

MEMORANDUM

TO: File 57-7549

FROM: Daniel Nelson – Staff Hydrologist

DATE: April 17, 2013

SUBJECT: Field Exam Review

The field exam for this permit was done with a combination of here field examiners. I completed the field exam in February of 2000 based on the information supplied by the previous examiners. This field exam was held for several reasons, one of which was to ensure the overlapping water rights were decreed. I will discuss different components of the water right that should be corrected for licensing. A licensing amendment will be needed.

This field exam was done at a time when agents didn't have access to current aerial photography. This resulted in a place of use that determined using 1987 aerial photography. This permit was not filed on until 1991 and proof of beneficial use was filed in 1993. Therefore, using the 1987 mapping created some issues. We currently have 1998 aerial photography that appears to better represent the actual irrigated acres. I used these photos to determine the total amount of ground irrigated on this farm as 166.4 acres instead of the 159 acres found in the 1987 aerial photos.

The field examiner found ground that didn't appear to have been irrigated in the NENW and NWNE and the NESW and SENW of Section 16. Aerial photos in 2009 and 2011 show the field in the NENW and NWNE being irrigated, but the all other aerial photography cannot confirm or deny the irrigation of this field. The ASCS maps supplied with the field exam show this field was irrigated with sprinklers. The field in the NESW and SENW also doesn't appear to have been irrigated, but it is marked in the ASCS aerial photos as being irrigated with sprinklers. Field exam photos were taken of these two fields, and it appears from the photos that a crop had been planted in these fields and recently harvested and the field worked. Therefore, I included them as part of the place of use.

With the current evidence that is now available, I am recommending that this right be licensed for 85 acres within a 166.4 acre permissible place of use. The diversion rate of 1.05 cfs recommended in the field exam is still reasonable and should be carried over to the license.

There was a question on the amount of volume that should be allowed under this water right. Water Right 57-2195 overlaps this water right from the same well. Water right 57-2195 has a volume amount of 364.5 acre feet to irrigate 81 acres ($81 \text{ acres} \times 4.5 \text{ acre feet per acre} = 364.5 \text{ acre feet}$). When this water right is combined with water right 57-2195, the majority of the 166.4 acres can be irrigated, so there should be combined volume limited by the 166 acres allowed. Using the standard of 4.5 acre feet per acre, the maximum amount of ground water that can be diverted is 747 acre feet for the 166 acres. The well can supply the full volume for the 166 acres, so this water right should be limited to the 382.5 acre feet ($85 \text{ acres} \times 4.5 = 382.5$).

This water right is partially supplemental to three Castle Creek water rights, so normally, we would not include a volume on a supplemental water right. However, some of the lands developed under this permit are new acres, and this well does supply the full allocation of water for those acres. Recently licensed water rights 63-31261 and 65-13933 also followed this procedure. Therefore, I have placed the volume amount on the face of the water right instead of in conditions as is normal for supplemental water rights. I used the same supplemental conditions used on these water rights for this water right as well.

When this water right and the other ground water right are combined they should be limited to the system capacity of 2.62 cfs and the maximum allowable volume for the 166 acres allowed to be irrigated from both rights for a total of 747 acre feet. There are also three water rights from Castle Creek that allow for the irrigation of 134 acres within the 166.4 acre permissible place of use. When all of the water rights are combined, they should be limited to 3.33 cfs (the maximum allowable at 0.02 cfs per acre), 748.8 acre feet (the maximum allowable at 4.5 acre feet per acre) and 166.4 acres.

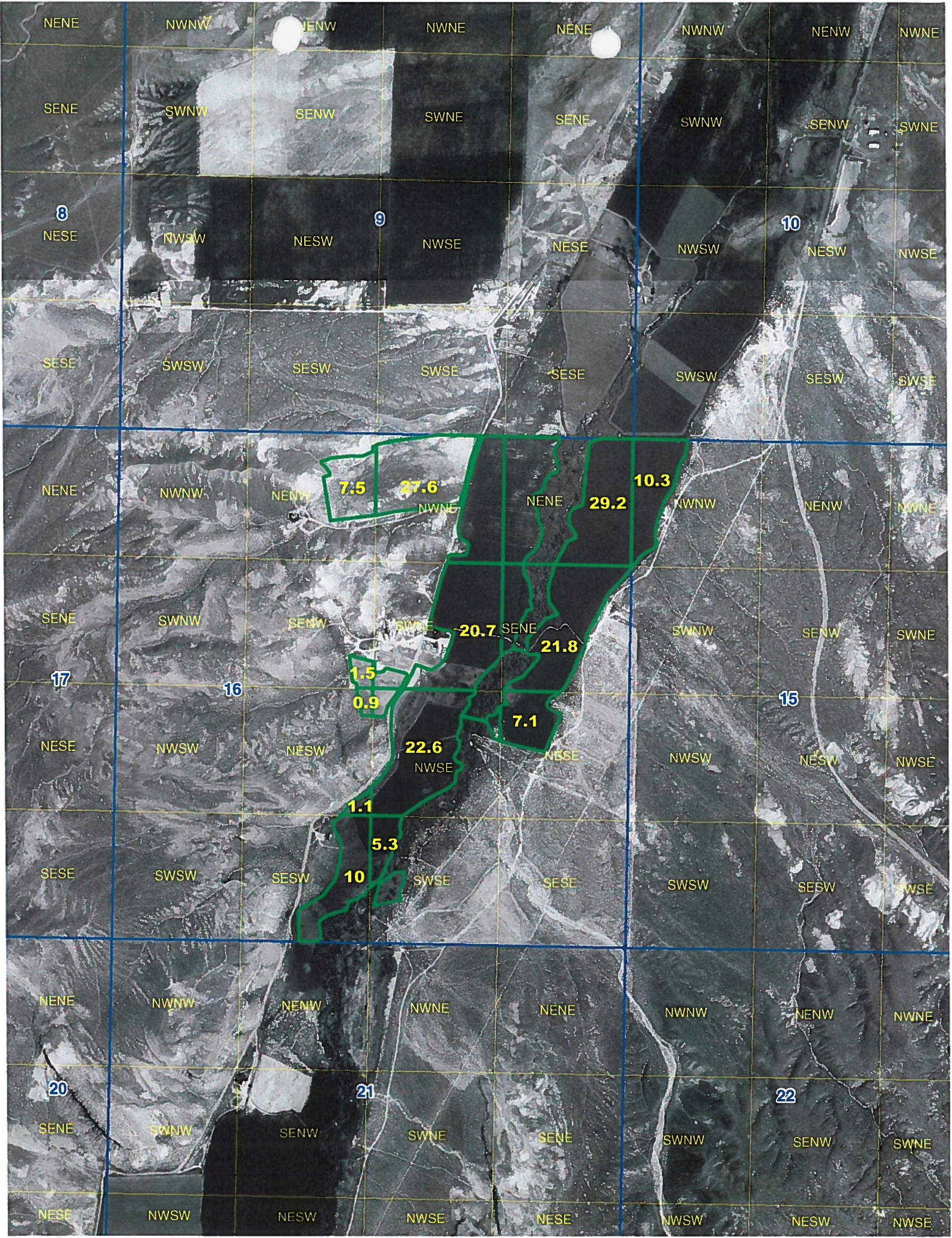
Water right transfer 76180 was approved in July of 2010 to add a new well to water right 57-2195. This new well was not considered when licensing this water right, but I have included it in the licensing amendment. This will save the owner the need to file a water right transfer on this water right once it is licensed, and save precious Department resources in processing the transfer. The transfer used two legal descriptions for the well, because it was very close the $\frac{1}{4}$ $\frac{1}{4}$ line, but there is only one new well. I used the well drilling shape to designate the well. The well driller GPS'ed the well, and I checked with Rob Whitney who was at the site to verify the location of the well. I am fairly confident the location is correctly recorded.

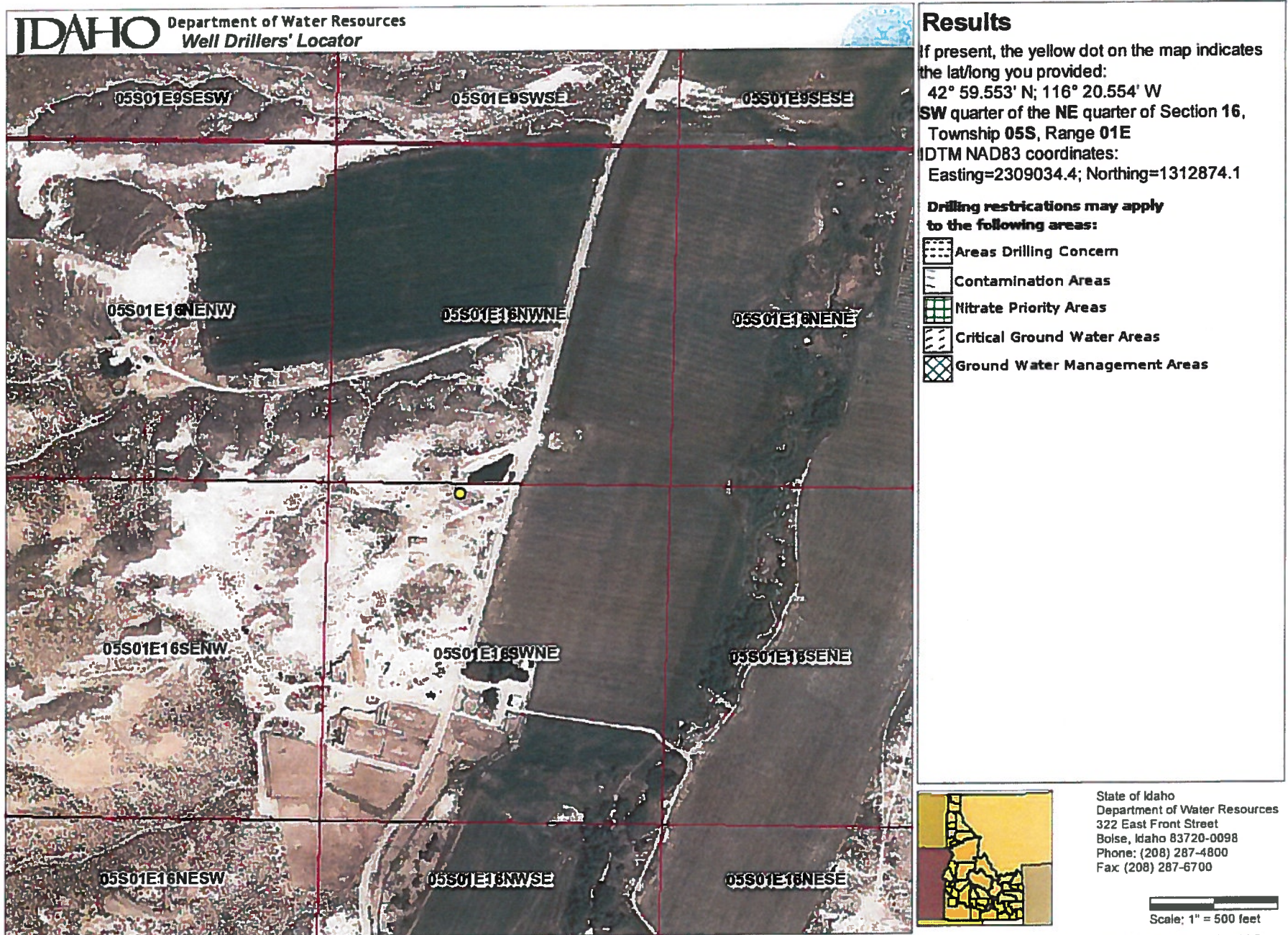
Current Acre Calculations

Legal	1998 GIS Acres	Rounded Acres	Field Exam Acres	Permit Acres
S15 NWSW	10.3	10	8	12
S16 NENE	29.2	29	36	20
S16 NWNE	27.6	28	29	25
S16 SWNE	20.7	21	22	0
S16 SENE	21.8	22	17	7
S16 NENW	7.5	7.5	6	0
S16 SENW	1.5	1.5	1	0
S16 NESW	2	2	2	2
S16 SESW	10	10	7	3
S16 NESE	7.1	7.1	6	6
S16 NWSE	22.6	23	21	6
S16 SWSE	5.3	5.3	4	4
TOTALS	165.6	166.4	159	85

PLEASE NOTE:

The field exam was done at a time when the Department had limited mapping capabilities. The maps that were used for this exam all have a notation that they the maps are 1987 aerial photos. Proof was filed in 1993, so 1987 aerial photography wouldn't have been adequate. Aerial photography taken in 1998 was used to determine the actual acres irrigate. The chart above shows the differences between the acres irrigated determination in the 1999 field exam and current mapping capabilities.





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