

APPROVED JURISDICTIONAL DETERMINATION FORM

U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): December 7, 2012

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CENWO-OD-RWY, Antelope Mine, NWO-2009-00943

C. PROJECT LOCATION AND BACKGROUND INFORMATION: Tributaries of Antelope Creek & Adjacent Wetlands (NRPW) within the Antelope Mine permit area (including Horse Creek, West Antelope, and West Antelope II Amendment Areas) excluding all areas of surface disturbance prior to June 2006.

- 1. Unammed direct tributaries to Antelope Creek and adjacent wetlands
2. Horse Creek, Spring Creek, Logan Draw, Johnson Draw and unammed tributaries (all tributaries to Antelope Creek) and adjacent wetlands.

State: Wyoming County/parish/borough: Campbell and Converse City: n/a
Center coordinates of site (lat/long in degree decimal format): Lat. 43.47968 N; Long. -105.36265 W
Universal Transverse Mercator:

PLSS Location: ~36 square miles in Township 40 and 41 North, Ranges 70 and 71 West, 6th PM

Name of nearest waterbody: Horse Creek, Spring Creek, Logan Draw, Johnson Draw and Antelope Creek

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Cheyenne River (below the confluence of the Cheyenne River and Beaver Creek in South Dakota)

Name of watershed or Hydrologic Unit Code (HUC): HUC 12: Horse Creek - Antelope Creek (101201010301), Spring Creek (101201010302)

- Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date: November 27, 2012
Field Determination. Date(s): July 21, 2011

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There are no navigable waters of the U.S. within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

- Waters subject to the ebb and flow of the tide.
Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There are no waters of the U.S. within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply): 1

- TNWs, including territorial seas
Wetlands adjacent to TNWs
Relatively permanent waters (RPWs) that flow directly or indirectly into TNWs
Non-RPWs that flow directly or indirectly into TNWs
Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
Impoundments of jurisdictional waters
Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Pick List

Elevation of established OHWM (if known):

1 Boxes checked below shall be supported by completing the appropriate sections in Section III below.

2 For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least seasonally (e.g., typically 3 months).

2. **Non-regulated waters/wetlands (check if applicable):**³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.

Explain: The relevant reaches of tributaries to Antelope Creek including Horse Creek and Spring Creek, Logan Draw and Johnson Draw, and some unnamed tributaries have no significant nexus to the Cheyenne River located approximately 195 stream miles downstream.

SECTION III: CWA ANALYSIS

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. **Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.**

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: 134.8 square miles

Drainage area: 119.4 square miles

Average annual rainfall: 10-15 inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through 5 tributaries before entering TNW.

Project waters are 30 (or more) river miles from TNW.

Project waters are 25-30 river miles from RPW.

Project waters are 30 (or more) aerial (straight) miles from TNW.

Project waters are 10-15 aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: No.

Identify flow route to TNW⁵: A number of unnamed tributaries flow into Spring Creek and Horse Creek within the mine permit boundary. Horse Creek, Spring Creek, Logan Draw, Johnson Draw and unnamed tributaries are tributaries to Antelope Creek. Antelope Creek flows approximately 40 stream miles to the Cheyenne River from the confluence with Horse Creek. The Cheyenne River flows approximately 150 stream miles to where Beaver Creek flows into it. That confluence, in Fall River County, South Dakota, is where the Cheyenne River has been designated a TNW.

Tributary stream order, if known: .

³ Supporting documentation is presented in Section III.F.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain: .
 Manipulated (man-altered). Explain: portions of the relevant reaches of Horse Creek and Spring Creek have been disturbed due to surface mining. Logan Draw and Johnson Draw remain mostly natural.

Tributary properties with respect to top of bank (estimate):

Average width: 3 feet
Average depth: 1 feet
Average side slopes: **2:1**.

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .

Presence of run/riffle/pool complexes. Explain: **No**.

Tributary geometry: **Relatively straight**

Tributary gradient (approximate average slope): 1 %

(c) Flow:

Tributary provides for: **Ephemeral flow**

Estimate average number of flow events in review area/year: **6-10**

Describe flow regime: **Flow data shows very minimal durations of flow usually in response to significant amounts of precipitation.**

Other information on duration and volume: **Surface flow in both Horse Creek and Spring Creek is naturally ephemeral. In the early 2000s flow was increased from the discharge of groundwater for coalbed methane production. Coalbed methane flows peaked in 2006-2007 and have since returned to a natural regime.**

Surface flow is: **Confined**. Characteristics: **Short in duration due to rainfall.**

Subsurface flow: **Unknown**. Explain findings: .

Dye (or other) test performed: .

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain: **Upper tributaries have a discontinuous OHWM due to flat topography with upland unconfined upland swale characteristics at some locations.**

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

High Tide Line indicated by: Mean High Water Mark indicated by:
 oil or scum line along shore objects survey to available datum;
 fine shell or debris deposits (foreshore) physical markings;
 physical markings/characteristics vegetation lines/changes in vegetation types.
 tidal gauges
 other (list):

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

(iii) **Chemical Characteristics:**

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: **No data available.**

Identify specific pollutants, if known:

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: 140 acres

Wetland type. Explain: **The wetland delineations within the Antelope Mine permit area have identified the following types of wetlands; Wet Meadow, Marsh, and Aquatic Bed.**

Wetland quality. Explain: **Unknown.**

Project wetlands cross or serve as state boundaries. Explain: **No.**

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow.** Explain:

Surface flow is: **Overland sheetflow**

Characteristics:

Subsurface flow: **Unknown.** Explain findings:

Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- Directly abutting
- Not directly abutting
 - Discrete wetland hydrologic connection. Explain:
 - Ecological connection. Explain:
 - Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **2 - 5-year** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: **No Data Available.**

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- Riparian buffer. Characteristics (type, average width):
- Vegetation type/percent cover. Explain: **Wet Meadow/85%.**
- Habitat for:
 - Federally Listed species. Explain findings: **No individuals of the Ute Ladies'-tresses orchid were located during any of the wetland delineations. There are no potential Ute ladies'-tresses habitat identified within the North Antelope Rochelle Mine permit area.**
 - Fish/spawn areas. Explain findings: **No data available.**
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **30 (or more)**

Approximately (Estimated 140 acres along a total stream length of approximately 40 stream miles within a drainage area of 119.4 square miles) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
See Table 1			

Summarize overall biological, chemical and physical functions being performed: nutrient cycling, sediment transport, flood attenuation, water filtration.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. **Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:** The relevant reach of Spring Creek has been defined from the confluence with Antelope Creek (Sec. 26, T41N, R71W) upstream to the confluence with West Prong Spring Creek (Sec.26, T42N, R72W). The relevant reaches of Horse Creek, Logan Draw, Johnson Draw and all the unnamed tributaries, within the permit boundary, include the entire length of the tributaries. All relevant reaches of the streams being evaluated for a significant nexus have been classified as non-relatively permanent waters based on daily flow data.

Spring Creek, Horse Creek and Logan Draw flow in to Antelope Creek within the mine permit boundary (Johnson Draw flows in to Antelope Creek on the western, upstream side of the permit boundary) from the eastern edge of the mine permit boundary. Antelope Creek flows about 40 miles to the confluence with the Cheyenne river which flows approximately 150 miles before it reaches the Beaver Creek confluence in South Dakota, which is where the Cheyenne River has been designated a TNW. The confluence of the Beaver Creek and the Cheyenne River is an estimated 190 stream miles from where Antelope Creek leaves the Antelope Mine permit boundary.

Downstream reaches of Antelope Creek and the Cheyenne River have much higher flow regimes and well developed abutting and adjacent wetland communities. Any sediment and nutrient contributions transported from the above relevant reaches would have to make it through approximately 190 stream miles of wetlands abutting Antelope Creek and the Cheyenne River. Those contributions would have virtually no effect on the Cheyenne River at the Beaver Creek confluence. It would be pure speculation to assume the functions provided by wetlands adjacent to the relevant reaches within the study area would have an effect, positive or negative, on the physical, chemical, or biological integrity of the Cheyenne River where it becomes a TNW.

The Cheyenne River's watershed above Beaver Creek is approximately 5,400 square miles. The total area draining in to study area totals approximately 119.4 square miles which is less than two percent of the Cheyenne River watershed. Due to the ephemeral flow regime of the relevant reaches, the distance from the relevant reaches to the nearest TNW and the small percentage of the Cheyenne River's watershed the study area comprises, it would be pure speculation to assume the functions provided by the estimated 105 acres of wetlands within the relevant reaches of Spring Creek, Horse Creek and the unnamed tributaries would have an effect, positive or negative, on the physical, chemical, or biological integrity of the Cheyenne River at the Beaver Creek confluence. Therefore, the relevant reaches identified above lack a significant nexus to the nearest traditionally navigable water.

2. Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.
Explain: **See Section III.C.2.**
- Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource:
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): 255,000** linear feet, **4**width (ft).
- Lakes/ponds: **n/a**acres.
- Other non-wetland waters: >30.58**acres. List type of aquatic resource: **stream channel**.
- Wetlands: 114.70**acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: **Plate 1, Antelope Mine Aquatic Resources Composite Data Features, February, 2012.**
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: **USGS 7.5 minute topographic maps (1:24,000): Dugout Creek, Betty Reservoir, Teckla, & Teckla SW.**
- USDA Natural Resources Conservation Service Soil Survey. Citation:
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): **USDA NAIP 2006 and NAIP 2009.**
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

TABLE 1 - REVISED
Antelope Mine
Aquatic Resources Outside of Pre-Rapanos Mining Area

ID	Type	Area (Acres)				Tributary
			Sec	Rng	Tnp	
Horse Creek & Tributaries						
1-23	Wet Meadow	13.13	8	41	71	Horse Creek
1-23	Aquatic Bed	1.17	8	41	71	Horse Creek
1-23	Marsh	1.20	16	41	71	Horse Creek
24	Marsh	13.87	15	41	71	Horse Creek
25	Open Water	0.13	15	41	71	Horse Creek
26	Open Water	0.20	15	41	71	Horse Creek
27	Wet Meadow	16.08	15 & 22	41	71	Horse Creek
28	Open Water	0.07	15	41	71	Horse Creek
29	Open Water	0.07	15	41	71	Horse Creek
30	Open Water	0.16	22	41	71	Horse Creek
31	Open Water	0.13	22	41	71	Horse Creek
32	Open Water	0.10	22	41	71	Horse Creek
33	Open Water	0.11	22	41	71	Horse Creek
34	Wet Meadow	0.88	22	41	71	Horse Creek
35	Marsh	1.20	22	41	71	Horse Creek
36	Open Water	0.06	22	41	71	Horse Creek
37	Open Water	0.25	22	41	71	Horse Creek
38	Wet Meadow	1.33	22 & 23	41	71	Horse Creek
40	Wet Meadow	0.84	23	41	71	Horse Creek
43	Marsh	0.26	14	41	71	Unnamed Tributary
44	Wet Meadow	0.37	14	41	71	Unnamed Tributary
45	Wet Meadow	0.49	14	41	71	Unnamed Tributary
46	Wet Meadow	5.50	14	41	71	Unnamed Tributary
47	Wet Meadow	0.16	22	41	71	Unnamed Tributary
	Wetland Total	56.48				
	Open Water Total	1.28				

Spring Creek & Tributaries

52	Wet Meadow	0.55	14	41	71	Unnamed Tributary
53	Wet Meadow	2.58	14	41	71	Unnamed Tributary
54	Open Water	0.41	20	41	71	Unnamed Tributary
55	Open Water	0.70	20	41	71	Unnamed Tributary
56	Wet Meadow	4.73	29	41	71	Unnamed Tributary
57	Open Water	0.07	21	41	71	Unnamed Tributary
58-62	Wet Meadow	1.38	21	41	71	Unnamed Tributary
58-62	Open Water	0.29	21	41	71	Unnamed Tributary
63	Wet Meadow	0.30	28	41	71	Unnamed Tributary
64	Wet Meadow	0.27	28	41	71	Unnamed Tributary
65	Wet Meadow	1.51	28	41	71	Unnamed Tributary
66	Wet Meadow	6.05	28 & 29	41	71	Unnamed Tributary
67	Aquatic Bed	0.14	28	41	71	Unnamed Tributary
68	Aquatic Bed	0.03	28	41	71	Unnamed Tributary
69	Aquatic Bed	0.04	28	41	71	Unnamed Tributary
70	Wet Meadow	0.21	28	41	71	Unnamed Tributary

71	Wet Meadow	0.41	33	41	71	Unnamed Tributary
72	Wet Meadow	0.68	33	41	71	Unnamed Tributary
73-86	Wet Meadow	1.65	30	41	71	Spring Creek
73-86	Aquatic Bed	0.71	30	41	71	Spring Creek
73-86	Marsh	1.15	30	41	71	Spring Creek
87	Wet Meadow	0.07	29	41	71	Spring Creek
88	Wet Meadow	0.23	29	41	71	Spring Creek
89	Wet Meadow	0.94	29	41	71	Spring Creek
90	Wet Meadow	0.25	29	41	71	Spring Creek
91	Wet Meadow	0.54	29	41	71	Spring Creek
92	Aquatic Bed	0.05	29	41	71	Spring Creek
93	Aquatic Bed	0.04	29	41	71	Spring Creek
94	Aquatic Bed	0.03	29	41	71	Spring Creek
95	Wet Meadow	0.12	29	41	71	Spring Creek
96	Wet Meadow	0.55	29 & 32	41	71	Spring Creek
97	Wet Meadow	0.16	32	41	71	Spring Creek
98	Wet Meadow	0.10	32	41	71	Spring Creek
99	Wet Meadow	0.14	32	41	71	Spring Creek
100	Aquatic Bed	0.07	32	41	71	Spring Creek
101	Wet Meadow	0.07	33	41	71	Spring Creek
102	Aquatic Bed	0.13	33	41	71	Spring Creek
103	Wet Meadow	0.26	33	41	71	Spring Creek
104	Aquatic Bed	0.15	33	41	71	Spring Creek
105	Aquatic Bed	0.13	33	41	71	Spring Creek
106	Aquatic Bed	0.04	33	41	71	Spring Creek
107	Aquatic Bed	0.05	33	41	71	Spring Creek
108	Aquatic Bed	0.04	33	41	71	Spring Creek
109	Aquatic Bed	0.08	33	41	71	Spring Creek
110	Aquatic Bed	0.10	33	41	71	Spring Creek
111	Aquatic Bed	0.56	33	41	71	Spring Creek
112	Wet Meadow	4.81	33	41	71	Spring Creek
113	Marsh	0.12	33	41	71	Spring Creek
Wetland Total		32.21				
Open Water Total		1.47				

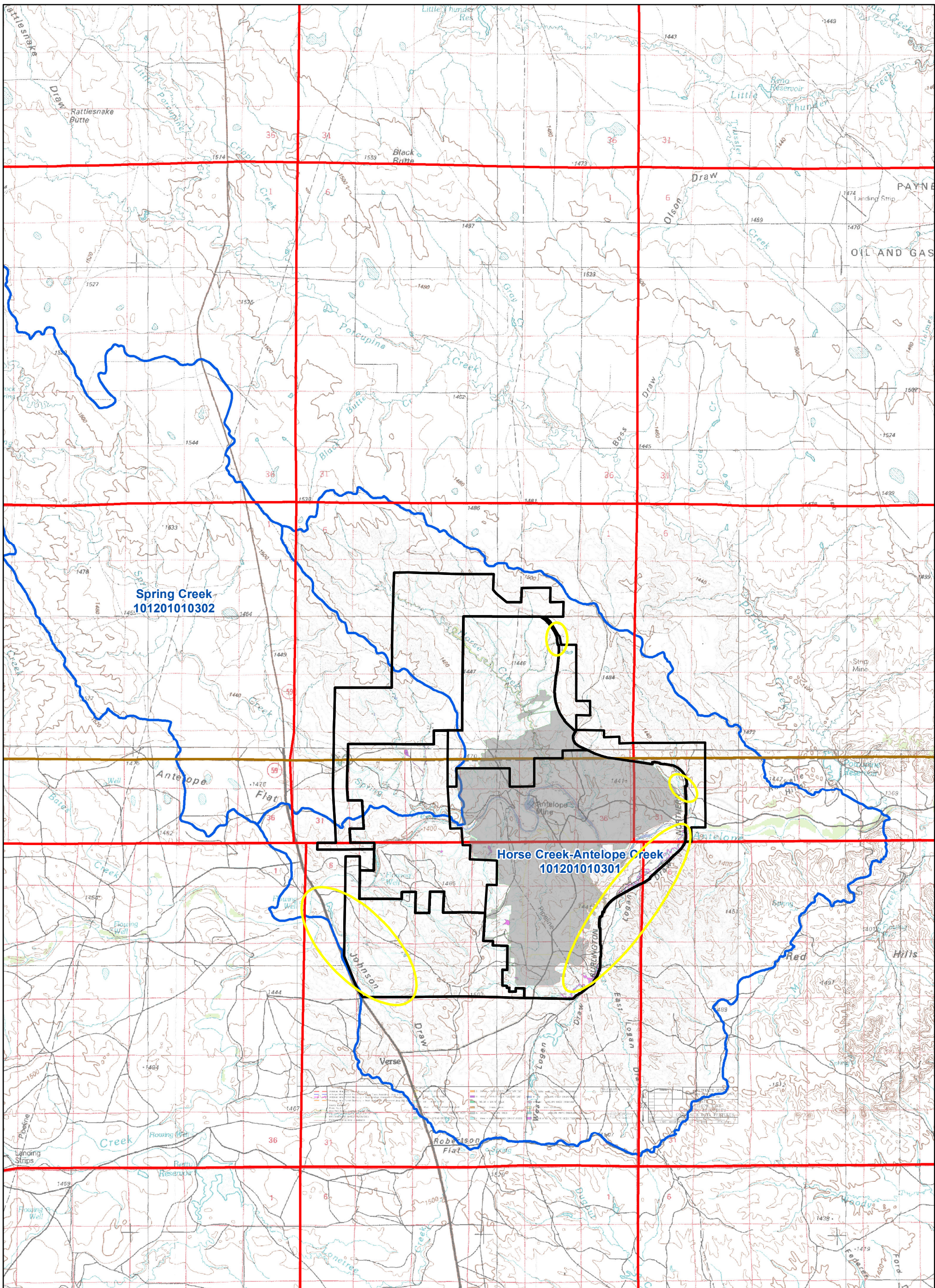
Tributaries to Antelope Creek

114	Wet Meadow	0.31	5 & 6	40	71	Unnamed Tributary
115	Open Water	0.61	5	40	71	Unnamed Tributary
214	Open Water	1.67	31	41	70	Unnamed Tributary
217	Wet Meadow	0.11	17	40	71	Johnson Draw
218	Wet Meadow	0.40	7 & 17	40	71	Johnson Draw
219	Wet Meadow	0.61	17	40	71	Johnson Draw
220	Open Water	0.62	17	40	71	Johnson Draw
221	Wet Meadow	0.10	17, & 18	40	71	Unnamed Tributary
222	Wet Meadow	0.35	17	40	71	Unnamed Tributary
223	Open Water	0.83	17	40	71	Unnamed Tributary
225	Wet Meadow	0.42	8	40	71	Unnamed Tributary
226	Open Water	0.99	8	40	71	Unnamed Tributary
227	Wet Meadow	0.76	4	40	71	Unnamed Tributary
228	Open Water	2.37	10	40	71	Unnamed Tributary
229	Wet Meadow	2.40	10	40	71	Unnamed Tributary
233	Wet Meadow	0.06	15	40	71	Logan Draw
235	Wet Meadow	1.59	14	40	71	Logan Draw
236	Wet Meadow	16.97	13 & 14	40	71	Logan Draw





237	Wet Meadow	1.94	13 & 14	40	71	Logan Draw
238	Open Water	0.27	1	40	71	Logan Draw
239	Unconsolidated Bottom	30.58	#	40/1	70/1	Logan Draw
	Wetland Total	26.02				
	Open Water Total	7.36				
	Unconsolidated Bottom	30.58				

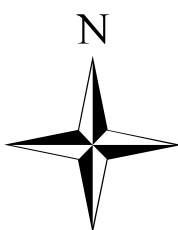
Isolated Waters

224	Playa	0.36	9	40	71	Isolated
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Legend

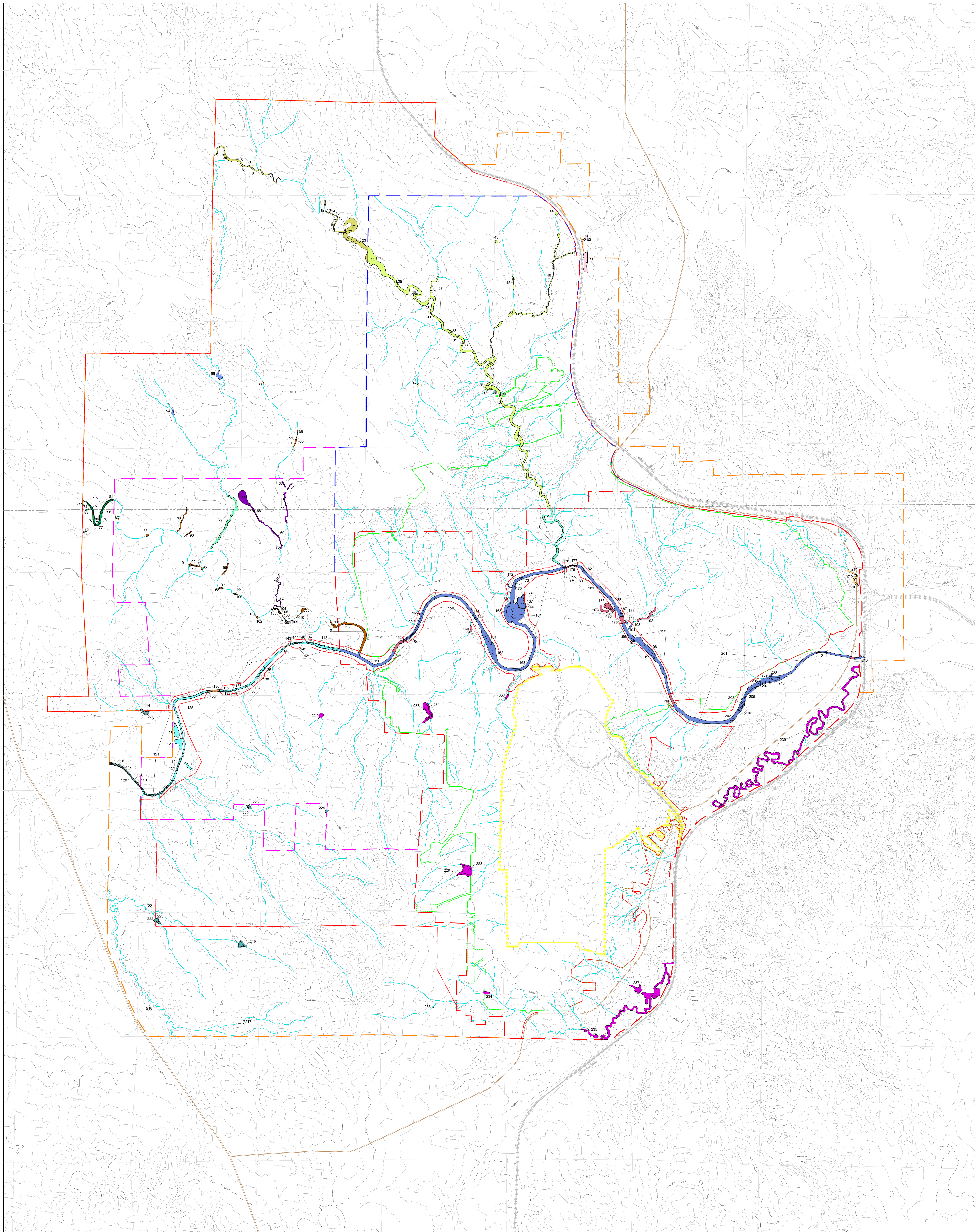
-  STUDY AREA
-  HUC 12 BOUNDARY
-  PRE-RAPANOS DISTURBANCE
-  COUNTY LINE



Scale: 1:100,000
Date: November 27, 2012

FIGURE 1

**ANTELOPE MINE
JURISDICTIONAL DETERMINATION**



- LEGEND**
- Antelope Mine (AM) Permit Boundary
 - Antelope Mine Permit Boundary - Horse Creek Amendment Area (HCAA)
 - Antelope Mine Permit Boundary - West Antelope Amendment Area (WAAA)
 - Antelope Mine Permit Boundary - West Antelope II Amendment Area (WAIIAA)
 - County Boundary
 - Paved Road
 - Mine Disturbance Inception through 1992 (no aquatic resources inventory prior to 1992)
 - Mine Disturbance through 02/28/2006
 - Projected Life-of-Mine Disturbance

- MAP AREAS**
- A: WAIIAA - HORSE CREEK
 - B: HCAA - HORSE CREEK
 - C: AM - HORSE CREEK
 - D: HCAA - OUTSIDE PERMIT BOUNDARY
 - E: WAIIAA - SPRING CREEK TRIBUTARY WEST
 - F: WAAA - SPRING CREEK TRIBUTARY WEST
 - G: WAIIAA - SPRING CREEK TRIBUTARY EAST
 - H: WAAA - SPRING CREEK TRIBUTARY EAST
 - I: WAIIAA - SPRING CREEK
 - J: WAAA - SPRING CREEK
 - K: WAIIAA - ANTELOPE CREEK
 - L: WAAA - ANTELOPE CREEK (UNDISTURBED)
 - M1: AM - ANTELOPE CREEK CROSSINGS
 - M: AM - ANTELOPE CREEK (UNDISTURBED)
 - N: AM - ROAD RELOCATION
 - L1: WAAA - ANTELOPE CREEK CROSSINGS
 - P: WAI & AM - ANTELOPE CREEK TRIBUTARIES (SOUTH)

OTHER WATERS OF THE U.S.
Stream Channel

NOTES:
1. From 1992 through 1998, wetland delineation, riparian, and prairie were represented upon the data files. These data have been removed and replaced with a more accurate representation of the wetlands and prairie based on aerial photos in conjunction with fieldwork.

		ANTELOPE MINE Caller Box 3008, Gillette, WY 82717 PERMIT NO. 525		PLATE 1 ANTELOPE MINE AQUATIC RESOURCES COMPOSITE DATA FEATURES			
DESIGN	AM	DRAWN	CAJ/EDB	DATE	02/2012	SHEET	1 OF 1
SCALE	1" = 1200'	CONTOUR INTERVAL	20'	FILE NUMBER	AJD_Plate1.DWG		