San Pedro Watershed

Watershed Description

This watershed encompasses three hydrological areas:

- San Pedro River, which begins in the mountains near Cananea Sonora, Mexico, and flows north about 100 miles through the southeast corner of Arizona to join the Gila River near Winkelman, Arizona;
- Willcox Playa, a terminal basin (does not drain out of the area), which contains a 30,000 acre ephemeral lake (playa); and
- Two relatively short drainages that flow to the Rio Yaqui in Mexico: Whitewater Draw and Black Draw.

It is a 7,015 square mile watershed is lightly populated with only 130,000 people (2000 census). Communities in the area include the rapidly growing Sierra Vista area and several historic towns, such as Tombstone, Douglas, and Bisbee. Grazing is widespread, with significant areas of irrigated agriculture located on the eastern side of the watershed. Historic copper, silver, and gold mining took place across the watershed; however, only a few mines are still active. Land ownership is divided approximately as: 40% private, 40% state, 20% federal (no tribal land). The Bureau of Land Management established a 50,000 acre San Pedro Riparian National Conservation Area in 1988 to protect this critical habitat.

Elevation varies from 4,000 feet (above sea level), with desert grassland and warmwater aquatic communities, to 10,700 feet at Mount Graham, with alpine forest. Areas above 5,000 feet typically support coldwater aquatic communities where perennial waters exist.

Water Resources

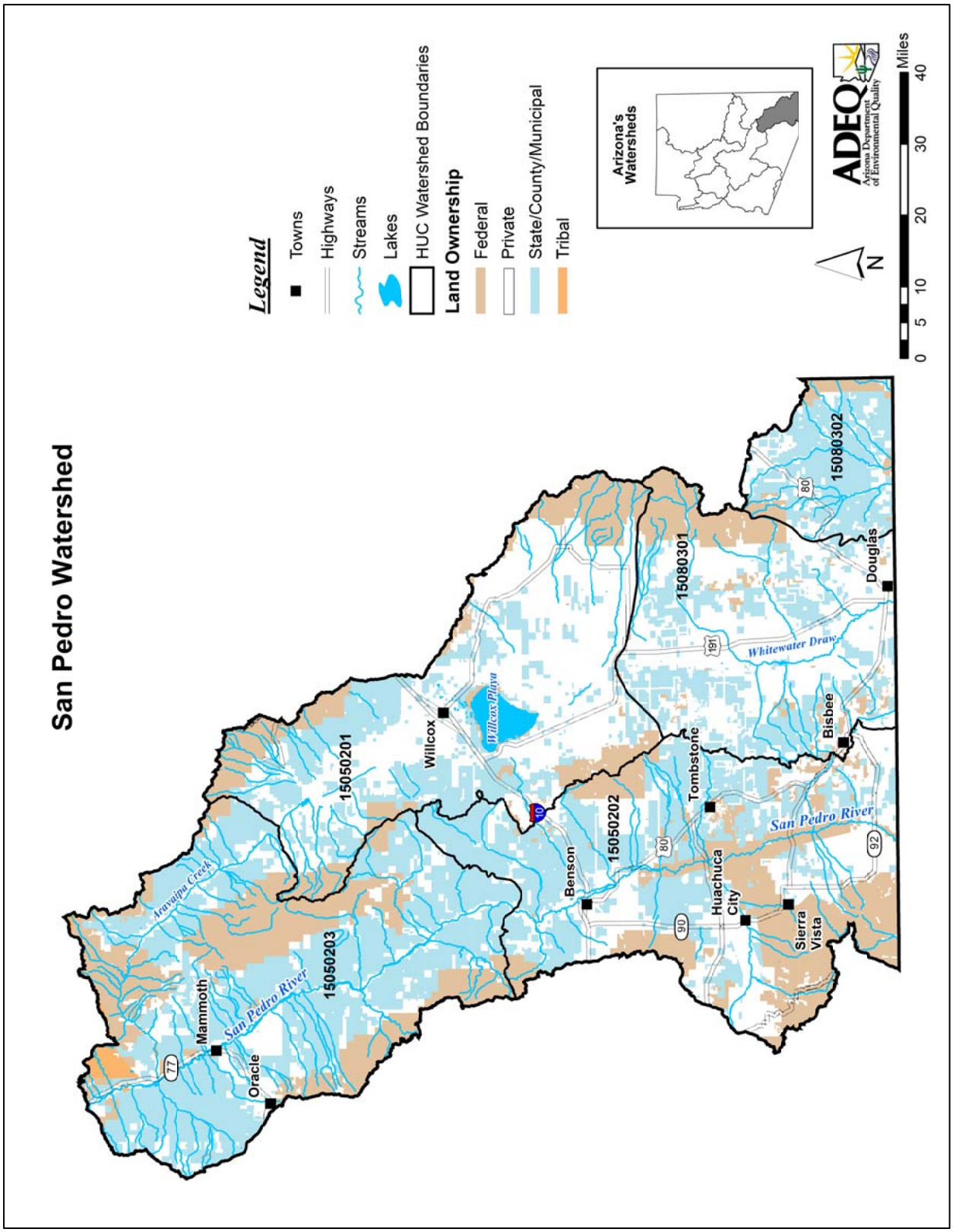
The area gets little precipitation, with 10-15 inches of rain and 0-5 inches of snow. Springs provide perennial flow to segments of the San Pedro River and other streams in this watershed. Concerns have been raised about ground water pumping and water demand in the rapidly growing Fort Huachuca Army Base -- Sierra Vista area and the potential impact on perennial flow in the San Pedro River. In 2003, a Fort Huachuca Preservation Legislation required the Secretary of Interior to develop water use management and conservation measures necessary to restore and maintain the sustainable yield of the aquifer.

An estimate of surface water resources in the Salt Watershed is provided in the following table.

Estimated Surface Water Resources in the San Pedro Watershed

	Perennial	Intermittent	Ephemeral
Stream miles	195	665	6,610
	Perennial	Non-perennial	
Lake acres	1,319	29,471	

Estimated miles and acres are based on U.S. Geological Survey digitized hydrology at 1:100,000 and have been rounded to the nearest 5 miles or 5 acres. Ambient monitoring focuses on perennial waters; however, special investigations have identified water quality problems on intermittent and even ephemeral waters.


San Pedro Watershed
Legend
Towns
Highways
Streams
Lakes
HUC Watershed Boundaries
Land Ownership
Federal
Private
State/County/Municipal
Tribal
Arizona's Watersheds
ADEQ
Arizona Department of Environmental Quality
N
0 5 10 20 30 40
Miles
Arivaipa Creek
San Pedro River
Mammoth
Oracle
77
15050203
15050201
Willcox
Willcox Playa
10
Benson
15050202
80
90
Tombstone
Huachuca City
Sierra Vista
15080301
191
Whitewater Draw
Bisbee
92
15080302
Douglas

Watershed Partnerships

- Campomocho-Sacaton Watershed Group
  This 42,000 acre subwatershed is in the Willcox Playa basin, includes most of Hook Open A Ranch and Redtail Ranch near Willcox, Arizona. The group's primary objective is to implement conservation practices that will improve watershed health and water quality, and reduce downstream flood damages. Projects are specifically aimed at reducing soil erosion and water runoff, increasing ground cover, and improving wildlife habitat to reduce negative economic impacts. The group has quarterly meetings. Contact Donna Matthews at (520) 384-2229 or donna.matthews@az.usda.gov; or Dan Skinner, Chair, d.skinner@goldtechind.com.

- Upper San Pedro Partnership
  This 1,875 square mile basin extends along the San Pedro River from Mexico to "the narrows." This partnership coordinates the identification, development, and implementation of policies and projects to meet water needs in the Sierra Vista area. The group meets in Sierra Vista on the second Wednesday of the month. Contact Carol Sanger, Coordinating Manager, carolsang6@cox.net or lhendrickson@co.cochse.az.us; or Bob Strain, Chair, at (520) 459-4763

- Community Watershed Alliance (Middle San Pedro)
  The area of concerns extends further north along the San Pedro River, between "the narrows" near Charleston to the Gila River at Winkleman, AZ. This grassroots group works to effect change that will benefit water quantity and quality. It meets on the 4th Tuesday of the month in Benson, AZ. Contact Mary McCool at (520) 798-0229; Al Turk, (520) 586-7086, Anna Landis (520) 586-7310, Peter Moran (520) 586-4456 or watergroup@aol.com.

Special Studies and Water Quality Improvement Projects

Total Maximum Daily Load Analyses – The following TMDL analyses have been completed, are ongoing, or are scheduled to be completed in this watershed. Further information about the status of these investigations or a copy of the TMDL, if completed, can be obtained at ADEQ's website: www.azdeq.gov.

- Mule Gulch and several of its tributaries in the Bisbee area are impaired due to copper, cadmium, zinc, and low pH (acidic).
  Metal concentrations and acid mine conditions primarily pose a risk to aquatic life and wildlife. The TMDLs being developed by ADEQ are complex due to natural background levels of metals and because source loading data is difficult to collect due to slope, intermittent and ephemeral flows, and drought conditions. To account for natural conditions, ADEQ is developing site specific standards. Meanwhile, the mining operation in the area has continued to implement additional management measures to address contamination.

- San Pedro River between Babocomari Creek and Dragoon Wash is impaired due to *Escherichia coli* bacteria.
  Exceedances of *E. coli* standards may represent a significant public health concern if people are swimming or even wading in the water. This bacteria TMDL was initiated in 2006.

- San Pedro River, between Dragoon Wash and Tres Alamos Wash, is impaired due to nitrate.
  This stretch of river is contaminated by underground flow of groundwater contaminated by nitrates. Remediation activities are occurring as part of a Superfund cleanup site, and the facility is doing monthly ground and surface water monitoring to evaluate the effectiveness. Although water quality continues to improve, will take time for the surface water quality to meet standards as there is significant ground water contamination.

- San Pedro River, from Aravaipa Creek to the Gila River, is impaired by *Escherichia coli* bacteria and selenium.
  Exceedances of *E. coli* standards may represent a significant public health concern if people are swimming or even wading in the water. Selenium may negatively impact federally protected birds (bald eagle and Southwest willow flycatcher) found in this area. TMDL initiated in 2006.

Water Quality Improvement Grant Projects – ADEQ awarded the following Water Quality Improvement Grants (319 Grants) in this watershed. More information concerning these grants or projects can be obtained at: http://www.azdeq.gov/environ/water/watershed/fin.html.

- **Turbidity Reduction in Aravaipa Creek Project**
  Coronado Resource Conservation and Development Area (2000)
  Divide the area into smaller pastures with fencing and adjust grazing so that a higher concentration of cattle will be on each pasture for a shorter length of time. This should improve soil, allow seed germination, and encourage vegetative regrowth. Add fencing to exclude cattle form the creek to improve riparian condition.

- **Borderlands Storm Water Runoff Control Project**
  Coronado Resource Conservation and Development Area (2001)
  Revegetate using native plantings and provide water spreader dikes on 2,500 acres of severely eroded rangeland along the Mexican border to reduce sediment loading.

- **Peppersauce Cave Water Restoration Project**
  Raymond C. Keeler (2001)
  Remove litter and graffiti from the permanent pools in the cave, disinfect the pools to eliminate the *Escherichia coli* bacteria contamination, and distribute educational materials.

- **Campomocho - Sacaton Storm Water Runoff Control Project**
  The Coronado Resource Conservation and Development Area (2001 and 2005)
  Install sediment retention structures and contouring, and reseed to reestablish vegetation to reduce erosive water velocity and sediment transport during storm events in the Willcox Playa Drainage Area.

- **San Pedro Wildlife Sanctuary Habitat Restoration Project**
  The Nature Conservancy (2001)
  Restore agricultural fields by introducing native plants and improving riparian flood plain condition along the San Pedro River. Provide an outdoor riparian exhibit for education and outreach.

- **Fort Huachuca East Range Road Closure and Stream Crossing Project**
  Engineering and Environmental Consultants, Inc (EEC) (2002)
  Close 81 miles of roadways within the Fort Huachuca East Range and provide various degrees of rehabilitation to these areas. Develop an exhibit, talks, and articles to demonstrate practical and new technologies used in this project.

- **Ramsey Canyon Preserve Parking Lot Runoff Reduction Project**
  The Nature Conservancy (2002)
  Divert water from the roof of the Ramsey Canyon Visitors Center and from the nearby forest road to reduce sediment transport to Ramsey Creek. Install retention systems and recontour parking areas to direct runoff to planted areas.

- **Wisconsin Mound Septic System at the Audubon Research Ranch Project**
  National Audubon Society Appleton-Whittell Research Ranch (2002)
  Replace failed septic system with this alternative system and host workshops on alternative systems.

- **St. David Community River Cleanup Project**
  The San Pedro National Resource Conservation District (2003)
  Work with community partners and clean up heavy trash dumping along the San Pedro River in the north section of the National Riparian Conservation Area.

- **Three Links Farm Riparian Habitat Restoration Project**
  The Nature Conservancy (2003)
  Fence of and enhance riparian habitat along the San Pedro River.

- **Cottonwood Creek Restoration and Sediment Control Project**
  Coronado Resource Conservation and Development Area (2004)
  Reduce stream bank erosion along Cottonwood Creek in the Whitewater Draw Drainage Area by using gabions to stabilize grade, fencing off livestock from riparian areas, and developing alternative water source for grazing.

- **Erosion Control in the Babacomari Project**
  Coronado Resource Conservation and Development Area (2006)
  Construct erosion control mats and waddles and revegetate the riparian area to stabilize two gullies in Lyle Canyon which are contributing sediment to Babacomari River.

- **Manzanita Erosion Control Project**
  Community Watershed Alliance (CWA) (2006)
  Install rip rap, culverts, and gully plugs and revegetate using seedlings to reduce erosion in the San Pedro watershed.

Water Protection Fund Projects – The following Water Protection Fund Projects were awarded by the Arizona Department of Water Resources. More information about these funds or projects can be obtained from the ADWR web site at: http//www.azwater.gov.

- **Lower San Pedro Watershed Project**
  The Redington National Resources Conservation District (2000)
  Provide a water resource assessment and provide a watershed alternatives plan for improving watershed conditions. The project also brought local communities together to address watershed issues and solicit public involvement.

- **Cooperative Grazing Management for Riparian Improvements Project**
  The Double Check Ranch and the Nature Conservancy (2000)
  Implement a cooperative grazing management plan. Fencing and alternative watering sources were developed to protect riparian areas along the San Pedro River.

- **Cottonwood Creek Restoration Project**
  The Coronado Resource Conservation and Development Area (2003)
  Restore riparian conditions along Cottonwood Creek in Whitewater Drainage Area.

Other Water Quality Studies – The following additional water quality related studies were completed since 2000 in this watershed:

- ***Water Issues of the Arizona - Mexico Border: The Santa Cruz, San Pedro, and Colorado Rivers.***
  Terry W. Sprouse, University of Arizona, Water Resources Research Center (2005)
  Summary of water quality and water quantity issues facing this region.

- ***Water Quality Data for Selected National Park Units, Southern and Central Arizona and West-Central New Mexico, Water Years 2003 and 2004***
  U.S. Geological Survey in cooperation with the National Park Service (2005)
  Field measurements and water samples were collected at springs, mine adits, streams, and wells at 30 sites in 9 park units in 2003-2004 to provide baseline (ambient) water quality information. Only 24 of the 30 sites were sampled three times due to drought conditions and lack of water during parts of the year. In the San Pedro Watershed, samples were collected in Coronado National Memorial. Analyses of data collected at these sites indicated:

- ***Assessment of Selected Inorganic Constituents in Streams in the Central Arizona Basins Study Area, Arizona and Northern Mexico, through 1998***
  David Anning – U.S. Geological Survey, National Water Quality Assessment Program (2003)

Inorganic chemical data (dissolved solids, suspended sediment, and nutrients) and stream properties (temperature, pH, dissolved oxygen) were analyzed to assess water quality, determine natural and human factors affecting water quality, and compute stream loads.

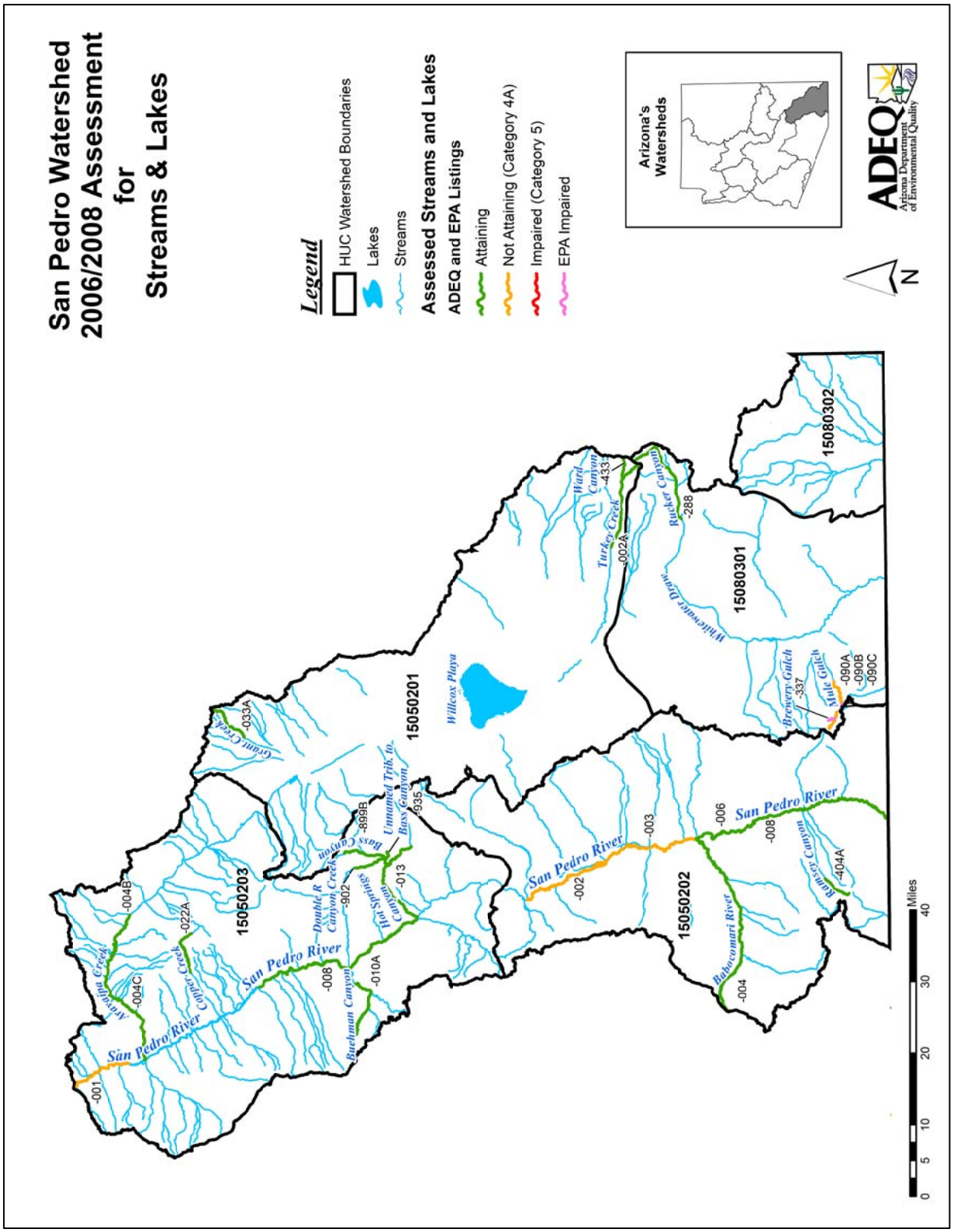
- ***Border Crossings – Water and Wastewater at the International Boundary***
  R.G. Charles Graf and Craig Tinney (ADEQ) and Tom Konner (EPA Region IX)
  September/October 2005 Southwest Hydrology (2005)
  This article describes the problems and progress being made in addressing water quality and wastewater infrastructure along the Mexican border with California and Arizona for seven key populations centers: San Diego/Tijuana, Tecate, Calexico/Mexicali, San Luis/San Luis Rio Colorado (Yuma area), Nogales, Naco/Bisbee, and Douglas/Agua Prieta.

Assessments

The San Pedro Watershed can be separated into the following drainage areas (subwatersheds):

15050201	Willcox Playa
15050202	Upper San Pedro
15050203	Lower San Pedro
15080301	Whitewater Draw
15080302	San Bernardino Valley

These drainage areas and the surface waters assessed as “attaining” or “impaired” are illustrated on the following watershed map. Methods used to complete these assessments are described in the “Surface Water Assessment Methods and Technical Support” document (2006).


San Pedro Watershed
2006/2008 Assessment
for
Streams & Lakes
Legend
HUC Watershed Boundaries
Lakes
Streams
Assessed Streams and Lakes
ADEQ and EPA Listings
Attaining
Not Attaining (Category 4A)
Impaired (Category 5)
EPA Impaired
Arizona's Watersheds
ADEQ
Arizona Department of Environmental Quality
N
Miles
0
5
10
20
30
40
15050203
15050201
15050202
15080301
15080302
San Pedro River
Willcox Playa
Turkey Creek
Ward Canyon
Rucker Canyon
Whitewater Draw
Brewery Gulch
Mule Gulch
Babocomari River
Ramsey Canyon
Hot Springs Canyon
Double R Canyon Creek
Bass Canyon
Unnamed Trib. to Bass Canyon
Buehman Canyon
Cottonwood Creek
Cottonwood Creek
Gyum Creek
-001
-004B
-004C
-022A
-008
-010A
-902
-899B
-013
-935
-033A
-002
-002A
-433
-288
-337
-090A
-090B
-090C
-003
-006
-004
-404A

ARAVAIPA CREEK From Stowe Gulch to end of Aravaipa Wilderness Area 15050203 – 004B 15.5 Miles Unique Water	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 02/28/2000 – 05/15/2002		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At east trail head SPARA019.41 100210	USGS Special study	5-8 dissolved and total metals: Antimony, arsenic, beryllium, barium, cadmium, chromium, copper, lead, nickel, silver, thallium, and zinc 8 total and 0-1 dissolved: Boron, manganese, mercury	11 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	10 *E. coli* bacteria 11 Fluoride 10 Total dissolved solids 11 Turbidity
Below Parsons Canyon SPARA017.25 100211	ADEQ Ambient USGS Special study			
At Hells Half Acre Campground SPARA011.92 100716	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved metals (lead, mercury, nickel) were higher than the A&W chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limits for selenium and dissolved metals.	

ARAVAIPA CREEK From Aravaipa Wilderness Area to San Pedro River 15050203 – 004C 12.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/19/2000 – 04/06/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Woods Ranch SPARA010.19 100212	USGS Special study	7-9 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, and zinc 3-9 total and 0-1 dissolved: Boron, lead, manganese, mercury, nickel 1 total and 1 dissolved: Barium, silver, thallium	9 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 *E. coli* bacteria 9 Fluoride 9 Total dissolved solids 8 Suspended sediment concentration 9 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved metals (lead, mercury, and nickel) were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limits for selenium and dissolved metals.	

BABOCOMARI RIVER From Banning Creek to San Pedro River 15050202 – 004 32.7 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/28/2000 – 02/01/2006 Included 02/01/2006 data to be able to assess designated uses		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near Huachuca City, AZ USGS #09471380 SPBBR018.97 101487	USGS Special study	3 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, copper, lead, zinc 3 total metals only: Boron, chromium, manganese 3 total and 1 dissolved: Mercury 1 total: Selenium	3-4 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	3 *E. coli* bacteria 3 Fluoride 3 Total dissolved solids 3 Suspended sediment concentration 4 Turbidity
Near Tombstone, AZ USGS #09471400 SPBBR003.49 101488	ADEQ Ambient USGS Special study			
At mouth to San Pedro River SPBBR000.06 103548	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria in 2 samples.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limits for selenium and dissolved mercury.	

BASS CANYON CREEK From unnamed tributary at 322606 / 1101318 to Hot Springs Canyon Creek 15050203 – 899B 7.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/01/2000 – 08/23/2000; 09/14/2004 – 04/19/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Double R Canyon SPBAS001.64 100215	ADEQ Ambient	6-7 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, copper, and zinc 3-7 total and 0-2 dissolved: Barium, boron, chromium, lead, manganese, mercury, nickel, silver, thallium	8 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	7 *E. coli* bacteria 8 Fluoride 8 Total dissolved solids 4 Suspended sediment concentration 8 Turbidity
Above Hot Springs Canyon Creek SPBAS000.62 100217	ADEQ Ambient			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	09/14/2004 – 2.66 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow. Flow was 0.1 cfs. Low levels of nitrogen (0.13 mg/L) and phosphorus (0.01 mg/L).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved metals (copper, lead, mercury) were higher than the A&W chronic criteria in at least 3 samples.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium and dissolved metals.	

UNNAMED BASS CANYON TRIBUTARY From headwaters to Bass Canyon Creek 15050203 – 935 1 Mile	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 09/16/2004 – 04/21/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
East of Bass Canyon SPUBS000.22 100224	ADEQ Ambient	4 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, and zinc 3-7 total and 0-2 dissolved: Boron, manganese, mercury	3-4 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 4 Fluoride 3 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	All core parameters collected.		Lab detection limits for selenium and half of the dissolved mercury samples were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority – Use lower lab detection limits for selenium and dissolved mercury.	

BREWERY GULCH From headwaters to Mule Gulch 15080301 -- 337 1 Mile		USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	ADEQ	A&We – Impaired PBC – Inconclusive	Category 5 Impaired	Copper	ADEQ also assesses this reach as impaired by copper.
	EPA	A&We – Impaired	Category 5 Impaired	Copper	EPA listed in 2004 due to copper

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006/2008 impaired waters list. Such listings do not satisfy requirements established in ADEQ's Impaired Water Identification Rule; therefore, they are not included in the list of ADEQ's Impaired waters.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/07/2000 – 10/11/2000; 08/26/2003 – 09/27/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above mineral zone SPBRG000.91 103439	ADEQ TMDL	6-7 dissolved metals: Cadmium, copper, lead, and zinc 3 total metals: Copper, zinc 2 total metals: Cadmium, lead 6 pH		
At old Bisbee storm drain SPBRG000.03 103441	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	6.3 µg/L at 20 mg/L hardness 10.2 µg/L at 41 mg/L hardness 8.5 µg/L at 35 mg/L hardness 31.3 µg/L at 88 mg/L hardness 20.6 µg/L at 137 mg/L hardness 10.5 µg/L at 43 mg/L hardness 18.4 µg/L at 78 mg/L hardness A&We acute	03/07/2000 – 81 µg/L 08/07/2000 – 150 µg/L 10/11/2000 – 26 µg/L 10/19/2000 – 52 µg/L 08/26/2003 – 65 µg/L 08/14/2004 – 25 µg/L 09/27/2004 – 30 µg/L	Impaired – Exceeded standard 3 times during a 3-year period (7 times during the assessment period).
Lead (dissolved)	51 µg/L at 41.5 mg/L hardness A&We acute	08/14/2004 – 380 µg/L	Inconclusive – 1 exceedance in the last 3 years of monitoring.
Lead (total)	15 µg/L PBC	08/14/2004 – 380 µg/L (d)	Inconclusive – 1 exceedance in 2 samples. (Binomial)
pH	>6.5 SU A&We , PBC	03/07/2000 – 6.2 SU	Inconclusive – Only 1 exceedance in 6 samples. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead and pH	Insufficient core parameters		
DISCUSSION OF EXCEEDANCES		EPA originally listed this reach as impaired by copper in 2004. In the current assessment ADEQ also lists it as impaired based on: 1. Seven exceedances during the assessment period; 2. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed; 3. Three exceedances in the last 3-year period.	
MONITORING RECOMMENDATIONS		High Priority –Collect copper, lead, and pH samples to support TMDL development on Mule Gulch as needed.	

BUEHMAN CANYON CREEK From headwaters to end of designated unique water 15050203 – 010A 10.5 Miles Unique Water	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 02/29/2000 – 05/01/2002; 11/08/2004 – 04/04/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Bullock Canyon SPBHC004.66 100425	ADEQ Ambient	6-9 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, and zinc 3-4 dissolved and total metals: Barium, nickel, silver, thallium 9 total and 0-1 dissolved: Boron, manganese, mercury	10 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	10 *E. coli* bacteria 10 Fluoride 10 Total dissolved solids 3 Suspended sediment concentration 10 Turbidity
Below unnamed dry wash SPBHC004.31 101175	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	05/16/2000 – 4.4 mg/L 08/22/2000 – 2.4 mg/L	Attaining – Low dissolved oxygen due to natural conditions of ground water upwelling during very low flows.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limits for selenium and dissolved mercury.	

COPPER CREEK From headwaters to Prospect Canyon 15050203 – 022A 6.6 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Attaining FC – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 02/29/2000 – 08/22/2000; 11/09/2004 – 09/21/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Bluebird Mine tributary SPCOP011.39 100433	ADEQ Ambient	4-7 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, and zinc 4-6 total 0-2 dissolved: Barium, boron, manganese, mercury, nickel, silver, thallium	8 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 *E. coli* bacteria 8 Fluoride 8 Total dissolved solids 3 Suspended sediment concentration 8 Turbidity
Below Dark Canyon SPCOP008.37 100944	ADEQ Ambient			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	28.0 µg/L at 380 mg/L hardness A&Ww chronic	03/09/2005 – 31.1 µg/L	Inconclusive – Only 1 exceedance during the assessment period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Dissolved copper	Core parameters collected.		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional dissolved copper due to the exceedance. Use lower lab detection limits for selenium and dissolved mercury.	

DOUBLE R CANYON CREEK From headwaters to Bass Canyon Creek 15050203 – 902 5.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/22/2000 – 04/21/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near Bass Canyon Creek SPDOU000.18 100223	ADEQ Ambient	5-9 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, and zinc 9 total and 0-2 dissolved: Boron, manganese, mercury 2 total and 1-2 dissolved: Barium, nickel, silver, thallium	8-9 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 *E. coli* bacteria 8 Fluoride 8 Total dissolved solids 3 Suspended sediment concentration 8 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	05/22/2000 – 4.7 mg/L 06/09/2003 – 4.6 mg/L 09/15/2004 – 5.5 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Flows between 0.02-0.06 cfs.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved metals (copper, lead, mercury) were higher than the A&W chronic criteria in at least 4 samples.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limits for selenium and dissolved metals.	

DUBACHER CANYON From headwaters to Mule Gulch 15080301 -- 075 1 Mile	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/12/2000		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above mine area SPDBC000.42 102923	ADEQ TMDL	1 dissolved only: Cadmium, copper, lead, and zinc 1 pH		
Below Highway 80 at pit outfall SPDBC000.07 102924	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (total)	1300 µg/L PBC	10/12/2000 – 36,000 µg/L (dissolved portion)	Inconclusive – Only 1 sample and it exceeded standards.
Copper (dissolved)	53.2 µg/L At 242 mg/L hardness A&We	10/12/2000 – 36,000 µg/L	Inconclusive – Only 1 sample and it exceeded standards.
pH	>6.5 SU A&We , PBC	10/12/2000 – 2.4 SU	Inconclusive – Only 1 sample and it exceeded standards.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper and pH	Insufficient core parameters	Insufficient sampling events	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		High Priority – Collect additional copper and pH samples to support TMDL development on Mule Gulch as needed.	

GRANT CREEK From headwaters to unnamed tributary at 323809 / 1095635 15050201 – 033A 6.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Attaining DWS – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 08/17/2004 – 06/14/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Post Creek SPGRA007.71 100561	ADEQ Ambient	4 dissolved and total metals: Antimony, arsenic, beryllium. 4 total and 0-2 dissolved: Boron, cadmium, chromium, copper, lead, manganese, mercury, zinc	4 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	08/17/2004 – 4.56 mg/L	Attaining -- Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Low nutrient levels (nitrogen 0.21 mg/L) and low flow (0. 09 cfs).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved metals (cadmium, copper, zinc) to assess attainment of A&W.		Lab detection limits for dissolved metals (cadmium, copper, lead, mercury, and zinc) and total selenium were higher than the A&W chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Low Priority –Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for the dissolved metals and selenium.	

HENDRICKS GULCH From headwaters to Mule Gulch 15080301 -- 335 0.5 Mile	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 08/07/2000 – 08/27/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At old Bisbee storm drain SPHNG000.01 102922	ADEQ TMDL	3-4 dissolved metals: Cadmium, copper, zinc 2 dissolved metals: Lead 1 total metals: Copper, zinc 4 pH	None	None

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	16 µg/L at 68 mg/L hardness 8.4 µg/L at 44 mg/L hardness A&We	08/07/2000 – 76 µg/L 08/27/2003 – 44 µg/L	Inconclusive – Only 1 exceedance in a 3-year period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper	Insufficient core parameters	Insufficient sampling events	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		High Priority –Collect copper samples to support TMDL development on Mule Gulch as needed.	

HOT SPRINGS CANYON From headwaters to San Pedro River 15050203 – 013 25.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Attaining FC – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	Sampling Periods: 03/01/2000 – 08/23/2000; 09/14/2004 – 04/19/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Wildcat Canyon SPHSC010.67 100574	ADEQ Ambient	6-7 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, copper, and zinc 3-7 total and 0-2 dissolved metals: Barium, boron, chromium, lead, manganese, mercury, nickel, silver, and thallium.	8 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	7 *E. coli* bacteria 8 Fluoride 8 Total dissolved solids 4 Suspended sediment concentration 8 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	9.6 µg/L at 108 mg/L hardness A&Ww acute	04/19/2005 – 15 µg/L	Inconclusive – 1 exceedance in last 3-years of monitoring.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper	All core parameters were collected		Lab detection limits for selenium and dissolved metals (lead, mercury) samples were higher than the A&W chronic criteria in at least 4 samples.
MONITORING RECOMMENDATIONS		Medium Priority – Collect copper samples due to exceedance. Use lower lab detection limits for selenium and dissolved metals.	

LESLIE CREEK From headwaters to Whitewater Draw 15080301-007 24.5 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&W2 – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/16/2002; 08/18/2004 (other dates no flow)		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Leslie Canyon National Wilderness Area SPLES012.75 101500	ADEQ and USGS Ambient	1-2 dissolved and total metals: Antimony, arsenic, beryllium, boron, cadmium, chromium, copper, lead, manganese, and zinc 1 total metal only: Mercury 1 dissolved metal only: Selenium, uranium, barium	1-2 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 Fluoride 1 Total dissolved solids 1 Suspended sediment concentration 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	6.0 mg/L A&Ww	05/16/2002 – 4.5 mg/L 08/18/2004 – 2.6 mg/L	Inconclusive – Elevated nutrients on 05/26/2002 (nitrogen 6.2 mg/L, nitrate 26 mg/L) along with the low dissolved oxygen. Low dissolved oxygen on 08/18/2004 was due to natural conditions of low flow (flow 0.03 cfs) and ground water source of water. Low nutrients (nitrogen 1.03 mg/L, phosphorus 0.06 mg/L, nitrate 0.4 mg/L).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Low dissolved oxygen (with elevated nutrients)	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect dissolved oxygen data due to low dissolved oxygen measurement. Collect core parameters to represent at least three seasons during an assessment period. Use lower lab detection limits for the selenium and dissolved mercury.	

MILLER CANYON From headwaters to Broken Arrow Ranch 15050202 – 409A 4.3 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive DWS – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 02/23-2005; 03/30/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Near headquarters SPMLC012.43 100592	ADEQ Ambient	2 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, copper, lead, and zinc 3 total and 1 dissolved: Mercury 1-2 total metals only: Boron, chromium, manganese, selenium	3-4 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	3 *E. coli* bacteria 3 Fluoride 3 Total dissolved solids 3 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Wc	03/30/2005 – 5.2 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow (0.5 cfs) and groundwater upwelling.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters.	Insufficient monitoring events	Lab detection limits for selenium and dissolved metal (lead and mercury) samples were higher than the A&W chronic criteria in at least 1 sample.
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least 3 seasons. Use lower lab detection limits for selenium and dissolved metals.	

MORALES CREEK From headwaters to Mule Gulch 15080301 – 331 2 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/11/2000		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Highland Park Road SPMOR000.27 102937	ADEQ TMDL	1 dissolved: Cadmium, copper, lead, zinc 1 pH		

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	10.7 μg/L at 44 mg/L hardness A&We acute	10/11/2000 – 18 μg/L	Inconclusive – Exceeded criterion in the single sample tested.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper	Insufficient core parameters	Insufficient sampling events	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		High Priority –Collect copper samples to support TMDL development on Mule Gulch as needed.	

MULE GULCH From headwaters to above Lavender Pit 15080301 – 090A 3 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired PBC – Attaining FC – Attaining	Category 5 Impaired	Copper	Listed due to copper since 1990. Ongoing TMDL. Establishing site-specific copper standards.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 03/07/2000 – 08/28/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Spring Canyon SPMLG015.59 102773	ADEQ TMDL	12-19 dissolved and total metals: Copper, zinc 6-8 dissolved and 2 total: Cadmium, lead 1-2 dissolved and/or total metals: Antimony, arsenic, barium, beryllium, boron, chromium, manganese, mercury, nickel, silver, thallium, zinc	1 sample: Ammonia, dissolved oxygen, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen 15 pH	2 Fluoride 1 Turbidity
At Inn at Castle Rock SPMLG014.59 100506	ADEQ TMDL			
At MG - 100 SPMLG014.03 102489	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Cadmium (dissolved)	3.7 µg/L at 198 mg/L hardness 1.9 µg/L at 80 mg/L hardness A&Ww chronic	03/07/2000 – 7.4 µg/L 10/12/2000 – 21 µg/L	Inconclusive – Two exceedances of chronic standards during the assessment period; however, samples may not be representative of a four day condition, as they were collected during rain events.
Cadmium (dissolved)	3.4 µg/L at 80 mg/L hardness A&Ww acute	10/12/2000 – 21 µg/L	Inconclusive – Exceeded the acute standard once.
Copper (dissolved)	14.0 µg/L at 104 mg/L hardness 25.2 µg/L at 195 mg/L hardness 19.7 µg/L at 150 mg/L hardness 17.3 µg/L at 131 mg/L hardness 17.3 µg/L at 131 mg/L hardness 25.7 µg/L at 199 mg/L hardness 36.5 µg/L at 289 mg/L hardness 25.3 µg/L at 196 mg/L hardness 14.5 µg/L at 108 mg/L hardness 13.6 µg/L at 100 mg/L hardness A&Ww acute	03/07/2000 – 160 µg/L 08/08/2000 – 160 µg/L 08/18/2000 – 69 µg/L 10/12/2000 – 260 µg/L 10/07/2002 – 49 µg/L 12/01/2002 – 30 µg/L 01/08/2003 – 44 µg/L 07/20/2003 – 240 µg/L 08/13/2003 – 32 µg/L 08/26/2003 – 20 µg/L	Remains impaired – 6 exceedances during the last 3 years of monitoring (10 exceedances during the assessment period).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Cadmium	Insufficient core parameters	Insufficient sampling events for core parameters	Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority – Collect samples to support copper TMDL and site specific copper standards. Collect additional cadmium samples due to exceedances. Use lower lab detection limits for selenium and dissolved mercury. Collect core parameters to represent at least 3 seasons.	

MULE GULCH From above Lavender Pit to Bisbee WWTP discharge 15080301 – 090B 0.8 Miles	USE SUPPORT		OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A D E Q	A&We – Impaired PBC – Impaired	Category 5 Impaired	Copper	Ongoing copper TMDL. Establishing site-specific copper standards.
	E P A	A&We – Impaired PBC – Impaired	Category 5 Impaired	Low pH	EPA listed low pH in 2002. Ongoing copper TMDL will also address low pH.

Light blue highlights indicate EPA impairments based on EPA assessment and listing criteria. This listing may change when EPA reviews and approves the 2006/2008 impaired waters list. Such listings do not satisfy requirements established in ADEQ's Impaired Water Identification Rule; therefore, they are not included in the list of ADEQ's Impaired waters (Appendix B and Appendix C).

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/07/2000 – 08/26/2003 NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Site MG 150 SPMLG012.79 102490	ADEQ TMDL	10 dissolved: Copper and zinc 6 total: Copper and zinc 2-3 dissolved: Cadmium, lead	5 pH	None

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (total)	1300 µg/L PBC	03/07/2000 – 4,000 µg/L 10/11/2000 – 4,000 µg/L 10/07/2002 – 39,000 µg/L 02/20/2003 – 16,725 µg/L 03/16/2003 – 21,000 µg/L 07/20/2003 – 19,200 µg/L 08/26/2003 – 13,000 µg/L	Remains impaired – Exceeded criterion during 7 of 7 sampling events (8 of 15 samples). (Binomial) (Note: dissolved copper results were compared to standards when total copper was not analyzed.)
Copper (dissolved)	41.0 µg/L at 182 mg/L hardness 36.2 µg/L at 161 mg/L hardness 40.5 µg/L at 182 mg/L hardness 85.9 µg/L at >400 mg/L hardness 41.5 µg/L at 185 mg/L hardness 63.0 µg/L at 288 mg/L hardness 85.9 µg/L at >400 mg/L hardness 85.9 µg/L at >400 mg/L hardness 85.9 µg/L at >400 mg/L hardness 61.3 µg/L at 287 mg/L hardness A&We acute	03/07/2000 – 4,000 µg/L 08/07/2000 – 42 µg/L 10/11/2000 – 4,000 µg/L 10/07/2002 – 40,000 µg/L 02/14/2003 – 67 µg/L 02/20/2003 – 28,000 µg/L 03/16/2003 – 21,000 µg/L 07/20/2003 – 34,000 µg/L 08/26/2003 – 15,000 µg/L	Remains impaired – Exceeded criteria 6 times in the last 3 years of monitoring (9 times during the assessment period).
Lead	15 µg/L PBC	10/11/2000 – 39 µg/L	Inconclusive – Exceeded in 1 of 2 samples. (Binomial)
pH	>6.5 SU A&We, PBC	03/07/2000 – 3.0 SU 08/07/2000 – 6.1 SU 10/11/2000 – 4.4 SU 02/20/2003 – 2.7 SU	Inconclusive – Did not meet criterion in 4 of 5 sampling events (4 of 9 samples); however, insufficient data to list as impaired. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead	Insufficient core parameters	Insufficient sampling events for core parameters	
DISCUSSION OF LOW PH IMPAIRMENT		Evidence of potential pH impairment: 1. Very low pH during four of 5 sampling events; 2. Historic mining in the area is a probable source; and 3. ADEQ is currently developing a TMDL that should address low pH as well as copper loadings.	
MONITORING RECOMMENDATIONS		High Priority – Collect samples to support copper and pH TMDLs and site specific copper standards. Collect additional lead samples due to exceedances. Collect core parameters to represent at least 3 seasons during an assessment period.	

MULE GULCH From Bisbee WWTP discharge to Highway 80 bridge 15080301 – 090C 3.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Wedw – Impaired PBC – Impaired	Category 5 Impaired	Cadmium, copper, zinc, low pH	Ongoing TMDL. Establishing site-specific copper standards.

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/06/2000 – 08/27/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At MG-200 B (new) SPMLG010.61 102491	ADEQ TMDL	7-21 dissolved only: Copper, lead, and zinc 7-12 total only: Copper, cadmium, manganese, and zinc 1-2 total and 0-2 dissolved: Antimony, arsenic, barium, beryllium boron, chromium, lead, mercury, nickel, silver, thallium 16 pH (2 sites on 8 dates)	1sample: Ammonia, dissolved oxygen, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	2 Fluoride 2 Turbidity
Below Elfrida cutoff SPMUG007.81 100225	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Cadmium (dissolved)	11.7 µg/L at 254 mg/L hardness 17.1 µg/L at 363 mg/L hardness 8.5 µg/L at 193 mg/L hardness A&Wedw acute	03/07/2000 – 13 µg/L 10/11/2000 – 34 µg/L 12/19/2002 – 86 µg/L	Remains impaired – Exceeded three times during a 3-year period.
Copper (total)	1300 µg/L PBC	08/17/2000 – 3,490 µg/L (d) 10/11/2000 – 6,293 µg/L (d) 10/18/2000 – 1,400 µg/L 07/20/2003 – 8,538 µg/L 08/13/2003 – 2,254 µg/L 08/26/2003 – 2,218 µg/L	Remains impaired – Exceeded criteria 6 of 11 sampling events. (Binomial)
Copper (dissolved)	33.1 µg/L at 254 mg/L hardness 49.6 µg/L at >400 mg/L hardness 49.6 µg/L at >400 mg/L hardness 44.4 µg/L at 364 mg/L hardness 49.6 µg/L at >400 mg/L hardness 24.6 µg/L at 190 mg/L hardness 49.6 µg/L at >400 mg/L hardness 27.0 µg/L at 210 mg/L hardness 25.8 µg/L at 203 mg/L hardness 33.1 µg/L at 264 mg/L hardness 49.6 µg/L at >400 mg/L hardness 9.3 µg/L at 68 mg/L hardness 49.6 µg/L at >400 mg/L hardness A&Wedw acute	03/07/2000 – 70 µg/L 08/08/2000 – 160 µg/L 08/18/2000 – 12,000 µg/L 10/12/2000 – 8,400 µg/L 10/17/2002 – 490 µg/L 05/28/2002 – 25 µg/L 12/18/2002 – 87µg/L 02/08/2003 – 86 µg/L 02/21/2003 – 100 µg/L 03/06/2003 – 130 µg/L 07/20/2003 – 14,000 µg/L 08/13/2003 – 97 µg/L 08/26/2003 – 4,900 µg/L	Remains impaired – Exceeded criteria 9 times during the last 3 years of monitoring (13 times during the assessment period)
Lead (total)	15 µg/L FBC	10/12/2000 – 49.3 µg/L	Inconclusive – Exceeded during 1 of 3 sampling events (both sites). (Binomial)
Zinc (dissolved)	228 µg/L at 214 mg/L hardness	03/07/2000 – 310 µg/L	Remains impaired – Exceeded criteria 3 times

	379.3 µg/L at >400 mg/L hardness 379.3 µg/L at >400 mg/L hardness 286 µg/L at 287 mg/L hardness 379.3 µg/L at >400 mg/L hardness 379.3 µg/L at >400 mg/L hardness 379.3 µg/L at >400 mg/L hardness A&Wedw acute	08/08/2000 – 1,100 µg/L 08/18/2000 – 2,400 µg/L 10/12/2000 – 1,200 µg/L 10/17/2002 – 4,300 µg/L 07/20/2003 – 4,500 µg/L 08/26/2003 – 3,500 µg/L	during the last 3 years of monitoring (7 times during the assessment period).
pH	>6.5 SU A&Wedw, PBC	08/17/2000 – 2.8 SU 10/11/2000 – 2.8 SU 08/26/2003 – 5.8 SU	Remains impaired – Did not meet standards in 3 of 8 sampling events (at both sites). (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Lead	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium, dissolved mercury were higher than the surface water quality criteria.
MONITORING RECOMMENDATIONS		High Priority – Collect samples to support TMDLs and site specific copper standards. Collect additional lead samples due to exceedances. Use lower lab detection limits for selenium and dissolved mercury. Collect core parameters to represent at least 3 seasons during an assessment period.	

MULE GULCH From Highway 80 bridge to Whitewater Draw 15080301 – 090D 4.5 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive AgL -- Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/11/2000		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Elfrida cutoff road SPMLG005.79 102873	ADEQ TMDL	1 dissolved: Cadmium, copper, lead 1 pH		

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (total)	500 µg/L AgL	10/11/2000 – 5,500 (d)	Inconclusive – Exceeded criterion in the single sample tested. (Binomial)
Copper (total)	1300 µg/L PBC	10/11/2000 – 5,500 (d)	Inconclusive – Exceeded criterion in the single sample tested. (Binomial)
Copper (dissolved)	67 µg/L at 307 mg/L hardness A&We acute	10/11/2000 – 5,500	Inconclusive – Exceeded criterion in the single sample tested.
pH	>6.5 SU A&We, PBC, AgL	10/11/2000 – 4.2 SU	Inconclusive – Did not meet criteria in the single sample tested. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.
(d) Indicates that the sample result was really the dissolved portion only. Total copper concentration was probably higher.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper and pH	Insufficient core parameters	Insufficient sampling events for core parameters.	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		High Priority –Collect copper and pH samples to support TMDL development. Collect core parameters to represent at least 3 seasons during an assessment period.	

MURAL HILL CANYON From headwaters to Mule Gulch 15080301 – 344 2.2 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATES: 10/11/2000; 08/14/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Highway 80 SPMHC000.09 103440	ADEQ TMDL	2 dissolved: Cadmium, copper, lead and zinc 1 total: Copper, lead and zinc 1 pH		

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (total)	1300 µg/L PBC	10/11/2000 – 1400 µg/L	Inconclusive – Did not meet criterion in the single sample tested. (Binomial)
Copper (dissolved)	8.4 µg/L at 34 mg/L hardness A&We acute	10/11/2000 – 15 µg/L	Inconclusive – Exceeded criterion in 1 of 2 samples (once in a 3-year period).
Lead (total)	15 µg/L PBC	08/14/2004 – 470 µg/L	Inconclusive – Exceeded criterion in the one sample tested. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper and lead	Insufficient core parameters	Insufficient sampling events for core parameters.	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		High Priority –Collect copper samples to support TMDL development on Mule Gulch as needed Collect lead samples due to the exceedance.	

RAMSEY CANYON CREEK From headwaters to Forest Road 110 15050202 – 404A 4.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	Sampling Periods: 01/26/2000 – 7/12/2000; 12/16/2004 – 06/02/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Nature Conservancy buildings SPRMC011.48 100625	ADEQ Ambient	5-6 dissolved and total metals: Antimony, arsenic, barium, beryllium, cadmium, copper, lead, mercury, zinc 6 total 0-1 dissolved metals: Boron, chromium, manganese 2-1 dissolved and total: Barium, nickel, silver, thallium.	7 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	7 *E. coli* bacteria 7 Fluoride 7 Total dissolved solids 4 Suspended sediment concentration 7 Turbidity
At Box Canyon SPRMC011.11 101060	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Mercury (dissolved)	0.01 µg/L A&Wc chronic	02/23/2005 – 0.055 µg/L	Inconclusive – Only 1 exceedance during the assessment period. Lab detection limit for other samples was higher than the standard so could not be used to assess attainment.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Collected all core parameters		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority – Collect additional dissolved mercury samples due to exceedance. Use lower lab detection limits for selenium and dissolved mercury.	

REDFIELD CANYON CREEK From tributary at 323339 / 1101841 to San Pedro River 15050203 – 014B 32.5 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 04/20/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Sycamore Canyon SPRDC012.76 100628	ADEQ Ambient	1 dissolved and total metals: Antimony, arsenic, barium, beryllium, chromium, zinc 1 total metal only: Boron, copper, lead, mercury, manganese	1 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 *E. coli* bacteria 1 Fluoride 1 Total dissolved solids 1 Suspended sediment concentration 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limits for selenium and dissolved metals (copper, lead, mercury) were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least three seasons during an assessment period. Use lower lab detection limits for the dissolved metals and selenium.	

RIGGS FLAT LAKE 15050201 – 1210 9.2 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 08/11/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Dam SPRIG-A 100074	ADEQ Ambient	1 dissolved and total metals: Antimony, arsenic, barium, beryllium, boron, chromium, manganese, mercury, zinc 1 total metal only: Cadmium, copper, lead, mercury, silver	1 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 Fluoride 1 Total dissolved solids 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Ww	08/11/03 – 6.4 mg/L	Attaining -- Low dissolved oxygen due to natural conditions of groundwater upwelling. Low nutrient levels.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limits for dissolved metals (cadmium, copper, lead, mercury, and silver) were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for the dissolved metals.	

RUCKER CANYON CREEK From headwaters to Whitewater Draw 15080301-288 10.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 01/25/2000 – 06/16/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above Campground SPRUC007.81 100938	ADEQ Ambient	5-6 dissolved and total metals: Antimony, arsenic, beryllium, copper, lead. 6 total and 0-2 dissolved: Boron, cadmium, chromium, manganese, mercury, zinc 1-2 total and dissolved: Barium, silver, thallium	7 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	5 *E. coli* bacteria 7 Fluoride 7 Total dissolved solids 4 Suspended sediment concentration 7 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Ww	06/01/2000 – 6.4 mg/L 06/16/2005 – 5.5 mg/L	Attaining -- Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Low nutrient levels. Flow 0.03-0.07 cfs. Very low nutrients (nitrogen 0.03-0.07 mg/L).

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved metals (cadmium, copper, zinc) to assess A&W.		Lab detection limits for dissolved metals (cadmium, copper, lead, mercury, zinc) and total selenium were higher than the A&W chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Low Priority –Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for the dissolved metals and selenium.	

SAN PEDRO RIVER From Mexico border to Charleston 15050202 – 008 28.3 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Attaining FBC – Inconclusive FC – Attaining AgI – Attaining AgL – Attaining	Category 2 Attaining some uses		Copper added in 2004. Remove from list – attaining standards.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/12/2000 – 03/30/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Palominas Transect USGS #09470490 SPSPR151.28 101485	USGS Ambient	8-18 dissolved and total metals: Antimony, arsenic, barium, beryllium, chromium, cadmium, copper, lead, manganese, nickel, silver, thallium, and zinc 17 total metals 0-2 dissolved: Boron, mercury 2 Selenium	16-17 samples: Ammonia, 48-73 Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	16 *E. coli* bacteria 15 Fluoride 16 Total dissolved solids 22 Turbidity
At Palominas, AZ USGS 09470500 SPSPR150.09 100275	USGS Ambient			
Near Hereford Road SPSPR144.76 101497	USGS Special study			
Above Highway 90 SPSPR134.35 100288	ADEQ Ambient			
At Route 90, near Lewis Springs SPSPR134.32 101499	USGS Special study			
At Charleston, AZ USGS 09471000 SPSPR127.50 100291	USGS Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Arsenic	50 µg/L FBC	07/17/2001 – 86 µg/L	Attaining – Only 1 exceedance in 17 samples. (Binomial)
Copper (dissolved)	6.8 µg/L at 49 mg/L hardness A&Ww acute	07/17/2001 – 21 µg/L	Attaining – 0 exceedance during the last 3-years of monitoring (last exceedance in 2001)
Copper (total)	500 µg/L AgL	07/17/2001 – 1200 µg/L 08/19/2004 – 953 µg/L	Attaining – 2 exceedances in 17 samples. (Binomial)
Dissolved oxygen	6.0 mg/L A&Ww	06/19/2000 – 5.2 mg/L 09/17/2002 – 4.1 mg/L	Attaining – Only 1 sample did not meet standard in 68 samples. (Binomial) Other sample (one on 09/17/2002) was due to natural conditions (flow 0.021 cfs).
E. coli bacteria	235 CFU/100 ml FBC	04/14/2004 – 2,320 CFU/100 ml 08/19/2004 – 35,000 CFU/100 ml	Inconclusive – 2 exceedances within the last 3 years of monitoring. One of these was during a flood flow -- 201 cfs – when surface water bacterial contamination is naturally very high. (See discussion below)
Lead	15 µg/L FBC	07/17/2001 – 230 µg/L 08/19/2004 – 230 µg/L	Attaining – 2 exceedances in 17 samples. (Binomial)
Mercury (dissolved)	0.01 µg/L A&Ww chronic	07/17/2001 – 0.57 µg/L	Inconclusive – Only 1 exceedance during the assessment period.

Suspended sediment concentration (SSC)	Geometric mean 80 mg/L	06/19/2000 – 1250 mg/L – 10 cfs 07/12/2000 – 147 mg/L – 8.3 cfs 10/26/2000 – 430 mg/L – 283 cfs* 08/14/2002 – 240 mg/L – 13 cfs 07/30/2003 – 1880 mg/L – 14 cfs 07/15/2004 – 138 mg/L – 0.6 cfs 08/19/2004 – 6830 mg/L – 201 cfs*	Inconclusive – 7 of 54 samples exceeded the 80 mg/L criterion. Two of the exceedances (*) and 10 other samples were not included in the geometric mean calculation, because flows were above the 50 Percentile of recorded flow. Using the remaining samples, the geometric mean did not exceed 80 mg/L.
Selenium	2.0 µg/L A&Ww chronic	07/17/2001 – 5 µg/L	Inconclusive – Only one of exceedance in the last 3 years of monitoring.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria, mercury, selenium, and suspended sediment concentration	Core parameters collected.		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
BACTERIA CONTAMINATION DISCUSSION		One of the 2 *E. coli* bacteria exceedances occurred during flood flow (200 cfs). Further monitoring is needed to determine whether bacterial contamination is solely due to natural conditions associated with such runoff events.	
MONITORING RECOMMENDATIONS		High Priority – Collect copper samples to support TMDL development. Collect additional *E. coli* bacteria, SSC, and selenium samples due to exceedances. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Use lower lab detection limits for selenium and dissolved mercury.	

SAN PEDRO RIVER From Charleston to Walnut Gulch 15050202 – 006 8.9 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Attaining FBC – Attaining FC – Attaining AgI -- Attaining AgL – Attaining	Category 1 Attaining all uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/26/2000 – 06/10/2003 Included *E. coli* samples at 2 TMDL sites collected 02/01/2006		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Graveyard Gulch SPSPR126.35 100653	ADEQ Ambient	5-6 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, zinc 3-6 total and 0-2 dissolved: Barium, boron, lead, mercury, manganese, nickel, silver, thallium	7-9 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	8 *E. coli* bacteria 7 Fluoride 7 Total dissolved solids 4 Suspended sediment concentration 10 Turbidity
Above Boquillas Ranch SPSPR120.47 104005	ADEQ TMDL			
At Fairbanks, AZ SPSPR117.97 100287	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters collected.		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Use lower lab detection limits for selenium and dissolved mercury.	

SAN PEDRO RIVER From Babocomari Creek to Dragoon Wash 15050202 – 003 17.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Attaining FBC – Impaired FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	*E. coli* bacteria	Listed in 2004 due to 2 *E. coli* bacteria exceedances.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/26/2000 – 08/03/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
16 sites along this segment.	Hargis and Associates Effectiveness monitoring	4-5 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, copper, lead, zinc 4-5 total and 0-1 dissolved: Boron, chromium, manganese, mercury 1-2 dissolved and total metals: Barium, nickel, silver, thallium,	6-9 samples: Ammonia, pH, dissolved oxygen, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen 59 Nitrate samples	6 *E. coli* bacteria 6 Fluoride 8 Total dissolved solids 3 Suspended sediment concentration 4 Turbidity
Near Tombstone, AZ SPSPR115.90 101490	USGS Ambient			
At Escalante Crossing SPSPR105.49 103674	ADEQ Ambient			
0.8 miles south of Highway 80 SPSPR102.01 100281	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	04/26/2000 – 310 CFU/100 ml 07/13/2000 – 660 CFU/100 ml	Remains impaired – Two exceedances during this assessment period. (2 of 6 samples). Exceedances were during normal/low flows.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Core parameters were collected		Lab detection limit for selenium and dissolved mercury was higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority – Collect *E. coli* bacteria samples in support of TMDL development. Continue to collect nitrate samples to determine effectiveness of water quality improvement actions at the Apache Nitrogen Superfund cleanup site upstream. Use a lower lab detection limit for selenium and dissolved mercury samples.	

SAN PEDRO RIVER From Dragoon Wash to Tres Alamos Wash 15050202 – 002 15.5 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 5 Impaired	Nitrate	Listed due to nitrate since 1990.

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 06/21/2001 – 02/01/2006		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Mid Apache Nitrogen Contamination Area SPSPR102.18 103660	Hargis and Associates Effectiveness monitoring	2 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, copper, lead, mercury, zinc 1 total metal only: Boron, chromium, manganese	3-4 samples: Ammonia, pH, dissolved oxygen 2 Total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	2 *E. coli* bacteria 2 Fluoride 2 Total dissolved solids 2 Suspended sediment concentration 2 Turbidity
North of Highway 80 SPSPR101.25 100276	ADEQ Ambient			
Below Dragoon Wash SPSPR101.10 102712	ADEQ Ambient			
Apache Nitrogen Contamination Area SPSPR100.16 103662	Hargis and Associates Effectiveness monitoring			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
E. coli bacteria	235 CFU/100 ml FBC	02/01/2006 – 579 CFU/100 ml	Inconclusive – Only 1 exceedance during this assessment period.
Lead	15 µg/L FBC	02/15/2005 – 20 µg/L	Inconclusive – Only 1 exceedance (only 1 sample tested for total lead) (Binomial)
Mercury (dissolved)	0.01 µg/L A&Ww chronic	02/15/2005 – 0.0104 µg/L	Inconclusive – Only 1 exceedance during the assessment period.
Nitrate	Site specific standard of 10 mg/L A&Ww	10/15/2001 – 24 mg/L 06/21/2001 – 34 mg/L 05/02/2002 – 38 mg/L 08/21/2002 – 44 mg/L 11/21/2002 – 53 mg/L 02/12/2003 – 29 mg/L 05/22/2003 – 51 mg/L 08/06/2003 – 27 mg/L 05/26/2004 – 14 mg/L 05/09/2005 – 24 mg/L 02/01/2006 – 27 mg/L	Remains impaired -- Exceeded criteria in 11 of 16 samples.
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	02/15/2005 – 482 mg/L	Inconclusive – Exceeded criterion of 80 mg/L in 1 of 2 samples, but flow (at 22 cfs) above 90% of flow (about 11 cfs), so value could not be used to calculate the geometric mean. Insufficient samples to calculate the geometric mean.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
E. coli bacteria, lead, suspended sediment concentration.	Insufficient core parameters	Insufficient sampling events	Lab detection limit for selenium was higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority –Continue to collect nitrate samples to determine effectiveness of water quality improvement actions at the Apache Nitrogen Superfund cleanup site. Collect additional *E. coli* bacteria, lead, and suspended sediment concentration samples due to the exceedances. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. Collect core parameters to represent at least three seasons during an assessment period. Use lower lab detection limits for the selenium.	

SAN PEDRO RIVER From HUC boundary 15050202 to Hot Springs Canyon Creek 15050203 -- 012 17.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgI -- Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/20/2003 – 11/29/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
3 Links – River camp SPSPR075.41 102391	319 Grant/ADEQ Effectiveness monitoring		7 samples: pH, dissolved oxygen 3 samples: total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 *E. coli* bacteria 4 Total dissolved solids 5 Turbidity
3 Links – North field SPSPR074.25 102390	319 Grant/ADEQ Effectiveness monitoring			
3 Links – Upstream crossing SPSPR072.40 102389	319 Grant/ADEQ Effectiveness monitoring			
3 Links – 5 Gap SPSPR071.62 102388	319 Grant/ADEQ Effectiveness monitoring			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS

EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Samples represent 3 seasons.	
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least 3 seasons. The old turbidity standard (50 NTU) was exceeded in one sample on 04/12/2004 at 74 NTU. Suspended sediment concentration samples should be collected to determine if the new SSC criterion is being met. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted.	

SAN PEDRO RIVER From Hot Springs Canyon Creek to Redfield Canyon 15050203 -- 011 16.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Attaining AgI -- Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/02/2000 – 04/05/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Cascabel, AZ SPSPR059.21 100289	ADEQ Ambient	5-16 dissolved and total metals: Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, mercury, silver, thallium, and zinc 14-16 total metal 0-1 dissolved: Boron, manganese, mercury	16 samples: Ammonia, pH, dissolved oxygen, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	15 *E. coli* bacteria 17 Fluoride 18 Total dissolved solids 10 Suspended sediment concentration 18 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Chromium	100 µg/L FBC	08/19/2004 – 240 µg/L	Attaining – Exceeded criterion in 1 of 16 samples. (Binomial)
Copper	500 µg/L AgL	08/19/2004 – 900 µg/L	Attaining – Exceeded criterion in 1 of 16 samples. (Binomial)
Copper (dissolved)	22.9 µg/L At 300 mg/L hardness A&Ww Acute	04/05/2005 – 25 µg/L	Inconclusive – Only 1 exceedance in 3-year period. (1 of 4 samples.)
Dissolved oxygen	6.0 mg/L A&Ww	08/23/2000 – 5.6 mg/L	Attaining – Only 1 exceedance in 18 samples. (Binomial) Exceedance occurred during flood flow with extremely high total nitrogen (65 mg/L) and high phosphorus (22 mg/L) reported.
E. coli bacteria	235 CFU/100 ml FBC	08/23/2000 – 16,000 CFU/100 ml 08/19/2004 – 1,000 CFU/100 ml	Inconclusive – Two exceedances within the assessment period, but both occurred during extreme flood flows. (See further discussion below.)
Lead	15 µg/L FBC	08/19/2004 – 620 µg/L	Attaining – Only 1 exceedances in 15 samples. (Binomial)
Lead	100 µg/L AgL	08/19/2004 – 620 µg/L	Attaining – Only 1 exceedance in 15 samples. (Binomial)
Manganese	10,000 µg/L AgI	08/19/2004 – 15,000 µg/L	Attaining – Only 1 exceedance in15 samples. (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	08/17/2004 – 16,880 mg/L	Attaining – Exceeded criterion of 80 mg/L in 1 of 10 samples. Sample was collected during flood flow, so result was not included in geometric mean calculation. Therefore, geometric mean standard was not exceeded. The magnitude of the sediment concentration suggests that sediment may be an issue in this drainage.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Dissolved copper and *E. coli* bacteria.	All core parameters were collected		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
BACTERIA CONTAMINATION DISCUSSION		The two bacteria exceedances occurred during flood flows (27 cfs and 66 cfs). Further monitoring is needed to determine whether bacterial contamination is solely due to natural conditions associated with such runoff events.	
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional dissolved copper and *E. coli* bacteria due to the exceedances. Use lower lab detection limits for the selenium and dissolved mercury. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted, due to high levels of suspended sediment during flood flows.	

SAN PEDRO RIVER From Buehman Wash to Peppersauce Wash 15050203 -- 008 16.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Attaining AgL – Inconclusive	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/15/2004 – 04/06/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Valley Road near San Manuel SPSPR035.01 100285	ADEQ Ambient	3-5 dissolved and total metals: Antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, zinc 5 total and 0-1 dissolved: Boron, manganese, mercury	4 samples: Ammonia, pH, dissolved oxygen, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity
Near San Manuel SPSPR034.66 101843	ADEQ TMDL			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Chromium	100 µg/L FBC	08/17/2004 – 210 µg/L	Inconclusive -- Exceeded criterion in 1 of 4 samples. (Binomial)
Copper	500 µg/L AgL	08/17/2004 – 1100 µg/L	Inconclusive – Exceeded criterion in 1 of 3 samples. (Binomial)
Copper (dissolved)	9.5 µg/L At 69 mg/L hardness A&Ww Acute	01/05/2005 – 11 µg/L	Inconclusive – Only 1 exceedance in 3-year period. (1 of 4 samples.)
E. coli bacteria	235 CFU/100 ml FBC	08/17/2005 – 4000 CFU/100 ml	Inconclusive – Only 1 exceedance during this assessment period. (Occurred during flood flow)
Lead	15 µg/L FBC	08/17/2004 – 620 µg/L 01/05/2005 – 53 µg/L	Inconclusive – Only 2 exceedances in 4 samples (Binomial requires a minimum of 5 exceedances and 20 samples to list as impaired).
Lead	100 µg/L AgL	08/17/2004 – 620 µg/L	Inconclusive – Only 1 exceedance in 4 samples. (Binomial)
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L A&Ww	08/17/2004 – 46,400 mg/L	Inconclusive – Exceeded criterion of 80 mg/L in 1 of 4 samples. However, sample was collected during flood flow, so result was not used to calculate a geometric mean. Insufficient samples left to calculate the geometric mean. Magnitude of the sediment concentration suggests that sediment may be an issue in this drainage.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Chromium, copper, *E. coli* bacteria, lead, and suspended sediment concentration.	All core parameters were collected		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional chromium, copper, *E. coli*, lead, and suspended sediment samples due to the exceedances. Use lower lab detection limits for the selenium and dissolved mercury. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted, due to high levels of suspended sediment during flood flows.	

SAN PEDRO RIVER From Peppersauce Wash to Arivaipa Creek 15050203 – 003 21.3 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 01/05/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Mammoth SPSPR023.77 103481	ADEQ TMDL	1 dissolved and total metals: Antimony, arsenic, beryllium, boron, chromium, cadmium, copper, lead, manganese, and zinc 1 total metals only: Mercury	1 Ammonia, nitrite/nitrate,	

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	9.6 µg/L at 70 mg/L hardness A&Ww acute	01/05/2005 – 16 µg/L	Inconclusive – Only sample exceedance in 3 year period.
Lead	15 µg/L FBC	01/05/2005 – 84 µg/L	Inconclusive – Exceeded lead criterion in only sample analyzed for lead.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Dissolved copper and total lead.	Insufficient core parameters	Insufficient samples	Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional lead and dissolved copper samples due to exceedances. Collect core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for selenium and dissolved mercury.	

SAN PEDRO RIVER From Aravaipa Creek to Gila River 15050203 – 001 14.8 Miles	USE SUPPORT	OVERALL ASSESSMENT	POLLUTANTS CAUSING IMPAIRMENT	IMPAIRMENT STATUS
	A&Ww – Impaired FBC – Impaired FC – Attaining AgI – Attaining AgL – Attaining	Category 5 Impaired	*E. coli* bacteria and selenium	*E. coli* bacteria and selenium added in 2004

MONITORING USED IN THIS ASSESSMENT

SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 02/28/2000 – 04/06/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Eskiminzin Wash SPSPR005.28 100726	ADEQ Ambient	12-18 dissolved and total metals: Antimony, arsenic, beryllium, chromium, cadmium, copper, lead, and zinc 16-17 total metals 0-2 dissolved: Boron, manganese, mercury, and selenium 5-6 total and dissolved: Barium, silver, thallium, nickel	17-19 samples: Ammonia, 48-73 Dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	18 *E. coli* bacteria 19 Fluoride 18 Total dissolved solids 8 Suspended sediment concentration 18 Turbidity
Above Roach Wash SPSPR003.85 101348	ADEQ Ambient			

EXCEEDANCES

POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Arsenic	50 µg/L FBC	01/10/2001 – 63 µg/L	Attaining – Only 1 exceedance in 17 samples. (Binomial)
Chromium	100 µg/L FBC	08/16/2004 – 350 µg/L	Attaining – Only 1 exceedance in 17 samples. (Binomial)
Copper (total)	500 µg/L AgL	08/16/2004 – 930 µg/L	Attaining – Only 1 exceedance in 16 total copper samples. (Binomial)
E. coli bacteria	235 CFU/100 ml FBC	08/21/2000 – 600 CFU/100 ml 01/10/2001 – 3636 CFU/100 ml 09/10/2003 – 740 CFU/100 ml 01/15/2004 – 740 CFU/100 ml 08/16/2004 – 4100 CFU/100 ml	Remains impaired – 4 exceedances within the last 3 years of monitoring. (5 exceedances within the assessment period)
Lead	15 µg/L – FBC 100 µg/L – AgL	01/10/2001 – 140 µg/L 09/10/2003 – 42 µg/L 08/16/2004 – 980 µg/L	Attaining – Only 3 exceedances in 16 samples. (Binomial method requires a minimum of 5 exceedances and 20 samples to assess as impaired.)
Mercury	0.6 µg/L FC	04/17/2001 – 0.67 µg/L	Attaining – Only 1 of 16 samples exceeded the standard (Binomial)
Mercury (dissolved)	0.01 µg/L A&Ww chronic	04/17/2001 – 0.46 µg/L	Inconclusive – One exceedance during the assessment period.
Suspended sediment concentration (SSC)	Geometric mean 80 mg/L	09/10/2003 – 664 mg/L – 6.9 cfs 08/16/2004 – 29,000 mg/L – 54 cfs*	Inconclusive – 2 of 8 samples exceeded 80 mg/L criteria. One of those could not be included in the geometric mean calculation, because it occurred during high flow event (*). Using the remaining samples, the geometric mean standard was <u>not</u> exceeded.
Selenium	2.0 µg/L A&Ww chronic	01/10/2001 – 11 µg/L	Remains impaired – Because of lab detection limits, only 1 sample could be used for this assessment, and that one exceeded the selenium criterion by a high magnitude.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Suspended sediment concentration and dissolved mercury	Core parameters collected.		Lab detection limits for selenium and dissolved mercury were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		High Priority – Collect *E. coli* bacteria and selenium samples to support TMDL development. Collect additional SSC and dissolved mercury samples due to exceedances. Very high suspended sediment concentrations indicate excessive sediment transport in this drainage. Recommend using biocriteria assessments and bottom deposits implementation procedures in this reach, when they are adopted. (The old turbidity criterion (50 NTU) was exceeded in 4 of 18 samples (1000 to 7267 NTU).) Use lower lab detection limits for selenium and dissolved mercury.	

SNOW FLAT LAKE 15050201 – 1420 0.5 Acres	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 08/11/2003		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Dam SPSNO-A 100084	ADEQ Ambient	1 dissolved and total metals: Antimony, arsenic, barium, beryllium, boron, chromium, copper, lead, manganese, mercury, zinc 1 total metals only: Cadmium, copper, mercury, silver	1 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	1 Fluoride 1 Total dissolved solids 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limits for dissolved metals (cadmium, copper, lead, mercury and silver) were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least three seasons during an assessment period. Use lower lab detection limits for the dissolved metals.	

SPRING CREEK From headwaters to Mule Gulch 15080301 – 333 1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/11/2000		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Highway 80 SPSPC000.11 102921	ADEQ TMDL	1 dissolved: Cadmium, copper, lead, zinc 1 pH		

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	16 µg/L at 68 mg/L hardness 8.4 µg/L at 35 mg/L hardness A&We acute	08/07/2000 – 76 mg/L 08/27/2003 – 44 mg/L	Inconclusive – Exceeded twice during the assessment period, but only once in a 3-year period.
pH	>6.5 SU A&We and PBC	08/07/2000 – 5.7 SU	Inconclusive – 1 of 4 samples did not meet standards. (Binomial)

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper and low pH	Insufficient core parameters	Insufficient sampling events for core parameters, as only 2 seasons were represented.	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		Medium Priority –Collect additional copper and pH samples due to exceedances and to support TMDL development on Mule Gulch as needed.	

TURKEY CREEK From headwaters to Rock Creek 15050201 – 002A 13.1 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Attaining AgI – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 08/17/2004 – 06/16/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Above upper campground SPTUR028.53 102113	ADEQ Ambient	4 dissolved and total metals: Antimony, arsenic, beryllium. 4 total and 0-2 dissolved: Boron, cadmium, chromium, copper, lead, manganese, mercury, zinc	4 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Ww	06/15/2005 – 3.24 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Low nutrient levels (nitrogen – 0.5 mg/L, phosphorus = >0.02 mg/L). Low flow =0.1 cfs.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved metals (cadmium, copper, zinc) to assess A&W.		Lab detection limits for dissolved metals (cadmium, copper, lead, mercury, zinc) and total selenium were higher than the A&W chronic criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect missing core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for the dissolved metals and selenium.	

TWIN POND In San Bernardino National Refuge 15080302 – 0001 1 Acre	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 05/16/2002		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Dam SPTWP-USGS 101581	USGS Ambient	1 dissolved metals only: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, lead, manganese, lead, silver, uranium and zinc	1 sample: Dissolved oxygen and pH (Nutrients were dissolved portion only)	1 Total dissolved solids 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least three seasons during an assessment period.	

WARD CANYON From headwaters to Turkey Creek 15050201 – 433 3.0 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Wc – Inconclusive FBC – Attaining FC – Attaining AgL – Attaining	Category 2 Attaining some uses	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING PERIOD: 08/17/2004 – 06/15/2005		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Below Saulsbury Canyon SPWRC000.09 102892	ADEQ Ambient	4 dissolved and total metals: Antimony, arsenic, beryllium. 4 total and 0-2 dissolved: Boron, cadmium, chromium, copper, lead, manganese, mercury, zinc	4 samples: Ammonia, dissolved oxygen, pH, total nitrogen, total phosphorus, nitrite/nitrate, total Kjeldahl nitrogen	4 *E. coli* bacteria 4 Fluoride 4 Total dissolved solids 4 Suspended sediment concentration 4 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Dissolved oxygen	7.0 mg/L A&Ww	06/15/2005 – 6.0 mg/L	Attaining – Low dissolved oxygen due to natural conditions of low flow and ground water upwelling. Low nutrient levels. Flow 0.01 cfs.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient dissolved metals (cadmium, copper, zinc) to assess A&W.		Lab detection limits for dissolved metals (cadmium, copper, lead, mercury, zinc) and total selenium were higher than the A&W chronic criteria in at least 2 samples.
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least 3 seasons during an assessment period. Use lower lab detection limits for the dissolved metals and selenium.	

WHITEWATER DRAW	USE SUPPORT	OVERALL ASSESSMENT	
Gadwell Canyon to unnamed reach # 15080301-003 15080301 -- 004 22.2 Miles	A&Wc – Inconclusive FBC – Inconclusive FC – Inconclusive AgI – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/11/2000		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
At Double Adobe Bridge SPWHD015.66 100230	ADEQ TMDL	1 dissolved and total metals: Antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, manganese, mercury, nickel, silver, thallium, and zinc	1 samples pH	1 Fluoride 1 Turbidity

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters	Insufficient sampling events	Lab detection limits for lead, dissolved lead, and selenium were higher than the criteria.
MONITORING RECOMMENDATIONS		Low Priority –Collect core parameters to represent at least three seasons during an assessment period. Use lower lab detection limits for the lead (including dissolved lead) and selenium.	

WHITEWATER DRAW From unnamed tributary at 312036 / 1093446 to Mexico border 15080301 – 002B 0.4 Miles	USE SUPPORT	OVERALL ASSESSMENT	
	A&Ww – Inconclusive FBC – Inconclusive FC – Inconclusive AgL – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 03/07/2000		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Site WD-1A (at border) SPWHD000.04 100512	ADEQ TMDL	1 total and dissolved metals: Arsenic, beryllium		

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
No Exceedances			

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
	Insufficient core parameters.	Insufficient sampling events.	
MONITORING RECOMMENDATIONS		Low Priority – Collect core parameters to represent at least three seasons during an assessment period.	

WINWOOD CANYON From headwaters to Mule Gulch 15080301 -- 340 1 Mile	USE SUPPORT	OVERALL ASSESSMENT	
	A&We – Inconclusive PBC – Inconclusive	Category 3 Inconclusive	

MONITORING USED IN THIS ASSESSMENT				
SITE NAMES ID # DATABASE #	AGENCY PURPOSE	SAMPLING DATE: 10/11/2000; 09/28/2004		
		NUMBER AND TYPES OF SAMPLES		
		Metals	Nutrients – Related	Other
Tributary from Mural Hill above mineralized zone SPWNC000.67 102926	ADEQ TMDL	2 dissolved metals: Cadmium, copper, lead, and zinc 1 total metals: Copper, lead, zinc 2 pH		
Above old mill site SPWNC000.35 102927	ADEQ TMDL			

EXCEEDANCES			
POLLUTANT	STANDARD UNIT DESIGNATED USES	DATES EXCEEDANCES	DESIGNATED USE SUPPORT SUPPORTING EVIDENCE AND COMMENTS
Copper (dissolved)	11.9 µg/L at 49 mg/L hardness A&We acute	09/28/2004 – 49 µg/L	Inconclusive – 1 exceedance in a 3-year period.

Pollutant: Assume "total" concentration, unless shown as dissolved.
Frequency Exceed = Samples collected within a 7-day period are aggregated and counted as one sample per site.

DATA GAPS AND MONITORING NEEDS			
EXCEEDANCES NEEDING MORE SAMPLES TO ASSESS	MISSING CORE PARAMETERS	MISSING SEASONAL DISTRIBUTION	DETECTION LIMITS NOT LOW ENOUGH
Copper	Insufficient core parameters	Insufficient sampling events.	
DISCUSSION OF EXCEEDANCES		Samples were collected to support the Mule Gulch copper TMDL. Copper loadings from this tributary will be addressed in the Mule Gulch copper TMDL currently being developed.	
MONITORING RECOMMENDATIONS		Medium Priority –Collect copper samples as needed to support TMDL development.	