

Cover Sheet - Hydrology Protocol Use Attainability Analysis for an Ephemeral Stream¹

Stream Name:	Basin:	8-digit HUC:
Aqua Chiquita	Pecos River, Rio Peñasco watershed	13060010
Reach Description:	Upstream lat/long:	Downstream lat/long:
Rio Peñasco to McEwan Canyon	32.798 / -105.461	32.914 / -105.338
Current WQS	Assessment Unit ID:	
<input checked="" type="checkbox"/> Unclassified 20.6.4.98 NMAC <input type="checkbox"/> Classified 20.6.4. NMAC	NM2208-01	

Reach Evaluation (How homogeneity of reach hydrology was verified)	
Methods Used	NMED staff observations, site photos, aerial photos, topo maps. GIS mapping layers of geology, vegetation and ecoregions.
Reasoning	Agua Chiquita from the Rio Peñasco to its headwaters is approximately 36 miles long. A significant break in geology, vegetation and ecoregion occurs in the vicinity of McEwan Canyon, approximately 10 miles upstream of the confluence with the Rio Peñasco. Characteristics from Rio Peñasco to McEwan Canyon are homogenous. Channel is dry or nearly dry with no riparian corridor.

Hydrology Protocol Results		Notes
Location 1 (lat/long): 32.90522/ -105.343702	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Above Rio Penasco =1
Location 2 (lat/long): 32.82943/ -105.44823	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	McDonald Flats Road =2
<input type="checkbox"/> Additional location results attached.		

Hydroclimatic Conditions		If "yes" please describe.
Drought (SPI Value < -1.5)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recent Rainfall (within 48 hours)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Gauge data available?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<i>If yes for any of above, please explain why these conditions do not impact the UAA conclusion that natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use:</i>		

Hydrologic and Other Modifications		If "yes" please describe.
Dam/diversion	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	20 NMOSE permitted surface diversions
Channelization/roads	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	HP was conducted at a rural road crossing.
Groundwater pumping	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	31 NMOSE permitted wells
Agricultural return flows	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Existing point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Planned point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Other modifications e.g., land use practices	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	

¹ This form is designed for the UAA process for ephemeral waters described in Subsection C of 20.6.4.15 NMAC.

Hydrologic and Other Modifications	If "yes" please describe.
<p>If yes for any of above, please explain why these modifications do not alter the uses supported by the natural flow regime: Stream above and below road crossing have the same characteristics. NMOSE documents 31 wells and 20 surface diversions within 1 mile of the evaluated reach. Total of all well diversions is 152 acre-feet per year (afy). Minimum depth to water is 105 feet, indicating that groundwater pumping is not affecting surface flow. Total of all surface diversions is 763 afy, mostly declarations >100 years old. NMOSE documents the evaluated reach as ephemeral, therefore it is not possible for these water rights to be fully utilized. Based on the very low HP scores and depth to groundwater, it is unlikely that intermittent or perennial flows have existed historically.</p>	

Current Uses Observed	If "yes" please describe.
Macroinvertebrates <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Fish <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recreation (contact use) <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p>If yes for any of the above, please explain why these observed uses are consistent with the UAA conclusion that 101(a)(2) aquatic life and recreational uses are not feasible:</p>	

Additional Comments:

ATTACHMENTS:

- Map and Photos (required)
- Hydrology Protocol Field Sheets for all locations (required)
- Level 2 Analysis (optional)
- Additional sites and/or documentation (optional) SPI

CONCLUSION:

This UAA concludes that the stream reach identified above is ephemeral and that Clean Water Act Section 101(a)(2) aquatic life and recreational uses are neither existing nor attainable due to the factor identified in 40 CFR 131.10(g)(2): *natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent.* Based on this conclusion, we recommend that the designated uses and criteria identified in 20.6.4.97 NMAC be applied to this stream reach in accordance with the UAA process set forth in Subsection C of 20.6.4.15 NMAC.

Submitted by New Mexico Surface Water Quality Bureau
 Signed: *D. J. [Signature]* Date: Oct 18, 2013

EPA Region 6 technical approval granted. Yes No
 If no, see attached reasons.
 Signed: _____ Date: _____

Cover Sheet - Hydrology Protocol Use Attainability Analysis for an Ephemeral Stream²

Stream Name:	Basin:	8-digit HUC:
Grindstone Canyon	Pecos River, Rio Hondo watershed	13060008
Reach Description:	Upstream lat/long:	Downstream lat/long:
Grindstone Reservoir to headwaters	33.322 / -105.694	33.32144 / -105.68969
Current WQS	Assessment Unit ID:	
<input checked="" type="checkbox"/> Unclassified 20.6.4.98 NMAC <input type="checkbox"/> Classified 20.6.4. NMAC	NM98.A-009	

Reach Evaluation (How homogeneity of reach hydrology was verified)	
Methods Used:	NMED staff observations, site photos, aerial photos, topo maps. GIS mapping layers of geology, vegetation and ecoregions.
Reasoning:	Grindstone Canyon above the reservoir is 1.1 miles and there is no variation in reach characteristics. Aerial photos show a dry channel and no riparian corridor.

Hydrology Protocol Results		Notes
Location 1 (lat/long): 33.32144/ -105.68969	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Above reservoir =1
Location 2 (lat/long): N/A	<input type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Not needed for this short homogenous reach
<input type="checkbox"/> Additional location results attached.		

Hydroclimatic Conditions		If "yes" please describe.
Drought (SPI Value < -1.5)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recent Rainfall (within 48 hours)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Gauge data available?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<i>If yes for any of above, please explain why these conditions do not impact the UAA conclusion that natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use:</i>		

Hydrologic and Other Modifications		If "yes" please describe.
Dam/diversion	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Dam and 2 NMOSE permitted diversions downstream of dam.
Channelization/roads	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Groundwater pumping	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	1 NMOSE permitted well
Agricultural return flows	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Existing point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Planned point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Other modifications e.g., land use practices	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	

² This form is designed for the UAA process for ephemeral waters described in Subsection C of 20.6.4.15 NMAC.

Hydrologic and Other Modifications		If "yes" please describe.
<p>If yes for any of above, please explain why these modifications do not alter the uses supported by the natural flow regime: Water for the reservoir is pumped from Rio Ruidoso, not Grindstone Canyon. NMOSE documents 1 well and 2 surface diversions within 1/2 mile of evaluated reach. Dam is below the evaluated reach. The total diversion is 3 afy, not significant enough to affect surface hydrology.</p>		
Current Uses Observed		If "yes" please describe.
Macroinvertebrates	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Fish	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recreation (contact use)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p>If yes for any of the above, please explain why these observed uses are consistent with the UAA conclusion that 101(a)(2) aquatic life and recreational uses are not feasible:</p>		

Additional Comments:

ATTACHMENTS:

- Map and Photos (required)
- Hydrology Protocol Field Sheets for all locations (required)
- Level 2 Analysis (optional)
- Additional sites and/or documentation (optional) SPI

CONCLUSION:

This UAA concludes that the stream reach identified above is ephemeral and that Clean Water Act Section 101(a)(2) aquatic life and recreational uses are neither existing nor attainable due to the factor identified in 40 CFR 131.10(g)(2): *natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent.* Based on this conclusion, we recommend that the designated uses and criteria identified in 20.6.4.97 NMAC be applied to this stream reach in accordance with the UAA process set forth in Subsection C of 20.6.4.15 NMAC.

Submitted by New Mexico Surface Water Quality Bureau	
Signed: <u>Debra Sauter</u>	Date: <u>Oct 18, 2013</u>
EPA Region 6 technical approval granted. <input type="checkbox"/> Yes <input type="checkbox"/> No	
If no, see attached reasons.	
Signed: _____	Date: _____

Cover Sheet - Hydrology Protocol Use Attainability Analysis for an Ephemeral Stream³

Stream Name:	Basin:	8-digit HUC:
San Andres Canyon	Tularosa Closed	13050003
Reach Description:	Upstream lat/long:	Downstream lat/long:
Taylor Ranch Road to South San Andres Canyon	32.784 / -105.889	32.768 / -105.945
Current WQS	Assessment Unit ID:	
<input checked="" type="checkbox"/> Unclassified 20.6.4.98 NMAC <input type="checkbox"/> Classified 20.6.4. NMAC	NM-2801-30	

Reach Evaluation (How homogeneity of reach hydrology was verified)		
Methods Used:	NMED staff observations, site photos, aerial photos, topo maps. GIS mapping layers of geology, vegetation and ecoregions.	
Reasoning:	San Andres Canyon is ten miles long through a highly varied landscape spanning four different ecoregions. Elevation ranges from 4100 to 9000 feet. An ecoregional and topographic change occur at South San Andres Canyon where an escarpment runs north to south. Characteristics are homogenous from South San Andres Canyon downstream to Taylor Ranch Road, a distance of approximately four miles. Aerial photos show a dry channel with some additional vegetation occurring at two springs.	
Hydrology Protocol Results		Notes
Location 1 (lat/long): 32.781784 / -105.920766	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Mouth of canyon =2
Location 2 (lat/long): 32.78162/ -105.90791	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Below Hackberry Spring =3.5
<input type="checkbox"/> Additional location results attached.		

Hydroclimatic Conditions		If "yes" please describe.
Drought (SPI Value < -1.5)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recent Rainfall (within 48 hours)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Gauge data available?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<i>If yes for any of above, please explain why these conditions do not impact the UAA conclusion that natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use:</i>		
Hydrologic and Other Modifications		If "yes" please describe.
Dam/diversion	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	2 NMOSE permitted surface diversions
Channelization/roads	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Groundwater pumping	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	12 NMOSE permitted wells
Agricultural return flows	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Existing point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Planned point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	

³ This form is designed for the UAA process for ephemeral waters described in Subsection C of 20.6.4.15 NMAC.

Hydrologic and Other Modifications		If "yes" please describe.
Other modifications e.g., land use practices	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p>If yes for any of above, please explain why these modifications do not alter the uses supported by the natural flow regime: NMOSE documents 12 wells and 1 surface diversion within 1 mile of evaluated reach. Total of well diversions are 5912 afy, all of which is from wells located downstream of the canyon. Minimum depth to water is 170 feet. Based on well location and depth to water, groundwater pumping is not affecting surface flow in the canyon. Two surface declarations were noted; one is inactive or abandoned, and one diverts water from Morgan Spring in the lower canyon. Based on the very low HP scores, depth to groundwater, the presence of only two surface water right declarations (only one is currently active), and the arid landscape, it is unlikely that intermittent or perennial flows have existed historically.</p>		
Current Uses Observed		If "yes" please describe.
Macroinvertebrates	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Fish	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recreation (contact use)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p>If yes for any of the above, please explain why these observed uses are consistent with the UAA conclusion that 101(a)(2) aquatic life and recreational uses are not feasible:</p>		
Additional Comments:		

ATTACHMENTS:

- Map and Photos (required)
- Hydrology Protocol Field Sheets for all locations (required)
- Level 2 Analysis (optional)
- Additional sites and/or documentation (optional) SPI

CONCLUSION:

This UAA concludes that the stream reach identified above is ephemeral and that Clean Water Act Section 101(a)(2) aquatic life and recreational uses are neither existing nor attainable due to the factor identified in 40 CFR 131.10(g)(2): *natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent*. Based on this conclusion, we recommend that the designated uses and criteria identified in 20.6.4.97 NMAC be applied to this stream reach in accordance with the UAA process set forth in Subsection C of 20.6.4.15 NMAC.

Submitted by New Mexico Surface Water Quality Bureau	
Signed: <u><i>Dale Sauer</i></u>	Date: <u>Oct 18, 2013</u>
EPA Region 6 technical approval granted. <input type="checkbox"/> Yes <input type="checkbox"/> No	
If no, see attached reasons.	
Signed: _____	Date: _____

Cover Sheet - Hydrology Protocol Use Attainability Analysis for an Ephemeral Stream⁴

Stream Name:		Basin:	8-digit HUC:
San Vicente Arroyo		Mimbres Closed	13030202
Reach Description:		Upstream lat/long:	Downstream lat/long:
Mimbres River to Maudes Canyon		32.714 / -108.244	32.401 / -107.966
Current WQS			Assessment Unit ID:
<input checked="" type="checkbox"/> Unclassified 20.6.4.98 NMAC <input type="checkbox"/> Classified 20.6.4. NMAC			NM9000.A-026
Reach Evaluation (How homogeneity of reach hydrology was verified)			
Methods Used:	Staff observations, photos, topo maps. GIS mapping layers of geology, soil, vegetation, ecoregions.		
Reasoning:	San Vicente Arroyo is approximately 32 miles from the Mimbres River to Maudes Canyon. Characteristics are homogenous below Maudes Canyon. Aerial photos show a dry channel throughout the reach and no riparian corridor.		
Hydrology Protocol Results			Notes
Location 1 (lat/long): 32.64330/ -108.21333	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Tyrone Road =2	
Location 2 (lat/long): 32.65803/ -108.21835	<input checked="" type="checkbox"/> eph <input type="checkbox"/> int <input type="checkbox"/> per	Ridge Road =2	
<input type="checkbox"/> Additional location results attached.			

Hydroclimatic Conditions		If "yes" please describe.
Drought (SPI Value < -1.5)	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	-1.5 (NCDC/NOAA) and < -1.5 (NDMC)
Recent Rainfall (within 48 hours)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Gauge data available?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p><i>If yes for any of above, please explain why these conditions do not impact the UAA conclusion that natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use:</i> The 12-month SPI was less than -1.5 according to the NDMC index and = -1.5 using the NOAA/NCDC index. Although both of these indices indicate considerable drought conditions, they do not alter the Department's determination as ephemeral. Over the past 10 years, the NDMC 12-mo SPI was less than -1.5 for only two of those years. Based on the very low HP scores, the absence of NMOSE surface water right declarations, and current (see Figures E-2, E-3) and historical (see Figure E-4) landscape characteristics, it is unlikely that intermittent or perennial flows can be sustained even under normal precipitation conditions.</p>		
Hydrologic and Other Modifications		If "yes" please describe.
Dam/diversion	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Channelization/roads	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Each HP was conducted at a rural road crossing.
Groundwater pumping	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	73 NMOSE permitted wells
Agricultural return flows	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Existing point source discharge	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Silver City WWTP

⁴ This form is designed for the UAA process for ephemeral waters described in Subsection C of 20.6.4.15 NMAC.

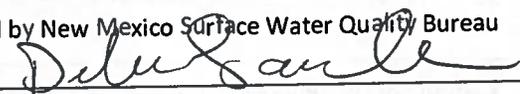
Hydrologic and Other Modifications		If "yes" please describe.
Planned point source discharge	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Other modifications e.g., land use practices	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p><i>If yes for any of above, please explain why these modifications do not alter the uses supported by the natural flow regime: Arroyo above and below road crossings have the same characteristics. NMOSE documents 73 wells and 0 surface diversions within 1 mile of evaluated reach. Total diversions are 1658 afy, nearly all of which (1500 afy) is from wells with a depth-to-water >100 feet, most of which are located below the canyon and have no record of pumping. Based on well location and depth to water, groundwater pumping is not affecting surface flow. Based on the very low HP scores, the absence of NMOSE surface water right declarations, and current (see Figures E-2, E-3) and historical (see Figure E-4) landscape characteristics, it is unlikely that intermittent or perennial flows have existed historically.</i></p>		
Current Uses Observed		If "yes" please describe.
Macroinvertebrates	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Fish	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Recreation (contact use)	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
<p><i>If yes for any of the above, please explain why these observed uses are consistent with the UAA conclusion that 101(a)(2) aquatic life and recreational uses are not feasible:</i></p>		
Additional Comments:		
The Silver City WWTP effluent discharge creates a 0.2 mile intermittent reach above the evaluated ephemeral reach. The effluent flow ends at the confluence with Maudes Canyon.		

ATTACHMENTS:

- Map and Photos (required)
- Hydrology Protocol Field Sheets for all locations (required)
- Level 2 Analysis (optional)
- Additional sites and/or documentation (optional) SPI

CONCLUSION:

This UAA concludes that the stream reach identified above is ephemeral and that Clean Water Act Section 101(a)(2) aquatic life and recreational uses are neither existing nor attainable due to the factor identified in 40 CFR 131.10(g)(2): *natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent.* Based on this conclusion, we recommend that the designated uses and criteria identified in 20.6.4.97 NMAC be applied to this stream reach in accordance with the UAA process set forth in Subsection C of 20.6.4.15 NMAC.

Submitted by New Mexico Surface Water Quality Bureau	
Signed: <u></u>	Date: <u>Oct 18, 2013</u>
EPA Region 6 technical approval granted. <input type="checkbox"/> Yes <input type="checkbox"/> No	
<i>If no, see attached reasons.</i>	
Signed: _____	Date: _____