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ATTORNEYS FOR THE IDAHO GROUND WATER APPROPRIATORS

BEFORE DEPARTMENT OF WATER RESOURCES

STATE OF IDAHO

IN THE MATTER OF THE PETITION
FOR DELIVERY CALL OF A&B
IRRIGATION DISTRICT FOR THE
DELIVERY OF GROUND WATER
AND FOR THE CREATION OF A
GROUND WATER MANAGEMENT
AREA

Docket No.: 37-03-11-1

**IGWA'S PROPOSED FINDINGS
OF FACT AND CONCLUSIONS
OF LAW**

COME NOW the Idaho Ground Water Appropriators, Inc., and its Ground Water District members ("Ground Water Users"), for and on behalf of their respective members, through counsel, and hereby submit the following Proposed Findings of Fact and Conclusions of Law.

INTRODUCTION

These Proposed Findings of Fact and Conclusions of Law track the initial Order of January 29, 2008 ("January 29 Order") issued by the Director in this matter. As set forth below, the Director's conclusion that A&B Irrigation District is not suffering material injury is

supported by substantial and competent evidence and should not be changed. Therefore, A&B's Delivery Call was properly denied.

If the Ground Water Users propose that certain Findings of Fact in the January 29 Order should be changed or expanded or are further bolstered, that finding is specifically referenced by the number used in the January 29 Order and the additional information is added with reference to the supporting evidence established at hearing. If the Ground Water Users propose some new Findings of Fact as established by evidence at the hearing these new Findings of Fact are designated with "FF(a)" set out before the proposed new finding within the appropriate topic subheading.

Generally, the January 29 Order's Conclusions of Law are supported by the evidence and correctly set out the law and factors to be considered in the A&B Delivery Call. To the extent the Ground Water Users reference the January 29 Order's Conclusions of Law they are set forth with their original numbers as found in the that Order. If the Ground Water Users propose some new Conclusions of Law, these are designated within each subheading with a "CL(a)."

PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

I. PROCEEDURAL HISTORY (FF1-9)

These findings are uncontested and should remain unchanged.

II. EASTERN SNAKE PLAIN AQUIFER (FF10-18)

The Department of Water Resources in Findings of Fact 10 through 18 set forth details about the Eastern Snake Plain Aquifer ("ESPA") which are largely not in dispute. However, as set forth below additional evidence and testimony at the hearing support the Department's

Findings. Finally, there is a new Finding of Fact that the groundwater users are proposing that should be included in the section.

FF 10-13 These findings are further supported by the following testimony and exhibits: Brendecke direct at Ex 427, 444, 448, 450, 451, 463A.

FF14-16 These findings are further supported by evidence and testimony at the hearing: Ground water levels in the A&B area are lower in part due to conversion from flood to sprinkler irrigation and multi-year drought; ground water users are not responsible for decreases in water levels because of drought and changes in incidental recharge. Ex. 400 at 21; Ex. 427-8, Brendecke Direct at 18-22; Ex. 400, 406, 407, 427, 444, 427-10, 427-11, 427-12, 427-13.

FF 16 The finding that the current drought is a record drought and has exacerbated the decline in water levels is further supported by Ex. 456-459, 465-469, Ex. 460 at 5-7 ; *cf.* Ex. 121I, 121J, 121K with Ex. 205A-205BD and Ex. 456-459, 465-469. The water levels in the ESPA and under A&B are still above pre-development level. Brendecke Direct, p. 13, L. 24 – p. 14, L. 3.

FF 17 This finding should be expanded to include the following. Cones of depression from multiple wells can form an aggregate cone of depression for a given pumping rate. Ralston, p. 61, L. 16 – p. 62, L. 10; Ex. 168, Vincent, Tr., p. 1744, L. 9 – p. 1746, L. 20. The lower the transmissivity, the steeper the cone of depression. Ralston, Tr. p. 61, L. 16 – p. 62 L. 10; Vincent, Tr., p. 1743, L. 15 – p. 1744, L. 8.

FF(a) Aggregate recharge to the ESPA substantially exceeds aggregate ground water withdrawals. Ex. 400 at p. 8; Ex. 408. There is sufficient water available in the Eastern Snake Plain Aquifer to meet all of A&B's reasonable needs even in the few "water short" well systems. This is evidenced by 1) the fact that A&B's aggregate diversions have increased in recent years as shown in Ex. 409, 430-C and 2) A&B's successful rectification of almost all portions of Unit B. D. Temple, Tr. p. 664, L. 5-17; p. 666, L. 13 – p. 668 L. 5; Ex. 131, 414, 477.

FF(b) Several factors point to future water level stabilization. Increases in ground water withdrawals for agricultural irrigation stabilized in the early 1990s in response to a moratorium in 1992 on new water rights. T. Luke, Tr. p. 1343, L. 7-10; A. Wylie, Tr. p. 1400, L. 19-23. Ground water levels are within about 5 percent of stabilized levels in response to the stabilization of pumping. A. Wylie, Tr. p. 1400, L. 24 – p. 1401 L. 11. Similarly, the water level responses to irrigation system conversions (gravity to sprinkler), which began over 25 years ago, have been mostly realized – it takes approximately 20 years in the ESPA to achieve a new equilibrium in response to a change in stress. C. Petrich, Tr., p. 1986 L. 25 – p. 1987 L. 4. The conversion of

sprinkler systems is now approximately 85 percent complete in the vicinity of A&B. Ex. 427-8. The most recent drought cycle is the worst on record. Ex. 460, p. 5. This drought cycle, like drought cycles in the past, will end. Thus, the effects of stabilized pumping, decreasing irrigation system conversions, and the end of drought conditions, all of which have contributed to the currently depressed water levels, will propagate through the aquifer system, leading to stabilized ground water levels.

III. Creation and Operation of Water District Nos. 100, 110, 120, 130, and 140 (FF 19-21)

Findings of Fact 19 through 21 are largely undisputed and the Ground Water Users have no comment.

IV. CONJUNCTIVE MANAGEMENT RULES (FF 22-26)

These Findings restate the law under Idaho Code or the Conjunctive Management Rules and are not in dispute, thus, the Ground Water Users have no comment. The Ground Water Users discuss application of the conjunctive management rules to the facts in this case in IGWA's Post Hearing Brief that accompanies these Proposed Findings of Fact.

V. A&B IRRIGATION DISTRICT (FF 27-31)

Findings of Fact 27 through 31 in the January 29 Order summarize aspects of the Minidoka North Side pumping Division historical development by the U.S. Bureau of Reclamation ("Reclamation"). The Ground Water Users believe that many of these Findings are further supported by evidence established at the hearing and also propose additional Findings as set forth below regarding A&B Irrigation District's original development and design for its wells or well systems.

FF 27 A&B currently provides water to 66,686 acres. Ex 406-407. Although A&B wells were originally used to deliver water to approximately 62,604 acres, the undisputed evidence from the testimony of all lay witnesses and A&B managers is that all water from A&B wells is delivered to all acres including the "water spread acres or expansion acres" which results in an additional 4,082 acres being irrigated. Ex. 349-353; D. Temple, Tr. p. 669 L. 10-22. Exhibit 405 summarizes

the ground water rights held by A&B and Exhibits 406 and 407 graphically depict these expanded acres and expanded volumes respectively. The water spread acres consist of 2,063 acres under the enlargement water rights, and 2,018 acres by beneficial use water rights that are junior in time to water right no. 36-2080.

- FF 30 At the time of design and construction of the original A&B project, lands within A&B were completely flood irrigated with wells positioned on the high points in order to facilitate gravity irrigation. The conversion to sprinkler irrigation came over time, first to hand lines, then to wheel lines, then to center pivots, with most systems now operating with the combination of all three. The conversions to sprinklers began in the 1970s per the testimony of former manager Virgil Temple and current manager Dan Temple. By 1980, 19% was sprinkler irrigated and by 2007, 97% sprinkler irrigated. Ex. 200G.
- FF(c) Historic Reclamation and A&B documents show that the intended design for the A&B Irrigation District was to deliver 0.73 or 0.75 miner's inches per acre with the hope that wells could produce more. Former A&B Manager, Virgil Temple testified that the original design criteria was 0.73 but that "We tried to get as much water out of that well as we possibly could to prevent having to pull that pump in a short period of time." V. Temple, Tr. p. 362, L. 8 – p. 363, L.3.; Exhibit 474, 475. A&B's Board Minutes show that A&B operated to deliver no less than 0.73 miner's inches per acre prior to 1967 and 0.75 miner's inches per acre after that date. Ex. 343, 344, 345, 346. The 0.88 miner's inches, now claimed by A&B as a targeted delivery rate, is a contrived number that assumes full irrigation demand and the maximum diversion rate authorized under Water Right No. 36-2080. D. Temple, Tr. p. 636, L. 20 – p. 637, L. 11.
- FF(d) Exhibit 586, a letter from A&B's former Manager, Elmer McDaniels, states that:
- the design criteria for these lands was set at 0.75 miner's inch per acre . . . delivered to the farm unit . . . With regard to the design criteria for the new lands and considering sprinkler irrigation rather than gravity, we would support the 0.75 rate even though on farm efficiencies will be considerably higher with sprinkler. Our experience with sprinkler irrigated land is that the 0.75 rate is adequate.
- FF(e) Consistent with the conversion to sprinkler irrigation, A&B systematically and continuously has eliminated miles of laterals and drains. *cf.* Ex. 200k w/ Ex. 200L. The conversion to sprinklers along with other efficiency improvements allowed A&B to expand its irrigated acres by spreading water onto the high spots and irrigating more land than under the original flood development. Exhibit 200L shows that the original conveyance system included 109.71 miles of laterals, 333 miles of drains. Contrast this with the map showing the current infrastructure, Ex. 200K, that includes 51 miles of laterals, 138 miles of drains and 27 miles of distribution piping.

FF(f) A&B has eliminated 69 drain water injection wells for water quality protection purposes. Ex. 114. Elimination of drain wells has enabled A&B to divert less water than previously diverted because the water that was formerly injected as return flows no longer needs to be pumped. Ex. 400, p. 20-21.

VI. WATER RIGHTS HELD BY OR FOR THE BENEFIT OF A&B (FF 32-34)

Findings of Fact 32 and 34 set forth factual information regarding the water rights held by or for the benefit of A&B Irrigation District. While most of these Findings are largely undisputed, evidence at the hearing provided additional details of the water rights and therefore the Ground Water Users are proposing the following new Findings under this heading.

FF(g) Water Right No. 36-2080 was intended from the beginning to provide the Bureau of Reclamation (“Bureau”) and A&B Irrigation District with maximum flexibility. Prior to licensing water right no. 36-2080, the Department of Reclamation, the predecessor to IDWR, by letter dated December 21, 1964, requested that the Bureau submit a list of wells along with a land list in order to complete the licensing process. Ex. 157, p. 4398. The Bureau in response sent a letter dated January 19, 1965. Ex. 157D. The Bureau in that letter stated:

“We emphasize that the project is one integrated system, physically, operationally and financially. Some lands, depending on project operational requirements, can be served from water from several wells. Therefore, it is impractical and undesirable to designate precise land areas within the project served only by each of the specific wells on the list.”

Ultimately, the license was issued without a specific land list. Ex. 157B. This remains unchanged and has actually been confirmed by the Snake River Basin Adjudication Partial Decree and subsequent transfer. Ex. 157A.

FF(h) Thus, A&B is authorized to provide water to any of its lands within its irrigation system boundary from any or all 188 authorized points of diversion. Ex. 157A. A&B’s water right does not restrict the amount of water it can pump from any one well or well system, nor does it require a transfer to interconnect well systems. Luke, Tr. p. 1318, L. 22 – 1319 L. 4.

- FF(i) A&B already has interconnected 7 well systems. D. Temple, Tr. p. 614, L. 10-16. Additional interconnections for selected well systems are possible. Ex. 400 at 40, Ex. 427 at 17, 26; Ex. 479, 480 and 481. Almost all “water-short” well systems are in close proximity to well systems delivering in excess of 0.83 miner’s inches per acre. Ex. 415, 416, 480. There are viable pipeline routes available for connecting selected “water-short” well systems with well systems producing in excess of 0.83 miner’s inches per acre. Ex. 479, 481 showing potential pipelines connecting “water-short” well systems to “water-long” well systems. Ex. 479, 481. These conceptual pipelines go around existing field to avoid current agricultural operations and do not cross major roads or railroads, factors that would influence the viability and engineering requirements of the interconnections. D. Temple, Tr. p. 716, L. 5 – p. 717, L. 15. Manager Temple also testified that A&B can pursue easements when necessary for infrastructure improvements. D. Temple, Tr. p. 613 L. 21 – p. 614, L. 2.
- FF(j) Mr. Temple testified he thought that it would be impractical and might cost hundreds of millions of dollars to interconnect selected well systems. D. Temple, Tr. p. 704, L. 7, p. 481, L. 25 – p. 483, L. 5. However, A&B has not conducted any type of engineering or feasibility study to determine this.
- Q. Would it be accurate to say, Dan, that A&B has not done any type of an engineering or other feasibility study to determine the feasibility of moving water from a long system to a short system?
- A. No. We have not done a study, no.
- D. Temple, Tr. p. 704, L. 8-13.
- FF(k) The map of conceptual interconnections shows that it would be possible to provide sufficient water for “water-short” well systems (those delivering less than 0.75 inches per acre) from water systems delivering in excess of 0.83 inches per acre in 2007 with just 39 miles of pipeline (A&B already has 27 miles of pipeline). Ex. 479, 480, 481 and Ex. 200K. These interconnections are substantially less extensive, and therefore much less costly, than interconnecting the entire Unit B delivery system.
- FF(l) It would likely be even less expensive to provide additional water to some of the “water short” well systems identified in Exhibit 480 through other measures such as well or pump modifications, shifting land from well systems delivering water in excess of 0.83 inches per acre to well systems delivering less than 0.75 inches per acre (instead of piping water), or the drilling of supplemental wells.
- FF(m) In addition to its primary water right no 36-2080, A&B has five enlargement water rights that equal 2,063 acres. A&B also has six junior priority beneficial use water rights authorizing irrigation of 2,019 acres. These water rights are collectively referred to as the “junior acre” water rights. When A&B is short of water on a well or well system, it does not require that the junior acres be

curtailed. D. Temple, Tr. p. 675, L. 20-25. In fact, A&B is not sure where the acres for the junior acre water rights are located. D. Temple, Tr. p. 669, L. 10-22. When a well system has junior acres included, it makes the actual per acre delivery for that well or well system lower. Exhibit 366 shows that when the junior acres are included, delivery per acre drops in the project from .71 to .65 inches after conveyance loss.

CL(a) Water right no. 36-2080 has multiple points of diversion that may be used within any acre or combination of acres within A&B's authorized place of use. As such, shortage in one well does not equate to material injury to water right no. 36-2080 that can still be validly exercised and used on A&B's acres.

CL(b) There is no legal impediment for A&B to interconnect its well system. In fact, there is no need to file a transfer with the Department if A&B chooses to interconnect their well systems so long as they stay within their generally described place of use (i.e. irrigation system boundaries). See I.C. §43-323(2).

VII. ANALYSIS OF DIVERSIONS (FF 35-64)

A major emphasis in the January 29 Order was analyzing the diversions of A&B. The Order's Findings of Fact 35 through 64 set forth the Department's analysis of A&B's diversions. These Findings are further supported by evidence established at the hearing in this matter as detailed below. This part of the January 29 Order along with the additional evidence at the hearing supports the conclusion that A&B's ground water diversions, although they may have declined, have been adequate to meet crop demand. More efficient irrigation methods (i.e. use of sprinklers) and the discontinued need to pump water that would then be injected into the aquifer through the injection wells, have enabled A&B farmers to meet crop demand despite a decline in average aggregate diversions.

FF 35 While A&B currently operates 177 wells, it is authorized to use 188 wells. Ex. 157A. Thus, A&B has available points of diversion that it can readily use under its existing right which it can readily use if and when needed.

FF 36 A&B was fully developed by and a majority of its original wells redrilled by 1963. D. Temple Tr. p. 752, L. 23 – p. 743, L. 1, Ex. 404. A&B claims it is entitled to 0.88 inches per acre over 62,604 acres, which represents an aggregate diversion of 1,100 cfs (the maximum amount of water authorized under water

right 36-2080). However, A&B has never diverted the entire 1,100 cfs flow at any one time, even in the 1970s. Ex. 155, 155A, Ex. 200U, Ex. 476; Luke, Tr. p. 1176, L. 12- p 1177 L 13; p. 1184, L. 1-24; D. Temple Tr. p. 632, L. 10 – p. 634, L. 23. Mr. Dan Temple testified that on average A&B cannot show that it ever delivered 1,100 cfs for one month, one week or even one day based on their recorded records. D. Temple, Tr. p. 632, L. 10 – p. 634, L. 23. Exhibit 476 shows that peak monthly delivery in the A&B system averages historically between .60 and .75 inches and has never even approached the .88 now being claimed in this proceeding. Ex. 155A. A&B's demand does not comport with its historic delivery practices.

- FF 37-38 Ex. 407, 408, 407 and Ex. 200U show A&B has never diverted its authorized maximum volume and has historically, consistently diverted every year in the range of 180,000 to 200,000 acre-feet per year, which is approximately 3 acre-feet per acre. A&B's Water Management and Conservation Plan prepared on its behalf by CH2M Hill report shows an historic delivery rate to farmers of 3 acre-feet. Ex. 574, at 12
- FF 39 The amount of water A&B needs to divert from the aquifer has been reduced by the conversion to sprinkler irrigation, the elimination of injection and drain wells, improved conveyance efficiencies such as piping and by direct farm hook ups. 400 at 20-22.
- FF 41-43 While it is true that A&B's annual ground water diversions have decreased over time, this is due not only from a declining ground water table, but from conversion from gravity to flood irrigation and the elimination of runoff that needs to be injected back into the aquifer. Sprinkler irrigation is more efficient and requires less water be pumped from the ground. A&B even admits that conversion to sprinkler irrigation is the reason its farmers are able to irrigate more land today than was originally contemplated under flood irrigation methods. A&B Irr. Dist. v. Aberdeen American Falls Ground Water Dist., 141 Idaho 746, 118 P.3d 78, Appellant's Opening Brief at 8-9 dated Jan. 8, 2004; see also Petrich Rebuttal, Ex. 427 at p. 24, Ex. 427-16.
- FF 42-43 In addition to conversion to sprinklers, drought has also contributed to ground water level declines in recent years. Ex. 456-459; 465-469; Brendecke Direct at 6, L. 20-22, at 21, L. 9-26; Ex. 460 at 5-7. Also, when one compares Ex. 121I, 121J and 121K to the A&B hydrographs Ex. 205A-205BD and Ex. 456 it is apparent that drought effects water levels.
- FF 42 See comments on FF15.
- FF 48 93-97% of A&B, B Unit land is irrigated with sprinkler systems. Ex. 417, A&B Expert Report, p. 2-6.
- FF 51 2.17 acre-feet per acre irrigation requirement is further bolstered by the testimony of Magic Valley Ground Water District officers and members, Orlo Maughan and Dean Stevenson, who each testified that they were familiar with the pump records

of farmers within their District and that most used about 2 AF per acre for crop purposes.

FF 52 See comments on FF 37.

FF 53-56 See comments on FF 51.

FF 57-60 Although A&B's peak monthly well production has decreased, that decrease does not equate to material injury and does not mean that A&B has been unable to meet crop demands. In fact, A&B expert John Koreny was explicit in his conversation with IDWR that A&B's issues were not about shortage. Ex. 128 at 1259 "no real shortage." Luke, Tr. p. 1306, L. 11 – p. 1307 L. 6. The decrease is also attributable in part to decrease in injection via drain wells and an increase in irrigation efficiencies due to conversion to sprinklers. Furthermore, any difficulties that A&B has experienced have been exacerbated by the addition of enlargement or water spread acres. Ex. 400 at 5-8; Ex. 405, 406, 407 and Ex. 366.

FF 62 The peak-season "low flows" represents the lowest discharge rate from each well system that occurred at various times within an annual irrigation season. There is no evidence that the peak-season low discharge rates occur simultaneously. A&B does not compile such discharge rates on a daily or weekly basis. D. Temple, Tr. p. 634, L. 6-23.

FF 63 The finding that A&B designed its well and delivery system in order to meet 0.75 miner's inches is further supported by the original Bureau documents that show that the Bureau used a design criteria of .75 miner's inches per acre. Vincent, Tr. p. 1825, L. 22 – p. 1827, L. 3; Ex. 108 at 182; Ex. 166 The 1954 Appendix to the BOR Definite Plan Report, anticipated conveyance loss of 5% leading to a 0.73 miner's inch per acre initial delivery target sufficiently sized for extreme drought. Vincent, Tr. p. 1827, L. 24 – p. 1830, L.3. In 1966, Board Minutes from the A&B Board specifically refers to a design criteria of .73 miner's inches per acre. Ex. 474. In 1967, A&B changed the design criteria to 0.75 miner's inches per acre. Ex. 222. Further, Ex. 586, the March 1984 letter from A&B Manager, Elmer McDaniels to the Bureau, refers to 0.75 well design criteria, and asserts that with that amount of water there will be "no reduction in crop yields," and that .75 inch rate is adequate for crop needs. Ex. 252, McDaniels Depo. p. 23, L. 2-12, p. 24, L. 15- p. 25, L. 16. Ex.166 shows the progression of the design criteria and how it in recent years became recognized as a "rectification" criteria for A&B's internal well rectification program. Vincent, Tr. p. 1825, L. 5 – p. 1831, L. 18. Finally, A&B lay witness, Tim Adams stated: ".75 is what we would like; and we could expect reduced yields at less than .75." "At .75 we begin to see yield reductions and falling quality." Adams, Tr. p. 893, L 14- p. 894, L. 22 Thus, A&B's wells were designed to provide 0.73 or 0.75 inches and this is sufficient to meet crop demands. If A&B's wells can produce more than 0.73 or 0.75 inches, then the farmer simply has more water to apply to the crop and can substitute management for water.

FF(n) A&B has no verifiable evidence that any members have ever fallowed ground, left crops unharvested or have been unable to meet crop needs due to water

shortage. Eames, Tr. p. 817, L. 16-25, p. 845, L. 23 – p. 846, L. 8; Adams, Tr. p. 905, L. 23- p. 906, L. 11; Kostka, Tr p. 985, L. 12 – p. 986, L. 4, p. 989, L. 4-12, p. 992, L. 15-25, p. 993, L. 6-21; Molhman, Tr. p. 1029, L. 8 – p. 1030, L. 4. Each of these A&B lay witnesses enjoy crop yields, even in drought years, above the Minidoka County average as reported by the USDA, Farm Service Agency cropping data. Ex. 482. Witnesses Eames, Adams and Molhman have actually claimed crop damage for prior years due to the herbicide Oust which is a claim in a lawsuit pending in federal district court and subject to a broad protective order; thus, testing the veracity of their testimony is difficult. *Adams v. United States*, CIV 03-0049-E-BLW, Third Amended Complaint (Dist. Idaho Dec. 21, 2007). However, it is without question that these lay witnesses have increased their crop yields since they began farming. Adams, Tr. p. 910, L. 25 – p. 913, L. 11; Eames, Tr. p. 845, L. 23 – p. 846, L. 8; Kostka, Tr. p. 99, L. 3 – p. 998, L. 10; Molhman, Tr. p. 1037, L. 3-13.

FF(o) In fact, the B Unit farmers pump higher amounts of water as the surrounding farmers who divert water under their private rights. Petrich Sur-Rebuttal at 2-3, 8-9; Stevenson, Tr. p. 2068, L. 7 – p. 2069, L. 7, p. 2075, L. 11 – p. 2076 L. 8.

FF(p) Exhibit 111A, compares the A&B Irrigation District lands to lands located in the Twin Falls area, including area covered by Twin Falls Canal Company. Exhibit 111A at 486. Twin Falls Canal Company's rate of delivery is 5/8 inch per acre (0.625 inches) which is less than A&B's delivery rate of 0.75 inches. B Unit farmers should be able to meet their crop needs with the same amount of water as the area surface users who have less efficient conveyance systems. These surface water users, as found in the Surface Water Coalition Delivery Call case divert 5/8 inch (0.625 inches). *SWC Delivery Call, Opinion Constituting Findings of Fact, Conclusions of Law and Recommendation* at 55.

FF(q) IGWA's lay witnesses testified that they can meet crop needs with the same or less amount of water than that claimed by A&B. Deeg, Tr. p. 1067, L. 9 – 1069, L. 11, p. 1070 L. 8-18, p. 1071, L. 12-21; Stevenson, Tr. p. 2068, L. 12 – p. 2069, L. 7, p. 2074, L. 19 – p. 2075, L. 10, p. 2088, L. 2-11, p. 2113, L. 5-21; Carlquist, Tr. p. 2036, L. 14-18, p. 2039, L. 5-16, p. 2040, L. 21 – p. 2041, L. 8.; Maughan, Tr. p. 2138, L. 17-p. 2139, L. 13, p. 2138, L. 12-16. In fact, Stevenson testified that his farming practices on the B Unit of A&B allows him to "replace water with management" because he can use up to 3 acre-feet per acre on the B Unit for a flat rate and thus has no motivation to use less water. Stevenson, Tr. p. 2102, L. 2-8. By comparison, in his private farming operation which is adjacent to A&B, Mr. Carlquist uses roughly 2 acre-feet per acre as does Mr. Stevenson. Carlquist, Tr. p. 2040, L. 21 – p. 2041, L. 8; Stevenson, Tr. p. 2069, L. 1-7.

FF(r) Despite declining ground water levels, B Unit farmers have been able to effectively manage their farming operations to meet long-standing contracts with buying entities such as Anheiser Busch, Coors, and Amalgamated Sugar. Eames, Tr. p. 826, L. 22 – p.827, L. 19, p. 827, L. 24 – p. 828, L. 22; Adams, Tr. p. 907,

L. 6-15; Kostka, Tr p. 994, L. 1-19; Molhman, Tr. p. 1029, L. 8-25,p. 1030, L. 1-4.

- FF(s) Testimony by IDWR witnesses Luke and Kramber, as well as the testimony of Dr. Petrich and Sullivan support the conclusion that A&B can meet crop demand with its current water supply and that A& B has not suffered any material injury. Ex. 400 at p. 19-22.
- FF(t) A&B receives power at rates lower than private farmers. A&B only pays the power to pump the water from the ground. D. Temple, Tr. p. 696, L. 11 – p. 698 L. 3. The farmer is required to pay the cost to pressurize the water once it reaches the field. Id. IGWA farmers pump at similar depths but pay higher power costs to pump the water than A&B. For example, IGWA farmer, Tim Deeg testified that he pumps from 455 feet to water and pays 4.8 cents per kilowatt hour whereas A&B pays 2.8 cents per kilowatt hour. Id. and Deeg, Tr. p. 1063, L. 20-25, p. 1068, L. 12 – p. 1069, L.21.
- CL21 Conclusion of Law 21 in the January 29 Order should also state: The Ground Water Act, I.C. §42-226 et. seq. applies to the A&B Delivery Call, as such, A&B is not entitled to the maintenance of historic water levels. Thus, depletion of the water level or declining water levels does not equal material injury.
- CL(c) Until the Director finds that the Petitioner is suffering material injury, water rights cannot be curtailed in order of priority. CM Rule 40.01.

VIII. EXAMINATION OF POLYGON INFORMATION (FF65-75)

IDWR concluded that the lands identified as water short were not water short. This conclusion is further supported by A&B’s lay witness testimony that shows they have been able to raise their crops, have yields above county averages and have been able to meet long standing contracts. Further, testimony by IGWA farmers demonstrated that private farmers can interconnect their well systems to provide sufficient water, that other area farmers can raise full crops with the same amount or less water than what is being claimed by A&B.

- FF(u) Some of A&B’s “water short” wells are in close proximity to some of A&B’s wells that pump over 0.83 inches per acre. Exhibits 416, 427-9.
- FF(v) Testimony indicated that that actual irrigated acreage does not account for farmsteads, farm roads, pivot corners, and other lands that are included in the “irrigable” acreages used by A&B to determine its deliveries of less than 0.75 miner’s inches per acre.

- FF(w) Polygon information provided by A&B does not show irrigated acreage authorized under A&B's expansion and enlargement rights. A&B states that its members claim water shortages, but many of these same members spread their allotment of water to expansion and enlargement acres. Ex. 229A-O; Ex. 230B-N; Ex. 231B-F; 234B-J. The actual irrigated acreage within a "water-short" well system is unverifiable.
- FF(x) A&B's delivery system, due to its physical characteristics and A&B's operations, is substantially less efficient than private farmers. This is evidenced by undisputed testimony that the average use for private farmers outside A&B is about 2 AF per acre, while the average use by A&B farmers is about 3 AF per acre. These inefficiencies are as the result of irregular farm tracts. Ex. 201(O). The inefficiency is also caused by the 24 hour policy for ordering water results in water spilling over the weir at times, unlike private wells which provide water on demand. Maughan, Tr. p. 2135, L. 18-25; Stevenson, Tr. p. 2088, L. 23 – p. 2089, L. 11. Further, there is a remarkable lack of incentive for A&B farmers to conserve water or power because power is provided by A&B (at no additional cost to the farmer) and because A&B charges a flat assessment for all water used up to 3 AF per acre (A&B assesses a surcharge for amounts in excess of 3 AF per acre). D. Temple, Tr., p. 657, L. 22 – p. 658, L. 2; Stevenson, Tr. p. 2075, L. 11 – p. 2076, L. 18; Maughan, Tr. p. 2135, L. 5-8.

IX. EXAMINATION OF EVAPOTRANSPIRATION DATA (FF 76-80)

IDWR used 2006 evapotranspiration data to estimate actual consumptive use on A&B's "water-short" lands to evaluate A&B's claim that it is suffering water shortage.

- FF 80 This Finding showed that (1) the mean 24-hour evapotranspiration is at the middle or above other nearby areas, (2) the amount of vegetation is similar to or greater than surrounding areas, and (3) the evapotranspiration per amount of vegetation is similar to or above that found in the surrounding areas. This would not be possible if water deliveries were not similar to or above those in surrounding areas. The methods upon which these conclusions are based are being used in the ESPA and in numerous other western states, including Arizona, California, Colorado, Nebraska, New Mexico, Oregon, North Dakota, South Dakota, Montana, Texas, and Washington. Ex. 160, Kramber testimony pages 1101-1102. IDWR has also been recognized for its use of METRIC by the Information Technology Resource Management Council and the Ash Institute at the John F. Kennedy School of Government. Kramber Tr. p. 1103-1104.
- FF(y) The 2006 evapotranspiration data show that the locations identified by A&B as being short of water were not short of water and that the values for these lands fell in the middle of other surrounding, non-water short lands. Kramber, Tr. p. 1112

L. 12-19. p. 1113, L. 7-12. IDWR's use and conclusions from the evapotranspiration data is further supported by Ex. 427-10, 427-427-11, 427-12; Kramber, Tr. p. 1135, L. 22 – p. 1136, L. 12.

The above facts lend further support to the January 29 Order's Conclusions of Law 25, 26 and 27 that A&B has been able to continue to expand its irrigated acres over time and that it is not suffering water shortage.

X. HYDROGEOLOGY (FF 81-95)

The January 29 Order detailed the hydrogeology of the aquifer characteristics underlying the A&B service area in Findings of Fact 81-95. Substantial testimony and evidence was presented at the hearing on this matter and further support the Department's Findings that the hydrogeology of the area strongly influences the amount of water that A&B is able to pump. The evidence at the hearing not only further bolstered the Department's Findings in this area but also supports additional Findings that there is adequate water in the ESPA available to A&B and that A&B has other reasonable and prudent options to improve their water delivery system, including additional select well-system interconnection, shifting land from less productive well systems to more productive well systems, adopting different well designs, constructing supplemental wells, or using additional points of diversion currently authorized under its water right to reasonably use the water available to it in the ESPA.

FF(z) The hydrogeology underlying A&B is a key component to many of A&B's water supply issues. The evidence established that, (1) stratigraphy (and water-producing zones) are dominated by basalt with minor sedimentary interbeds of sand, silt and clay in the north and (2) greater amounts of sediment are present in the southwestern portion of the Unit B area. Ex 113D; Ex. 124 at 11-14. As a result, aquifers underlying the southwestern portion of A&B are less transmissive than the northeastern portion of A&B Ex. 113D and Ex. 470. Specific capacity values are lower for wells in the southwestern portion of A&B. Ex 113D. Consequently, drawdown is greater and well yields are lower in the southwestern portion of A&B than in other parts of Unit B.

- FF(aa) Aquifer characteristics (e.g, lower transmissivity associated with the presence of interbeds) limit the amount of water that can be pumped from the southwestern portion of A&B. Wylie Tr. p. 1368, L. 16-1369, L. 9; Ralston, Tr. p. 64, L. 18 – p. 65, L. 2. The amount of sedimentary interbeds in the southwestern portion of A&B is not typical of the ESPA as a whole.
- FF(bb) Problems in the southwestern portion of A&B began early in the project and are not a recent discovery. Ex. 113A at 554; Ex. 152QQ; Ex. 152P; Ex. 404; Vincent, Tr. p. 1762, L. 8-13. Nace pointed out in the 1940s that Burley Lake Bed Sediments could limit the productivity of wells in this area. In fact, Nace observed that “Only moderate yields are obtained by these wells.” Ex. 124 at 16.
- FF(cc) A&B has experienced the greatest water level decline in the southwestern portion of Unit B. Koreny Direct ¶ 17. Declines in the basalt-dominated ESPA have been less than the declines observed in the southwestern portion of A&B. Greater declines in the southwestern portion of A&B reflect lower transmissivity characteristics resulting from more sedimentary interbeds. Ex. 470. Limiting junior-priority water pumping would not change the lower-transmissivity characteristics that currently limit flow to wells in the southwestern area. Regional curtailment of junior priority pumping cannot compensate for local aquifer conditions that limit A&B’s desired withdrawal rates in the southwestern area.
- FF(dd) A&B has several options to improve water delivery in the southwestern portion of the aquifer. First, there are likely opportunities for successful replacement of existing wells with more lower-yield wells. Ralston, Tr. p. 131, L. 23 – p. 132, L. 1. Although the chances of successful deepening are less in the southwestern portion of Unit B than in other areas, they are not zero. Ralston, Tr. p. 90, L. 9 – p. 91, L. 1. Second, the chances of successful deepening could be enhanced through the use of well screens and gravel packs in coarse-grained sediment zones Ex. 400 at 36. The use of wells screens and gravel packs, common in other parts of the state, has not even been tried in aquifers underlying A&B. Engineers or geologists are frequently used to help design such wells; however, A&B has not used such a professional in the design or deepening of irrigation well. Temple, Tr. p. 685, L. 17 – p. 686, L 1. Third, limited interconnection of selected well systems, or transfer of selected land from a water-short well system to one delivering in excess of 0.75 inches per acre, could provide additional water where needed. Ex. 481. All three of these approaches represent a reasonable means of diverting water that is present underlying the Unit B area.
- FF(ee) “Water short” wells systems irrigate an area of 8.3 square miles. Ex. 159. The areas no longer supplied by ground water in the southwestern portion of A&B is approximately 2.3 square miles. Id. By comparison, the A&B Irrigation District encompasses 104.1 square miles. Id. The entire ESPA (as defined by the ESPAM boundaries) is 11,447 square miles. Ex. 484.

FF(ff) A&B's failure to properly consider the hydrogeology and historic water level trends in the siting, design, drilling and re-drilling its wells or to use professionals trained in the design, construction, and testing of wells in complex hydrogeologic environments, has contributed to A&B's well yield problems in some areas. As Nace observed early on, "The wells commonly yield larger quantities of fine sand when they are developed. Different well-construction and well-development methods would probably permit larger production from wells in the Burley Lake bed and other sediments." Ex. 124 at 16.

The above new Findings of Fact lend further support to the January 29 Order's Conclusions of Law 30-34 that concluded A&B's effort to withdraw water from the aquifer was not reasonable or adequate given the fact that A&B failed to consider and account for the specific hydrogeology underlying its service area and refuses to even now consider the use of professional hydrogeologist in designing and constructing wells. See proposed new Findings of Fact in Sections XIII and XV below.

XI. WELL DESIGN, DRILLING, CONSTRUCTION AND ABANDONMENT (FF 96-108)

Findings of Fact 96 through 108 detail A&B's well design, drilling, construction and abandonment over time. These Findings of Fact are further supported by additional evidence that was established at the hearing.

FF 96-99 The Order correctly questions A&B's assertions that these wells were abandoned and replaced as a result of declining water levels. These findings are supported in Exhibit 400:

"of the 11 abandoned wells, 3 were abandoned because of well construction problems, 2 wells were relocated for the convenience of a water user, 1 well was abandoned for environmental reasons, and 1 well may have been abandoned because of formation plugging. Reasons for abandoning the remaining 4 wells are unclear, but may have been abandoned for reasons associated with declining water levels."

(Exhibit 400, pg 34).

- FF 99 The need for deepening A&B wells is the direct result of not accounting for declining water levels observed in the 1950s. Ex. 121 at 1101-1103 (Figures 7-9) Ex. 400 at 33-35. Some recent deepenings would not have been necessary if initial wells and subsequent redrills had extended to an adequate depth that accounted for future water level declines. Id. Original wells were drilled to a depth barely sufficient to provide water; and, 84 wells required re-drilling or deepening prior to 1965 as water levels declined during project development. Ex. 402, 404. Reclamation drilled the original wells and initial replacement wells to a minimum depth to provide water without anticipation of future ground water level declines that were already observed in the 1950s. Ex. 427 at 3-6; Ex. 427-1, 427-2, 427-3, and 427-4; Ex. 427 at 12.
- FF 108 Well deepening may not be possible in some wells because of casing configurations, well alignment, or penetration of unstable formational material. To the extent that some deepening are problematic, replacement wells are possible and have been successfully drilled by A&B. Temple Tr. p. 544, L. 16-p.549, L. 14.
- FF(gg) A&B's rectification efforts have largely been successful. D. Temple, Tr. p. 664, L. 5-17, p. 66, L 13 – p. 668, L. 5; Ex. 414, and 427-9. This illustrates the adequacy of supply in the aquifer underneath A&B. The issue in A&B's case is primarily one of initial well siting decision, yield expectations, construction and system operations, not a lack of adequate water supply.
- FF(hh) Water level data upon which to project water level declines were certainly available in the 1959-1964 re-drilling period for use in specifying adequate well depths. Ex. 404; Ex. 121 at 1101-1103 (Figures 7-9).
- FF(ii) Substantial evidence was presented showing that A&B drilled and re-drilled wells to insufficient depths in the 1950s and 1960s. Ex. 404. Even in the 1980s, Mr. Temple testified that A&B's practice was to simply drill deep enough to submerge the pump bowls and get water over the pump. D. Temple, Tr. p. L. A&B acknowledged that it does not use professional engineers or geologists in its design and rectification of wells. D. Temple. Tr., p. 685, L. 17 – p. 686 L. 1.
- FF(jj) There are multiple reasons that pumps may require replacement bowls, lowering, or other maintenance measures. For example, sand sloughing and production has been noted in multiple wells, sand production increases pump wear. Ex. 400 at 37; Ex. 477. While A&B argues that all sand production is a result of water level declines, multiple factors contribute to observed water level declines in A&B wells, including drawdown required to induce ground water flow to a well, drought conditions, and reduced incidental recharge as a result of gravity-to-sprinkler irrigation system conversions. Ex. 167. Thus, A&B is incorrect to attribute all pump, motor, and well maintenance to ground water level declines caused by junior-priority pumping. In fact, when pressed on cross examination, Manager Dan Temple could not substantiate that the wells A&B had abandoned

were actually because of ground water level declines. Temple, Tr. p. 686, L. 12 – p. 690, L. 12.

The January 20 Order in Conclusion of Law 28 and 29 concluded that A&B’s failure to adopt formal standards for design and installation of wells and failure to consider other drilling and construction techniques have contributed to A&B’s problems and result in a unreasonable use of the resource and is an unreasonable means of diversion. The above proposed new findings, further support this conclusion.

XII. WATER LEVEL DECLINES, THE ESPA GROUND WATER MODEL AND THE A&B SCENARIO (FF 109- 122)

The Department discussed in Findings of Fact 109 through 122 the water level declines, the application of the Eastern Snake Plain Aquifer Model (“ESPAM”) and the “A&B Scenario”. As set forth below, the Director’s Findings are further bolstered by evidence that established that water level declines do not equal material injury and that using the ESPAM to predict material injury is an inappropriate application of the model. Further, the “A&B Scenario” results are not based on valid assumptions and are therefore not a reliable indicator of relative causes of ground water level declines. As such, the A&B Scenario should not be used for water rights administration or for curtailing junior groundwater pumping in response to the A&B Delivery Call.

FF 109 The A&B project was developed at the height of the ground water levels. Brendecke Direct at 15-17; Ex. 404 *cf.* w/ Ex. 444; Ex. 460 at 4. Water levels in the ESPA have declined in response to reduced incidental recharge caused by conversions to sprinkler irrigation, drought, and ground water pumping. Dr. Wylie testified, based on simulated returns to the Snake River in the drought scenario, curtailment scenario, and no-change-in-surface-water-practices scenario that the impacts from these three factors (conversions, drought, and ground water pumping) were “similar in magnitude”. Wylie, Tr. p. 1411, L. 3-23.

FF122 The statement that “ESHMC scenarios, such as the A&B Scenario, are not intended for use in administering the state of Idaho’s water” is supported by the

observation that there is greater local variability in aquifer characteristics (especially transmissivity variations in the southwestern portion of A&B) than is captured in the regional ESPA model. Ex. 460, p. 9. The ESPAM does not predict injury and has not been used to predict material injury in other cases. Wylie, Tr. p. 1369, L. 13- 1372, L. 21; 1357 L. 20- p. 1527, L. 1.

- FF(kk) Also, the A&B scenario was run in superposition mode which is a valid approach unless the simulated transmissivity changes substantially in time. Ex. 460, p. 9. The simulated drawdown in the A&B Scenario exceeded 600 feet in the southwestern portion of the aquifer. Ex. 460 at 9. Such a drawdown represents a significant change in aquifer thickness. The A&B Scenario overpredicts the amount of ground water level decline when compared to actual measured decline. Comparing Ex. 150, Figure 2 with Ex. 126 Figures 2 and 3 shows that the average decline in A&B is 96 feet while actual measured decline which is only between 15-25 feet. This is also explained by the testimony of Dr. Wylie. Wylie, Tr. p. 1381, L. 15 – p. 1387, L. 16. The A&B scenario therefore provides an inadequate basis for (1) attributing drawdown to A&B pumping or pumping under other water rights or (2) administering curtailment of specific water rights.
- FF(ll) Some of the ground water level decline underlying the B Unit is clearly the result of A&B pumping. Up 10 feet of decline was initially predicted as a result of A&B pumping. Ex. 123 at 15; A&B Report p. 1172. Actual water level declines ranging from 9 to 15 feet were observed prior to the mid 1960s. Ex. 427-1, 427-2, 427-3, 427 at 9. Extended drawdown (i.e., ground water level decline) is required to induce ground water flow to A&B wells. Ex. 168; Ralston, Tr. p. 59, L. 1-10. This is especially true in southwestern area of A&B as these wells were completed in aquifers with low-transmissivity sediments. Ralston, Tr. p. 77, L. 17 – p. 78, L. 1; Vincent, Tr. p. 1944, L. 9 – p. 1746, L. 20.
- FF(mm) Both flood-to-sprinkler conversions and ground water pumping have had impacts on ground water levels in the A&B area. Substantial amounts of irrigated land have been converted from flood/furrow irrigation to sprinklers in the general vicinity of A&B. Wylie, Tr. p. 1451, L. 15-24. In aggregate, 84 percent of the formerly flood-irrigated ground in the North Side Canal District, Minidoka Irrigation District, A&B Irrigation District, Burley Irrigation District, American Falls Reservoir District #2, and Milner Irrigation District is now irrigated with sprinkler systems. Ex. 427-8. Over 93 percent of the A&B Irrigation District is irrigated with sprinkler systems. On behalf of A&B, Mr. John Koreny states that “incidental recharge has ... decreased by about 2 to 3 MAF/yr [million acre feet per year] over the last 50 years” in the ESPA as a result of conversions from flood to sprinkler irrigation. Koreny Direct, p. 11, ¶ 35. Mr. Koreny also notes that ground water pumping currently depletes the ESPA “by about 1.5 to 3.0 ... (MAF/yr) and 2.2 MAF/yr on average based on the 1980 to 2002 aquifer water budget developed by IWRRI.” Koreny Direct, p. 11 ¶ 34. This amount of ground water withdrawal is roughly equivalent to the reduction of incidental recharge. Both irrigation system conversions and ground water development have occurred

in the A&B area and there is no reason to doubt that both have affected ground water levels.

FF(nn) In addition, while not necessarily contributing to long-term water level trends, drought clearly has an effect on water levels. This is apparent based on water level decreases during and following dry years and water level increases following a series of wet years. Ex. 121 at 1101-1103 (Figures 7-9). Depending on specific general wet-year, dry-year cycles, and drought clearly can have a substantial impact on water levels. Ex. 456, 467-469; Brendecke Direct p. 21, L. 6-16; Ex. 460, p. 5-7.

FF(oo) Thus, reduced incidental recharge from conversions, ground water pumping, and drought have substantial impact on water levels in the A&B area. The long-term effects might be attributed as 1/3, 1/3, 1/3, respectively or as A&B claims approximately half to conversion and half to ground water pumping attributing nothing to drought. Koreny Direct ¶¶ 34, 35. Regardless of the exact percentage, the fact remains that only a fraction of ground water level declines have been caused by junior-priority ground water pumping and that fraction is further reduced when you factor in A&B's own pumping and conversion practices. In this case, the reduction in ground water levels as shown by actual measurements is between 8.5 to 46.5 feet, with an average decline of 25.7 feet. Ex. 150, Figure 2. Only a portion of these declines can be attributed to outside ground water pumping. The Director's conclusion that depletion does not equate to material injury is correct.

FF(pp) Pumping may account for greater percentage of water level change in a local area because of lower transmissivity. Ralston Tr. p. 59, L. 1-10; Ex. 168. To the extent that this occurs, local pumping influences drawdown more than distant pumping from throughout the ESPA. Ex. 168

Conclusion of Law 22 concludes that ground water level declines are due to a variety of factors, including conversion, prolonged drought, and ground water diversions. The above new proposed Findings of Fact lend further support for this conclusion. The Ground Water Users also propose the following new Conclusion of Law.

CL(d) Until there has been a determination of material injury, ground water level declines are of no relevance. If the Petitioner is using water inefficiently, is expending unreasonable efforts to access or divert the water or does not need the amount of water claimed to effectuate the beneficial use under its water right, then there is no material injury under CM Rule 42.

XIII. WELL RECTIFICATION AND RE-DIRECTION OF WASTE WATER (FF 123 – 133)

Findings of Fact 123-133 in the January 29 Order, primarily set forth detail of past A&B well rectification efforts and redirection of waste water. At the hearing, it was established that these Findings are correct and further established that A&B's rectification program has been largely successful in spite of the fact that A&B does not employ hydrogeologic consultants as recommended. Yet, the evidence also showed that many of A&B's re-drills or costs that have been incurred are primarily due to the initial re-drills not accounting for water level declines and as a result of A&B's practice to drill only deep enough to submerge the pump. See also Findings of Fact 137-142 and proposed Findings regarding the use of hydrogeologic consultants set forth below.

FF(qq) Generally, A&B's rectification program has been successful. D. Temple, Tr. p. 664, L. 5-17, p. 666 L 13 – p. 668, L. 5; Ex. 414, 427-9. This is further evidenced by a lower number of "water-short" well systems in recent years and increasing aggregate withdrawals despite water level declines. Ex. 409, 427-9, Ex. 427-1, 427-2, 427-3.

These findings further support Conclusions of Law 33-35 of the January 29 Order.

XIV. COST ISSUES (FF 134-136)

The costs incurred by A&B Irrigation District as discussed above are primarily a result of A&B's rectification program. However, as established by the evidence in the case, despite some ground water level declines, A&B has been able to provide enough water to its members to raise healthy crops with average or above average yields and to allow them to continue to improve yield. Further, IGWA farmers established that they pump from similar depths as A&B and are able to operate profitably with proper yields despite some ground water level decline.

- FF(rr) Costs incurred as a result of drawdown from local pumping are not the responsibility of junior-priority ground water users. Similarly, regional declines resulting from gravity to sprinkler irrigation system conversions and drought conditions are not caused by junior-priority ground water users, and are not the responsibility of junior-priority ground water users. See FF 109, 122 and proposed findings related thereto above.
- FF(ss) Some of the rectification costs claimed by A&B were, in fact, not even the result of declining water levels. Ex. 400 at 33-34. For example, only 4 of 11 wells abandoned by A&B may have been abandoned for reasons associated with declining water levels. Ex. 400, at 34. However, costs for abandoning and/or replacing other wells have been included in A&B's claimed rectification costs.
- FF(tt) Mr. Temple conceded that some of the costs for which A&B is seeking reimbursement as a result of ground water level decline were not even expended by A&B, but were costs incurred by the Bureau of Reclamation in a program to abandon drain wells to protect ground water quality. D. Temple, Tr. p. 769, L. 4-17.
- FF(uu) Despite decreasing ground water levels, A&B has deepened an average of only 1.8 wells per year since 1994 (not all of which required deepening because of decreasing water levels) – an average annual replacement rate of less than 1 percent of A&B's active wells. Ex. 400 at 37.
- FF(vv) Rectification costs incurred as a result of drilling to insufficient depth (which reflects insufficient design) and without the assistance of trained professionals should not be the responsibility of anyone other than A&B.
- FF(ww) Any claims for reimbursement of costs incurred as a result of junior-priority pumping would require a detailed examination or audit to determine precisely the

costs truly associated with ground water level declines and truly the result of junior-priority ground water pumping. Ex. 400 at 37.

FF(xx) A&B has deepened an average of only 1.8 wells per year since 1994 (not all of which were required because of decreasing water levels) – an annual replacement rate of approximately 1 percent. Ex. 400 at 37.

XV. USE OF HYDROGEOLOGIC CONSULTANTS (FF 137- 142).

FF(yy) A&B does not use hydrogeologic consultants to design its wells. D. Temple Tr. p. 685, L. 17 – p. 686 L. 1. A&B does not intend to use hydrogeologic consultants in its redrilling efforts in 2008 and 2009. D. Temple, Tr. p. 695, L. 21 – p. 696, L.3 Use of Hydrogeologic consultants would increase A&B's success if obtaining additional well yield.

This new finding lends support to Conclusion of Law 29 of the January 29 Order.

XVI. GROUND WATER MANAGEMENT AREA

FF(zz) A Water District provides the Department with similar authority to regulate the use of water as a Ground Water Management Area. Luke, Tr. p. 1325, L. 3-5. Both are tools the Department may use to regulate the use of water.

Conclusions of Law 39-41 are further supported by this proposed new finding.

DATED this 23rd day of January, 2009.

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