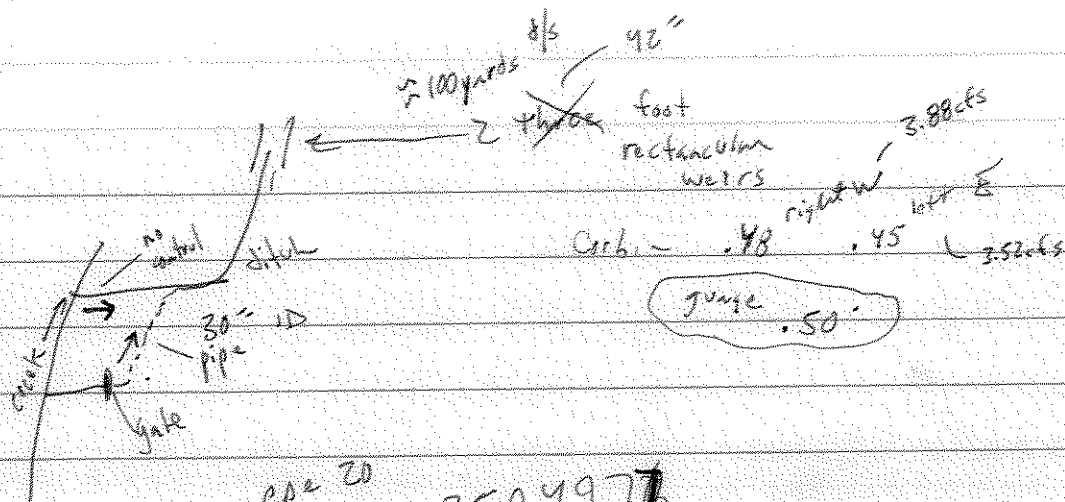


9/9/2004
 Muldoon Creek
 Field Notes
 P. SKINNER
 C. KNOWLES

ABC



epe 20

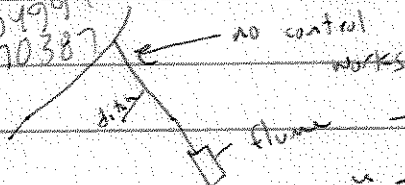
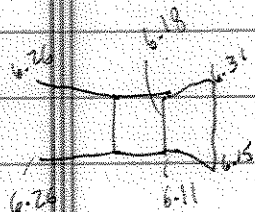
2504977

1370397

tag A0011841

Clark epe 27

2504994
 1370387



Parshall Flume
 30" throat width

23' on gauge

Peterson 1' parshall flume

tag @ flume
 A0011842

Corbin → .95'

3.7 cfs

epe 23' gfs reading @ diversion

2504730

1369784

lockable?

Peterson lower lockable?

1' parshall flume (apparently once used for a bridge for a tractor dam @ Corby)

A0011843 @ flume 16

epe 26

2504316

13689659

dry

gauge bent

ABC lower ditch

no control works

epe 23

2503069 PD
1367798

NE NW
16
2N
21E

d/s into a swamp

md - cipoletti weir
2.5'

epe 14

2502770
1367679

Carbin .25'
gage .25'

1.05 cfs

37-1192

new? ABC lower lower 1 MD

PD epe 26 58

2502660

250 1362660

58
5

2N
21E

16
NNW

2.5' cipoletti dug

A0011895

dark middle
no landmarks
no measuring
device

stream from swamp

beaver dam vs

epe 21

2505159
1371158

ditch

creek

37-1120
37-1140

Clark upper

2.5' parshall flume

A0011846

EPE 20

2505931
1372174

gauge = .22

really ~ .20 y
average

flume
not
level

2 bitum looking
d/s

0.81 cfs

Muldoon
Grading
Associates
middle

EPE 17

2506130

1373862

SE NW
26
3rd ZIE

wooden headgate

EPE 25
13

Muldoon
Grading
Associates
upper

3' wooden rectangular
weir

leaves
and
locks

2506995

1374

20
5

NONE
26
3rd ZIE

u/s of
bridge

flag on control
works

A0011847

Guy Peterson

wooden diversion
works

EPE 22

504 #
A0011848 on
diversion

3' cipoletti weir

.36'

no staff gauge

2.16 cfs

2508849

1375239

SW ZIE
19
SW NW
Lot #2

37-11-43

Muldoon Grazing Association

Lower

ape 16

3' rectangular
wooden weir
need plates

wooden
control
works

2505983

1373184

7:10 pm tag # A0011849
on control works

ABC lower	✓ ABC upper	✓ Clark lower	✓ Jim Peterson upper	✓ Jim Peterson lower	✓ ABC middle
6330	6301	6306	6320	6323	6326
6329	6312	6305 } pm	6318 } pm	6324	6328
6325	6313	6304	6319 } pm	6322 } pm	6327
	6314	6302	6316	6321 } pm	6325
	6315	6303	6317		
	6311	6307			
	6309	6310 } pm			
	6308				
✓ Clark middle	✓ Clark upper	✓ Muldoon Grazing upper	✓ Muldoon Grazing middle	✓ Muldoon Grazing lower	✓ Guy Peterson
6339	6334	6346	6340	6350	6347
6338	6339	6344	6341 } pm	6352 } pm	6348
6337	6338	6343		6351 } pm	
6336	6337	6342		6353	
6335	6335	6345		6354	
6333	6334			6349	
6332	6336				
6331					

MEMORANDUM

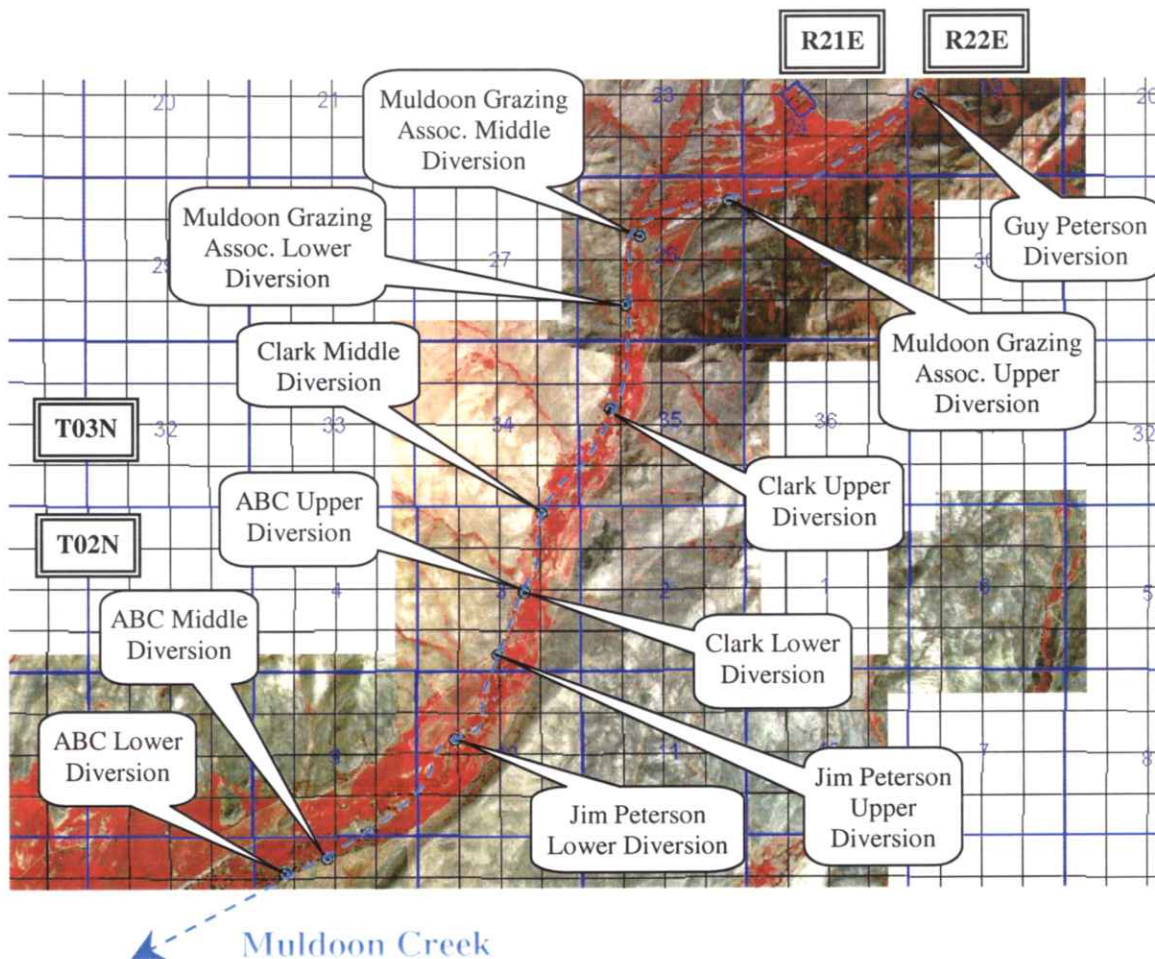
TO: Muldoon Creek Water District (37-O) File

FROM: Corey Skinner

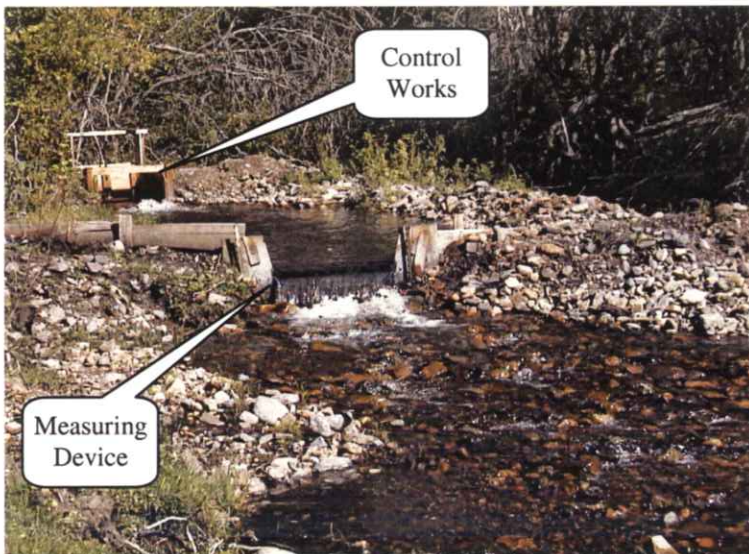
DATE: September 23, 2004

SUBJECT: Field Visit

On September 9th, Corbin Knowles and I visited Muldoon Creek to inventory water diversions and measuring devices in an effort to gather information to assess compliance with the Department's October 2003 order requiring the installation of control works and measuring devices. Corbin and I met Jim Peterson, Water District 37-O water master, and Mr. Peterson proceeded to show Corbin and I around. The various points of diversion were GPSed, some site tags were installed, photos were taken, and some measurements were made. The following documents our observations during our visit...



Guy Peterson Diversion



ABOVE: View looking down Muldoon Creek with control works visible at the head of Guy Peterson's ditch.

LEFT: View looking up Guy Peterson's ditch through the measuring device towards the control works.

GPS coordinate location for point of diversion: 2508844, 1375235 (IDTM coordinates NAD83 projection) Legal Description SWNW (Govt. Lot #2) Section 19 (T03N, R22E). Site Tag #A0011848.

Control works consist of wooden gate structure with wooden gate and metal gate stem. Measuring device consists of a 3.0 foot Cipoletti Weir (metal blade in wood structure). No staff gage was present for the measuring device. Flow through measuring device was measured at 2.16 cfs.

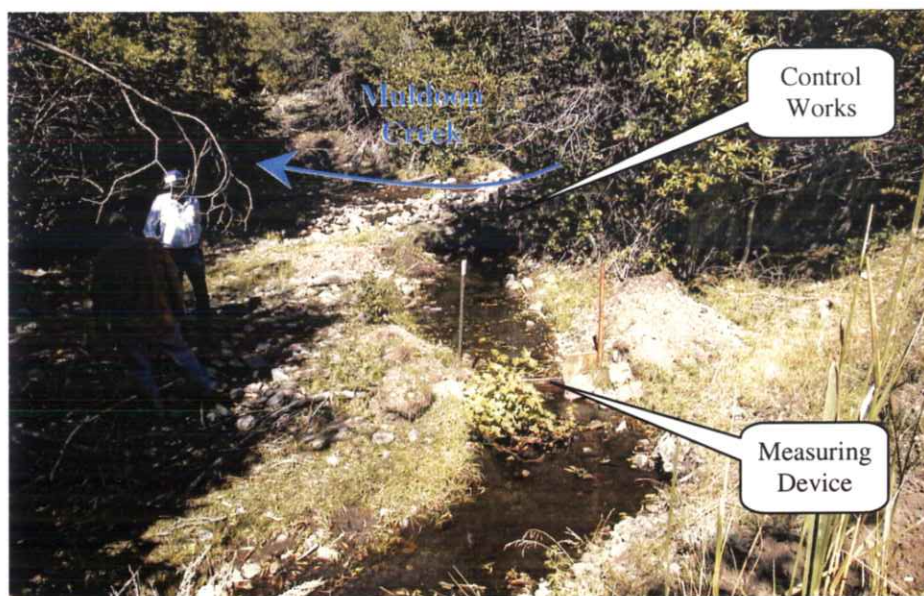
Concerns: Durability of wooden control works and measuring device structure? Lack of staff gage. Guy Peterson's SRBA filing, 37-1143 for 2.8 cfs, identifies point of diversion in Section 24 (T03N, R21E).

Muldoon Grazing Assoc. Upper Diversion



ABOVE: View looking down Muldoon Creek with the Muldoon Grazing Association's upper diversion works visible at the head of their ditch.

BELOW: View from hillside looking down towards the Muldoon Grazing Association's upper diversion works and ditch. Note standing water in ditch, but no flow over the measuring device.



Muldoon Grazing Assoc. Upper Diversion



LEFT: View of wooden control works at the head of the ditch.

BELOW: View of wooden measuring device (rectangular weir). Note lack of a metal weir blade, device leaning downstream, and standing water upstream and downstream (possible leakage?).



GPS coordinate location for point of diversion: 2506995, 1374205 (IDTM coordinates NAD83 projection) Legal Description NENE Section 26 (T03N, R21E). Site Tag #A0011847.

Control works consist of wooden gate structure with wooden gate and metal gate stem. Measuring device consists of a 3.0-foot rectangular weir (no metal blade in wood structure). No staff gage was present for the measuring device. The wooden device was leaning and water may have been leaking around device. No flow measurement was made.

Concerns: Durability of wooden control works and measuring device structure? Lack of staff gage and metal weir plate.

Muldoon Grazing Assoc. Middle Diversion

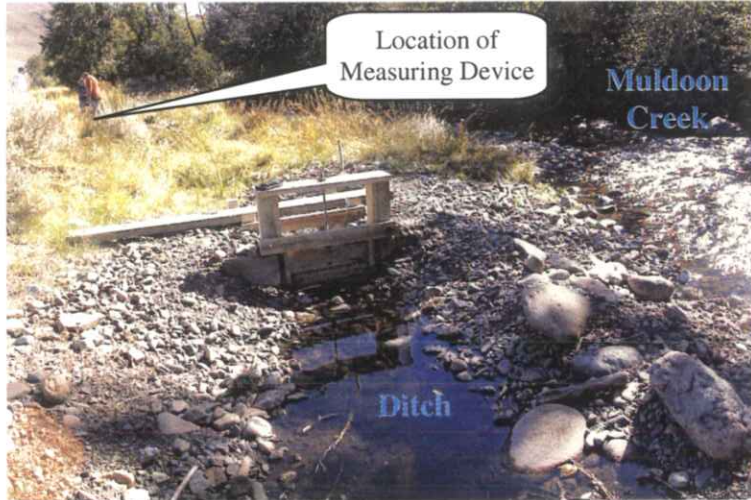


View looking down Muldoon Creek at the head of the Muldoon Grazing Association middle diversion ditch. Note relative height of ditch in relation to the creek, lack of control works, measuring device, and overall appearance that appears to indicate lack of recent use of this diversion.

GPS coordinate location for point of diversion: 2506130, 1373862 (IDTM coordinates NAD83 projection) Legal Description SENW Section 26 (T03N, R21E). No Site Tag # assigned.

Concerns: No control works or measuring device present. Possible lack of use of this particular diversion? Muldoon Grazing Association's SRBA filing, 37-2751 for 5.33 cfs, appears to identify this point of diversion in the SWNE of Section 26 (T03N, R21E).

Muldoon Grazing Assoc. Lower Diversion



LEFT: View looking down Muldoon Creek showing the diversion works for the Muldoon Grazing Association Lower Diversion Ditch.

BELOW: View of wooden measuring device (rectangular weir). Note lack of a metal weir blade, device leaning downstream, and standing water upstream and downstream (possible leakage?).



GPS coordinate location for point of diversion: 2505983, 1373184 (IDTM coordinates NAD83 projection) Legal Description NWSESW Section 26 (T03N, R21E). Site Tag #A0011849.

Control works consist of wooden gate structure with wooden gate and metal gate stem. Measuring device consists of a 3.0-foot rectangular weir (no metal blade in wood structure). No staff gage was present for the measuring device.

Concerns: Durability of wooden control works and measuring device structure? Lack of staff gage and metal weir plate. Muldoon Grazing Association's SRBA filing, 37-2751 for 5.33 cfs, appears to identify this point of diversion in the NENW of Section 35 (T03N, R21E).

Clark Upper Diversion



ABOVE: View looking down Muldoon Creek showing the diversion works for the Upper Clark Diversion.

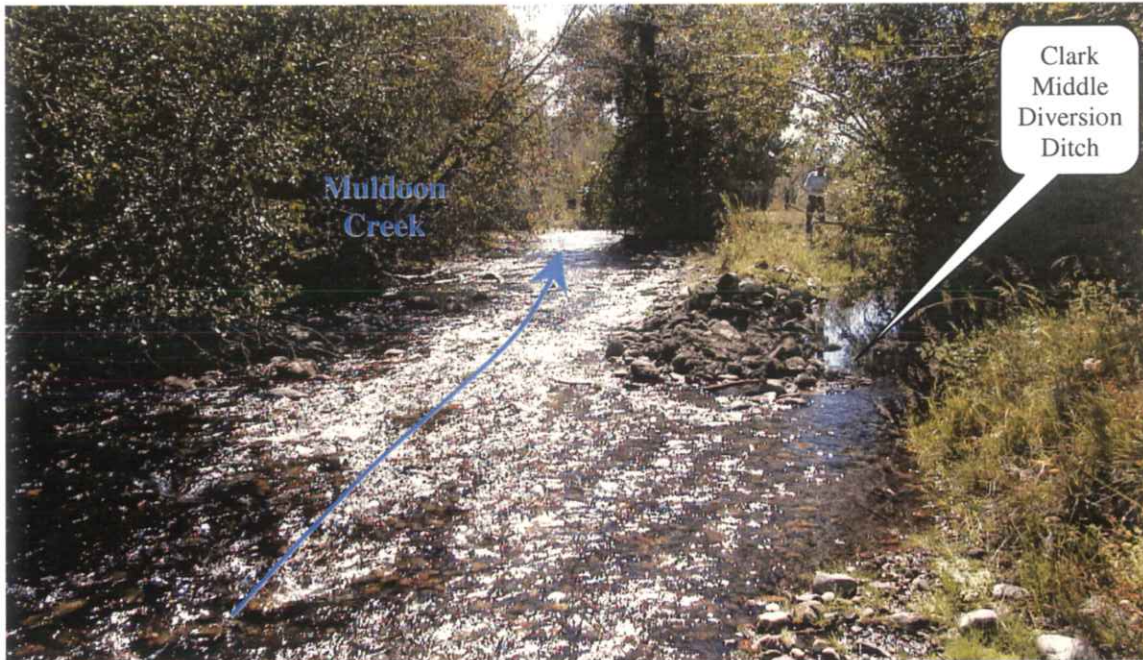
LEFT: View of the measuring device (2.5 ft Parshall flume) on the Clark Upper Diversion Ditch.

GPS coordinate location for point of diversion: 2505831, 1372174 (IDTM coordinates NAD83 projection) Legal Description SWNW Section 35 (T03N, R21E). Site Tag #A0011846.

Diversion works consist of metal slide gate structure, but gate was not on the structure. Measuring device consists of a 2.5 foot Parshall flume. Converging section of the flume was not level. Flow through measuring device was measured at 0.81cfs. Device appears large for small flows later in summer. It may be possible to install a weir just downstream of the diversion to measure smaller flows.

Concerns: Lack of gate on diversion works. Accuracy of the device? Flume may be too large for measurements at lower flows (< 0.20 ft of head). Clark's SRBA filings, 37-1120 and 37-1140, for 7.3 total cfs?, identifies point of diversion in NSW Section 35 (T03N, R21E).

Clark Middle Diversion



View looking down Muldoon Creek at the head of the Clark middle diversion ditch. Note lack of control works. In addition, no measuring device was present on this particular ditch.

GPS coordinate location for point of diversion: 2505159, 1371158 (IDTM coordinates NAD83 projection) Legal Description NWNENE (Govt. Lot #1) Section 3 (T02N, R21E). No Site Tag # assigned.

Concerns: No control works or measuring device present. Clark's SRBA filings, 37-1120 and 37-1140, for 7.3 total cfs?, identifies point of diversion in NWSW Section 35 (T03N, R21E).

Clark Lower Diversion



ABOVE: View looking down Muldoon Creek with Clark Lower Diversion Ditch shown. Note lack of control works and irrigation ditch, off of the main diversion ditch, located upstream of the flume.

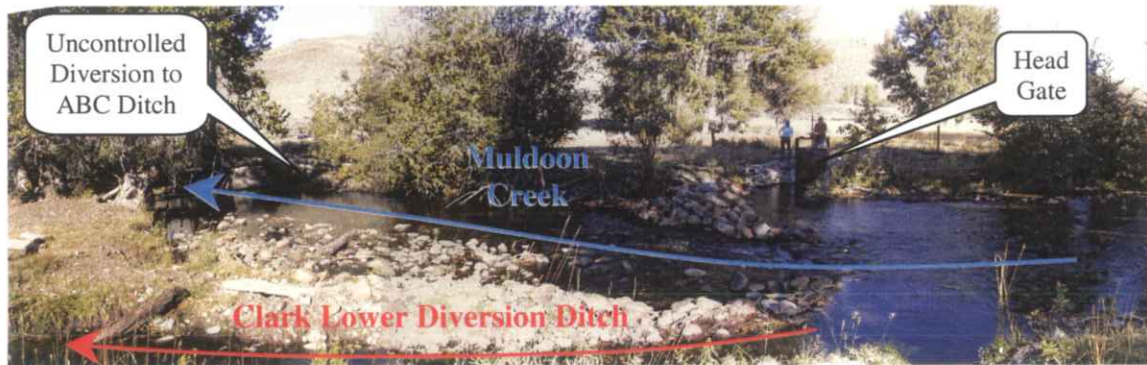
LEFT: View of Parshall flume on the Clark Lower Diversion Ditch. Note flow around the flume and overall condition, and installation of the flume. The survey revealed that the converging section slopes up, as you move downstream, and the left side is actually lower than the downstream end of the flume.

GPS coordinate location for point of diversion: 2504994, 1370387 (IDTM coordinates NAD83 projection) Legal Description NWSE Section 3 (T02N, R21E). No Site Tag # assigned.

No diversion control works are present. Measuring device consists of a 2.5 foot Parshall flume. A level survey of the flume reveals that part of the converging (upstream) section is actually lower than the downstream end of the flume. In addition, the converging section was 0.16 feet lower on the right side than the left side. Quite a bit of water was flowing around the flume. An irrigation ditch, off of the main diversion ditch, was also located upstream of the flume. The gage on the flume measured 0.23 feet of head, but the problems with the device did not provide an accurate measurement of flow through the ditch.

Concerns: Lack of diversion control works. Accuracy of the device? Flume may be too large for measurements at lower flows (< 0.20 ft of head). Water in ditch upstream of device will not be measured with current flume location. Clark's SRBA filings, 37-1120 and 37-1140, for 7.3 total cfs?, identifies point of diversion in NWSW Section 35 (T03N, R21E).

ABC Agra Upper Diversion



ABOVE: View looking across Muldoon Creek towards the ABC Agra Upper Diversion(s). Note a head gate has been installed, but water from Muldoon Creek still enters the diversion ditch via an uncontrolled diversion just downstream of the recently installed head gate. The head of the Clark Lower Diversion Ditch is visible in the foreground of this view.



LEFT: View of the recently installed head gate for the ABC Agra Upper Diversion. This head gate is tied into a buried 30" diameter pipeline that discharges into the upper diversion ditch.

BELOW: View looking back up the ABC Agra Upper Diversion Ditch showing the location of the discharge from the pipeline from the head gate. Also note uncontrolled water from Muldoon Creek entering the ditch.



ABC Agra Upper Diversion



LEFT: View of measuring device, two 42" rectangular weirs, in ABC Agra Upper Diversion Ditch.

BELOW: Close up view of measuring device showing presence of only one staff gage, but weirs are not at the same elevation.

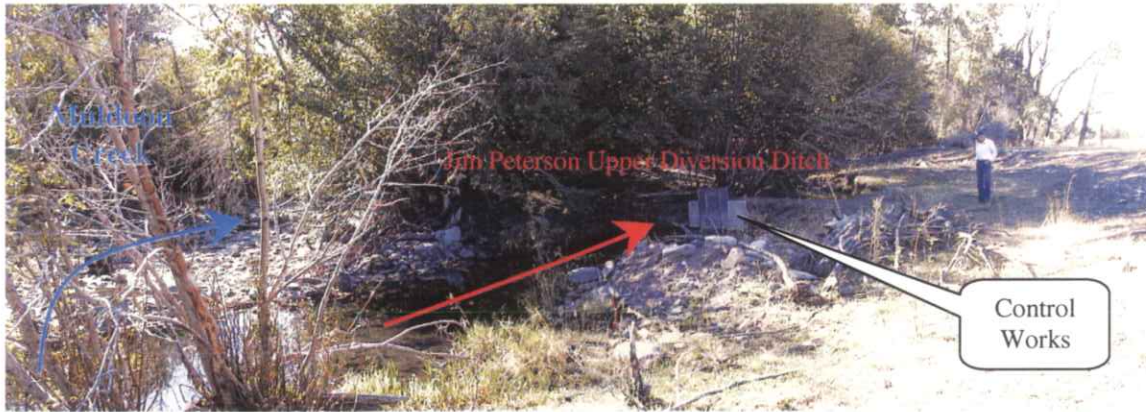


GPS coordinate location for point of diversion: 2504977, 1370397 (IDTM coordinates NAD83 projection) Legal Description NWSE Section 3 (T02N, R21E). Site Tag #A0011841.

Diversion works consist of metal screw gate structure. However, another uncontrolled diversion also enters the ditch. Measuring device consists of two 42-inch rectangular weirs placed in parallel. One staff gage was present for one of the weirs, but the two weirs were not at the same elevation. Flow through left (east) weir was measured at 3.52 cfs and flow through right (west) weir was measured at 3.88 cfs.

Concerns: Lack of control on all of the water entering the ditch. Measuring device needs a staff gage on both weirs. ABC Agra's SRBA filings identify point of diversion in SWNE Section 3 (T02N, R21E).

Jim Peterson Upper Diversion



ABOVE: View looking down Muldoon Creek showing the diversion location for the head of Jim Peterson's upper diversion ditch.

LEFT: View of one foot Parshall flume installed in Jim Peterson's upper diversion ditch.

GPS coordinate location for point of diversion: 2504730, 1369784 (IDTM coordinates NAD83 projection) Legal Description SESW Section 3 (T02N, R21E). Note that diversion point is located near the $\frac{1}{4}$ line. Site Tag #A0011842.

Control works consist of a concrete structure with metal slide gate. Measuring device consists of a 1.0 foot Parshall Flume. The staff gage on the flume was bent and read 0.84 feet, but the actual head reading was 0.95 feet. Flow through measuring device according to the gage was 3.07 cfs, but the actual flow was 3.70 cfs.

Concerns: Bent staff gage. Jim Peterson's SRBA filings, 37-99 and 37-1141, have claimant ownership issues (Muldoon Livestock vs Muldoon Grazing Assoc). Maybe database issues?

Jim Peterson Lower Diversion



ABOVE: View looking down Muldoon Creek showing Jim Peterson's lower diversion ditch.

LEFT: View of control works in Jim Peterson's lower diversion ditch

LOWER LEFT: View of one foot Parshall flume installed in Jim Peterson's lower diversion ditch.



GPS coordinate location for point of diversion: 2504316, 1368959 (IDTM coordinates NAD83 projection) Legal Description SWNW Section 10 (T02N, R21E). Site Tag #A0011843.

Control works consist of a concrete structure with no slide gate. Measuring device consists of a 1.0 foot Parshall Flume. The staff gage on the flume was bent. At the time of the inspection, no water was flowing through the flume.

Concerns: Bent staff gage. Jim Peterson's SRBA filings, 37-99 and 37-1141, have claimant ownership issues (Muldoon Livestock vs Muldoon Grazing Assoc). Maybe database issues?

ABC Agra Middle Diversion



ABOVE: View looking down on the ABC Middle Diversion. Note control works not yet installed.

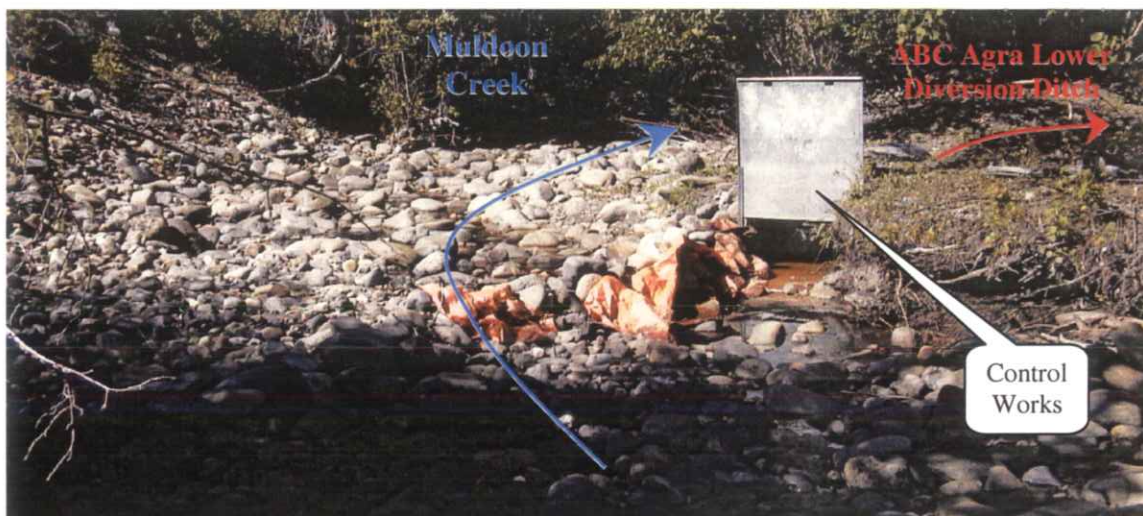
LEFT: View of measuring device located in the ABC Middle Diversion Ditch. Note that this point is approximately 0.20 mile downstream of the diversion location shown in view above.

GPS coordinate location for point of diversion: 2503069, 1367798 (IDTM coordinates NAD83 projection) Legal Description NENW Section 16 (T02N, R21E). No Site Tag # assigned.

Control works not yet installed. Measuring device consists of a 2.5 foot Cipoletti weir. However the measuring device is located approximately 0.20 mile down the ditch from the diversion point. Flow through measuring device was measured at 1.05 cfs. Only SRBA claim 37-1142 lists this diversion location.

Concerns: Lack of control works. Measuring device located quite a ways downstream from the point of diversion.

ABC Agra Lower Diversion



ABOVE: View looking down Muldoon Creek towards the ABC Agra Lower Diversion.

LEFT: View of measuring device located in the ABC Agra Lower Diversion Ditch.

GPS coordinate location for point of diversion: 2502658, 1362655 (IDTM coordinates NAD83 projection) Legal Description NWNW Section 16 (T02N, R21E). Site Tag #A0011845.

Diversion works consist of metal slide gate structure. Measuring device consists of a 2.5 foot Cipoletti weir. No flow through the diversion or device at the time of the inspection.

Concerns: No water right or SRBA filings list a point of diversion in the NWNW Section 16 (T02N, R21E). Perhaps, claim 37-7006 with a claimed point of diversion in the NENE of Section 17 is supposed to describe this diversion? Note that this claim also identifies other diversions further down Muldoon Creek that have not been documented.