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**APPLICATIONS FOR PERMIT NOS. 67-15292 –  
67-15298, 67-15300 AND 67-15322 AND  
APPLICATION FOR TRANSFER NO. 82712  
IN THE NAME OF ECKHARDT FAMILY LLLP**

*Prepared for—*

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March 19, 2019



Applicant's  
Exhibit

11

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**Applications for Permit Nos. 67-15292 – 67-15298,  
67-15300 and 67-15322 and Application for Transfer No. 82712  
In the Name of Eckhardt Family LLLP**

March 19, 2019

Opinions

1. There is unappropriated water in the Jenkins Creek basin available for appropriation.
2. The public interest would be served by maintaining the rest/rotation grazing that has been established through the use of stock watering ponds.

Introduction

These applications include 8 applications for permits nos. 67-15292 – 67-15298 and 67-15300 for stock water stored in stock watering ponds in the Jenkins Creek drainage basin ranging in size from 0.4 acre-feet to 1.5 acre-feet in capacity and totaling 4.9 acre-feet in capacity. Application for permit no. 67-15322 is for stock water that has historically been captured and stored without benefit of a water right in Monroe Creek Reservoir located on property owned by Eckhardt Family LLLP and public land managed by the Bureau of Land Management. Application for transfer no. 82712 of decreed water right no. 67-14386 proposes to correct the points of diversion for the ponds included in the decreed right to the actual location of the ponds applied for under applications for permit nos. 67-15293 and 67-15297.

The upper Jenkins Creek basin is used for grazing livestock and has been used for that purpose for decades if not over a century. The basin is primarily grass and shrub growth with limited, if any, forested area. As described further below, the upper basin dries out early in most years and livestock move to any available water supply and congregate there rather than utilizing the whole range of available vegetation for feed.

Eckhardt Family LLLP has constructed stock watering ponds that are the subject of the above referenced applications. The ponds are all located high in the basin to keep the livestock where vegetation for grazing is available and away from the limited water supply that might remain in Jenkins Creek. Eckhardt Family LLLP has also installed cross fencing to keep livestock confined to select areas each year and permit a rest/rotation of the rangeland they own or utilize.

Keeping livestock away from stream channels and implementing rest/rotation grazing are all best practices that are recommended for all cattlemen to make the best use of the resources.

## Background Information

The Jenkins Creek basin is illustrated in Exhibit 1 with the features that are relevant to the hearing on the above referenced applications. It is a generally south facing basin and is about 9 miles in length from the basin headwaters to the most downstream feature shown on Exhibit 1, the Road Crossing. The upper portion of the basin, where the ponds in the above referenced applications are located, receives most of the annual precipitation from November through March in a normal year as shown on Exhibit 2 based on 30-year normal conditions from PRISM.<sup>1</sup> Exhibit 2 also shows the mean daily temperatures are above freezing in March and the minimum daily temperatures are above freezing by the end of March.

These normal conditions are consistent with Mr. Boe's March 19, 2018 findings documented in his Memorandum dated April 20, 2018 and attached as Exhibit 3. Mr. Boe found most of the snow had melted and the basin was "turned on" to use his term, meaning runoff from the winter precipitation was discharging from the basin and both ponds 9 and 11 were full.

Mr. Boe's April 27, 2018 findings documented in his Memorandum dated May 31, 2018, attached as Exhibit 4, are also consistent with the normal conditions described in Exhibit 2. On April 27, 2018 Mr. Boe found the conditions to be warm with clear skies and dry ground. During Mr. Boe's site visit to ponds 1 – 4 he found only pond 4 was spilling at a rate of 5 – 10 gpm. The other 3 ponds he visited were storing water, and pond 1 appeared to be leaking and the leaked water was being recaptured in pond 2, but there was no surface flow leaving any of ponds 1 – 3.

My own observations on March 11, 2019 found much of the snow had melted but the ground was saturated in most places during a visit to the Jenkins Creek diversion to Mr. Hoff's Jenkins Creek Reservoir. The conditions were consistent with what would be expected based on the 30-year normal weather conditions obtained from PRISM and for a south facing basin.

The timing of the runoff is important to establish since Mr. Hoff has water rights for both diversion to storage and for natural flow diversion for irrigation purposes. The location of the diversion to storage water right is shown as "Jenkins Res POD" on Exhibit 1. Mr. Hoff has additional points of diversion further downstream including the "Lower Res POD" shown on Exhibit 1, but the Jenkins Res POD point of diversion is the most sensitive to water supply conditions because of its location relatively high in the basin.

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<sup>1</sup> PRISM Climate Group, Northwest Alliance for Computational Science and Engineering, <http://www.prism.oregonstate.edu/explorer/bulk.php>, The locations of the ponds were entered into PRISM to obtain monthly precipitation and monthly minimum, mean and maximum average temperatures. The climate data were then averaged for all ponds to obtain Exhibit 2.

StreamStats<sup>2</sup> Version 4.3.0 was used to delineate the portion of the Jenkins Creek basin tributary to the Jenkins Creek Reservoir point of diversion. That portion of the basin is illustrated in Exhibit 5. The drainage area is about 6 square miles with about 20% slopes and a mean elevation of about 3,890 feet. It is important to note ponds 9 and 11 are on a Jenkins Creek tributary that joins Jenkins Creek downstream of the point of diversion for Jenkins Creek Reservoir.

Exhibit 6 includes charts of precipitation for water years 2010 through 2018 and year to date precipitation for water year 2019. These data were obtained from PRISM in the same manner as the 30-year normal data illustrated in Exhibit 2. In particular, the charts show the July – September precipitation has been less than normal in most recent years including 2017 that was otherwise an above average water year.

The 2017 NAIP aerial photo used in Exhibit 1 shows the Jenkins Creek Reservoir to have a surface area of about 12 acres on June 28, 2017. It cannot be determined from the photo if water was either being diverted into or being released from the reservoir at that time.

### Analysis

The observations of Mr. Boe, the weather data from PRISM and my own observations confirm the upper Jenkins Creek basin, upstream of the Jenkins Reservoir POD drains out relatively early in the year with the stock watering ponds that are being applied for no longer connected to Jenkins Creek by some time during April. As Mr. Boe reported the drainages where the stock watering ponds are located include sage brush at all locations. Sage brush would not be present if the drainages remained wet for any extended period of time.

On March 9, 2019 Mr. Rockford Stone, an employee of Eckhardt Family LLLP, visited the Jenkins Reservoir POD and took the photo attached as Exhibit 7 showing water passing the Jenkins Reservoir POD. There were no downstream diversions occurring at the time of the photo and Exhibit 8 is a photo taken 2 days later on March 11, 2019 showing the discharge of Jenkins Creek at the Road Crossing identified on Exhibit 1. The water passing the Jenkins Reservoir POD shown in Exhibit 7 is unappropriated water that discharged to the Snake River.

The Jenkins Reservoir POD was visited again on March 11, 2019 at which time the reservoir diversion was taking all the available water as shown in Exhibit 9. The difference in the water supply at the Jenkins Reservoir diversion and downstream at Mr. Hoff's diversion to his Lower Reservoir, a short distance upstream of the Road Crossing as shown on Exhibit 1, is significant. Jenkins Creek gains more discharge between the Jenkins Reservoir POD and the Road Crossing than was present at the Jenkins Reservoir POD on March 11, 2019. There does not appear to be a reason water would

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<sup>2</sup> <https://www.usgs.gov/mission-areas/water-resources/science/streamstats-streamflow-statistics-and-spatial-analysis-tools>

intentionally be bypassed at the Jenkins Reservoir POD to fill the lower reservoir. The lower reservoir and diversion ditch are visible from the Eckhardt property and on March 11, 2019 the lower reservoir appeared to be full.

Stock watering ponds 9 and 11 are not tributary to the Jenkins Reservoir POD and water storage in those reservoirs does not reduce the water supply for Jenkins Creek Reservoir. The available evidence shows those stock watering ponds are no longer connected to Jenkins Creek during the portion of the irrigation season when natural flow water supplies are limited. Whether the stock watering ponds are storing water, or in the case of a very dry year they are empty, stock watering ponds 9 and 11 would not appear to be able to limit the natural flow irrigation supply during a time of need.

Stock watering ponds 1 and 2 are on a reach of Jenkins Creek that is captured in Monroe Creek Reservoir without benefit of a water right. This reach of Jenkins Creek has not been tributary to the Jenkins Creek Reservoir since the Monroe Creek Reservoir was constructed and has been in operation. During the time water is discharging from this reach of Jenkins Creek that water has not been available to store in Jenkins Reservoir or for diversion and use as natural flow for irrigation purposes.

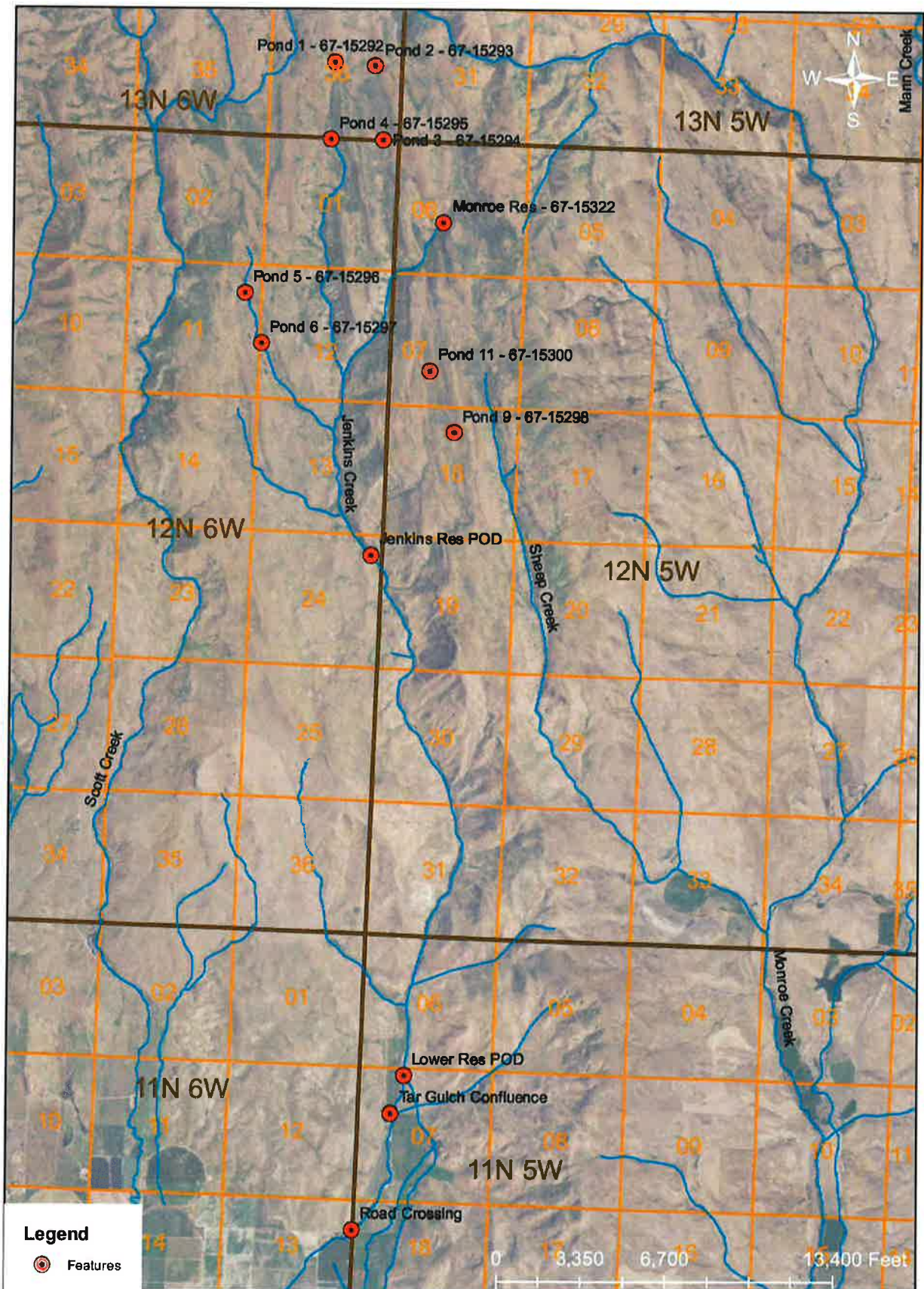
Application for permit 67-15322 seeks to store stock water from Jenkins Creek in Monroe Creek Reservoir as has historically occurred without benefit of a water right. Monroe Creek Reservoir is located on land owned by Eckhardt Family LLLP and public land managed by the Bureau of Land Management. The stock water stored in Monroe Creek Reservoir will be utilized by Eckhardt Family LLLP livestock. As noted above, water from this reach of Jenkins Creek has historically been stored in Monroe Creek Reservoir and has not been available for either storage in Jenkins Creek Reservoir or for natural flow irrigation diversion.

The remaining stock watering ponds 3 – 6 are in locations that are tributary to Jenkins Creek Reservoir and have a total capacity of 2.3 acre-feet. These stock watering ponds are located high in the basin and as described above store water during peak runoff and when the runoff ends, usually in March or April, retain any water they were able to store but are no longer connected to the water shed and no longer reduce the available downstream water supply for either storage in Jenkins Creek Reservoir or natural flow irrigation diversions.

On March 9, 2019 there was unappropriated water leaving the basin as shown in Exhibit 7. That unappropriated water is available for the applicant's stock watering ponds.

## Exhibit 1

# Location of Jenkins Creek Basin Features



Based on 2017 NAIP Photography

Prepared by ERO 3-2019

## **Exhibit 2**

Upper Jenkins Creek Basin - 30 Year Normal

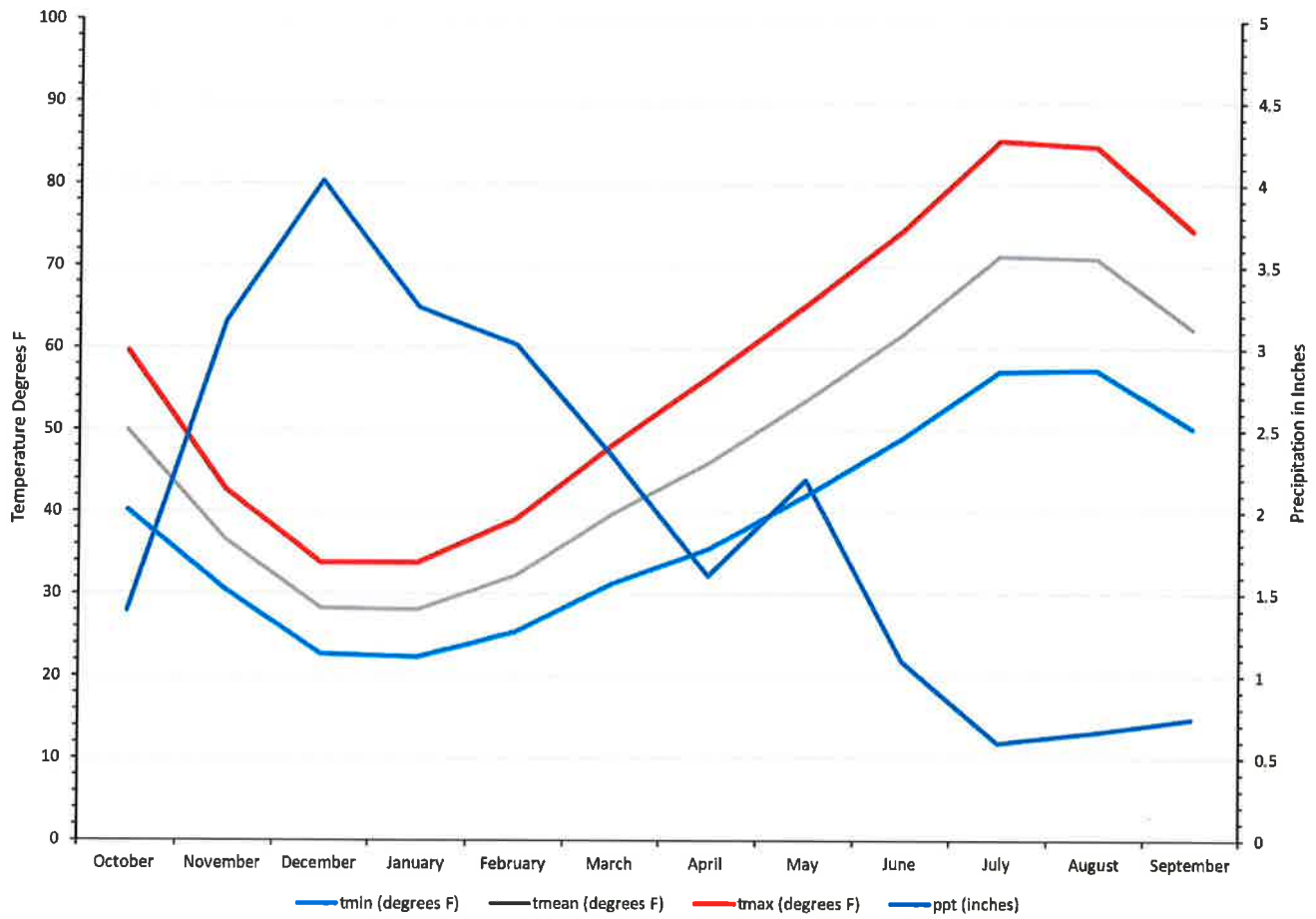


Exhibit 2

**Exhibit 3**

## MEMORANDUM

TO: Nick Miller  
FROM: Erik Boe, P.E.   
DATE: April 20, 2018  
SUBJECT: Eckhardt Pond Nos. 9 and 11 Site Visit

On Monday, March 19, 2018, I visited Mr. James Eckhardt's property as part of the field investigation associated with Case No. E2017-1235. The original plan was to visit Pond Nos. 1, 2, 3, and 4, but could not access these sites due to muddy road conditions. Ultimately, I parked the truck southeast of Pond No. 9 along Jenkins Creek road and hiked into the basin that Pond Nos. 9 and 11 are situated within. The following memorandum documents on-site observations and hydrologic conditions within the basin.

### Un-named Basin

The unnamed basin (basin) that routes water to Pond Nos. 9 and 11 is a sub-basin of the greater Jenkins Creek watershed (Figure 1). Setting the pour point to where the basin's natural water course flows into Jenkins Creek, the basin was delineated using USGS's StreamStats web application (v4.2.0) and determined to have an area of approximately 403 acres (0.63 square miles) (Figure 1). As part of the field investigation, I hiked from Pond No. 9 to Pond No. 11 along the flowing stream channel, continued to follow the stream channel upstream to the basin headwaters, then finally hiked back down along a portion of the basin's west facing slope before crossing the ridge and hiking back down to the truck. The sky was clear to partly cloudy with mild temperatures in the 40-50s (°F); there was no precipitation during the site visit; damp soil conditions suggested that precipitation may have occurred a day or two prior. With spring like weather conditions and the predominately east and west slope aspects of the basin, the snowpack had already melted; a minor amount of snow was present on the north facing (upstream) slopes of both pond embankments. Numerous spring and/or high water table sources were observed at various elevations along the basin slopes at various locations. Overall, the basin appeared to hydraulically turned on, meaning soil moisture was at a level where shallow ground water, high water table, and/or springs were driving surface water flows along ephemeral and/or intermittent stream channels.

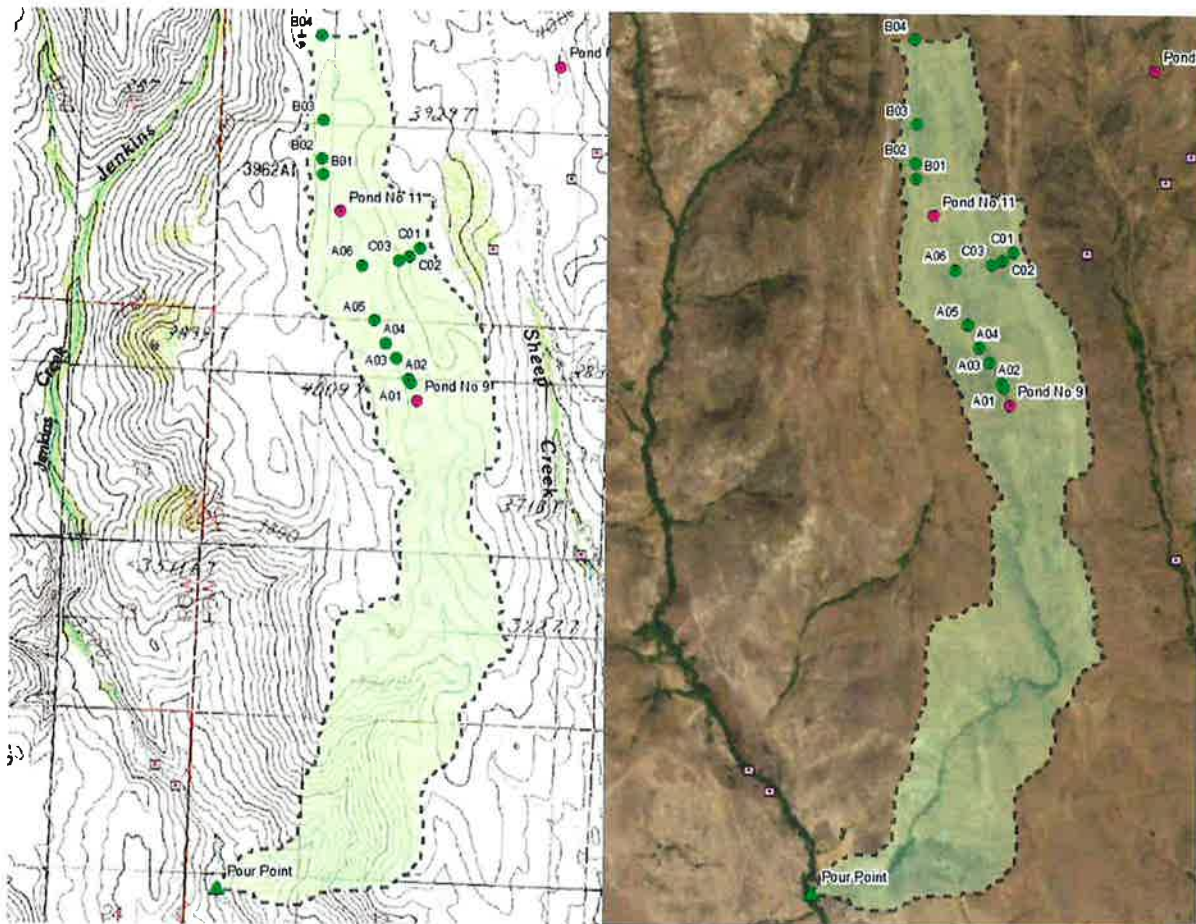


Figure 1: Un-named sub-basin of the greater Jenkins Creek watershed.

#### **Pond No. 9 and Stream Channel**

The lower of two impoundments on the basin's primary un-named natural stream (stream) channel is known as Pond No. 9. The impoundment was observed to be full and spilling water (Photos 1, 2). Pool level was approximately 5 inches above the crest of the spillway. Water was flowing into the pond from the stream which could be classified as either an intermittent or ephemeral stream. The flowing stream was observed to be in a well-defined natural channel. The stream was investigated by hiking upstream, along the natural channel, to Pond No. 11; measurements, photographs, and video recordings were collected at each of six (6) locations along the stream channel (Figure 2, Table 1, and Photos 1-6).



**Photo 1: Pond No. 9; note reservoir is full and spilling water.**



**Photo 2: Pond No. 9 spillway channel; immediately downstream of impoundment.**

| Location | Distance Upstream from Pond 9 Embankment | Width of Stream | Depth of Stream | Notes                               |
|----------|------------------------------------------|-----------------|-----------------|-------------------------------------|
| A01      | 230 ft                                   | ~10 ft          | < 12 in         | Immediately upstream of Pond 9      |
| A02      | 300 ft                                   | ~1.5 ft         | ~1 in           | measured at small waterfall         |
| A03      | 600 ft                                   | ~4 ft           | ~5 in           | flowing/well-defined stream channel |
| A04      | 850 ft                                   | ~2 ft           | ~3 in           | flowing/well-defined stream channel |
| A05      | 1200 ft                                  | ~4 ft           | ~2 in           | flowing/well-defined stream channel |
| A06      | 2000 ft                                  | 1.5 ft          | ~2 in           | flowing/well-defined stream channel |

Table 1: Data collected along stream channel between Pond Nos. 9 and 11.

Figure 2: Map of locations along the stream channel between Pond Nos. 9 and 11 where data (Table 1) and Photos 1-3 were captured.

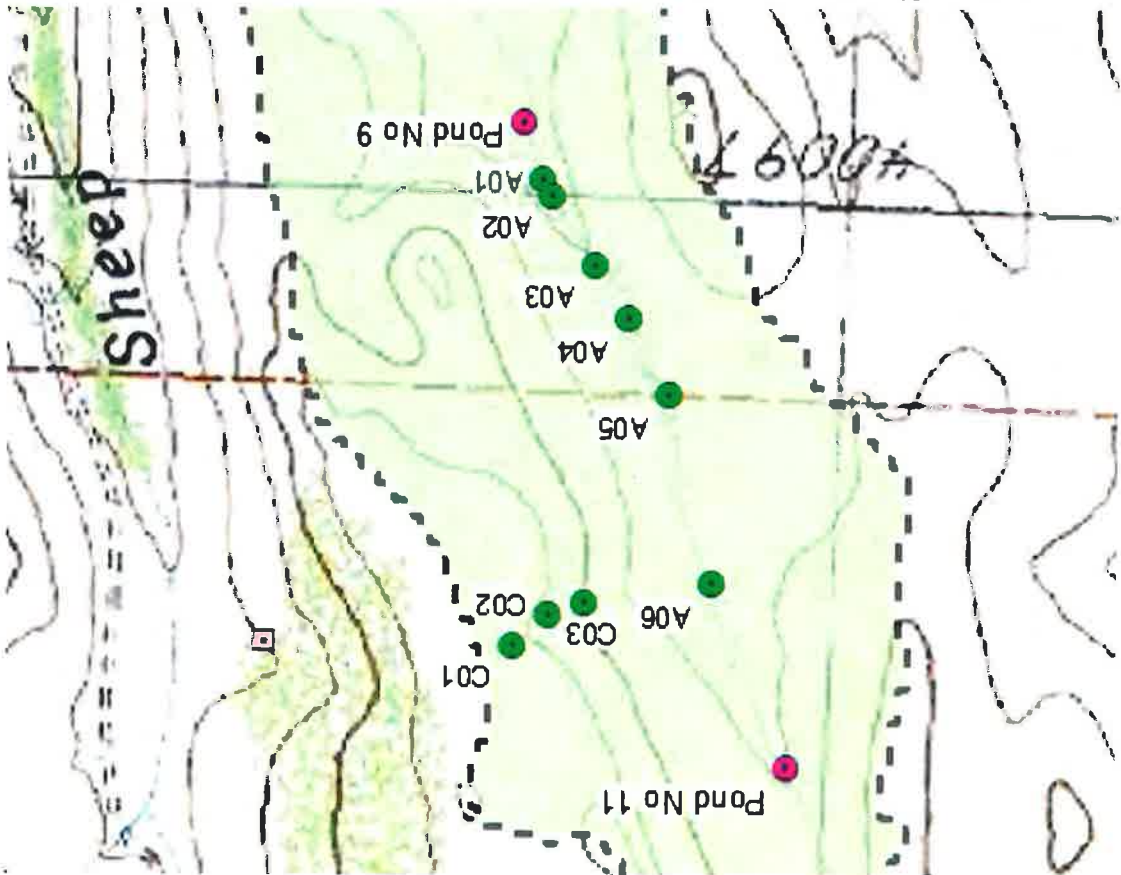




Photo 3: Photos captured at each site along the stream between Pond Nos. 9 and 11 as illustrated in Figure 2; see Table 1 for location reference.

#### **Pond No. 11, Stream Channel, and Headwaters**

The upper of two impoundments on the basin's natural stream channel is known as Pond No. 11. The impoundment was observed to be full and spilling water (Photo 4). Pool level was approximately 2 inches above the crest of the spillway. Water was flowing into the pond from the stream which could be classified as either an intermittent or ephemeral (Photo 5). Additionally, the area/ground immediately above the pond appeared to be fully saturated which suggests some level shallow groundwater, high water table, and/or spring water were also contributing water to the pond (higher potentiometric surface than at pond level). The flowing stream was observed to be in a well-defined natural channel. The stream was investigated by hiking upstream, along the natural channel until the channel gradually blended into a wide swath of fully saturated ground (headwaters); measurements, photographs, and video recordings were collected at each of four (4) locations along the stream channel and at the headwaters of the basin (Figure 3, Table 2, and Photos 4-6).



**Photo 4. Pond No. 11; note reservoir is full and spilling water.**



Photo 5: Channel flowing into Pond No. 11.

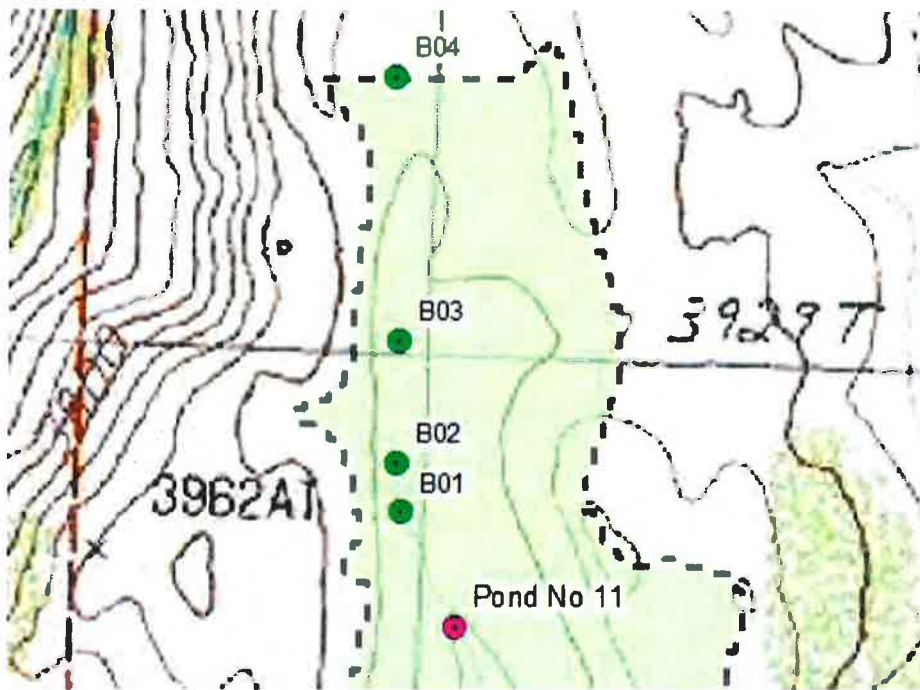


Figure 3: Map of locations along the stream channel between Pond Nos. 11 and headwaters (B04) where data (Table 2) and Photos 4-6 were captured.

**Table 2: Data collected along stream channel between Pond No. 11 and headwaters (B04).**

| Location | Distance Upstream from Pond 11 Embankment | Width of Stream | Depth of Stream | Notes                                   |
|----------|-------------------------------------------|-----------------|-----------------|-----------------------------------------|
| B01      | 550 ft                                    | ~2 ft           | ~4 in           | flowing/well-defined stream channel     |
| B02      | 750 ft                                    | ~2 ft           | ~3 in           | flowing/well-defined stream channel     |
| B03      | 1250 ft                                   | ~1.5 ft         | ~2 in           | flowing/well-defined stream channel     |
| B04      | 2350 ft                                   | NA              | NA              | Headwaters; Area/ground fully saturated |

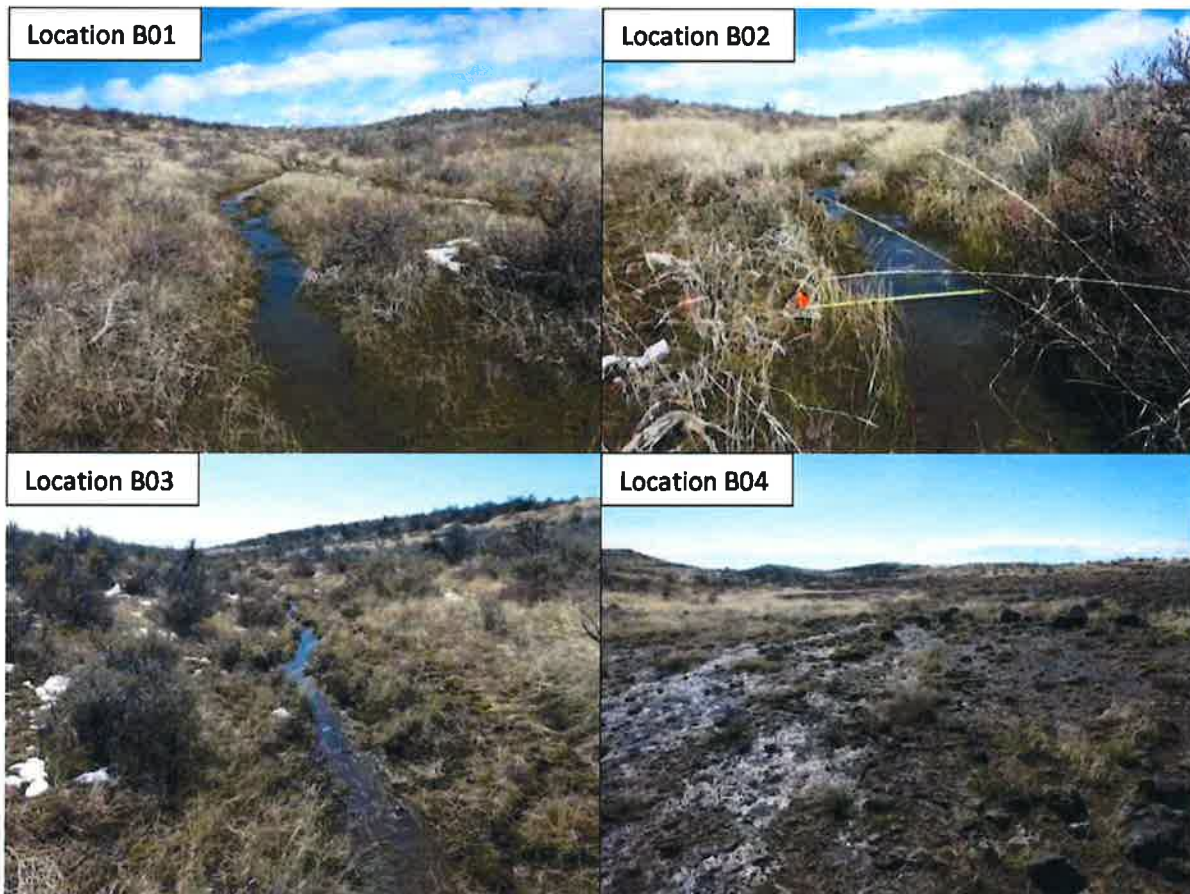


**Photo 6: Photos captured at each site along the stream above Pond No. 11 (and at the headwaters) as illustrated in Figure 3; see Table 2 for location reference.**

#### **Surface water from Un-Named Sub-Catchment**

While walking back down the basin, along the west facing slope, a stream channel (likely ephemeral) was observed flowing a significant amount of water down towards the un-named basin's primary stream channel between Pond No. 9 and Pond No. 11. The stream was investigated by hiking up the sub-catchment along the stream channel until the channel gradually blended into wide a swath of fully saturated ground (headwaters of sub-catchment);

measurements, photographs, and/or video recordings were collected at each of three (3) locations along the stream channel and at the headwaters of the sub-catchment (Figure 2, Table 3, and Photo 7).

Table 3: Data collected along stream channel of sub-catchment (see Figure 2 for location reference).

| Location | Distance Upstream from Basin's Primary Stream Channel | Width of Stream | Depth of Stream | Notes                                   |
|----------|-------------------------------------------------------|-----------------|-----------------|-----------------------------------------|
| C01      | 800 ft                                                | NA              | NA              | Headwaters; Area/ground fully saturated |
| C02      | 620 ft                                                | ~3 ft           | ~1 in           | flowing/well-defined channel            |
| C03      | 480 ft                                                | ~3 ft           | ~2 in           | flowing/well-defined channel            |

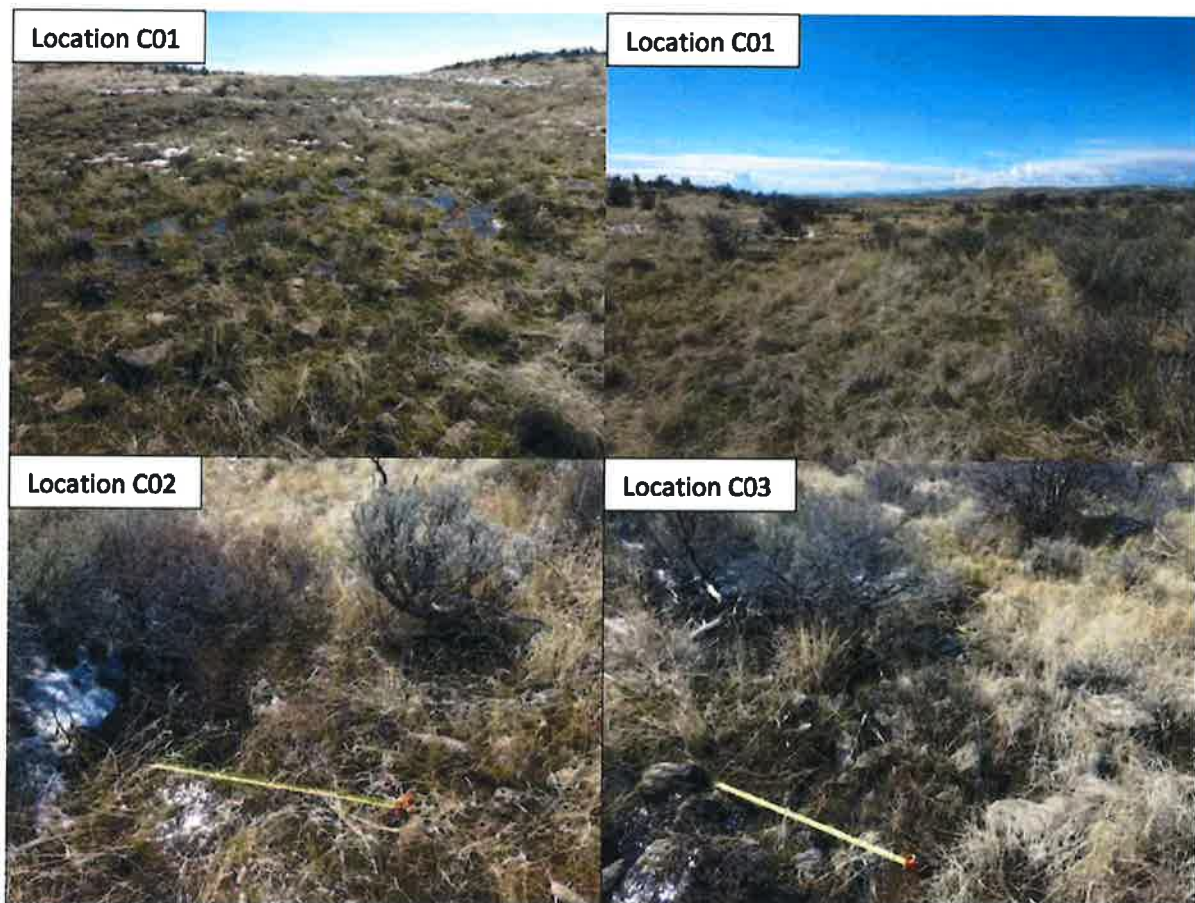


Photo 7: Photos captured at each site along the sub-catchment stream (and headwaters) as illustrated in Figure 2; see Table 3 for location reference.

### **Conclusions and Recommendations**

As described above, during the site visit on March 19, 2018, Pond Nos. 9 and 11 were both observed to be full and spilling water. Water was observed to be flowing into each pond via well-defined natural stream channels that clearly receive regular seasonal flows. Both ponds were developed by construction of earthen embankments that impound water along the unnamed basin's primary natural watercourse. Overall, the basin was hydraulically connected and turned on, meaning ephemeral and/or intermittent stream channels were flowing in conjunction with spring and shallow groundwater flows. No precipitation occurred during the site visit and no sheet flow (Hortonian overland flow) was observed. The streams within the basin are considered intermittent and/or ephemeral (not perennial) natural stream channels. As such, at this elevation and geographic region, the dry down period generally begins around late March or April, at which time the high soil moisture content and water table in the basin will start receding and gradually turn off the regular seasonal flows such as ephemeral, intermittent, spring, and shallow groundwater flow.

Since muddy roads prevented access to Pond Nos. 1-4, recommend scheduling another site visit before the end of the dry down period (late April or early May 2018).

**Exhibit 4**

## MEMORANDUM

TO: Nick Miller  
FROM: Erik Boe, P.E.   
DATE: May 31, 2018  
SUBJECT: Eckhardt Pond Nos. 1, 2, 3 and 4 Site Visit

On Friday April 27, 2018, I visited Mr. James Eckhardt's property as part of the field investigation associated with Case No. E2017-1235. The weather was warm with clear skies; the ground was dry. The following memorandum documents on-site observations and hydrologic conditions associated with Pond Nos. 1, 2, 3, 4, and the corresponding basin(s).

### Introduction

Ponds No. 1, 2, 3, and 4 all lie within Jenkins Creek watershed (Figure 1). Earthen embankments associated with Pond Nos. 1 and 2 were constructed on the uppermost stretch of Jenkins Creek at the headwaters (Figure 2). Jenkins Creek watershed (basin) is approximately 23 square miles in size (Figure 1). The earthen embankment impounding Pond No. 3 was constructed on an un-named stream channel (a.k.a. natural water course) situated within an un-named basin (sub-basin) that routes water to Jenkins Creek (Figure 2); the un-named basin is approximately 0.5 square miles in size. The earthen embankment impounding Pond No. 4 was constructed on a second un-named stream channel situated within a second un-named basin (sub-basin) that also routes water to Jenkins Creek (Figure 2); this un-named basin is approximately 1.2 square miles in size. Note that the Pond No. 4 sub-basin abuts the Pond No. 3 sub-basin. The topographic base map in Figure 2 was overlaid with USGS hydrography layer to illustrate how all the impounded stream channels are hydraulically interconnected within the greater Jenkins Creek watershed. Figures 3 (topographic) and 4 (aerial image) illustrate relative locations, basic lay of the land, and stream channel hydrography for the impoundments along with sites on corresponding stream channels that were visited.

Overall, the basin appeared to be well into the dry-down period, which in this region, corresponds to a period of lowering water tables and reduced spring flows. It's during this time that soil moisture controls and lowering water tables gradually turn off intermittent and ephemeral streams, and some springs.

Basins (sub-basins) were delineated using USGS's StreamStats web application (v4.2.0) which also provided basic basin characteristics. ESRI basemaps (USA Topo Maps) were overlaid with USGS's Stream Grid product to illustrate the stream channels within each basin (sub-basin); note that the Stream Grid does not differentiate between perennial, intermittent, and ephemeral streams. Aerial imagery is from 2013 (NAIP).

### Pond No. 1

The uppermost of two impoundments constructed on the upper stretch of Jenkins Creek (Figures 2-4). The impoundment was observed to have a pool level of approximately three (3) feet below the crest of the spillway; the intermittent or ephemeral stream channel at the inlet was dry. The high water mark on the upstream slope of the earthen embankment, along with

the fluvial erosion and debris within the spillway channel, suggests the pond was recently full and spilling water downstream (Photos 2 and 3). The stream channel that routes water to the pond was investigated by hiking upstream. Observations, photographs, and video recordings were collected at the impoundment and each of four (4) locations along the stream channel (Figure 5, Table 1, and Photos 1-3). Spring flow along a 250 foot stretch of the stream channel was observed between locations P1N4SPR and P1N5SPR (Figure 5). Overall, the stream channel showed signs of fluvial erosion (scoured) along with depressed grasses covered in silt and moss. Vegetation along the stream channel consisted of mostly sagebrush, grass, and weeds.

### **Pond No. 2**

The lower of two impoundments constructed on the upper stretch of Jenkins Creek within the 23 square mile Jenkins Creek watershed (Figures 2-4). The impoundment was observed to have a pool level of approximately 0.5 feet below the crest of the spillway; at the inlet, an intermittent or ephemeral stream channel was flowing water (relatively low flowrate). The high water mark on the upstream slope of the earthen embankment, along with the fluvial erosion and debris within the spillway channel, suggests the pond was recently full and spilling water downstream (Photos 5 and 6). The stream channel flowing water to the pond was investigated by hiking upstream to Pond No. 1. Observations, photographs, and video recordings were collected at the impoundment and each of five (5) locations along the flowing stream channel (Figure 5, Table 2, and Photos 4-6). Water flowing within the stream channel ceased approximately 950 feet upstream of Pond No. 2 at location P2N5. Ultimately, it was observed that water flowing from the downstream toe of Pond No. 1 embankment, flowed to a point in the stream channel approximately 100 feet upstream of location P2N5 where it infiltrated, before resurfacing at location P2N5 and flowed continuously to Pond No. 2. Vegetation along the stream channel between Pond Nos. 1 and 2 consisted of mostly sagebrush, grass, and weeds.

### **Pond No. 3**

Impoundment constructed on the upper stretch of an un-named stream channel of an un-named 0.5 square mile sub-basin that routes water to Jenkins Creek (Figures 2-4). The impoundment was observed to have a pool level of approximately 0.5 feet below the crest of the spillway; the stream channel at the inlet was dry. The high water mark on the upstream slope of the earthen embankment, along with the fluvial erosion and debris within the spillway channel, suggests the pond was recently full and spilling water downstream (Photos 7 and 9). The channel within which the impoundment was constructed was investigated by hiking downstream, then upstream. Observations, photographs, and video recordings were collected at the impoundment and each of six (6) locations along the channel (Figure 6, Table 3, and Photos 7-9). Standing at the inlet to Pond No. 3, the basin upstream was relatively wide with a low profile that narrowed immediately upstream of the pond. This upper section of the sub-basin was bound by higher profile slopes. Based on where the pond is situated within the sub-basin, it seems likely that the primary source of storage water is shallow ground water drainage (from the sub-basin) or possibly a spring and/or perched water table. Vegetation along the stream channel consisted primarily sagebrush, grass, and weeds.

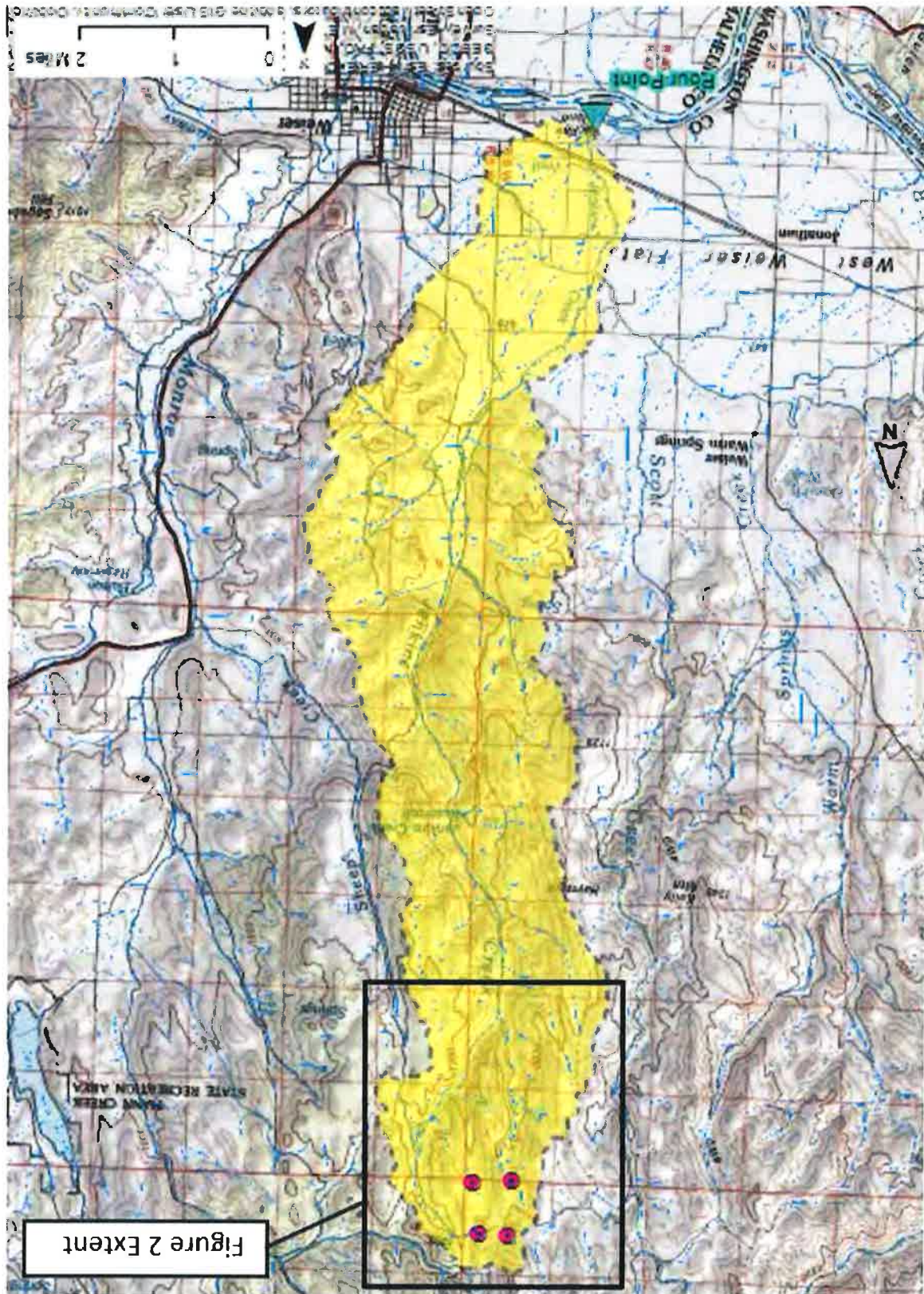
#### **Pond No. 4**

Impoundment constructed immediately below the confluence of two (2) un-named intermittent or ephemeral stream channels (northwest and north channels) within an un-named 1.2 square mile sub-basin that routes water to Jenkins Creek (Figures 2-4). The impoundment was observed to be at full pool and spilling water downstream; flow rate in spillway was visually estimated to be 5-10 gpm. The north inlet stream channel was flowing water (relatively low flow rate) to the impoundment while the northwest inlet stream channel was dry. The north and northwest stream channels were investigated by hiking upstream. Observations, photographs, and video recordings were collected at the impoundment and each of two (2) locations along the northwest stream channel and five (5) locations along the north stream channel (Figure 7, Table 4, and Photos 10-13). Water was observed flowing (low flows) along the north stream channel at locations P4N1, P4N2, P4N3, and P4N5; note the base of the stream channel at location P4N4 was saturated but no surface water was present. Between locations P4N4 and P4N5, mature aspen trees (or possibly birch) were well established along the stream channel; vegetation along the remaining stretch of the north channel consisted of primarily sagebrush, grass, and weeds. The northwest stream channel showed signs of fluvial erosion (scoured) along with depressed grasses covered in silt and moss; vegetation along the stream channel consisted of mostly sagebrush, grass, and weeds. Overall, both stream channels route water from springs, shallow groundwater drainage, or perched aquifer.

#### **Conclusions**

As described above, during the site visit on April 27, 2018, Pond Nos. 1-4 were all impounding storage water from spring, shallow groundwater drainage, and/or groundwater aquifers. Pond Nos. 1 and 2 were developed by constructing two earthen embankments on the upper stretch (headwaters) of Jenkins Creek. Jenkins Creek clearly flows within a well-defined/definite stream channel, flows regularly, and discharges to the Snake River. Pond No. 3 was developed by constructing an earthen embankment on the upper stretch of a well-defined un-named intermittent or ephemeral stream channel of an un-named sub-basin that flows regularly (seasonally) and routes/delivers water to Jenkins Creek. Pond No. 4 was developed by constructing an earthen embankment immediately below the confluence of two (2) well-defined un-named intermittent or ephemeral stream channels that flow regularly (seasonally) within an un-named sub-basin that routes/delivers water to Jenkins Creek. Note that based on the conclusions stated above, the source of storage water impounded by Pond Nos. 1, 2, 3, or 4 is not considered diffuse water.

Figure 1: Jenkins Creek Watershed; Note point markers in upper section of basin represent Pond Nos. 1-4 and Pour Point is at point where Jenkins Creek flows into the Snake River.



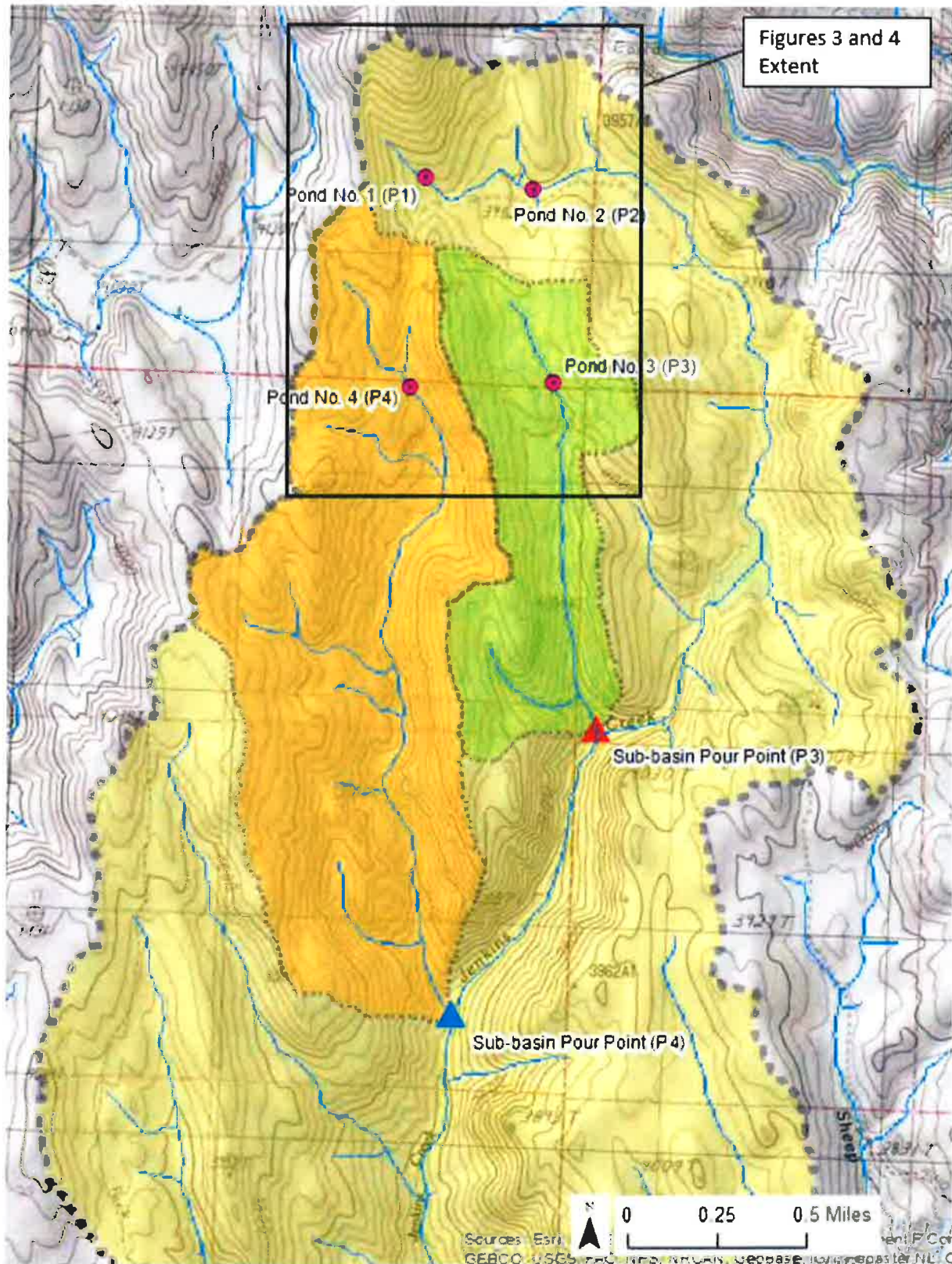
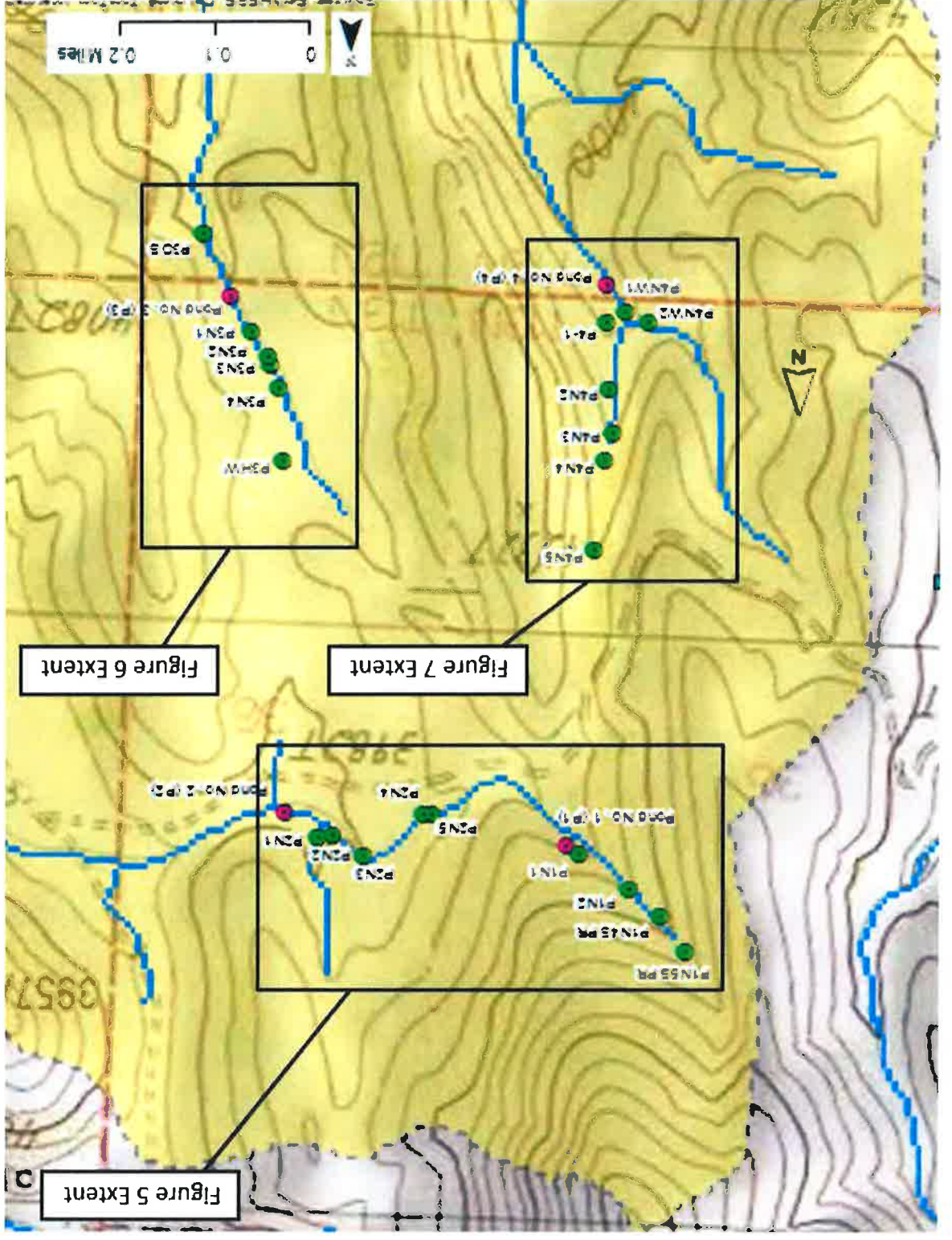


Figure 2: Upper section of Jenkins Creek watershed with sub-basins associated with Pond Nos. 3 and 4; Note Ponds Nos. 1 and 2 at the headwaters of the greater Jenkins Creek basin.

Figure 3: Topographic map with relative locations, basic lay of the land, and stream channels that hydrography for the impoundments along with sites on corresponding stream channels that were visited.



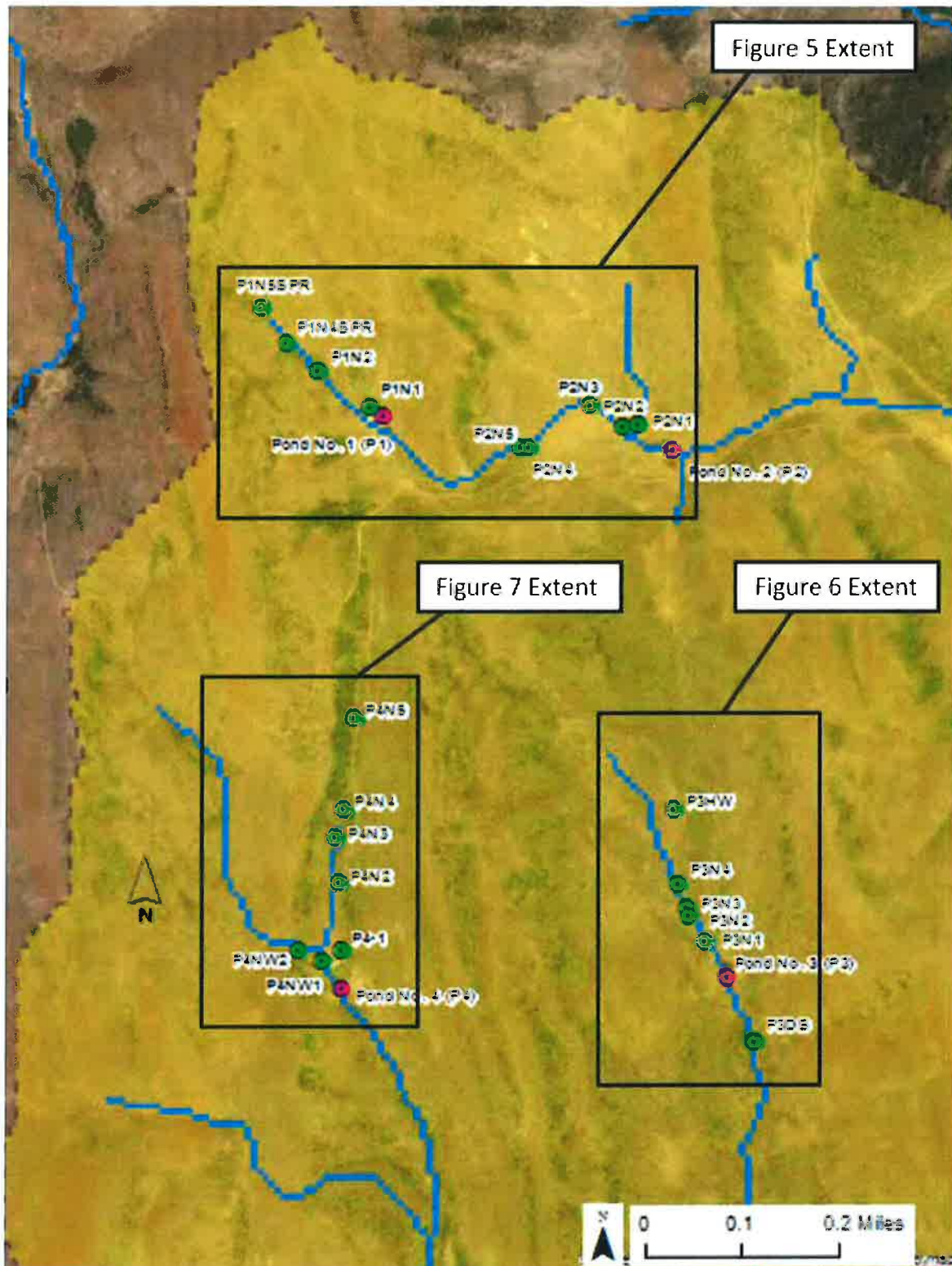


Figure 4: Aerial image with relative locations, basic lay of the land, and stream channel hydrography for the impoundments along with sites on corresponding stream channels that were visited

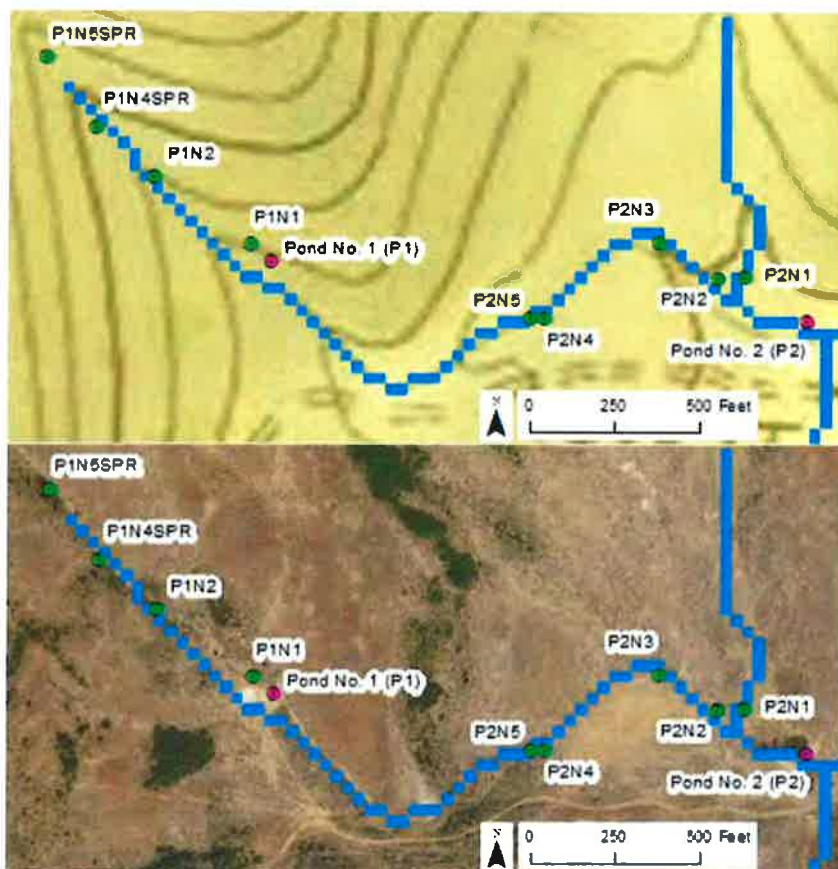


Figure 5: Pond Nos 1 and 2 along with corresponding stream channel sites visited; topographic (top) and 2013 NAIP aerial image (below).

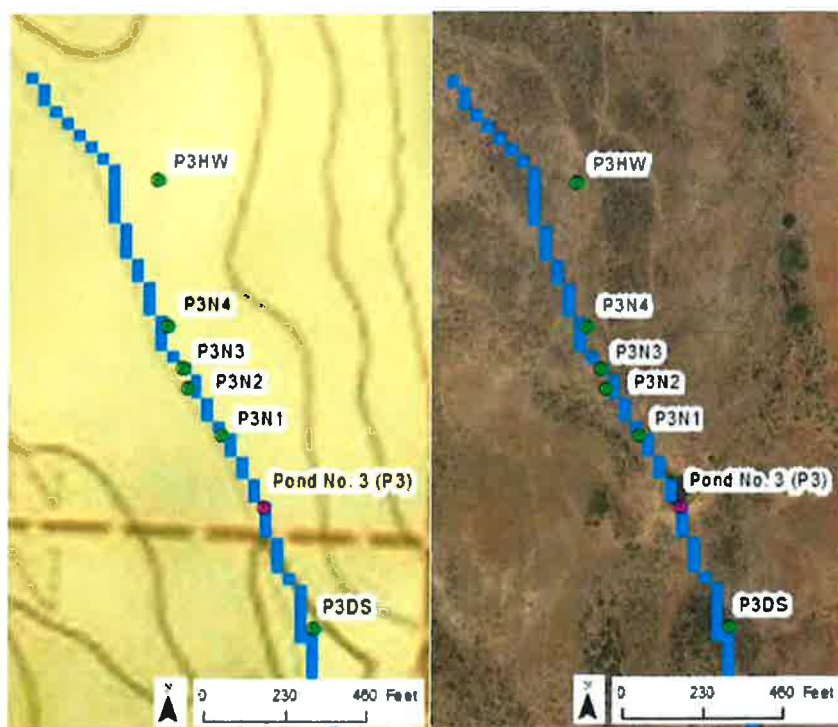


Figure 6: Pond No. 3 along with corresponding stream channel sites visited; topographic (left) and 2013 NAIP aerial image (right).

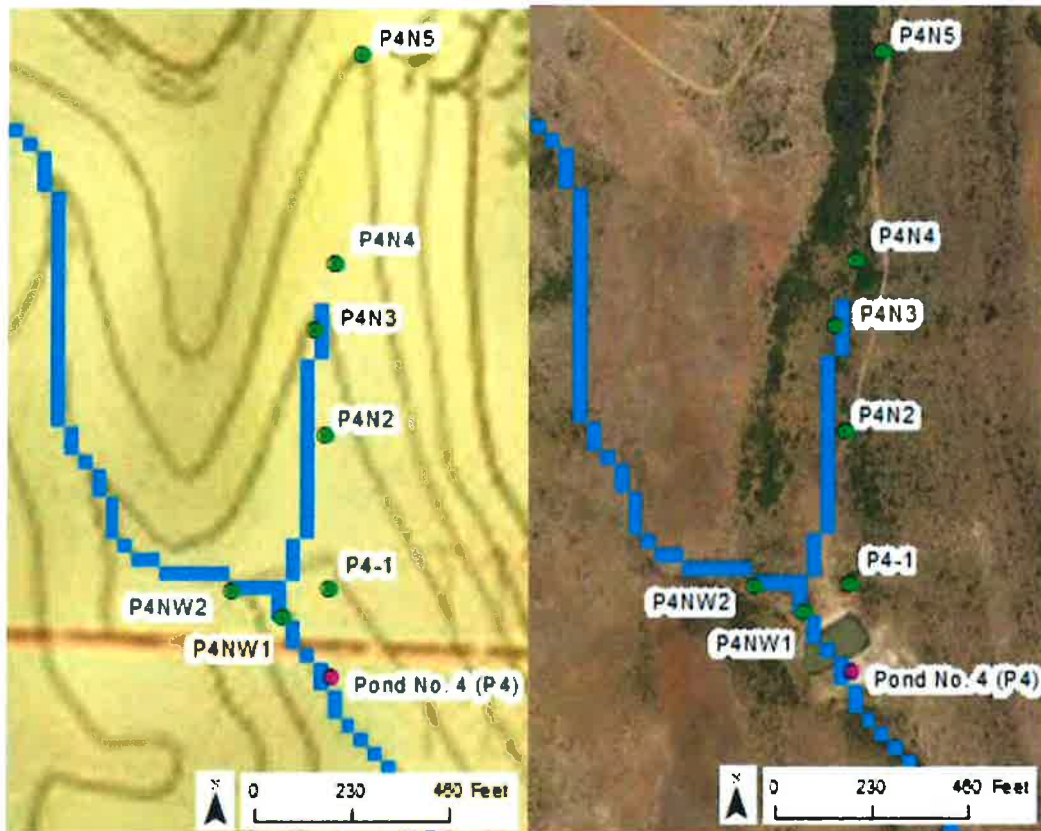


Figure 7: Pond No. 4 along with corresponding stream channel sites visited; topographic (left) and 2013 NAIP aerial image (right).



**Photo 1: Pond No. 1 reservoir; upstream basin (bottom left), and downstream drainage (upper right).**



**Photo 2: Pond No. 1 upstream slope of earthen embankment; note high water mark.**



Photo 3: Photos captured at sites along Pond No. 1 stream channel as illustrated in Figure 5; see Table 1 for corresponding site observations.



**Photo 4: Pond No. 2 reservoir; upstream basin (bottom left), and downstream drainage (upper right).**



**Photo 5: Pond No. 2 upstream slope of earthen embankment; note high water mark.**

Location P2N1 – Water Flowing



Location P2N1 – Water Flowing



Location P2N2 – Water Flowing



Location P2N2 – Water Flowing



Location P2N3 – Water Flowing



Location P2N3 – Water Flowing



Location P2N4 – Water Flowing



Location P2N5 – Water Flowing



Photo 6: Photos captured at sites along Pond No. 2 stream channel as illustrated in Figure 5; see Table 2 for corresponding site observations.



**Photo 7: Pond No. 3 reservoir, upstream basin (bottom left); upstream slope of earthen embankment, note high water mark. (upper right).**



**Photo 8: Pond No. 3 downstream drainage (bottom left), note high water mark; downstream channel at location P3DS.**

Pond No. 3 Spillway Entrance



Pond No. 3 Spillway Downstream View



Location P3N1



Location P3N1



Location P3N2



Location P3N3



Location P3N4 – Standing Water



Location P3HW – Saturated Ground

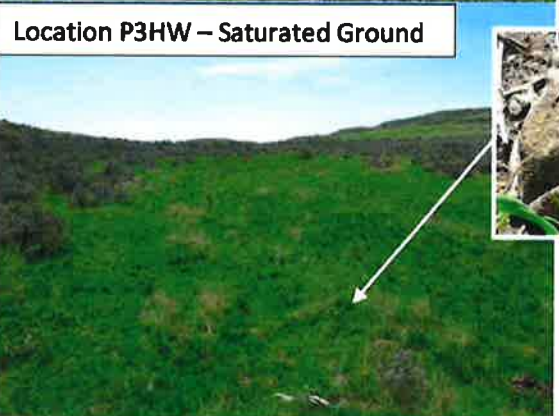


Photo 9: Photos captured at Pond No. 3 and sites along the stream channel as illustrated in Figure 6, see Table 3 for corresponding site observations.; note aquatic wildlife.



**Photo 10: Pond No. 4 reservoir; upstream basin (bottom left), and downstream drainage (upper right).**



**Photo 11: Pond No 4 spillway.**

Pond No. 4 Spillway DS View – Flowing



Pond No. 4 Spillway – Water Flowing



NW Inlet Channel



Location P4NW1



Location P4NW2



Location P4NW2



Photo 12: Photos captured at Pond No. 4 and sites along the northwest stream channel as illustrated in Figure 7; see Table 4 for corresponding site observations.



Photo 13: Photos captured at sites along the Pond No. 4 north stream channel as illustrated in Figure 7; see Table 4 for corresponding site observations.

Table 1: Observations and data collected at Pond No. 1 and corresponding stream channel.

| Location   | Distance Upstream from Pond 1 Embankment | Notes                                                                                                                                                                                                                                                                                                  |
|------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pond No. 1 | ---                                      | <ul style="list-style-type: none"> <li>- Pond pool level ~3 feet below spillway crest.</li> <li>- High water mark on upstream slope suggests spillway was recently flowing water downstream.</li> <li>- Spillway channel has fluvial erosion and debris from recent flows.</li> </ul>                  |
| P1N1       | 80 ft                                    | <ul style="list-style-type: none"> <li>- Just upstream of Pond No. 1</li> <li>- Dry channel; depressed grasses covered in silt and moss suggests recent flows.</li> </ul>                                                                                                                              |
| P1N2       | 400 ft                                   | <ul style="list-style-type: none"> <li>- Dry channel, 1-2 feet wide; depressed grasses covered in silt and moss suggests recent flows.</li> </ul>                                                                                                                                                      |
| P1N4SPR    | 650 ft                                   | <ul style="list-style-type: none"> <li>- Water flowing in channel (Spring); ~0.5 feet wide and ~1 gpm (visual estimate).</li> <li>- Bottom most point of the ~250 feet channel stretch (between P1N4SPR and P1N5SPR) with flowing water, mixed with couple areas where flow is subsurface.</li> </ul>  |
| P1N5SPR    | 900 ft                                   | <ul style="list-style-type: none"> <li>- Spring source.</li> <li>- Water flowing in channel, but low flow rate (near stagnant); ~0.5 feet wide.</li> <li>- Upper most point (source) of the ~250 feet channel stretch with flowing water, mixed with couple areas where flow is subsurface.</li> </ul> |

Table 2: Observations and data collected at Pond No. 2 and corresponding stream channel.

| Location   | Distance Upstream from Pond 2 Embankment | Notes                                                                                                                                                                                                                                                                                                                                        |
|------------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pond No. 2 | ---                                      | <ul style="list-style-type: none"> <li>- Pond pool level ~0.5 feet below spillway crest.</li> <li>- High water mark on upstream slope suggests spillway was recently flowing water downstream.</li> <li>- Spillway channel has fluvial erosion and debris from recent flows.</li> </ul>                                                      |
| P2N1       | 230 ft                                   | <ul style="list-style-type: none"> <li>- Small well defined stream channel flowing ~1 gpm (visual estimate).</li> <li>- Stream channel ~1.5 feet wide.</li> </ul>                                                                                                                                                                            |
| P2N2       | 300 ft                                   | <ul style="list-style-type: none"> <li>- Small well defined stream channel flowing ~2 gpm (visual estimate).</li> <li>- Stream channel ~1.5 feet wide.</li> </ul>                                                                                                                                                                            |
| P2N3       | 500 ft                                   | <ul style="list-style-type: none"> <li>- Small well defined stream channel flowing ~2 gpm (visual estimate).</li> <li>- Stream channel ~1 foot wide.</li> </ul>                                                                                                                                                                              |
| P2N4       | 900 ft                                   | <ul style="list-style-type: none"> <li>- Small well defined stream channel flowing ~3 gpm (visual estimate).</li> <li>- Stream channel ~1.5 feet wide.</li> <li>- Grass and shrubs along edges of channel.</li> </ul>                                                                                                                        |
| P2N5       | 950 ft                                   | <ul style="list-style-type: none"> <li>- Stagnant pooling water in stream channel.</li> <li>- Stream channel ~1 foot wide.</li> <li>- Between this point and around 100 feet upstream, the stream channel is dry; note water is flowing in channel from toe of Pond No. 1 embankment to a point around 100 feet upstream of P2N5.</li> </ul> |

Table 3: Observations and data collected at Pond No. 3 and corresponding stream channel.

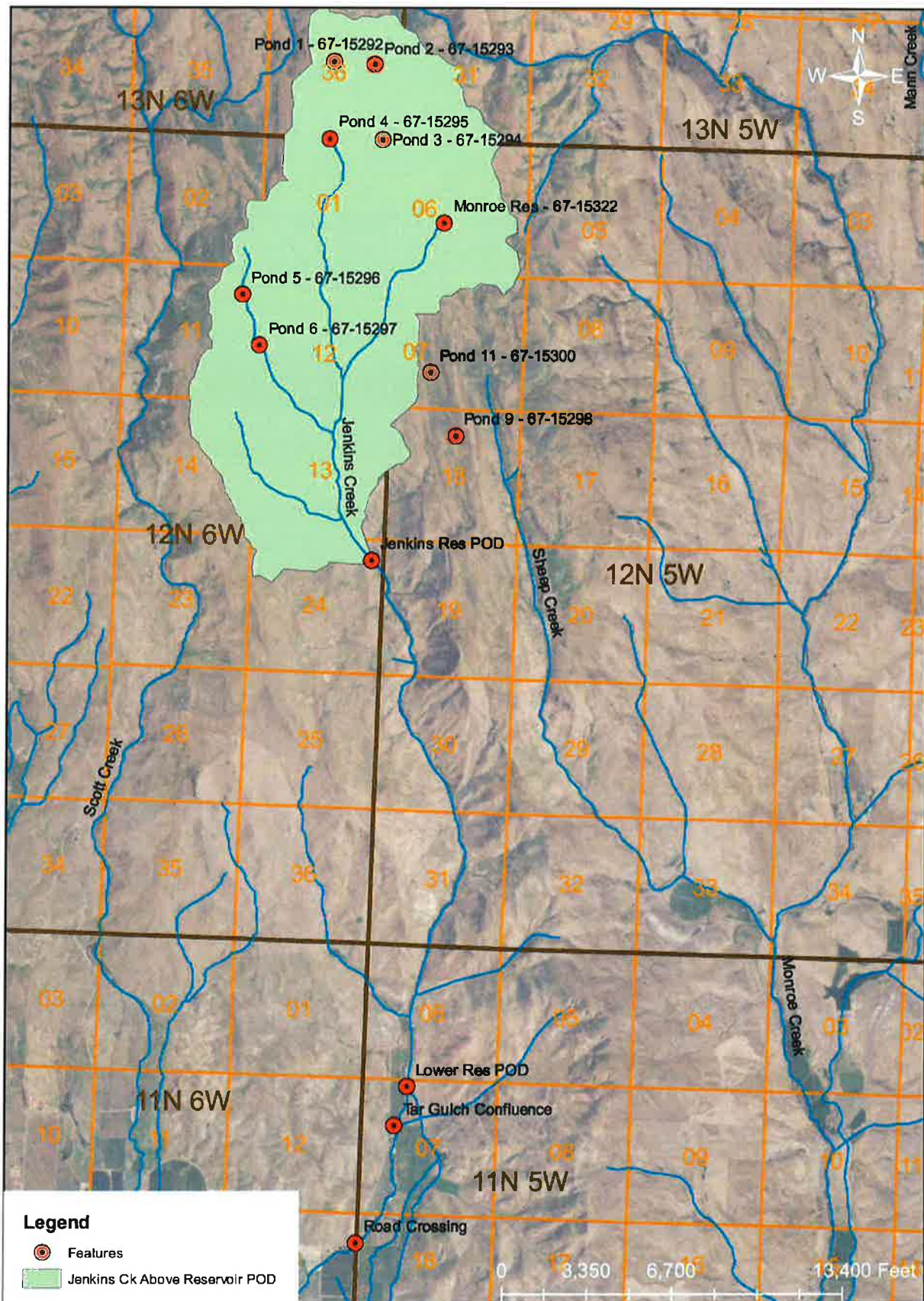
| Location   | Distance Upstream from Pond 3 Embankment | Notes                                                                                                                                                                                                                  |
|------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pond No. 3 | ---                                      | -Pond pool level ~0.5 feet below spillway crest.<br>-High water mark on upstream slope suggests spillway was recently flowing water downstream.<br>-Spillway channel has fluvial erosion and debris from recent flows. |
| P3DS       | ---                                      | - Located ~360 feet downstream of Pond No. 3.<br>- Stream channel is dry, ~6-8 feet wide.<br>- Erosion in channel suggests recent flows.                                                                               |
| P3N1       | 250 ft                                   | - Location at inlet to Pond No. 3.<br>- Visually appears to be point at which basin drains into Pond No. 3 (high water table or spring input).                                                                         |
| P3N2       | 410 ft                                   | - Channel is relatively wide, ~10 feet wide.<br>- Channel base is damp.                                                                                                                                                |
| P3N3       | 460 ft                                   | - Channel is relatively wide, ~10 feet wide.<br>- Fluvial erosion along channel, suggests recent flows.<br>- Channel base is damp.                                                                                     |
| P3N4       | 580 ft                                   | - Stagnant water in channel, ~1.5 feet wide.<br>- Green grass growing in channel.                                                                                                                                      |
| P3HW       | 1000 ft                                  | - Area is well saturated, no visual channel (headwaters).<br>- Frog was jumping around in mud/grass.                                                                                                                   |

Table 4: Observations and data collected at Pond No. 4 and corresponding stream channels.

| Location   | Distance Upstream from Pond 4 Embankment | Notes                                                                                                                                                                                                                                            |
|------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pond No. 4 | ---                                      | -Pond at full pool and spilling water.<br>-Spillway flowing ~5-10 gpm (visual estimate).<br>- Spillway channel is well defined and has clearly passed a significant amount of water recently.                                                    |
| P4NW1      | 190 ft                                   | - NW Inlet channel/sub-basin to Pond No. 4.<br>- Uppermost point with surface water from NW inlet channel.<br>- No visual flow, water is stagnant.<br>- Channel above this point is saturated.                                                   |
| P4NW2      | 310 ft                                   | - NW Inlet channel/sub-basin to Pond No. 4.<br>- Depressed grass, debris, and fluvial erosion in channel suggests recent flows.<br>- Channel ~1-2 feet wide, scoured from aparent recent flows.                                                  |
| P4N1       | 220 ft                                   | - Small stream channel flowing ~3 gpm (visual estimate).<br>- Stream channel ~3-4 feet wide.                                                                                                                                                     |
| P4N2       | 600 ft                                   | - Small stream channel flowing ~3 gpm (visual estimate).<br>- Stream channel ~1-2 feet wide.<br>- Bitterbrush and sagebrush along edges of stream channel.                                                                                       |
| P4N3       | 850 ft                                   | - Low flow in stream, near stagnant.<br>- Stream channel ~1-1.5 feet wide.<br>- Bitterbrush and sagebrush along edges of stream channel.<br>- Immediately upstream of this point, the channel ground is saturated.                               |
| P4N4       | 1000 ft                                  | - Base of channel is saturated.<br>- Aspen trees established along the edge of the stream channel; Aspen trees continue well upstream of this point along the channel.<br>- immediately upstream of this point, the channel ground is saturated. |
| P4N5       | 1580 ft                                  | - Low flow in stream channel, ~1 gpm (visual estimate).<br>- Stream channel ~1 foot wide.<br>- Aspen trees established along the edge of the stream channel; Note aspen trees established along stream channel between P4N4 and P4N5.            |

**Exhibit 5**

# Location of Jenkins Creek Basin Features

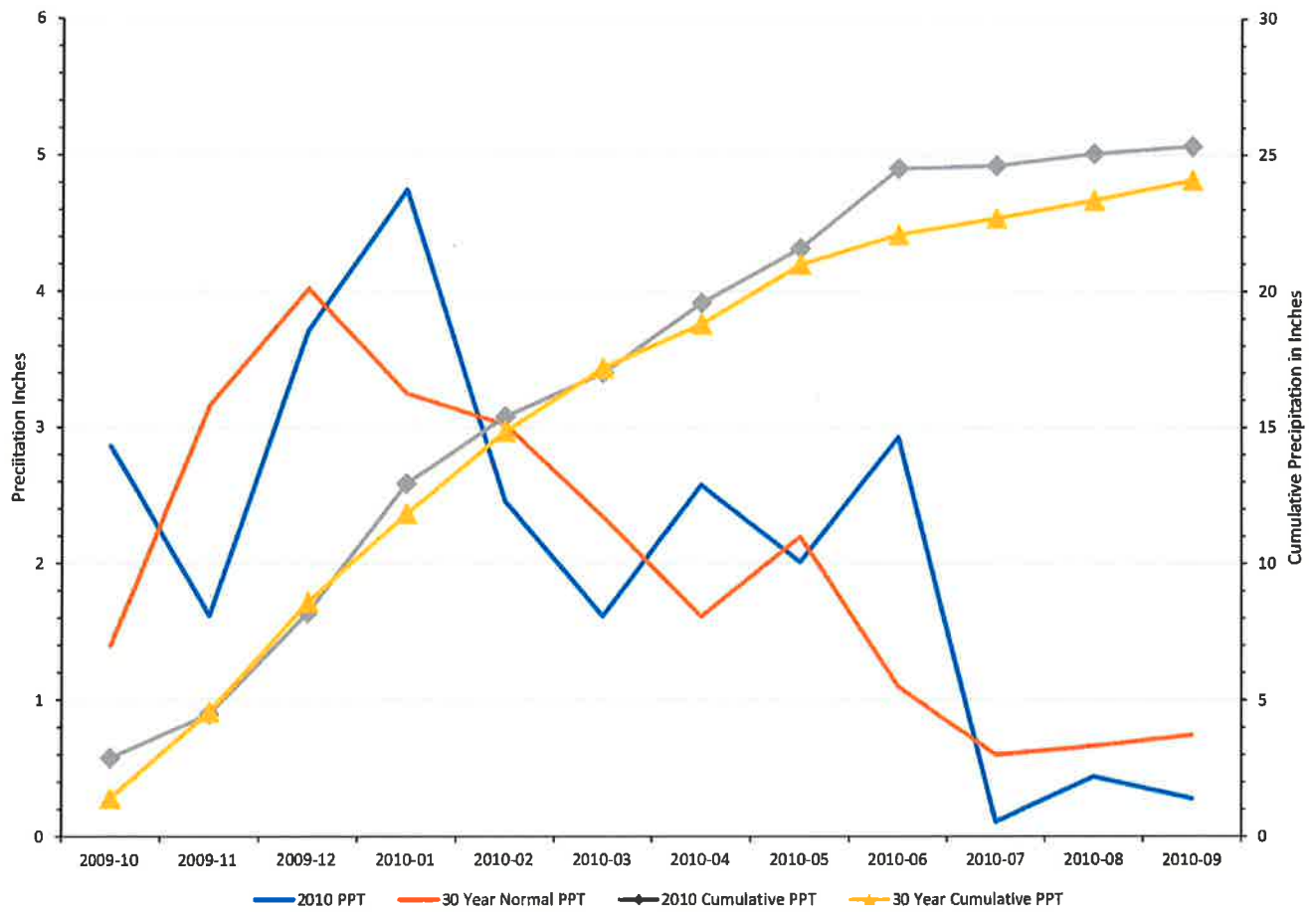


Based on 2017 NAIP Photography

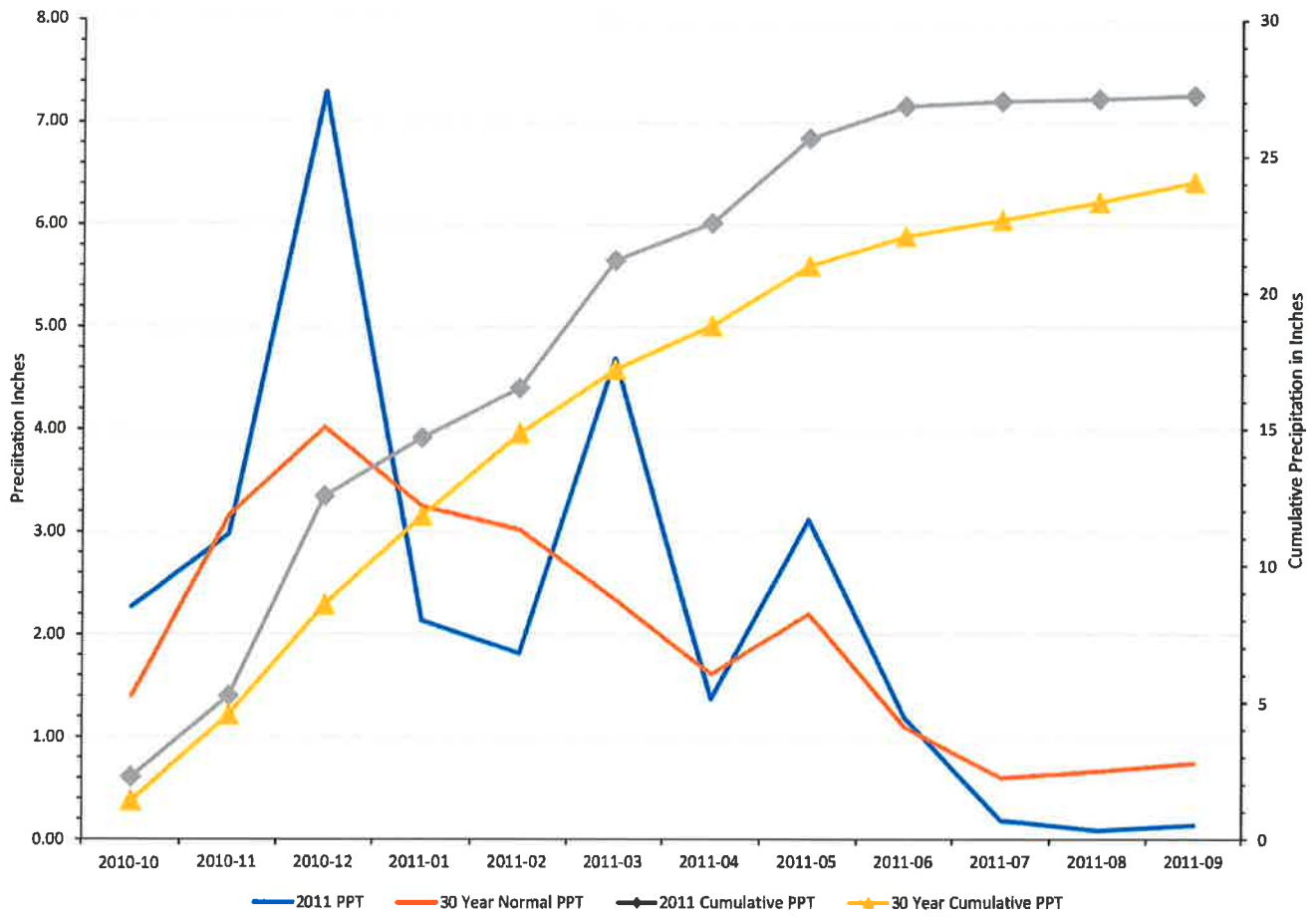
Prepared by ERO 3-2019

**Exhibit 6**

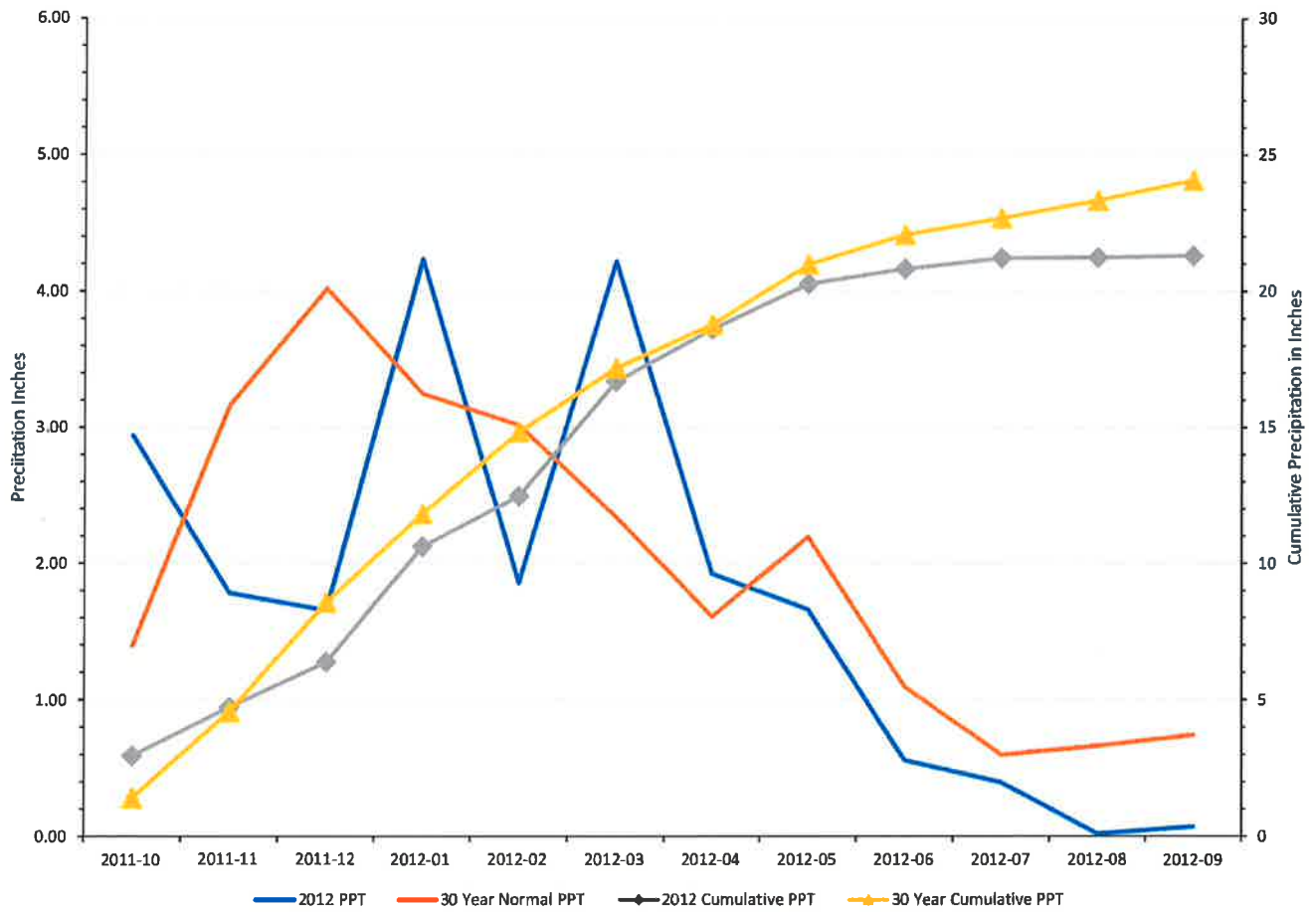
WY 2010 and 30 Yr Normal Composite



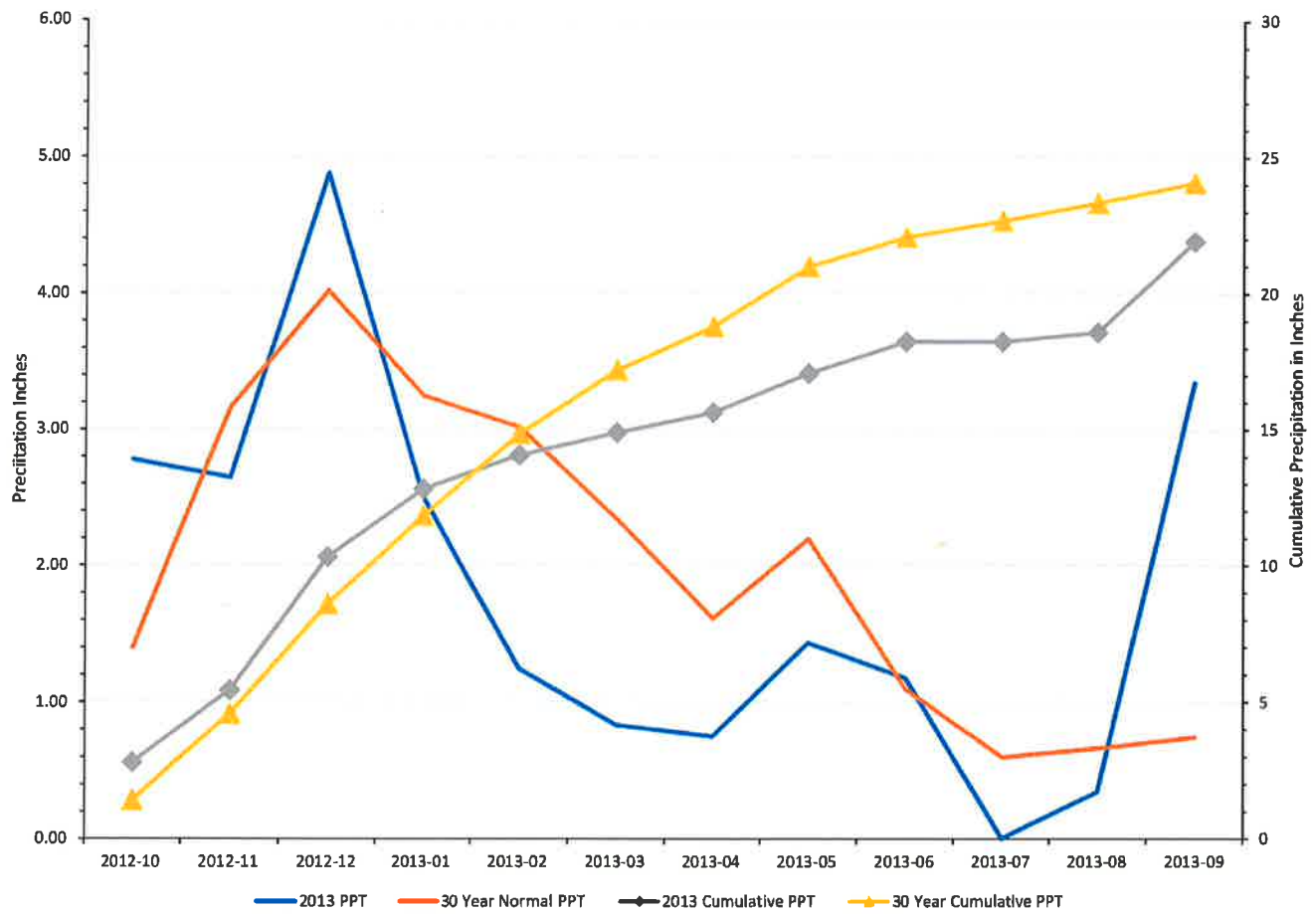
WY 2011 and 30 Yr Normal Composite



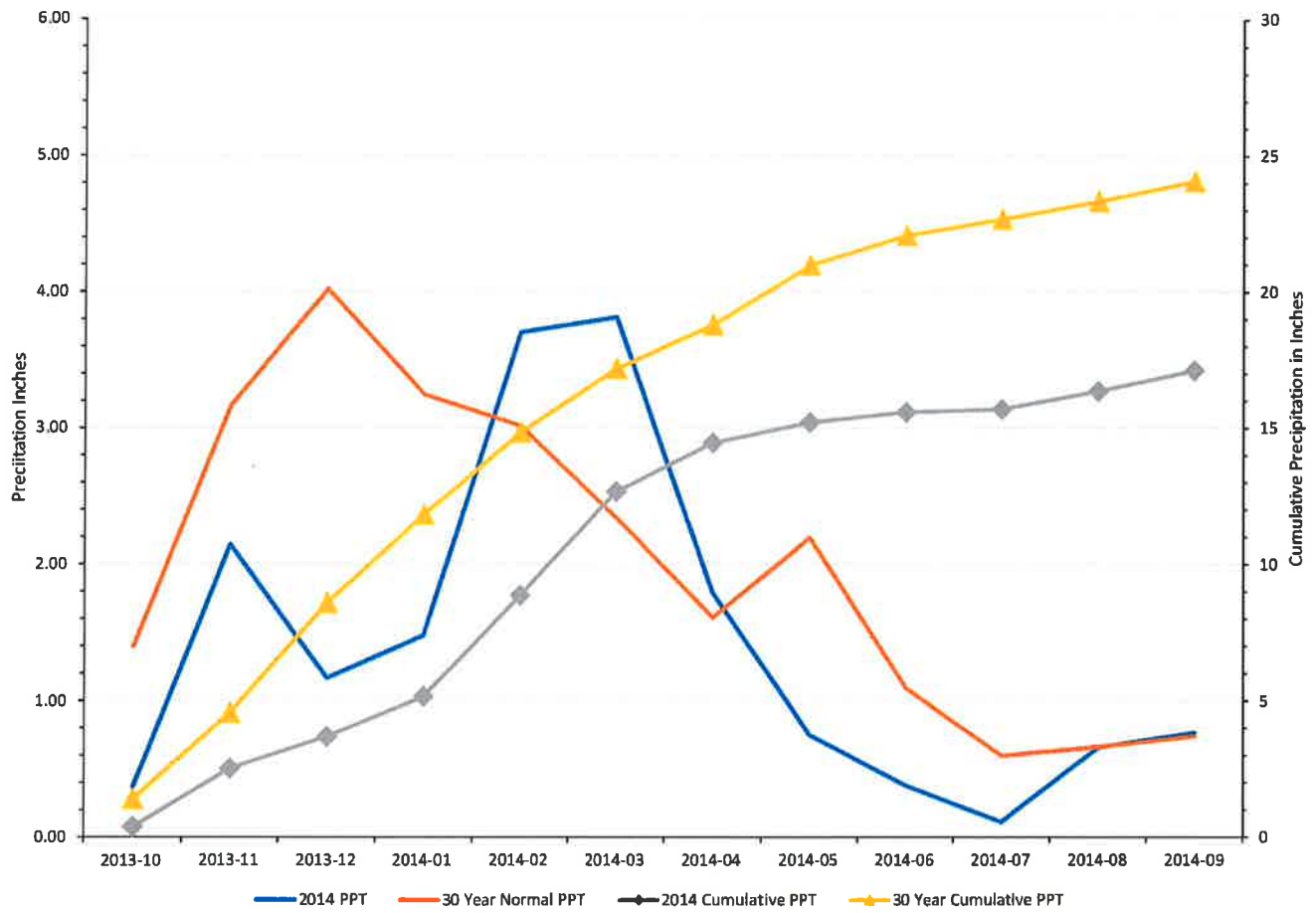
WY 2012 and 30 Yr Normal Composite



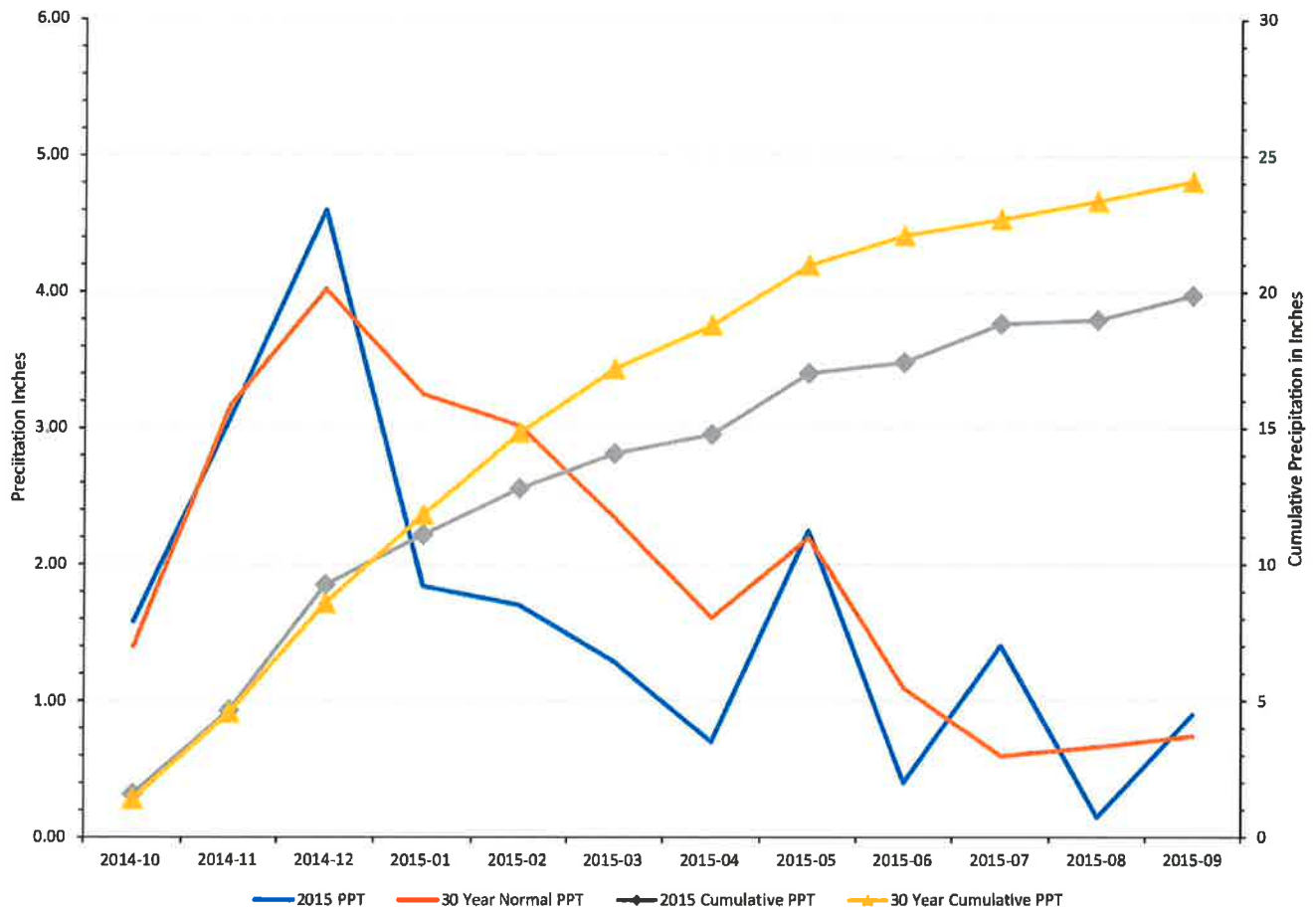
WY 2013 and 30 Yr Normal Composite



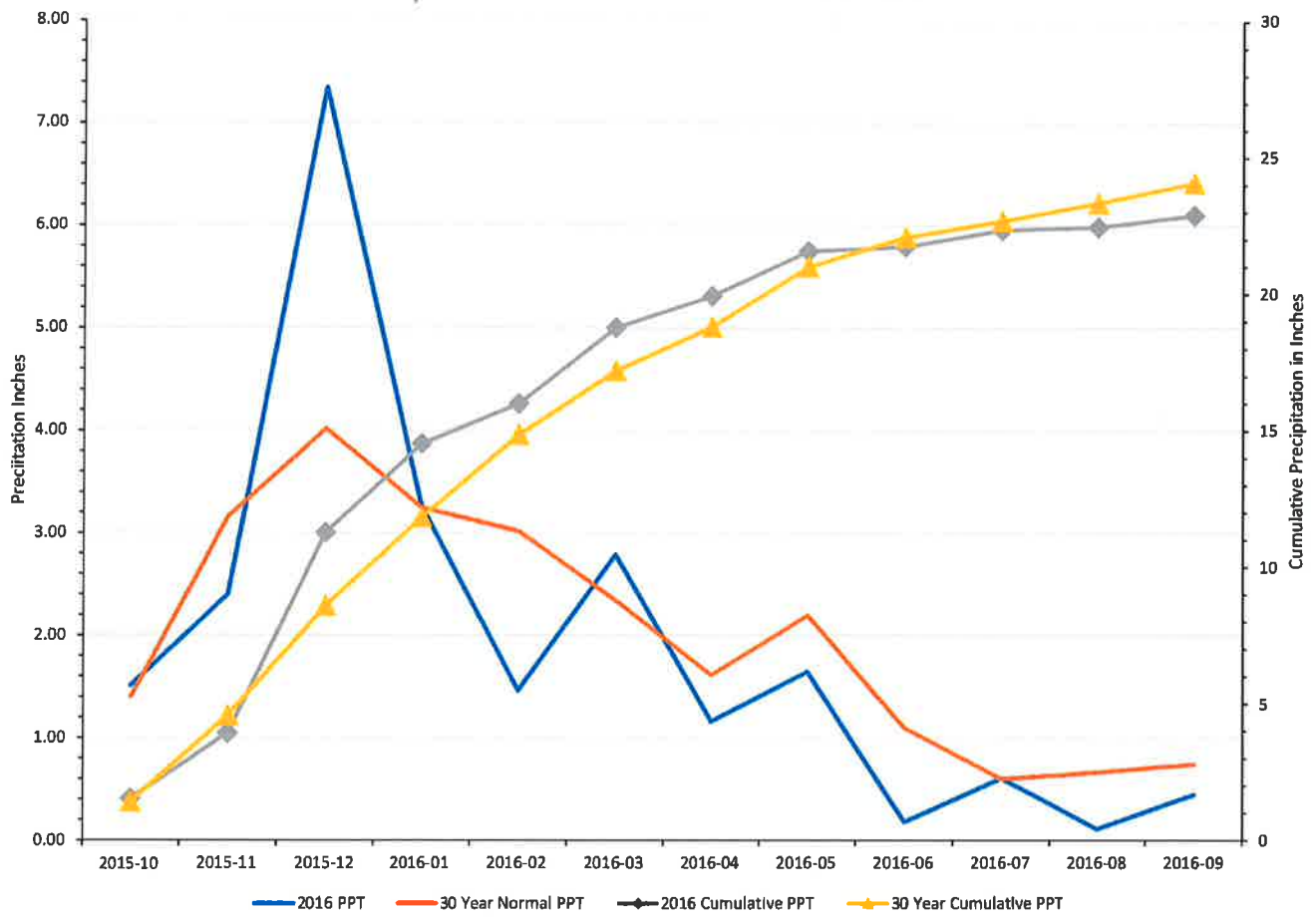
WY 2014 and 30 Yr Normal Composite



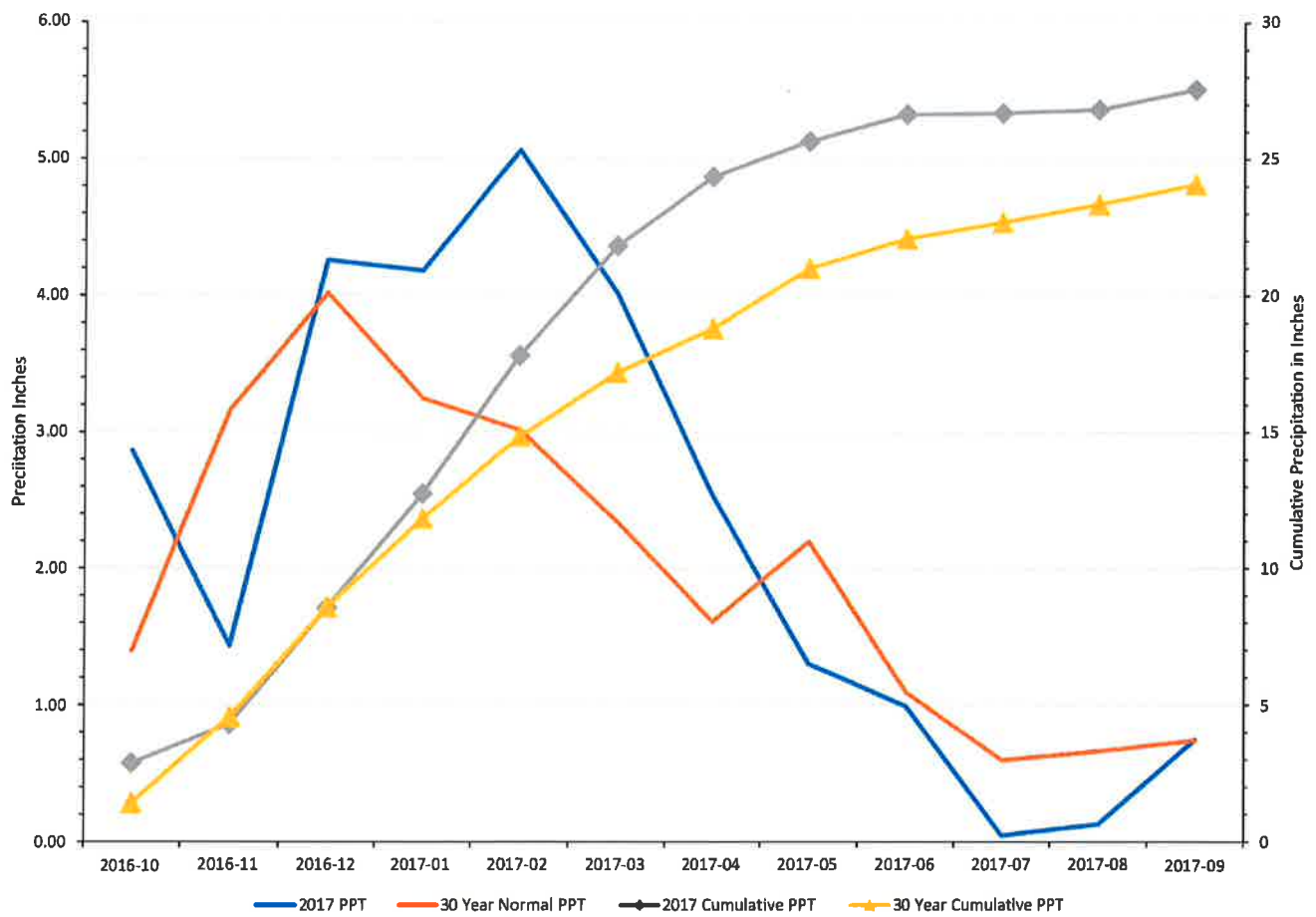
WY 2015 and 30 Yr Normal Composite



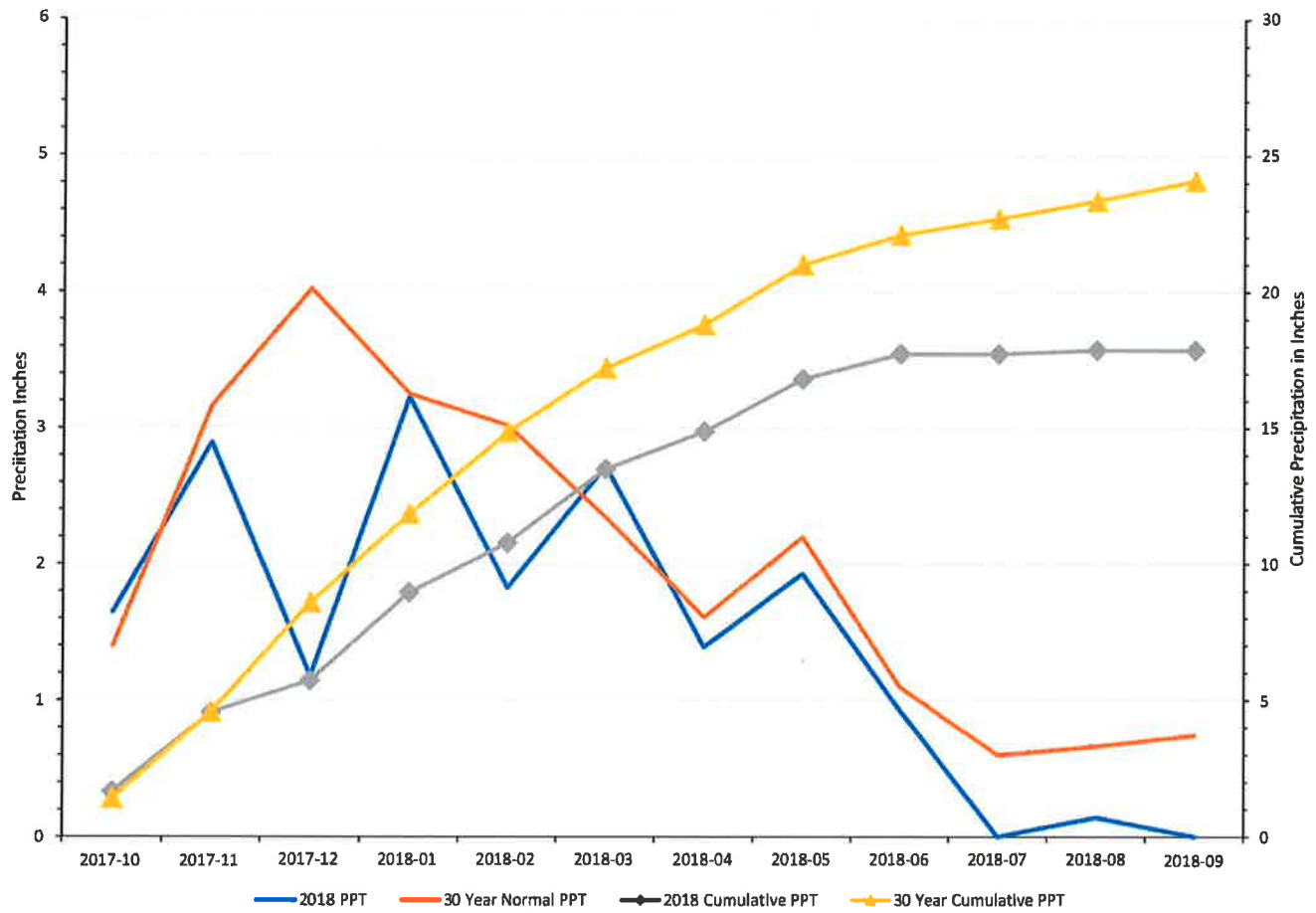
WY 2016 and 30 Yr Normal Composite



WY 2017 and 30 Yr Normal Composite



WY 2018 and 30 Yr Normal Composite



30 Year Normal and 2019

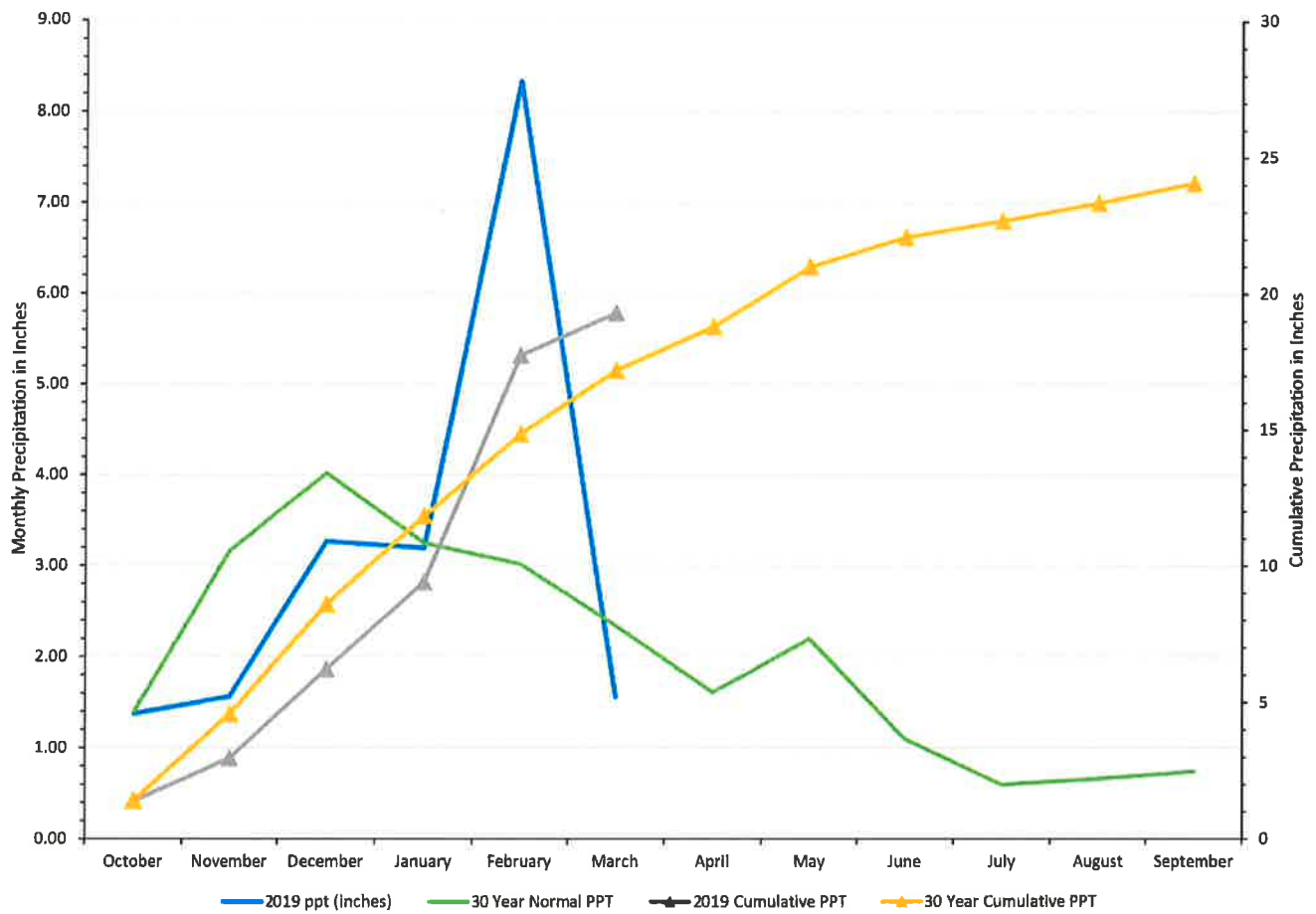


**Exhibit 7**



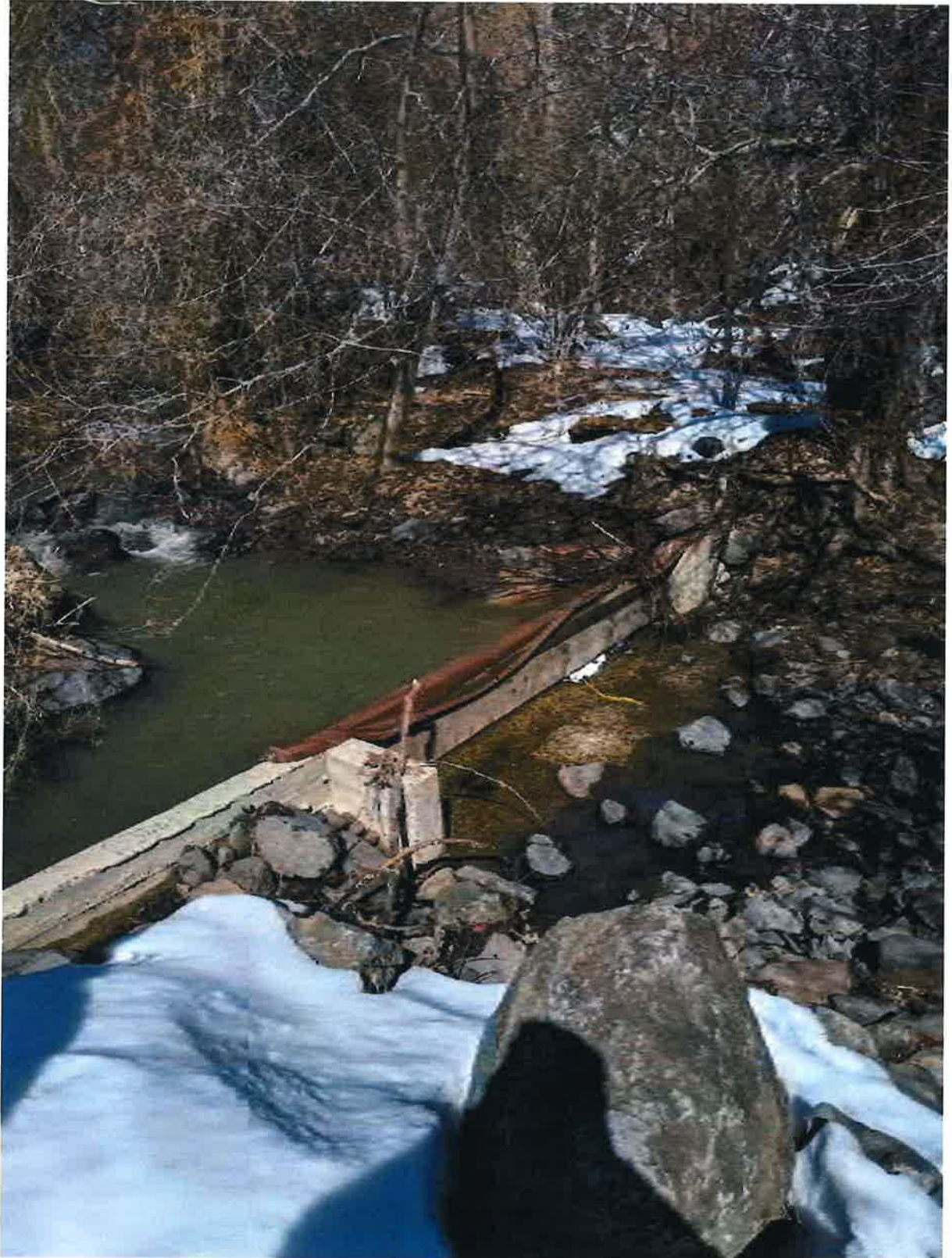
Jenkins Creek Reservoir Diversion 3-9-2019

**Exhibit 8**



Jenkins Creek Road Crossing 3-11-2019

**Exhibit 9**



Jenkins Creek Reservoir Diversion 3-11-2019