon West. In Appendix C, we identify water needs and availabilities during the different stages of drought.

The continued need for water by cattle and wildlife make them especially vulnerable to drought. As mentioned elsewhere, many cattle and elk perished in 2002 due to drought. We initiated water hauling in 2001 for cattle and elk in response to the ever-worsening drought. Desert bighorn sheep are less vulnerable due to their adaptions to life in an arid environment.

There are substantial uses of water at the Hualapai Endangered Fish Rearing Facility and Native Plant Nursery. In the summer time, the fish facility uses nearly 1.5 million gallons of water per month while the nursery uses approximately 230,000 gallons per month in the summer and half that in the winter. There are three wells in the area of these facilities, and installation of a central 100,000 gallon tank that is linked to the three wells will greatly decrease the vulnerability of the fish facility and nursery to drought. These developments are planned for the near future.

5.4 Drought Preparedness

Through preparation of this Drought Contingency Plan, the Hualapai Tribe is making great strides toward reducing the vulnerability to drought. Implementation of the mitigation measures identified in this Plan will further reduce the vulnerability of the Hualapai Reservation to drought. In the past, the Hualapai Tribal Council has supported all activities toward ensuring dependable supplies of water to all portions of the reservation and should continue to do so in the future.

Drought vulnerability is also reduced because of the variety of entities that are involved with preparing for drought and for reducing the impacts of drought once it occurs. Practically all of the Departments of the Hualapai Administration are involved to some degree with the implementation of drought preparedness activities. In addition, several federal, state and county agencies work with the Hualapai Tribe to reduce vulnerability to drought. These outside agencies do this primarily through their grant and assistance programs.

Finally, the Hualapai Tribe attempts to minimize the vulnerability of the reservation to drought through frequent meetings with the public and through regular publications in the community newsletter. Many tribal members are cattle owners and are therefore intimately knowledgeable of the range and water conditions across the reservation. In addition, the Grand Canyon Resort Corporation has a vested interest in the water supplies of the reservation as they support tourism activities across the

reservation.

6.0 DROUGHT PREPARATION AND RESPONSE ACTIVITIES

In this section, we attempt to identify specific activities to be performed by all programs, departments, agencies and entities involved with preparation for, and response to, drought on the Hualapai Reservation. These activities are differentiated among the various levels of drought condition (normal, alert, warning and emergency) for each agency/entity. In the following sections, we identify activities that serve as drought preparedness mitigation for the same agency/entities across the levels of drought condition and then we identify the activities associated with routine operations and maintenance that relate to drought preparedness and response. Contact names, addresses and phone numbers for each of the identified agency/entity are given in Appendix A.

Table 5. Drought response activities during **Normal** conditions

Agency/Entity	Activities
Agriculture Program	· Oversight and Quarterly Monitoring of Storage Facilities. · Monitor utilization plots quarterly. · Implement normal grazing plan.
BIA Forestry	· Perform prescribed burns and mechanical fuel reduction activities, create fire breaks. · FMO announces levels of vulnerability quarterly.
Range Water Program	· update HDNR regarding conditions/problems. · Install new drinkers.

	· Purchase trash pumps. · Communicate storage conditions to HDNR Director on a monthly basis.
Wildlife, Fisheries and Parks Program	· Seek funding for feral livestock removal; remove livestock where possible. · Prepare normal game harvest recommendations based on population surveys.
Public Works/Roads Maintenance	· Monitor water quality and maintain security at wells and pumps.
Cattle Districts	· Optimize herd size based on carrying capacity. · Coordinate with Agriculture Program for forage assessment. · Move livestock per grazing plan.
Tribal Administration	· Set policy regarding drought activities/personnel. · Enter into cooperative agreements with outside agencies to reduce the effects of drought.
Drought Task Force	· Meets annually to discuss conditions.
Natural Resources Department	· Director of Natural Resources receives regular reports from the Agriculture and Range Water programs regarding water supplies, water delivery systems and range conditions. Director and Senior Scientist monitor drought indices via internet. Determinations as to drought condition is made by Director.

Agency/Entity	**Activities**
Agriculture Program	· Oversight and Quarterly Monitoring of Storage Facilities. · Monitor utilization plots quarterly. · Implement normal grazing plan.
BIA Forestry	· Perform prescribed burns and mechanical fuel reduction activities, create fire breaks. · FMO announces levels of vulnerability quarterly.
Range Water Program	· update HDNR regarding conditions/problems. · Install new drinkers.

	· Purchase trash pumps. · Communicate storage conditions to HDNR Director on a monthly basis.
Wildlife, Fisheries and Parks Program	· Seek funding for feral livestock removal; remove livestock where possible. · Prepare normal game harvest recommendations based on population surveys.
Public Works/Roads Maintenance	· Monitor water quality and maintain security at wells and pumps.
Cattle Districts	· Optimize herd size based on carrying capacity. · Coordinate with Agriculture Program for forage assessment. · Move livestock per grazing plan.
Tribal Administration	· Set policy regarding drought activities/personnel. · Enter into cooperative agreements with outside agencies to reduce the effects of drought.
Drought Task Force	· Meets annually to discuss conditions.
Natural Resources Department	· Director of Natural Resources receives regular reports from the Agriculture and Range Water programs regarding water supplies, water delivery systems and range conditions. Director and Senior Scientist monitor drought indices via internet. Determinations as to drought condition is made by Director.

Table 6. Drought activities during drought **Alert and Warning** conditions.

Agency/Entity	**Activities**
Agriculture Program	· Oversight and Quarterly Monitoring of Storage Facilities. · Implement grazing plans. · Evaluate use of non-potable water. · Monitor utilization plots monthly. · Remove feral animals where possible.
BIA Forestry	· Very limited prescribed burning under Warning. · Monitor drought and soil moisture

	conditions monthly. · Assess closures of vulnerable areas. · Begin implementation of disease remediation plan under Warning. · Alert local agencies to vulnerability under Warning. · Reduce visitor volumes under Warning.
Tribal Forestry	· Provide BIA Forestry with equipment and personnel lists. · Provide NEPA compliance for thinning and other forest development activities. · Coordinate with BIA Forestry and tribal Roads Maintenance regarding pre-fire planning.
Range Water Program	· Assure availability of emergency response personnel. · monitor catchment storage levels.
Water Resources Program	· Evaluate the use of springs and streams for firefighting and non-potable community use. · Monitor drought indices monthly, report to HDNR Director.
Wildlife, Fisheries and Parks Program	· Notify HDNR, BIA Forestry and Tribal Administration of available equipment and personnel. · Begin water/feed delivery based on surveys and storage monitoring under Warning condition. · Designate wildlife areas; implement closures. · Begin to increase animal harvest; perform additional surveys of critical areas/ animal condition.
Agency/Entity	**Activities - Alert and Warning**
Public Works/Roads Maintenance	· Monitor water quality; maintain security at wells and pumps. · Begin water conservation measures as outlined in plan. · Begin Level I restrictions (car washing, lawn watering) under Warning condition. · Evaluate roads for potential closure under Warning condition. · Initiate dissemination of public information via Gamyu' and with public notices under Warning condition.

Cattle Districts	· Begin herd reduction under Warning condition. · Monitor water storage levels. · Move livestock per grazing plan. · Coordinate with Agriculture Program for forage assessment. · Evaluate water/feed hauling; begin hauling.
Tribal Administration	· Under Warning condition, evaluate need for drought declaration. · Evaluate policy decisions. · Monitor agreement activities.
Drought Task Force	· Meet quarterly. Make recommendations to Natural Resource Director and Tribal Council.
Natural Resources Department	· Quarterly meetings between HDNR, cattle districts, GCRC, NRCS, Ag Extension, Drought Task Force.

Table 7. Responsibilities and activities during **Emergency** drought conditions.

Agency/Entity	Activities
Agriculture Program	· Oversight and Quarterly Monitoring of Storage Facilities. · Deliver non-potable water by hauling. Continue normal delivery. · Continue monthly reporting. Continue monthly meetings. Hold emergency meetings when necessary. · Continue monthly monitoring of utilization plots. · Implement supplemental feeding

	program. · Maintain stock of feed. · Haul water to catchments. Identify need for catchment construction. · Utilize trash pumps to fill tanks and trucks. · Implement emergency grazing plan. Move cattle to forage and/or reduce stocking rate.
BIA Forestry	· Continue water hauling; monitor water availabilities. · Enforce area and visitor restrictions. · Discontinue prescribed burning. · Continue monitoring of environmental conditions. · Continue coordination with outside agencies and internal departments. · Continue implementation of disease remediation plan. · Continue implementation of exotic vegetation control.
Tribal Forestry Program	· Provide BIA Forestry with personnel and equipment list. · Provide NEPA compliance for forest development.
Range Water	· Communicate storage conditions to HDNR Director on a weekly basis. · Assure availability of emergency response personnel. · Install new drinkers.
Grand Canyon Resort Corporation	· Distribute information to employees and visitors regarding drought conditions/water conservation/safety issues.
Agency/Entity	**Activities - Emergency Conditions**
Water Resources Program	· Implement mandatory water conservation practices; continue to disseminate information. · Continue the use of springs and streams as sources of water for fire suppression and non-potable community use. · Utilize restored wells as sources of water. · Monitor drought indices weekly, report to HDNR Director.
Wildlife, Fisheries and Parks Program	· Notify BIA Forestry and Tribal

	Administration of available equipment and personnel. · Continue to increase animal harvests; perform additional surveys of critical areas and for animal condition. · Designate wildlife areas; implement closures.
Public Works/Roads Maintenance	· Monitor water quality; maintain security at wells and pumps, begin use of springs and streams if possible. · Continue water conservation measures as outlined in plan. · Continue level I restrictions and implement level II restrictions (toilet flushing, distribute low-flow shower heads etc.) · Close roads for fire prevention. · Continue dissemination of information to the public. · Continue water hauling to Grand Canyon West; begin hauling water to Peach Springs if necessary.
Cattle Districts	· Continue herd reductions. · Monitor water storage levels. · Move livestock per grazing plan. · Coordinate with Agriculture Program for forage assessment. · Haul feed and water as needed. · Continue coordination with HDNR and GCRC.
Drought Task Force	· Continue to meet quarterly. Continue coordination with HDNR and cattle districts.
Agency/Entity	**Activities - Emergency Conditions**
Natural Resources Department	· Director of Natural Resources acts as Drought Command Center lead. Director relays information to other agencies, coordinates with BIA Forestry for fire suppression. Acts as liaison to Tribal Administration and Tribal Council, coordinates with outside agencies, oversees monthly meetings with cattle districts, GCRC, NRCS, Agriculture Extension Agent.

Wildlife Conservation	· Deliver feed and water where needed. · Enforce area restrictions. · Coordinate with Wildlife, Fisheries and Parks Program for animal reductions. · Monitor wildlife conditions monthly.

6.1 Drought Related Activities of Outside Agencies

Table 8. Responsibilities and Activities During Normal and Alert Conditions.

Agency/Entity	Activities
BIA - Truxton Canon Field Office	· Seek funding for drought mitigation, provide technical assistance, seek support for drought-related activities. · Implement trust responsibility and protection. · Coordinate with the Tribe and other agencies.

BIA - Area Office/Central Office	· Fund tribal mitigation activities where possible.
U.S.D.A Agriculture Extension Agent	· Provide drought training and education in the areas of drought recovery, herd health, livestock adjustments, forage monitoring and disease prevention. · Assist HDNR in development of mitigation strategies. · Announce the availability of funding programs to the Tribe.
Arizona Dept. of Water Resources	· Provide funding for drought mitigation where possible.
Natural Resources Conservation Service	· Provide funding through the Non-insured Crop Program, Livestock Conservation Program, Emergency Water Hauling, Wildlife Habitat Improvement Program, and Environmental Quality Incentive Program. · Provide technical assistance where possible.
U.S. Bureau of Reclamation	· Provide funding when available for implementation of the Drought Contingency Plan. · Provide technical assistance and funding for drought planning. · Provide technical assistance and funding for well drilling when available. · Provide technical assistance and funding for capital construction when available.
Arizona Game and Fish Department	· Provide technical assistance and/or funding for drought-related wildlife activities where possible.
U.S. Fish and Wildlife Service	· Provide drought-related funding through the Habitat Partnerships Program.
Agency/Entity	**Activities - Normal and Alert**
U.S. Environmental Protection Agency	· Provide funding to reduce future impacts of drought on the reservation (e.g. feral livestock removal).

Table 9. Responsibilities and Activities During Warning and Emergency Conditions**.**

Agency/Entity	Activities
BIA - Truxton Canon Field Office	· Seek emergency funding nation wide for drought relief and mitigation.

	· Act as federal/tribal liaison with other agencies.
BIA - Area Office/Central Office	· Provide funding for drought relief when available. · Respond to requests from Tribe and Field Office.
Mohave County	· Continue to participate in drought-related meetings. · Share equipment when necessary and possible.
U.S.D.A. Agriculture Extension Agent	· Continue drought training and education. · Assist the tribe with mitigation planning where possible. · Continue to relate funding information to the tribe.
Arizona Dept. of Water Resources	· Continue to assist tribe with drought mitigation.
Natural Resource Conservation Service	· Continue to participate with the Tribe through funding programs. · Continue to provide technical assistance.
U.S. Department of Agriculture	· Provide funding for emergency drought relief where possible.
U.S. Bureau of Land Management	· Attend drought-related meetings. · Share resources if necessary and possible. · Assist the tribe with resource management implementation.
U.S. Bureau of Reclamation	· Provide funding for emergency drought relief where available. · Provide technical assistance and funding for well drilling where available.
Agency/Entity	**Activities - Warning and Emergency**
Arizona Game and Fish Department	· Provide technical assistance and/or funding for drought-related wildlife activities. · Attend drought-related meetings when possible.
U.S. Fish and Wildlife Service	· Provide funding for emergency drought relief.
National Park Service	· Attend meetings where possible.

U.S. Environmental Protection Agency	· Provide funding for implementing activities to reduce drought impacts.

7.0 PREPAREDNESS MITIGATION

To reduce the impacts of future drought conditions on the Hualapai Reservation, many entities within and outside of the Hualapai Tribal Administration must work to implement pre-drought mitigation activities. Below, we identify these mitigation activities and the associated agency or entity for each drought condition.

Table 10. Preparedness mitigation during **Normal** conditions.

Agency	Mitigation Activity
Agriculture Program	· Purchase/build storage facilities east and west side. · Where possible, reduce undesirable species. Develop plans for reducing exotic vegetation. · remove feral animals where possible. · maintain and monitor catchments. · construct new catchments. · purchase pumps.

BIA Forestry	· Continue prescribed burning and mechanical fuels treatments where possible. · Reduce exotic vegetation where possible.
Range Water Program	· assist in installation of new water distribution facilities. · Work with GIS Coordinator to establish GIS/GPS database of distribution and storage systems. · Assist in planning for expansion of distribution systems.
Water Resources Program	· Develop water conservation plans for Peach Springs. · Seek funding for new well development. · Seek funding for well restoration. · Evaluate well and springs for potential development; prioritize potential developments; begin development**.**
Wildlife, Fisheries and Parks Program	· Install new catchments, troughs and drinkers**.** · Seek funding for feral livestock removal; remove livestock where possible.
Natural Resources Department	· Seek funding for drought mitigation.

Table 11. Preparedness mitigation activities for **Alert and Warning** conditions.

Agency/Entity	Mitigation Activities
Agriculture Program	· Monitor catchments. · Implement grazing plans. · Begin cleaning tanks as they dry out. · Construct new catchments where possible. · Begin stocking feed under Warning condition. · Begin stock reduction under Warning condition.

BIA Forestry	· Continue prescribed burning and mechanical fuels treatments where conditions permit. · Begin to implement dead tree removal plan under Warning condition. · Begin to implement exotic vegetation control plan under Warning condition. · Reduce visitor volumes in vulnerable areas under Warning conditions. · Restrict access to vulnerable areas.
Range Water	· Continue mitigation activities identified under Normal conditions.
Water Resources Program	· Distribute water conservation information for Peach Springs. · Seek funding for new well development; begin drilling new wells; seek funding for pipelines. · Restore wells. · Evaluate wells and springs for potential development; begin development.
Wildlife, Fisheries and Parks	· Seek funding for feral livestock removal; remove livestock where possible. · Implement disease education program. · Install new catchments, troughs and drinkers.
Public Works/Roads Departments	· Assist Water Resources Program with development of water conservation plans.
Natural Resources Department	· Continue to seek funding for drought mitigation.

Table 12. Preparedness mitigation for **Emergency** drought conditions.

Agriculture Program	· Where possible, reduce undesirable species. · Implement feral livestock removal where possible.
Water Resources Program	· Continue to expand new well and pipeline infrastructure.
Wildlife, Fisheries and Parks Program	· Implement emergency grazing plan. Move cattle to forage and/or reduce stocking rate.

8.0 ROUTINE OPERATIONS AND MAINTENANCE ASSOCIATED WITH DROUGHT RESPONSE

Routine operations and maintenance help reduce the effects of drought-related impacts across the Hualapai Reservation. Below, we identify the agencies and activities associated with drought related operations and maintenance.

Table 13. Operations and Maintenance during **All** conditions.

Agency/Entity	Activities
Agriculture Program	· Assist Range Water with routine maintenance of pumps, pipelines and storage facilities. · Prioritize tank cleaning. Make repairs to tanks. · Maintain Natural Resources water system. · Clean tanks when possible (as they dry out).
BIA Forestry	· Maintain fire breaks.

	· Maintain communications and fire-suppression equipment.
Tribal Forestry	· Assist in fire break maintenance.
Range Water	· Maintain pipelines, storage facilities and pumps. · Maintain and repair apron catchments. · Maintain parts inventory. · Maintain equipment.
Wildlife, Fisheries and Parks Program	· Maintain troughs and drinkers.
Public Works/Roads Maintenance	· Maintain security at wells and pumps. · Maintain wells, pumps, pipelines and storage facilities. · Maintain water treatment program. · Maintain roads.
Cattle Districts	· Maintain fences and gates. · Maintain water distribution systems. · Maintain storage facilities.

9.0 IDENTIFIED CAPITAL MITIGATION PROJECTS

The Hualapai Tribe has identified the following drought mitigation projects in accordance with PL 102-250, in order to submit the Plan through the U.S. Department of the Interior to Congress. The Plan meets the intent of PL 102-250 . The Plan also meets the goals and intentions of Title II of the Reclamation States Emergency Drought Relief Act of 1991. We have prioritized these projects according to long- and short-term needs. Those projects listed first are of the highest priority.

The Hualapai Tribe will seek funding from agencies and funding programs, where appropriate, to implement these mitigation activities. In the past, the Hualapai Tribe has successfully sought funding from the U.S. Fish and Wildlife Service, the U.S. Natural Resource Conservation Service, the U.S. Department of Agriculture, the U.S. Bureau of Reclamation and the U.S. Bureau of Indian Affairs and others for funding to ease drought conditions. In addition, the Hualapai Tribe has, and will, provide matching funds to assist in drought relief and mitigation efforts through Public Law 93-638 contracts with the U.S. Bureau of Indian Affairs. None of the projects described here involve Reclamation projects or obligations.

9.1 Long-term Capital Mitigation Projects

9.1.1 Diamond Creek Dam

In the long-term, we feel that it is the number one priority of the Hualapai Tribe to

evaluate the feasibility of constructing a hydroelectric dam at the mouth of Diamond Creek Canyon for the conservation of water and to generate electricity for the ever-growing southwestern United States. Diamond Creek originates on the western rim of the Colorado Plateau on the eastern portion of the Hualapai Reservation (Figure 2). The watershed for the creek is approximately 1,241 square miles in size and nearly one-half million gallons of water flows down the creek each day. We propose that a feasibility study be performed for construction of a hydroelectric dam in Diamond Creek Canyon upstream from its confluence with the Colorado River in Grand Canyon. The existing Diamond Creek Road would provide access to the site for construction.

At this time, the Hualapai Tribe does not have the resources necessary to complete such a feasibility study. We are interested, however, in discussing this project with any and all funding agencies that may have authority to support this project.

9.2 Short-term Capital Mitigation Projects

9.2.1 Above Ground Storage Tanks

Three large storage tanks are needed on three different areas of the Hualapai Reservation. At Frazier Wells, a 150,000 gallon storage tank is needed to ensure an adequate supply of water for fire suppression, cattle and wildlife. The three wells at Frazier Wells could all connect to the tank to ensure a dependable supply of water in the event that a pump failed or a well went dry. A 250,000 gallon storage tank is needed at the Westwater well to provide water for cattle, wildlife and for fire suppression on the arid western portion of the reservation. Finally, a 200,000 gallon storage tank is needed on the eastern portion of the reservation at the Thornton Tower. This water is needed for cattle, wildlife and fire suppression.

Smaller, 50,000 gallon storage tanks are also needed at numerous locations across the Reservation (Figure 3). These tanks are needed at DS Tank, Prospect Tank, Pinnacle Tank, Oak Tank, Cement Tank, Sage Tank, Little Sage Tank, Southeast Tank, Boundary Tank, Oink Tank and Hog Ranch Tank. These tanks will ensure adequate water supplies for cattle and wildlife and provide for fire suppression when necessary.

In Appendix B, it can be seen that many of the above ground storage tanks that are currently in place across the reservation are in need of repair along with associated pipelines and other infrastructure. Tanks at Willow Springs, Meriwhitica, Clay Tank, Tank #6, Lost Tank, Horse Flat, C.C., Jackson Canyon, Smith Canyon, Quail Tank #1, Quail Tank #2, Beecher Tank, Park Dam, Reserve #2, Tank #11, Buck Tank, Sink Tank #1 and Red Dike #2 are in need of repair and/or maintenance.

The purchase and repair of above-ground storage tanks is our third priority for short-term drought mitigation projects. We will seek funding for these projects from the

U.S. Bureau of Indian Affairs, Cattle Districts, the U.S. Bureau of Reclamation and the Natural Resources Conservation Service.

9.2.2 Wells

9.2.2.1 Grand Canyon West

In 1999, with funding from the U.S. Bureau of Reclamation, a deep well was drilled near Grand Canyon West to alleviate drought conditions on the arid western portion of the Hualapai Reservation. Initially, the well produced 26 gallons per minute. Later, however, the well sloughed and the delivery was reduced to 12 gallons per minute. To restore water availability to its original level or greater, we propose to drill another deep well near Grand Canyon West. This water is for fire suppression, cattle and wildlife.

9.2.2.2 Prospect Deep Well

On the far eastern portion of the Hualapai Reservation is Prospect Valley that is very arid and lacks surface water. Cattle, wildife and fire suppression activities are all limited there due to the lack of water, especially during drought. We propose to install a deep well there to support those activities.

9.2.2.3 Pine Springs Well

The Pine Springs Well is located on the eastern portion of the reservation and has production capabilities of 40 gallons per minute. The water here is used for cattle, wildlife and fire suppression. At this time, however, the solar pump and pipeline are in a state of disrepair.

9.2.2.4 Big Sandy Deep Well

At the Tribe's Big Sandy land (60 acres southwest of Peach Springs; Figure 2), only a shallow well exists that is inadequate to support the residents, their cattle, wildlife and fire suppression. In addition, during times of drought, the well runs dry. We propose to install a deep well to provide a more dependable source of water for this community.

Funding for these well projects could come from the Grand Canyon Resort Corporation, the U.S. Bureau of Reclamation, the U.S. Department of Agriculture or from the U.S. Bureau of Indian Affairs.

9.2.3 Water Trucks

To make sure adequate water is available in troughs and drinkers during times of

drought, a 5,000 gallon water truck is needed to deliver water to remote locations. Currently, the Tribe has a 1962, 2,500 gallon Chevrolet water truck that is in a constant state of disrepair. In addition, even when the truck does work, it is not adequate to supply water to the entire reservation. We propose to purchase two, used water trucks that are in good working condition to supply the water needs to areas where wells or pipelines are not present.

The purchase of water trucks is our number one short-term drought mitigation project because of the immediate effect on our ability to battle the drought. We will seek funding for this project from the U.S. Bureau of Indian Affairs, the U.S. Bureau of Reclamation, the U.S. Department of Agriculture and from private corporations.

9.2.4 Earthen Dams

Cleaning and repair of earthen dams across the Hualapai Reservation are our second short-term drought mitigation priority projects. These earthen dams fill with silt during times of monsoon and winter rains which reduces the capacities of the tanks thereby exacerbating the effects of drought. The best time to clean and repair these facilities is during times of extreme drought when little or no water is in the tanks.

9.2.4.1 Cattle District #1

In Cattle District #1, Willow Tank II, North Tank II, Meriwhitica, Maverick, Black Canyon, Clay Tank, Ranger Cabin, Lost Tank, Horse Flat, Jackson Tank, Smith Tank, Little Jeff, Jeff Tank, Boundary Tank, New Water and Boulder tanks need cleaning (Appendix B). For the greatest efficiency and for the long-term maintenance of these and the other water storage facilities listed below, the Tribe proposes to purchase a scraper to accomplish the cleaning of these tanks.

9.2.4.2 CattleDistrict #2

In Cattle District #2, there are no tanks in need of repair. Mud Tank, Horse Trough Tank, Trail Tank, Plain Tank and Red Tank are all in need of cleaning to increase capacity.

9.2.4.3 Cattle District #3

In Cattle District #3, Limestone Tan k, Upper dam, Antelope Tank, Matuck Tank, Valley Tank, Blue Mountain, Babylon, Gus Tank, Twenty Pines, Beecher Tank and XI Tank are all in need of sediment removal.

9.2.4.4 Cattle District #4

In Cattle District #4, Catchment #1 is in need of repair using a scraper and fill material. We estimate that two weeks will be needed to repair this tank. In addition,

Mexican Tank, Laguna Tank, Juniper Tank, Pinon Tank, catchment #2 Tank, DS Tank, Prospect Tank, Twin Tank, Pothole Tank, Pinnacle Tank, Oak Tank, Little Oak Tank and Elk Tank all need the sediment cleaned from them to increase capacity.

9.2.4.5 Cattle District #5

In Cattle District #5, Sink Tank #2 needs repair through the use of a scraper and by lining with bentonite. We estimate that two weeks will be required for the repair.

10.0 COMMUNICATION AND COOPERATION

10.1 Tribal

The Hualapai Department of Natural Resources and the Hualapai Department of Public Works will take the lead in disseminating information to the Tribal Government and the Hualapai Community including Cattle Districts regarding drought conditions. The Hualapai Tribal Council will have final authority for making all decisions regarding drought declaration and response to drought. The Tribal Forestry, Agriculture, Wildlife, Fisheries and Parks and Water Resources Programs will provide resources when necessary and when available in support of drought-related activities.

10.2 Federal Government

The U.S. Bureau of Indian Affairs, Truxton Canon Field Office will take the main responsibility for assisting the Hualapai Tribe with drought-related responses and drought monitoring. The U.S. Bureau of Reclamation may assist the Tribe with drought-related activities when so authorized and when funding is available. In addition, other federal agencies such as the U.S. Department of Agriculture, the Natural Resource Conservation Service, the U.S. Fish and Wildlife Service, and the U.S. Geological Survey may also be able to provide technical or financial assistance with drought-related activities depending on the specific needs of the Tribe and the resources of the agency. The Hualapai Department of Natural Resources has contacts within each of these agencies and will act as the lead tribal liaison for contacting the
appropriate agencies in times of drought.

10.3 State Government

The Arizona Deparment of Water Resources, the Arizona Department of

Environmental Quality and the Arizona Game and Fish Department may provide technical and/or financial assistance during drought depending on the specific needs of the Tribe and the resources of the agency. Again, the Hualapai Department of Natural Resources will act as tribal liaison for interactions with these agencies. In addition, the Hualapai Tribe will work with the state regarding preparation and implementation of the state's Drought Contingency Plan.

10.4 County Government

At this time, it is unknown what resources and/or programs Mohave County may have for drought monitoring or response to drought. The Hualapai Deparment of Natural Resources will contact the county in the near future to initiate interaction regarding drought-related activities.

10.5 Agriculture Extension Agent

The University of Arizona Agriculture Extension Agent will provide educational information regarding range monitoring, livestock management, disease control and other areas as they relate to drought and drought mitigation. The Hualapai Department of Natural Resources will work closely with the Extension Agent regarding funding opportunities, grant programs and needs for technical assistance.

10.6 Drought Task Force

The Drought Task Force, as identified above, communicates with all entities regarding drought-related activities and mitigation. Membership on the Force is reviewed every two years as is the Plan to ensure that the members have been effective, in attendance at meetings, and are still willing to participate in the drought program for the Hualapai Tribe.

11.0 LITERATURE CITED

Boles, P.H. 2003. Range trend monitoring studies on the Hualapai Indian Reservation
2003. Final report to Hualapai Department of Natural Resources. 30 pp.

Hualapai Tribe. 2000. Hualapai Reservation Water Quality Assessment Report 305(b)
1999. United States Environmental Protection Agency, Region IX. 50pp.

State of New Mexico. 1998. New Mexico Drought Plan. 13 pp.

Ms. Terri Edwards
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Ms. Edwards,

Please consider the enclosed Draft version of the Hualapai Tribe's Drought Contingency Plan under Cooperative Agreement #00-FC-30-0031. We gladly welcome any comments or suggestions you may have regarding this document, and appreciate your agencies support in the preparation of this important plan. We look forward to a continued positive relationship with the bureau and will keep in close contact regarding revisions and implementation of the plan.

Please call myself or Dr. Kerry Christensen in our department for additional information.

Sincerely,

Clay Bravo, Director
Hualapai Department of Natural Resources

November 5, 2001

Mr. Steve Jones
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Mr. Jones,

Please consider the revised draft Drought Mitigation Plan for the Hualapai Tribe under agreement No. 00-FC-30-0031. We substantially revised the plan and included mitigation projects and their costs as you had suggested. We feel the plan has improved significantly, and believe that with the comments received from your office on this draft we will be able to produce a final document that will be ready for implementation.

We appreciate the assistance yourself and the bureau have given the tribe in preparation of this important document and look forward to continued cooperation in the future. If you have any questions please call myself or Dr. Kerry Christensen in our department (928-769-2255).

Sincerely,

Donald E. Bay, Acting Director
Hualapai Department of Natural Resources

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EXECUTIVE SUMMARY

The Hualapai Tribe and its Reservation in northwestern Arizona frequently experience drought conditions that have significant impacts on the people, the economy and the natural resources found there. This Cooperative Drought Contingency Plan (Plan) was prepared to direct the tribe's monitoring of environmental conditions, provide a mechanism for the declaration of drought, identify drought response activities and to identify needed drought mitigation measures to alleviate the effects of future drought in the community.

The Hualapai Tribe consists of approximately 2000 tribal members that are governed by a nine-member Tribal Council elected by the members. The majority of the tribe's income comes from tourism, cattle ranching, timber harvest and big-game hunting. Each of these enterprises can be greatly affected by drought, thereby affecting the tribes income and local economy. Many visitors to the tribe's beautiful reservation, one that includes 108 miles of the Colorado River in Grand Canyon, are drawn by white-water rafting and pristine views of the canyon. During drought, water levels decline increasing the dangers of rafting while wildfires increase causing decreased visibility in the canyon. Cattle and wildlife are greatly affected by drought as they lack an abundance of forage and drinking water during drought conditions. Finally, drought not only affects the frequency of wildfire, but it also affects the health of the forest by spreading the incidence of disease and insect infestation.

Not only does drought affect economic development of the tribe, but it also affects its drinking water supplies and water supplies for fire suppression. While the tribe implements stringent water conservation measures during drought conditions, there is often not enough water in the main water supply (Truxton well) for domestic use especially when fires are burning on the reservation. In mitigation activities detailed in the Plan, we describe replacing a four mile stretch of lead pipe from the Peach Springs Well to the community to provide a secondary water supply. In addition, we propose that a feasibility study be performed to examine the possible construction of a hydroelectric dam on the Reservation that would provide a dependable water supply for community use and fire suppression as well as electricity.

This Drought Contingency Plan identifies responsibilities and activities for each phase of drought (normal, alert, warning, emergency) for the Hualapai Tribal government, tribal departments, federal and state agencies, the Grand Canyon Resort Corporation and others. Implementation of the Plan will therefore clearly identify personnel and activities aimed at reducing the impacts of future drought on the Hualapai Reservation.

In this Plan, we identify mitigation projects that will reduce the impacts of future droughts on the Hualapai Reservation. Some of the major projects include purchase, cleaning and repair of water tanks and cleaning and repair of earthen dams, a

feasibility study for construction of a hydro-electric dam on the reservation, installation of water pipelines (including the Peach Springs pipeline), drilling of deep wells and the

purchase of two water trucks.

HUALAPAI COOPERATIVE DROUGHT MITIGATION PLAN SECTOR ANALYSIS						
Sector	**Trigger**	**Impacts**	**Response**	**Mitigation**	**Water Needs**	**Water Availability**
Municipal Supply	1. Normal 2. Advisory 3. Alert 4. Warning 5. Emergency	1. None 2. None 3. None 4. Reduced availability 5. Severely reduced availability	1. None 2. Check municipal supplies 3. Monitor supplies weekly 4. Water conservation encouraged 5. Water conservation mandatory	1. None 2. None 3. None 4. Provide low flow shower faucets and toilets to the community. Implement public outreach 5. Haul water for community use	1. Normal (300,000) gallons/day 2. Normal (__ 300,000) gallons/day 3. Normal (300,000) gallons/day 4. Above normal (350,000gallons/day) 5. Much above normal (400,000) gallons/day	1. Normal (330,000) gallons/day 2. Normal (300,000) gallons/day 3. Normal (300,000) gallons/day 4. Normal (250,000) gallons/day 5. Much below normal (200,000) gallons/day
Agriculture/cattle	1. Normal 2. Advisory 3. Alert 4. Warning 5. Emergency	1. None 2. None 3. None 4. Reduced availability 5. Severely reduced availability	1. None 2. None 3. Deliver water where necessary 4. Move cattle where necessary, continue water deliveries - implement response actions identified in section 4.3 of the Plan	1. None 2. Earthen dam cleaning and repair where necessary 3. Deep well production and pipeline installation where necessary, install new storage tanks 4. Move cattle where necessary,	1. Normal (88,025) gallons/day 2. Normal (88,025) gallons/day 3. Normal (88,025) gallons/day 4. Normal (88,025) gallons 5. Normal (88,025) gallons * assumes an average of 35	1. Normal (2,118,700) gallons 2. Normal (2,118,700) gallons 3. Normal (2,118,700) gallons 4. Below normal (1,618,700) gallons 5. Much below normal (1,118,700) gallons

			5. Move cattle where necessary, continue water deliveries - implement response actions identified in section 4.3 of the Plan	continue water deliveries 5. Move cattle where necessary, continue water deliveries	gallons per day per cow	
Sector	**Trigger**	**Impacts**	**Response**	**Mitigation**	**Water Needs**	**Water Availability**
Tourism/recreation	1. Normal 2. Advisory 3. Alert 4. Warning 5. Emergency	1. None 2. None 3. None 4. Reduced water availability at Grand Canyon West 5. Potential to suspend river rafting	1. None 2. None 3. None 4. Encourage water conservation; assess rafting safety 5. Mandatory water conservation; assess rafting safety	1. None 2. None 3. None 4. Provide drinking water at attractions 5. Provide rain-check rafting coupons when necessary	1. Normal Grand Canyon West:(30,000 gallons/day); Colorado River (10,000) cfs 2. Normal Grand Canyon West:(30,000 gallons/day); Colorado River (10,000) cfs 3. Normal Grand Canyon West:(30,000 gallons/day); Colorado River (10,000) cfs 4. Above normal	1. Normal Grand Canyon West:(30,000 gallons/day) gallons; Colorado River (8,000-10,000 cfs) cfs 2. Normal Grand Canyon West:(30,000 gallons/day); Colorado River (8,000-10,000) cfs 3. Normal Grand Canyon West:(30,000 gallons/day); Colorado River (8,000-10,000) cfs 4. Below normal Grand Canyon West:(25,000 gallons/day; Colorado

					Grand Canyon West: (35,000 gallons/day); Colorado River (10,000) cfs 5. Much above normal Grand Canyon West:(40,000 gallons/day); Colorado River (10,000) cfs	River (5,000) cfs 5. Much below normal Grand Canyon West:(20,000 gallons/day); Colorado River (5,000) cfs
	Trigger	**Impacts**	**Response**	**Mitigation**	**Water Needs**	**Water Availability**
Fish/wildlife	1. Normal 2. Advisory 3. Alert 4. Warning 5. Emergency	1. None 2. None 3. None 4. Reduced availability 5. Severely reduced availability	1. None 2. None 3. Implement response actions identified in section 4.3 of Plan 4. Haul water where necessary	1. None 2. Earthen dam cleaning and repair where necessary 3. Deep well production and pipeline installation where necessary,	1. Normal (1,099,000 gallons/day) 2. Normal (1,099,000 gallons/day) 3. Normal (1,099,000	1. Normal (1,099,000 gallons/day) 2. Normal (1,099,000 gallons/day) 3. Normal (1,099,000 gallons/day) 4. Below normal (800,000 gallons/day)

			5. Provide forage and supplemental water where necessary	install new storage tanks 4. Move fish where necessary, continue water deliveries 5. Move fish where necessary, continue water deliveries	gallons/day) 4. Above normal (1,599,000 gallons/day) 5. Much above normal (2,099,000 gallons/day)	5. Much below normal (500,000 gallons/day)
Sector	**Trigger**	**Impacts**	**Response**	**Mitigation**	**Water Needs**	**Water Availability**
Wildfire protection/forestry	1. Normal 2. Advisory 3. Alert 4. Warning	1. None 2. None 3. None 4. Reduced availability 5. Severely reduced availability	1. None 2. None 3. Check availability of water hauling equipment - implement fire restrictions	1. None 2. None 3. Repair and maintain water storage facilities, install new water delivery facilities	1. Normal (adequate supply) 2. Normal (adequate supply) 3. Normal (adequate supply) 4. Above normal	1. Normal (adequate supply) 2. Normal (adequate supply) 3. Normal (adequate supply) 4. Below normal

	5. Emergency		4. Coordinate with Fire Management Officer regarding fire restrictions, water availability, personnel deployment 5. Alert local and regional agencies for fire preparedness - continue fire restrictions and personnel coordination	4. Acquire additional water delivery vehicles, utilize Diamond Creek Dam waters 5. Seek outside assistance with fire suppression	(variable/unknown gallons) 5. Much above normal (variable/unknown gallons)	(variable/unknown gallons) 5. Much below normal (variable/unknown gallons)
Public information and education	1. Normal 2. Advisory 3. Alert 4. Warning 5. Emergency	1. None 2. None 3. None 4. Need for public outreach 5. Extreme need for public outreach/participation	1. None 2. None 3. Implement fire restrictions; initiate public outreach 4. Continue public outreach; promote water conservation 5. Water conservation mandatory; continue public outreach	1. None 2. None 3. Seek funding for public education programs 4. Implement public education programs 5. Continue public education programs	1. Normal (no water required) 2. Normal (no water required) 3. Normal (no water required) 4. Normal (no water required) 5. Normal (no water required)	1. Normal (no water required) 2. Normal (no water required) 3. Normal (no water required) 4. Normal (no water required) 5. Normal (no water required)
Sector	**Trigger**	**Impacts**	**Response**	**Mitigation**	**Water Needs**	**Water Availability**
Water Availability	1. Normal	1. None	1. None	1. None	1. Normal	1. Normal

	2. Advisory 3. Alert 4. Warning 5. Emergency	2. None 3. None 4. Reduced availability 5. Severely reduced availability	2. None 3. Implement response measures identified in section 4.3 4. Continue response measures from 4.3 5. Continue response measures from 4.3	2. Earthen dam cleaning and repair 3. Deep well production and pipeline installation where necessary, install new storage tanks 4. Move cattle/fish where necessary, continue water deliveries 5. Move cattle/fish where necessary, continue water deliveries	(1,517,025) gallons/day 2. Normal (1,517,025) gallons/day 3. Normal (1,517,025) gallons/day 4. Above normal (2,072,025) gallons/day 5. Much above normal (2,627,025) gallons/day	(2,582,300) gallons/day 2. Normal (2,582,300) gallons/day 3. Normal (2,582,300) gallons/day 4. Below normal (2,582,300) gallons/day 5. Much below normal (2,082,300) gallons
Water Conservation	1. Normal 2. Advisory 3. Alert 4. Warning 5. Emergency	1. None 2. None 3. None 4. Need for public outreach 5. Extreme need for public outreach/participation	1. None 2. None 3. Promote water conservation 4. Public outreach and water conservation measures 5. Mandatory water conservation	1. None 2. None 3. Seek funding for public education programs 4. Implement public education programs 5. Continue public education programs	1. Normal (N/A) gallons 2. Normal (N/A) gallons 3. Normal (N/A) gallons 4. Normal (N/A) gallons 5. Normal (N/A) gallons	1. Normal (N/A) gallons 2. Normal (N/A) gallons 3. Normal (N/A) gallons 4. Normal (N/A) gallons 5. Normal (N/A) gallons

WATER SOURCES FOR THE HUALAPAI RESERVATION

NAME/LOCATION	CAPACITY (Gal.)	STATUS	FACILITIES (earthen dam, above ground storage etc.)
District #1 Tribal Herd			
Willow Springs	1,500 tank, 500 trough	unfunctional	above ground
Willow Tank	800	full	above ground
Willow II	unknown	needs cleaning	earthen tank
East North Tank	12,000 tank 900 trough	full	above ground
North Tank	12,000 tank, 900 trough	full	above ground
North Tank II	unknown	needs cleaning	earth tank
Number 5	50,000 tank, 800 trough	full	above ground
Black Tanks	13,000 tank, 900 trough	full	above ground
Meriwhitica	unknown	empty, needs cleaning	earth tank

Meriwhitica	10,000 tank, 700 trough	empty, needs repair	above ground
Maverick	unknown	empty, needs cleaning	earth tank
Maverick	800	empty	above ground
Black Canyon	5,000 tank, 800 trough	full	above ground pump station and tank
Black Canyon	unknown	empty, needs cleaning	earth tank
NAME/LOCATION	**CAPACITY (Gal.)**	**STATUS**	**FACILITIES (earthen dam, above ground storage etc.)**
II screws	10,000 tank, 700 trough	full	above ground
Clay Tank	20,000 tank, 800 trough	empty, needs repair	above ground
Clay Tank	20,000 tank, 800 trough	empty, needs repair	above ground
Clay Tank	unknown	needs cleaning	earth tank
Number 6	50,000 tank, 800	needs water line	above ground

	trough		
Ranger Cabin	10,000 tank, 800 trough	full	above ground
Ranger Cabin	unknown	empty, needs cleaning	earth tank
Lost Tank	20,000	empty, needs repair	above ground
Lost Tank	unknown	empty, needs cleaning	earth tank
Horse Flat	1.5 gal./min. Well		
Horse Flat	10,000	empty, well bad	
Center tank, Horse Flat	10,000 tank, 900 trough	full	above ground
Horse Flat	5,000	empty, leaks	above ground
Horse Flat	unknown	empty, needs cleaning	earth tank
C.C.	800 trough	empty, needs water line	above ground
Jackson	5,000	empty, needs water line	above ground
NAME/LOCATION	**CAPACITY (Gal.)**	**STATUS**	**FACILITIES (earthen dam, above ground**

			storage etc.)
Jackson	unknown	empty, needs cleaning	earth tank
Smith	unknown	empty, needs cleaning	earth tank
Smith	5,000	empty, needs water line	above ground
Little Jeff	unknown	empty, needs cleaning	earth tank
Jeff Tank	unknown	empty, needs cleaning	earth tank
Boundary	unknown	has water/needs cleaning	earth tank
New Water	unknown	has water/needs cleaning	earth tank
Boulder	unknown	has water/needs cleaning	earth tank
New Water Storage	240,000	supplies GCW	
District #2 Milkweed Springs Assn.			
Trail Tank	120,000	full	above ground

Quail Tank #1	10,000	full/leaks	above ground
Quail Tank #2	10,000	full/leaks	above ground
Eagle Head Pasture Ganite Tank	10,000	empty	above ground
Hindu #1	50,000	½ full	above ground
Hindu #2	50,000	1/3 full	above ground
NAME/LOCATION	**CAPACITY (Gal.)**	**STATUS**	**FACILITIES (earthen dam, above ground storage etc.)**
Mud Tank	10,000	empty	earthen dam
Horse Trough	10,000	½ full	earthen dam
Plain Tank	10,000	empty	earthen dam
Red Tank	10,000	empty	earthen dam
Milkweed Dam	25,000	full	concrete dam
District #3 Peach Spgs. Assn.			
Antelope Tank	10,000	full	above ground/trough
Tank #7	50,000	3/4 full	above ground

Tank #8	50,000	3/4 full	above ground
Tank #9	50,000	empty, needs clean	above ground
Blue Mountain	120,000	full, clean	above ground
Wilder Springs	50,000	full	above ground
Twenty Pines	120,000	1/4 fulll	cement tank
Bird Bath	10,000	emptyl	cement tank
Beecher Tank	30,000	1/4 full, needs clean.	above ground
X-I Tank	90,000	empty	above ground
District #4 Pine Springs Assn.			
Black Tank	10,000	unuseable	trough
Pipeline Tank	10,000	full	earth tank
Frazier Wells Cow Camp	90,000	½ full	above ground
NAME/LOCATION	**CAPACITY (Gal.)**	**STATUS**	**FACILITIES (earthen dam, above ground storage etc.)**
DS Tank	10,000	empty/need clean.	earthen dam
Prospect Tank	10,000	empty/need clean.	earthen dam

Twin Tank	10,000	empty/need clean.	earthen dam
Pothole Tank	5,000	empty/need clean.	earthen dam
Pinnacle Tank	10,000	needs cleaning	earthen dam
A-hole Tank	10,000	1/4 full	earthen dam
Little A-hole Tank	20,000	full	earthen dam
Oak Tank	10,000	empty/need clean.	earthen dam
Little Oak Tank	10,000	empty/need clean.	earthen dam
Park Dam	10,000	3/4 full, needs repair	above ground
Mexican Tank	2,500	full	above ground
Mexican dirt tank	50,000	½ full	earth tank
Laguna	10,000	full	above ground
Laguna dirt tank	100,000	½ full	earth tank
Township	90,000	full	earth tank
Catchment #1	50,000	½ full, needs repair	earth tank
Juniper	90,000	empty	earth tank
Pinon Tank	10,000	empty	earth tank
Catchment #2	50,000	empty	earth tank
Elk Tank	10,000	empty	earth tank

District #5 Coyote Springs Assn.			
Tower Turn-off #1	90,000	empty	above ground
Tower Turn-off #2	90,000	empty	above ground
NAME/LOCATION	**CAPACITY (Gal.)**	**STATUS**	**FACILITIES (earthen dam, above ground storage etc.)**
Tower	100,000	empty	above ground
Reserve #1	10,000	empty	above ground
Reserve #2	10,000	empty, needs repair	above ground
National Tank	10,000	empty	above ground
Little National #1	10,000	empty	earth tank
Little National #2	10,000	full	earth tank
#11	50,000	empty, needs repair	above ground
#12	10,000	empty	above ground
Sage Tank	10,000	empty, needs repair	above ground
Buck Tank	10,000	empty, needs repair	above ground

Sink Tank #1	10,000	empty, needs repair	above ground
Sink Tank #2	10,000	empty, needs repair	earthen tank
Red Dike #1	10,000	full	earthen tank
Red Dike #2	10,000	empty, needs repair	above ground
Rosewell	10,000	3/4 full	above ground

APPENDIX B

WATER SOURCES ACROSS THE HUALAPAI RESERVATION

APPENDIX D

305b WATER ASSESSMENT REPORT

APPENDIX A

HUALAPAI DROUGHT TASK FORCE CONTACTS AND STATE, COUNTY AND FEDERAL CONTACTS AND FUNDING PROGRAMS

HUALAPAI DROUGHT TASK FORCE

Water Resources Program Manager

Currently: Mr. Alex Cabillo
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2254; FAX 928-769-2309
e-mail: acabillo@hotmail.com

BIA Fire Management Officer

Currently: Mr. Ronald Quasula, Sr.
P.O. Box 37
Valentine, AZ 86437 Phone: 928-769-2279; FAX 928-769-2326

Wildlife, Fisheries and Parks Program Manager

Currently: Ms. Annette Morgan
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2255; FAX 928-769-2309
e-mail: ab20_1992@yahoo.com

Agriculture Program Manager

Currently: Mr. Joel Querta
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2255; FAX 928-769-2309

Air Quality Program Manager

Currently: Mr. Cisney Havatone
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2254; FAX 928-769-2309

Agriculture Assistant Program Manager

Currently: Mr. Francis Munoz
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2255; FAX 928-769-2309

LOCAL, STATE AND FEDERAL CONTACTS

LOCAL CONTACTS

Chairperson of the Hualapai Tribe

Currently: Ms. Louise Benson
P.O. Box 179
Peach Springs, AZ 86434 Phone: 928-769-2216; FAX 928-769-2343

Director of the Hualapai Department of Natural Resources

Currently: Mr. Donald E. Bay
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2254; FAX 928-769-2309
e-mail: donbay@ctaz.com

Director of the Hualapai Department of Public Works

Currently: Mr. Eric Kasoon
P.O. Box 179
Peach Springs, AZ 86434 Phone: 928-769-2625; FAX 928-769-2808

Tribal Forestry Program Manager

Currently: Mr. Charles Murphy
P.O. Box 299
Peach Springs, AZ 86434 Phone: 928-769-2267; FAX 928-769-2582

Range Water Technician

Currently: Mr. Dudley Manakaja
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-2255; FAX 928-769-2309

Cattle Districts

District One - Tribal Herd

Currently: Mr. Waylon Honga
Grand Canyon Resort Corporation
P.O. Box 538
Peach Springs, AZ 86434 Phone: 928-769-2419

District Two

Currently: Mr. Francis Munoz
P.O. Box 463
Peach Springs, AZ 86434 Phone: 928-769-2255; FAX 928-769-2309

District Three

Currently: Mr. Phillip Bravo, Jr.
P.O. Box 189
Peach Springs, AZ 86434 Phone: 928-769-

District Four

Currently: Mr. Everett Manakaja
P.O. Box 132
Peach Springs, AZ 86434 Phone: 928-769-2216; FAX 928-769-2343

District Five

Currently: Mr. Ron Quasula, Sr.
P.O. Box 252
Peach Springs, AZ 86434 Phone: 928-769-2279; FAX 928-769-2326

Wildlife Conservation

Currently: Ms. Earlene Havatone
P.O. Box 249
Peach Springs, AZ 86434 Phone: 928-769-2227; FAX 928-769-2410

Grand Canyon Resort Corporation

Currently: Mr. Waylon Honga
P.O. Box 359
Peach Springs, AZ 86434 Phone: 928-769-2227; FAX 928-769-2410

Agriculture Extension Agent

Currently: Ms. Elizabeth Didier
P.O. Box 300
Peach Springs, AZ 86434 Phone: 928-769-1284; FAX 928-769-2309

STATE CONTACTS

Arizona Game and Fish Department

Currently: Regional Supervisor
5325 Stockton Hill Rd.
Kingman, AZ 86401 Phone: 928-692-7700

Arizona Department of Water Resources

Currently: Ms. Patricia McCraw
500 N. Third St.
Phoenix, AZ 85004 Phone 602-417-2400; FAX 602-417-2423

FEDERAL CONTACTS

U.S. Department of Agriculture - Natural Resource Conservation Service

Currently: Mr. John Jeffredo
101 E. Beale St.
Kingman, AZ 86401 Phone: 928-753-6183, Ext. 101

U.S. Bureau of Reclamation

Currently: Ms. Tina Mullis
P.O. Box 61470
Boulder City, NV 89006 Phone: 702-293-8139

U.S. Fish and Wildlife Service

Currently: Mr. Marty Jakle
2321 West Royal Palm Road, Suite 103
Phoenix, AZ 85021-4951 Phone: 602- 242-0210; FAX 602-242-2513

U.S. Federal Emergency Management Agency

Currently: Mr. Robert McCord
1111 Broadway, Suite 1200
Oakland, CA 94607 Phone: 510-627-7059; FAX 510-627-7147

January 20, 2004

Mr. Bennie Schrum, President
Milkweed Springs Cattle Association
P.O. Box 183
Peach Springs, AZ 86434

Dear Mr. Schrum,

This letter is to request your review and comment on the Hualapai Tribe's Cooperative Drought Contingency Plan (Plan) that has just been completed by the Hualapai Department of Natural Resources with funding from the U.S. Bureau of Reclamation. In the Plan, we identify activities to be taken that should lessen the impacts of future droughts and activities that should occur in response to drought on the Hualapai Reservation. Activities are identified not only for tribal departments and individuals but for outside agencies as well.

Once the Plan is adopted by congress, we can begin to implement the elements of the Plan with the cooperation of tribal entities and outside agencies. We feel that implementation of the Plan will help improve environmental conditions on the reservation for the betterment of the Hualapai people, the general public and the natural resources of our lands.

We would greatly appreciate any comments you may have concerning the Plan. Please call (769-2255) if can provide additional information.

Sincerely,

Donald E. Bay, Director
Hualapai Department of Natural Resources

HUALAPAI TRIBAL COUNCIL
RESOLUTION NO. _____

OF THE GOVERNING BODY OF THE
HUALAPAI TRIBE OF THE HUALAPAI RESERVATION

WHEREAS, the Hualapai Tribe has suffered from periodic drought since establishment of the Hualapai Reservation in 1883, and

WHEREAS, the Hualapai Tribe received a grant from the U.S. Bureau of Reclamation, Lower Colorado Region to prepare a Cooperative Drought Contingency Plan, and

WHEREAS, the Hualapai Department of Natural Resources has prepared a Cooperative Drought Contingency Plan, and

WHEREAS, implementation of the Cooperative Drought Contingency Plan will likely reduce the impacts of future droughts and identify drought mitigation measures for which funding can be sought, and

WHEREAS, adoption of the Cooperative Drought Contingency Plan by the United States Congress will facilitate the process of securing funding for drought-related projects in the future, and

WHEREAS, the Plan prepared by HDNR has been reviewed by the Interdisciplinary team (IDT) and has been recommended for approval by the IDT, and

NOW THEREFORE BE IT RESOLVED THAT the Hualapai Tribal Council approves the Hualapai Cooperative Drought Contingency Plan and recommends that it be forwarded to the U.S. Bureau of Reclamation, Lower Colorado Region to be submitted to Congress.

CERTIFICATION

I, the undersigned as Chairwoman of the Hualapai Tribal Council, hereby certify that the Hualapai Tribal Council of the Hualapai Tribe is composed of nine (9) members of whom ____ constituting a quorum were present at a _____ meeting held this ____day of _____, 2004; and that the foregoing resolution was duly adopted by a vote of ___for, ___against, ___not voting and ____excused, pursuant to authority of Article V, Section (a) of the Constitution of the Hualapai Tribe approved March 13, 1991.

_____

ATTEST: Louise Benson, Chairwoman

HUALAPAI TRIBAL COUNCIL

Christine Lee, Tribal Secretary

January 8, 2004

Mr. Robert Johnson, Regional Director
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Mr. Johnson,

Please consider the enclosed Cooperative Drought Contingency Plan (Plan) for the Hualapai Reservation in northwestern Arizona. We have worked closely with your staff during the preparation of this Plan and feel that we have produced a very effective document that will help us to reduce the impacts of future (and current) droughts on our lands and people. We hope that adoption of this Plan will facilitate implementation of emergency drought relief and drought mitigation measures in the future. This Plan has been adopted by resolution (attached) by the Hualapai Tribal Council on January 7, 2004.

In the Plan, we indicate that none of the projects identified involve Reclamation projects or obligations. We also provide for a two year review and revision in the Plan. We are enclosing a copy of the coordination letter that has been sent to Grand Canyon National Park, the United States Bureau of Indian Affairs, the United States Fish and Wildlife Service, the Federal Emergency Management Agency, the Natural Resources Conservation Service, the Arizona Department of Water Resources, the Arizona Game and Fish Department, Grand Canyon Resort Corporation and the Presidents of the five cattle districts on the Hualapai Reservation for their review and

comment. To date, we have not received any responses to our requests for comments.

We greatly appreciate the assistance from your agency and staff in funding and preparation of this Plan and look forward to a continued positive relationship in the future. Please contact myself or Mr. Don Bay in the Hualapai Department of Natural Resources (928-769-2255) if we can provide additional information.

Sincerely,

Louise Benson, Chairwoman
Hualapai Tribe

February 24, 2004

Mr. Robert Johnson, Regional Director
U.S. Bureau of Reclamation
P.O. Box 61470
Boulder City, NV 89006-1470

Dear Mr. Johnson,

Following is a list of the names and addresses to which the Hualapai Tribe's Cooperative Drought Contingency Plan was sent for review and comment. If you have any questions, please contact my office.

Sincerely,

Donald E. Bay, Director
Hualapai Department of Natural Resources

Mr. Joseph Alston, Superintendent
Grand Canyon National Park
P.O. Box 129
Grand Canyon, AZ 86023-0129

Mr. Marty Jakle, Ecologist
U.S. Fish and Wildlife Service
2321 W. Royal Palm Rd, Suite 103
Phoenix, AZ 85021-4951

Mr. John Jeffredo, District Conservationist
Natural Resources Conservation Service
101 E. Beale St.
Kingman, AZ 86401

Mr. Robert Posey, Regional Director
Arizona Game and Fish Department
5325 Stockton Hill Rd.
Kingman, AZ 86401

Mr. Waylon Honga, General Manager
Grand Canyon Resort Corporation
P.O. Box 359
Peach Springs, AZ 86434

Mr. Ron Quasula, Sr., President
Coyote Springs Livestock Assn.
P.O. Box 252
Peach Springs, AZ 86434

Mr. Everett Manakaja, President
Pine Springs Livestock Assn.
P.O. Box 132
Peach Springs, AZ 86434

Mr. Robert McNichols, Superintendent
Truxton Canon Field Office
P.O. Box 37
Valentine, AZ 86437

Mr. Robert McCord, Mitigation Planner
Federal Emergency Management Agncy
1111 Broadway, Suite 1200
Oakland, CA 94607

Mr. Herb Guenther, Director
Arizona Dept. of Water Resources
500 N. Third St.
Phoenix, AZ 85004

Mr. Bill Dickinson, Superintendent
Lake Mead National Recreation Area
601 Nevada Way
Boulder City, NV 89005

Mr, Phillip Bravo Jr., President
Peach Springs Livestock Association
P.O. Box 441
Peach Springs, AZ 86434

Mr. Benny Schrum, President
Milkweed Springs Livestock Assn.
P.O. Box 183
Peach Springs, AZ 86434