

MEMORANDUM

Date: December 30, 2011
To: Water Right File 41-7053
From: cpalmer
Re: Licensing Memo

Amendment required to reflect the PD+POU as developed

DEVELOPMENT PERIOD: The development period was between 1981-1988.

DISCREPANCIES: The field exam was initially completed in 1991. The field exam report was written up by at least 3 staff member and a lot of confusion appeared when the field exam was re-visited in 1999. It should be recognized that the original system that was developed under this permit includes ONE well with two pumps that provided water for irrigation and domestic purposes (although system was not operable at the time of the first field exam). Since no measurement could be taken at the field exam, department staff obtained a measurement from Idaho Power staff many years later. That measurement yielded a diversion rate of 0.31 cfs. We have no idea what the conditions were when that measurement was made and it seems very diminished than what the field examiner concluded in his theoretical calculation of 0.57 cfs.

PD: At the time of the field exam one well serviced the home for domestic use and ~52 acres of irrigation.

POU: It appears that the orchard that is south of the home is obviously irrigated according to 1987 Imagery. However, it's a little ambiguous as to the disposition of the field to the north of the house during the development period. I pulled 1986 LandSat aerial imagery and it appears that that field was irrigated during the development period and I will issue the license with the POU as recommended by the field examiner with a few exceptions. One of the field examiners created a map that depicted a 52.8 acre POU. I drew their shape in ArcMap and found that the road and the house were included in their original shape. I excluded these figures and re-figured the POU to be 51.9 acres.

OVERLAPS: The field examiner identified surface water rights that overlap the POU for this permit. However, in his March 12, 1998 memo, Corey Skinner clarified how a decision was made that placed all the surface water rights on the west of the south fork of Rock Creek. In other words, no overlapping rights cover the POU. Additionally, there are no other rights that diverted from the PD for this permit.

DIVERSION RATE: The two diversion rates that were recommended in the field report are 0.31 cfs and 0.57 cfs. The problem with the first measurement was that I am not aware of the conditions when that measurement was taken. In addition, it sounds like the system was modified when the new domestic well was drilled which took place before the measurement was taken. The theoretical calculation of the system seems acceptable yet according to the system description in the field exam report there are 4 inch mainlines that run off of the well. The attached pipe flows table for a 4 inch pipe show that that size of a pipe can accommodate 0.44 cfs. I will license this right for 0.44 cfs plus 0.04 cfs for the domestic use. The total diversion rate will be 0.48 cfs.

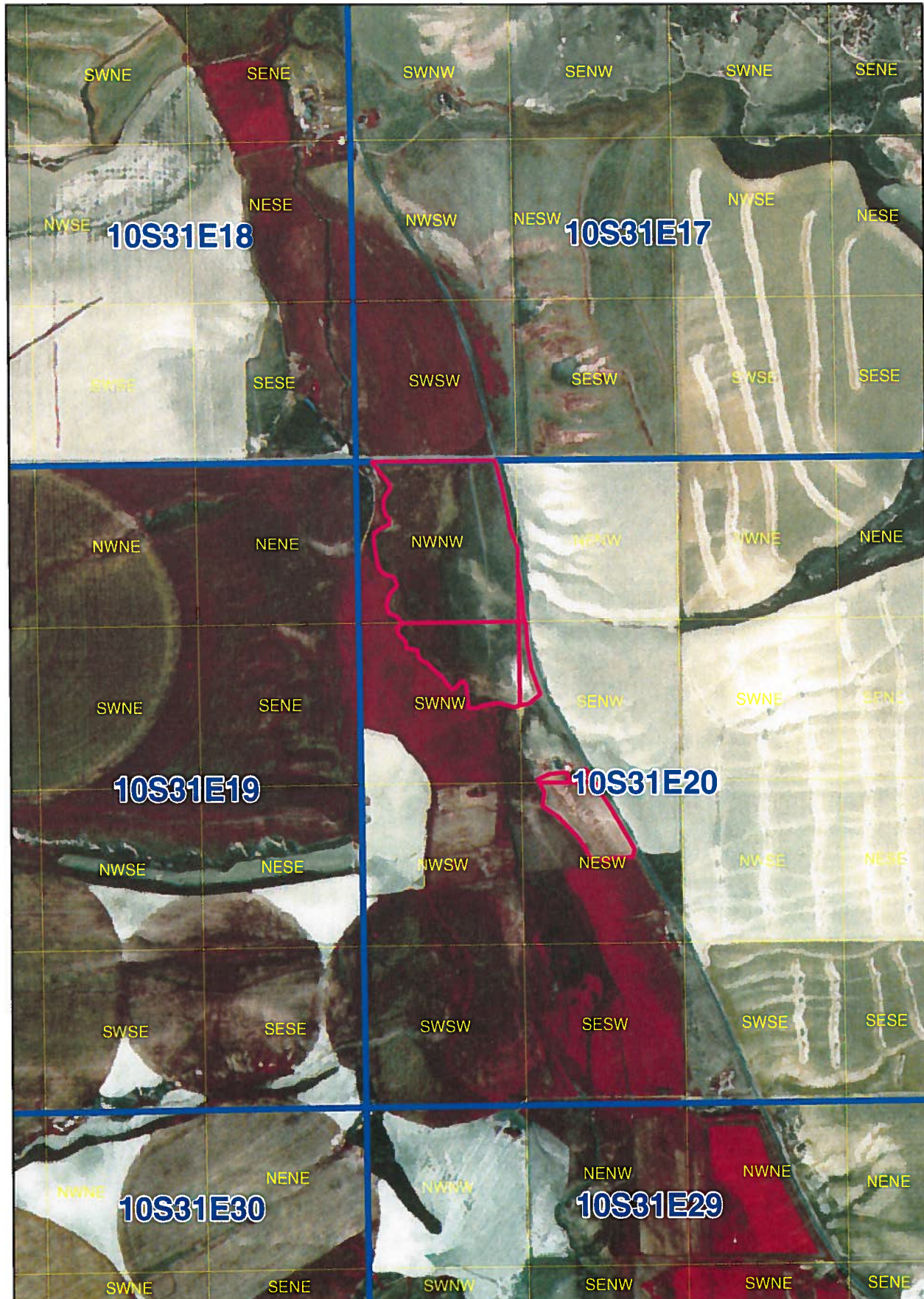
VOLUME: The volume for domestic will be 1.2 af as recommended by Jim Stanton (I recognize his writing). He allowed for lawn irrigation in addition to the in-home use. It seems the Georgia Satterlee made recommendation after the second well was drill in 1999 and may be based on the new system, etc. The earlier recommendations most likely reflect the original system.

The volume for the irrigation will be the lesser of the two calculations:

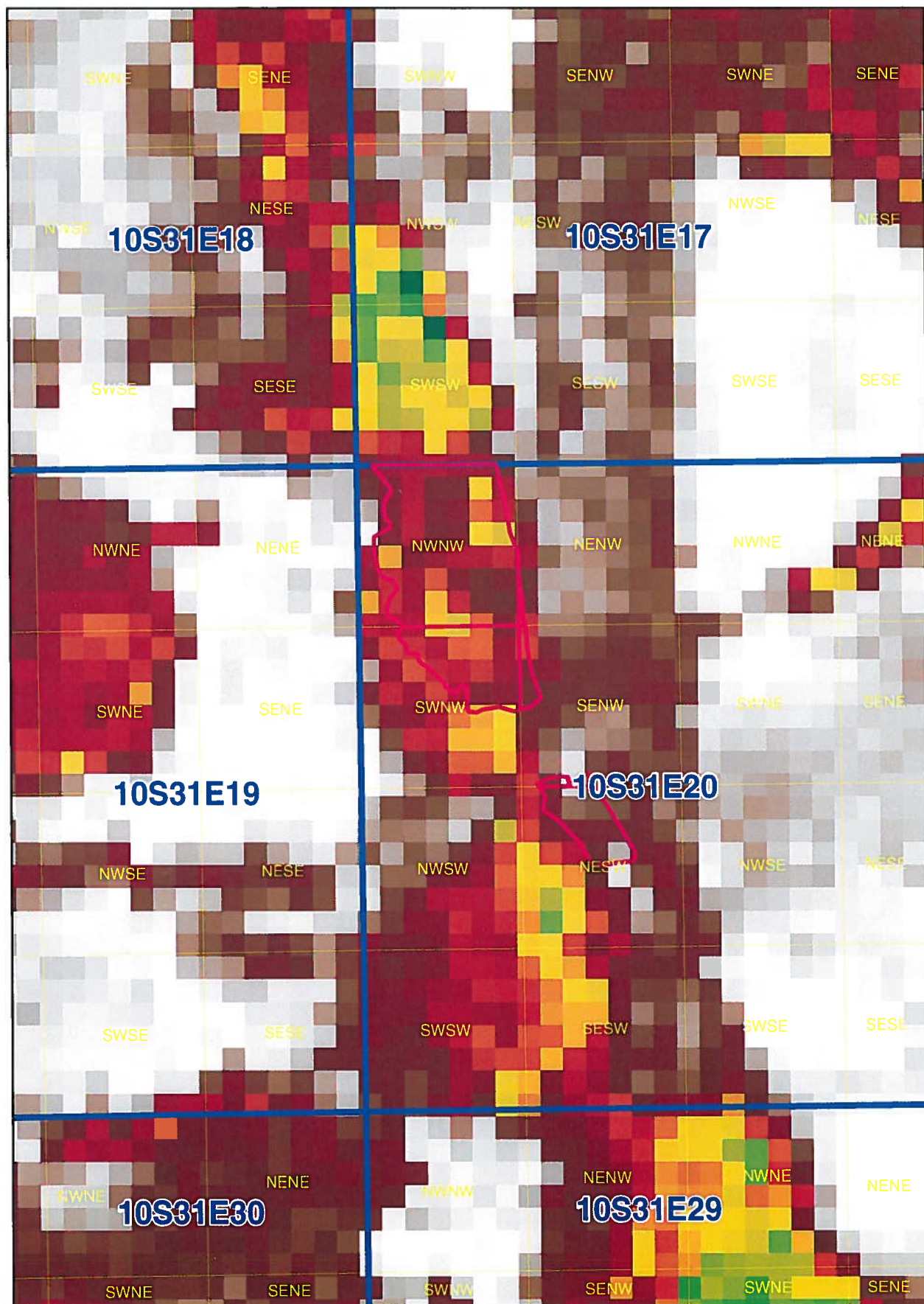
$4 \text{ afa} \times 52 \text{ acres} = 208 \text{ afa}$
 $0.44 \text{ cfs} \times 214 \text{ days} \times 1.9835 = 186.8$

Order issued 8/2003 for the American Fall bWMA excluded the lands where this right is appurtenant.

1987 Aerial Imagery--Power County



1986 Aerial Imagery--Power County



Landsat Imagery

PIPE FLOWS -- PUMPING SYSTEMS

[properly designed @ 5 ft. / sec.]

$$Q = 5 \pi r^2 \text{ (r in ft.)} \quad Q = 5 \pi R^2 \text{ (R in ft.)}$$

$$R = (\text{diameter}/12) / 2 \left(\frac{\text{dia}}{12} \right) \div 2$$

$$\pi = 3.1416$$

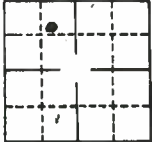
<u>PIPE DIAMETER(")</u>	<u>CFS (1/100)</u>	^(1/10) <u>MINER INCH</u>	^(1/10) <u>GALLONS/ MINUTE</u>
1	.03	1.5	13.5
2	.11	5.5	49.4
3	.25	12.5	112.2
4	.44	22.0	197.5
6	.98	49.0	439.8
8	1.74	87.0	780.9
10	2.73	136.5	1225.2
12	3.93	196.5	1763.8
14	5.34	267.0	2396.6
16	6.98	349.0	3132.6
18	8.83	441.5	3962.9
20	10.90	545.0	4891.9
22	13.19	659.5	5919.7
24	15.70	785.0	7046.2

THEORETICAL PSI's

Internal domestic	- 20 psi
Internal/external domestic	- 30 psi
Domestic w/ 5-10 acres	- 40 psi
Medium systems (up to 50 acres)	- 40 psi
Large pivots	- 60 psi

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORTUSE TYPEWRITER OR
STENOGRAPHState law requires that this report be filed with the Director, Department of Water Resources
within 30 days after the completion or abandonment of the well.

AUG 22 1984

1. WELL OWNER Name <u>Juan Spillet</u> Address <u>Rockland, Idaho</u> Owner's Permit No. _____		7. WATER LEVEL Static water level <u>70'</u> feet below land surface. Flowing? ☐ Yes ☒ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature _____ °F. Quality _____																																											
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Abandoned (describe method of abandoning) _____		8. WELL TEST DATA ☐ Pump ☐ Bailer ☐ Air ☐ Other _____ Discharge G.P.M. _____ Pumping Level _____ Hours Pumped _____																																											
3. PROPOSED USE ☒ Domestic ☒ Irrigation ☐ Test ☐ Municipal ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection ☐ Other _____ (specify type) _____		9. LITHOLOGIC LOG 79272 <table border="1"><thead><tr><th>Hole Diam.</th><th>Depth From</th><th>To</th><th>Material</th><th>Water Yes</th><th>No</th></tr></thead><tbody><tr><td>14"</td><td>0</td><td>5'</td><td>Soil</td><td></td><td>X</td></tr><tr><td>11"</td><td>5</td><td>75</td><td>Clay Brown Sand</td><td></td><td>X</td></tr><tr><td>11"</td><td>75</td><td>130</td><td>Clay Yellow sand gravel</td><td>X</td><td></td></tr><tr><td>11"</td><td>130</td><td>195</td><td>Sandstone yellow with gravel streaks</td><td>X</td><td></td></tr><tr><td>11"</td><td>195</td><td>270</td><td>Sandstone white</td><td>X</td><td></td></tr><tr><td>11"</td><td>270</td><td>465</td><td>Sandstone with gravel streak</td><td>X</td><td></td></tr></tbody></table>		Hole Diam.	Depth From	To	Material	Water Yes	No	14"	0	5'	Soil		X	11"	5	75	Clay Brown Sand		X	11"	75	130	Clay Yellow sand gravel	X		11"	130	195	Sandstone yellow with gravel streaks	X		11"	195	270	Sandstone white	X		11"	270	465	Sandstone with gravel streak	X	
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4. METHOD DRILLED ☒ Rotary ☒ Air ☐ Hydraulic ☐ Reverse rotary ☐ Cable ☐ Dug ☐ Other _____																																													
5. WELL CONSTRUCTION Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____ Thickness _____ inches Diameter _____ inches + _____ feet From _____ To _____ feet _____ inches _____ inches _____ feet _____ feet _____ inches _____ inches _____ feet _____ feet _____ inches _____ inches _____ feet _____ feet Was casing drive shoe used? ☒ Yes ☐ No Was a packer or seal used? ☐ Yes ☒ No Perforated? ☒ Yes ☐ No How perforated? ☒ Factory ☐ Knife ☐ Torch Size of perforation <u>3/16</u> inches by <u>3</u> inches Number _____ From _____ To _____ feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet Well screen installed? ☐ Yes ☒ No Manufacturer's name _____ Type _____ Model No. _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>18"</u> Material used in seal: ☐ Cement grout ☐ Pudding clay ☒ Well cuttings Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth Method of joining casing: ☐ Threaded ☒ Welded ☐ Solvent Weld ☐ Cemented between strata Describe access port <u>2' pipe</u>		10. Work started <u>Sept 15-81</u> finished <u>Sept 20-81</u>																																											
6. LOCATION OF WELL Sketch map location must agree with written location.  Subdivision Name _____ Lot No. _____ Block No. _____ County <u>Power</u> _____ 1/4 NW 1/4 Sec. <u>20</u> , T. <u>10</u> S., R. <u>31</u> E.		11. DRILLERS CERTIFICATION I/We certify that all minimum well construction standards were complied with at the time the rig was removed. <u>0403</u> Firm Name <u>Harry Volkmann</u> Firm No. <u>0043</u> Address <u>Armitage, Idaho</u> Date <u>Aug 29-84</u> Signed by (Firm Official) <u>Harry Volkmann</u> and (Operator) <u>Harry Volkmann</u>																																											

