BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF REQUIRING MEASURING DEVICES FOR GROUND WATER DIVERSIONS IN THE PORTIONS OF WATER DISTRICTS NOS. 31, 34, 100, 110, 120, 130, AND 140 OVERLYING THE EASTERN SNAKE PLAIN AQUIFER	))))))	**FINAL ORDER**

On June 30, 2015, the Surface Water Coalition[1] ("SWC") and the Idaho Ground Water Appropriators, Inc.[2] ("IGWA"), executed a settlement related to the SWC delivery call (IDWR Docket No. CM-DC-2010-001). *See Settlement Agreement Entered Into June 30, 2015 Between Participating Members of the Surface Water Coalition and Participating Members of the Idaho Ground Water Appropriators, Inc.* ("Settlement Agreement"). The Settlement Agreement was subsequently filed with the Director ("Director") of the Idaho Department of Water Resources ("Department") as a mitigation plan pursuant to Rule 43 of the Department's *Rules for Conjunctive Management of Surface and Ground Water Resources* ("CM Rules") and the Director approved the mitigation plan on May 2, 2016. *Final Order Approving Stipulated Mitigation Plan* at p. 4.

The Settlement Agreement acknowledges a decades-long declining trend in ground water levels of the Eastern Snake Plain Aquifer[3] ("ESPA") and establishes practices that participants in

[1] The Surface Water Coalition consists of the following seven surface water delivery organizations: A&B Irrigation District, American Falls Reservoir District No. 2, Burley Irrigation District, Milner Irrigation District, Minidoka Irrigation District, North Side Canal Company, and the Twin Falls Canal Company.

[2] The Idaho Ground Water Appropriators, Inc., includes, but is not limited to, the following entities: Aberdeen-American Falls Ground Water District, Bingham Ground Water District, Bonneville-Jefferson Ground Water District, Carey Valley Ground Water District, Jefferson Clark Ground Water District, Madison Ground Water District, Magic Valley Ground Water District, North Snake Ground Water District, Southwest Irrigation District, and Fremont-Madison Irrigation District, Anheuser-Busch, United Water, and Glanbia Cheese.

[3] The Eastern Snake Plain Aquifer is:

> [T]he aquifer underlying the Eastern Snake River Plain as the aquifer is defined in the report, Hydrology and Digital Simulation of the Regional Aquifer System, Eastern Snake River Plain, Idaho, USGS Professional Paper 1408-F, 1992 excluding areas south of the Snake River and west of the line separating Sections 34 and 35, Township 10 South, Range 20 East, Boise Meridian.

IDAPA 37.03.011.50.

the proposed mitigation plan will implement for the following purposes: (1) to mitigate material injury to the SWC from junior ground water right diversions; (2) to provide "safe harbor" from curtailment under the SWC delivery call to participating ground water right holders; (3) to stabilize ESPA water surface elevations; and (4) to enhance ESPA water surface elevations to the average ESPA water surface elevations observed during the period of time 1991-2001. *Settlement Agreement* at p. 1.

The Settlement Agreement requires the installation of approved closed conduit flow meters on all remaining unmeasured and power consumption coefficient ("PCC") measured ground water diversions by ground water users participating in IGWA's mitigation plan by the beginning of the 2018 irrigation season. *Settlement Agreement* at p. 3.

From 2002 to 2008, the Department issued orders creating Water District Nos. 100, 110, 120, 130, and 140, all of which partially or completely overlie the ESPA. These water districts were created to administer ground water rights diverting from the ESPA and water rights diverting from some springs discharging from the ESPA. Additionally, Water Districts Nos. 31 and 34 originally created to administer surface water, partially overlie the ESPA. Water Districts Nos. 31 and 34 were modified to administer ground water rights, including ground water rights diverting from the ESPA.

A primary purpose of a water district is the administration of water rights and distribution of water within the water district by a watermaster. Idaho Code § 42-602. The watermaster delivers the flow rate and/or volume authorized by the water right to the water right holder by measuring diversions and adjusting controlling works. Idaho Code § 42-607. To ensure accuracy of the distribution of water, the Director can require installation of a measuring device by a water right holder to assist a watermaster in the administration and distribution of water in a water district. Idaho Code § 42-701.

To assist watermasters in the administration of water rights within the boundaries of the water districts affected by this order and also in support of the Settlement Agreement and consistent with this order, ground water right holders must install measuring devices for ground water diversions within Water District Nos. 31, 34, 100, 110, 120, 130, and 140 that overlie the boundary of the ESPA.

FINDINGS OF FACT

Measurement Districts

1. On October 24, 1996, the Director issued a final order creating three water measurement districts—East, North, and West—overlying the ESPA.

2. The establishment of the three measurement districts preceded the Snake River Basin Adjudication ("SRBA") District Court's authorization to the Department to begin administration of water rights pursuant to Idaho Code § 42-1417. Following authorization by the SRBA District Court for administration of water rights for all basins within the ESPA, the Department created or amended water districts to administer ground water rights authorizing diversion from the ESPA. The following water districts were either amended or created for administration of ESPA ground water rights or water rights from springs discharging from the ESPA: Water District 100 (St. Anthony - Rexburg Area), Water District 110 (Mud Lake Area),

Water District 120 (American Falls Area), Water District 130 (Thousand Springs Area), and Water District 140 (Oakley Valley Area). Because the establishment and creation of these water districts supplanted the previous need and administrative role of the three water measurement districts on the ESPA, the Department dissolved the measurement districts. Ground water rights were administered in Water District 31 (Mud Lake and Tributaries) and Water District 34 (Big Lost River) occurred before creation of the three ESPA water measurement districts.

Water District 31

3. Water District No. 31 ("WD31") includes both surface water and ground water rights in Basin 31. Approximately thirty ground water rights within WD31 authorize diversion of ground water into Mud Lake. The watermaster for WD31 historically administered these ground water rights and wells. The water rights are subject to the *Agreement of Water Right Owners Regarding Delivery of Mud Lake Water*, dated April 17, 2001 ("Mud Lake Agreement"), which is filed in the records of the Department and the Clerk and Recorder of Jefferson County, instrument number 307626. The Mud Lake Water Users, Inc., Independent Water Users of Mud Lake, Inc., and Dobson Ranch Partnership, hold the ground water rights and wells that are administered pursuant to the Mud Lake Agreement.

Water District 34

4. On February 23, 1993, the Director issued an order revising Water District No. 34 ("WD34") to include all surface water and ground water in Basin 34 as delineated on maps attached to the order. The order excluded from administration and regulation water rights in WD34 for "small stock water purposes, or small domestic purposes as those uses are defined by Idaho Code § 42-111, until such time as the Director determines that such regulation is necessary to protect senior water rights."

5. On July 10, 2013, the Director issued an order requiring holders of ground water rights in WD34 to install and maintain on each point of diversion or well a measuring device of a type acceptable to the Department for the purpose of assisting the watermaster of WD34 in administering water rights and reporting the amount of water withdrawn from each well. The following uses and diversions were excluded from water measurement requirements: (1) domestic and stock water uses as defined by Idaho Code §§ 42-111 and 42-1401(A); and (2) diversions of groundwater from locations down gradient (south) of the "A-line" as shown in an exhibit map attached to the order.

6. The boundary of WD34 is not coincident with the ESPA, with the northwest portion of WD34 located outside of the ESPA.

Water District 100

7. On December 29, 2006, the Director issued an order creating Water District 100 ("WD100"). At its inception, WD100 included all ground water rights in Basins 21 and 22 overlying the ESPA within the area described by the order, except small domestic and stock water rights as defined under Idaho Code §§ 42-111 and 42-1401A(11). Ground water rights located in Township 7 North, Range 38 East, Section 6 of Basin 21 were excluded from WD100 because ground water rights in that location were already included in Water District 110 ("WD110").

8. On March 16, 2011, the Department issued a preliminary order requiring the installation of measurement devices, of a type acceptable to the Department, on specific ground water diversions identified in the order.

9. The boundary of WD100 is completely contained within the ESPA.

Water District 110

10. On April 17, 2006, the Director issued a final order establishing WD110. At its inception, WD110 included all ground water rights in the portions of Basins 21, 31, and 32 overlying the ESPA as shown in the map attached to the order. The final order excluded the following groups of ground water rights: (1) ground water rights administered by WD31 and subject to the Mud Lake Agreement; (2) small domestic and stock water rights as defined under Idaho Code §§ 42-111 and 42-1401A(11); and (3) ground water rights within the portion of Bonneville-Jefferson Ground Water District in Township 5 North, Range 35 East, Section 25 through 36, within Basin 31.

11. On November 30, 2009, the Department issued a preliminary order requiring the installation of measurement devices, of a type acceptable to the Department, on specific ground water diversions identified in the order.

12. The boundary of WD110 is completely contained within the ESPA.

Water District 120

13. On February 19, 2002, the Director issued a final order creating Water District 120 ("WD120") to include all ground water rights in Basin 35 overlying the ESPA, as depicted in the map attached to the order, except small domestic and stock water rights as defined under Idaho Code §§ 42-111 and 42-1401A(11).

14. On January 22, 2004, the Director issued a final order revising the boundaries of WD120 to include all ground water rights within that portion of Basin 29 overlying the ESPA, as depicted in the map attached to the order. The preliminary order excluded small domestic and stock water rights as defined by Idaho Code §§ 42-111 and 42-1401A(11) and ground water rights administered by the Shoshone-Bannock Tribes and the United States pursuant to the 1990 Fort Hall Indian Water Rights Agreement.

15. On December 28, 2006, the Director issued a final order revising the boundaries of WD120 to include all ground water rights within those portions of Basins 25 and 35 overlying the ESPA, as shown in the map attached to the order. The order excluded small domestic and stock water rights as defined by Idaho Code §§ 42-111 and 42-1401A(11).

16. On March 15, 2007, the Director issued a final order revising the boundaries of WD120 to include all ground water rights within that portion of Basin 27 overlying the ESPA, as shown in the map attached to the order. The order excluded small domestic and stock water rights as defined by Idaho Code §§ 42-111 and 42-1401A(11) and ground water rights administered by the Shoshone-Bannock Tribes and the United States pursuant to the 1990 Fort Hall Indian Water Rights Agreement.

17. On March 16, 2011, the Department issued a preliminary order requiring the installation of measurement devices, of a type acceptable to the Department, on specific ground water diversions within WD120 identified in the order.

18. The boundary of WD120 is completely contained within the ESPA.

Water District 130

19. On February 19, 2002, the Director issued a final order creating Water District 130 ("WD130") to include all ground water rights in Basins 36 and 41 overlying the ESPA, and all rights diverting from springs discharging from the ESPA in Basin 36, within an area depicted in the map attached to the order, except small domestic and stock water rights as defined under Idaho Code §§ 42-111 and 42-1401A(11), and water rights that are already included in Water District 36-A.

20. On January 8, 2003, the Director issued a final order revising the boundaries of WD130 to include all ground water rights within that portion of Basin 37 overlying the ESPA, in the map attached to the order, except small domestic and stock water rights as defined under Idaho Code §§ 42-111 and 42-1401A(11).

21. On October 28, 2009, the Director issued an order requiring the installation of measuring devices of a type acceptable to the Department on 166 ground water diversions within WD130 as identified by the order.

22. The boundary of WD130 is completely contained within the boundary of the ESPA.

Water District 140

23. On September 4, 2008, the Director issued an amended final order designating the Oakley Valley Area Water District, Water District 140 ("WD140"). WD140 was created to include all surface and ground water rights in Basin 45, as shown in the map attached to the order. The order excluded small domestic and stock water rights as defined under Idaho Code §§ 42-111 and 42-1401A(11). On September 10, 2008, the Director issued an erratum to the Amended Final Order Creating WD140. The erratum updated the Amended Final Order map attachment to include the ESPA boundary.

24. On June 25, 2009, the Director issued an order requiring select holders of ground water rights in Administrative Basin 45 and in portions of the Artesian City Critical Ground Water Area ("CGWA") in Administrative Basin 47 to install and maintain on each point of diversion or well, a measuring device of a type acceptable to the Department for the purpose of assisting the WD140 watermaster in reporting the amount of water withdrawn for each well. The following uses and diversions were excluded from the water measurement requirements: (1) domestic and stock water uses as defined by Idaho Code § 42-111, Idaho Code; (2) diversion of ground water or water systems with multiple diversions irrigating less than or equal to five (5) acres; (3) diversion of ground water other than irrigation that divert less than or equal to 0.24 cubic feet per second; and (4) diversion of water rights from geothermal resources located upstream of the Oakley Reservoir in WD140.

25. The Director's June 25, 2009, Final Order requiring measuring devices discussed the use of PCC-based measurements in WD140. *Final Order p. 2.* The discussion of the PCC method was different from previous ESPA measurement orders and focused on existing PCC methods employed within WD 140 in manners inconsistent with the Department's *Water Measurement and Reporting Guidelines (February 2, 1999).*

26. The boundary of WD140 is not coincident with the boundary of the ESPA, with the southern portion of WD140 located outside of the ESPA boundary.

Power Consumption Coefficient Measurement Method

27. The Department's *Minimum Acceptable Standards for Open Channel and Closed Conduit Measuring Devices* ("Minimum Measurement Standards") require installation of a certified flow meter on closed conduit or pipe line diversions. *Minimum Measurement Standards* at p. 2. Most ground water delivery systems from the ESPA pressurize closed conduits to convey and apply the water. The minimum measurement standards allow alternative meters or methods to be employed if such meters or methods "will produce similarly accurate results." *Id*. at p. 2. The PCC measurement method is historically one of the alternative methods that the Department has considered and approved for "qualifying irrigation diversions only." *Id*. at p. 2. The PCC is a ratio of power usage to water withdrawal.

28. There are nearly 5,500 ground water diversions within the ESPA for which annual water use is reported. The PCC method of determining annual water diversion is employed for estimating ground water withdrawals from approximately 3,500 wells, or about 64 percent of all wells requiring measurement in the ESPA. The Department's existing *Water Measurement and Reporting Guidelines (February 2, 1999)* specify that "the PCC method shall only be used for systems that are simple in design and operational characteristics." *Water Measurement and Reporting Guidelines* at p. 6. Further, "the PCC method will not be approved as a substitute for a meter for complex systems where flow rate or total dynamic head at the pump varies due to multiple valve adjustments; multiple discharge locations in a pipeline; the method of delivery varies between open discharge, low pressure, or high pressure sprinkler systems during an irrigation season; multiple wells/pumps are tied together with common mainline(s); or the ground water level changes significantly during the year." *Id.* at p. 6.

29. Pursuant to the Department's existing guidelines, the Department "may approve the PCC method for a system that is complex if the PCC can be determined for each operational condition and all measured conditions are plus or minus ten percent (±10 percent) of each other. A maximum of three operating conditions is allowed for each diversion. The water user must report the PCC, flow (in gallons per minute (gpm)), power demand (kW), and wellhead pressure for each condition during the reporting period, as well as the amount or percentage of operating time under each condition." Additionally, "PCC factors shall be re-measured at least once every three (3) years." *Water Measurement and Reporting Guidelines* at p. 5.

30. Recent Department analysis of PCC data for diversions within the ESPA between 2010 and 2014 concluded that, on average, about 21 percent of all PCC ratios have not been updated in the last three years and rely on field measured PCC factors older than three years.

31. In many cases, PCC ratios updated in the last three years are not based on field measured PCC factors from the last three years but are instead estimated by relying on one or more outdated measurement conditions (measured flow rates and corresponding measured electrical demand) that are older than three years. In some instances, ten year old measurements of flow rate or power consumption are input as ratio factors to derive PCC ratios.

32. Recent Department analyses of PCC data for diversions within the ESPA revealed a reporting district practice of updating PCC ratios based on peak monthly power demand readings without corroborating field measurements and/or verification of any or all operating

conditions. Reporting districts have been correlating current year peak monthly power demand readings to outdated measured power demand readings. In addition, reporting districts have also derived updated PCC ratios with outdated measured flow rates from prior years. These practices do not comply with the Department's existing *Water Measurement and Reporting Guidelines* and are problematic for the following reasons: (1) they may rely on one or more field measurements older than three years; (2) they rely on a monthly peak power value to assume that the system diverted water under one operating condition over an entire month without field verification of the multiple operating conditions; and (3) they result in water users abandoning the self reported data collection necessary to accurately employ the PCC method to estimate water usage.

33. The Department audited 107 PCC ratios reported by districts responsible for measuring and reporting ESPA ground water diversions during a three year period from 2006 through 2008. The objective of the audit was to determine if PCC ratios from one year could accurately estimate diversions in subsequent years. Through the audit process, the Department independently measured flow rates and corresponding electrical demands and derived PCC ratios for randomly selected diversions from multiple ESPA reporting districts. The PCC ratios for individual wells derived by the Department during the audit were compared to the PCC ratios employed by the reporting district from the previous year. The audit process determined how many PCC ratios established by the Department's audit were within 10 percent of the PCC ratios employed by the district. Through the audit process the Department found that forty-three percent of the PCC ratios reviewed varied by more than ten percent. The high rate of departure between audit-based PCC ratios and PCC ratios employed by reporting districts from the previous year raises the following concerns: (1) it is difficult for two separate parties to derive similar PCC ratios for the same well; (2) a PCC ratio derived for one well may not be consistent from year to year; and/or (3) PCC ratios relied upon by a reporting district may not be representative of the current diversion and conveyance system.

34. The Department reviewed PCC data reported for approximately 830 well diversions by Bingham Ground Water District ("BGWD") for the period 2010 to 2014. On average, BGWD reported a "simple system" volume qualifier, assigning one operating condition for the irrigation system, for approximately 79 percent of the annual PCC-derived diversion volumes from 2010 to 2014.[4] BGWD reported something other than a "simple system" volume qualifier for the remaining approximately 21 percent of the wells. Specifically, BGWD reported that about 21 percent of the wells were either: a) systems with multiple operating conditions where PCC ratios were not obtained for all conditions and/or the conditions required tracking; b) complex systems with multiple operating conditions where a flow meter or time clock would be more accurate; c) systems where PCC ratios were known to be invalid or inaccurate; or d) wells with PCC's that were older than three years. The Department reviewed the wells qualified by BGWD as something other than a "simple diversion" and concludes the district correctly applied multiple PCC measurement conditions to only three (3) wells. The Department concludes

[4] Assignment of a "simple system" qualifier to 79 percent of the annual PCC volumes is probably overestimated and not consistent with the Department's Water Measurement Information System (WMIS) database records. Department review of BJGWD's description of diversion systems in the WMIS database shows at least 40 percent of the diversion systems have multiple irrigation discharge points and are not likely simple systems with one operating condition.

BGWD is relying on PCC ratios for systems too complex, or with too many conditions to accurately estimate water usage.[5]

35. Variable frequency drive ("VFD") or variable speed drive motors that pump water from wells typically create a broad range of flows that vary with changes in system pressures. The PCC measurement method is not suitable for estimating diversion volumes for well pumps powered by VFD motors because system flows change frequently. To evaluate possible inaccuracies in PCC-based measurements on a ground water diversion with a VFD system, the Department measured flows diverted from one irrigation ground water well with a pump powered by a VFD. An installed, standard magnetic flow meter measured the flow rate. A data logger recorded well discharge every 15 minutes. The Department found that flows or well discharge fluctuated from about 900 gpm to about 3,330 gpm during the monitored period. The diversion volume measured and recorded by the magnetic flow meter and data logger during the monitored period was 1,074 acre-feet. The estimated volume during the monitored period based on use of the PCC ratio reported by the reporting district and the energy use reported by the utility was about 767 acre-feet, or 71 percent of the volume measured and recorded by the standard, installed meter.

36. Many of the ground water pumping systems within the ESPA boundary that currently employ the PCC method are not eligible for the PCC method for estimating water diversion because the systems: (1) receive supplemental water using booster pumps typically powered from the same kilowatt hour meter as the deep well, and are tied into the same mainline; (2) are complex, operating at more than three distinct flow and demand conditions; or (3) induce significant pumping drawdown during the irrigation season. Employment of the PCC method for any one or more of these circumstances results in unacceptable inaccuracy in estimating water diversions.

CONCLUSIONS OF LAW

1. Idaho Code § 42-701 provides in pertinent part:

> 42-701 INSTALLATION AND MAINTENANCE OF CONTROLLING WORKS AND MEASURING DEVICES BY WATER APPROPRIATORS – PROCEDURE UPON FAILURE TO INSTALL AND MAINTAIN – MEASURING AND REPORTING OF DIVERSIONS – PENALTY FOR FAILURE TO COMPLY – REPORT FILING FEE.
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> (1) The appropriators or users of any public waters of the state of Idaho shall maintain to the satisfaction of the director of the department of water resources suitable headgates and controlling works at the point where the water is diverted. Each device shall be of such construction that it can be locked and kept closed by the watermaster or other officer in charge, and shall also be of such construction as to regulate the flow of water at the diversion point. Each such appropriator shall construct and maintain, when required by the director of the department of water resources, a rating flume or other measuring device at such point as is most

[5] The Department is aware of other ground water districts incorrectly qualifying annual diversion volumes as "simple systems". BGWD was the focus of the Department review because they historically have done a good job of describing PCC conditions and using comments in their reporting to describe irrigation systems.

practical in such canal, ditch, wellhead or pipeline for the purpose of assisting the watermaster or department in determining the amount of water that may be diverted into said canal, ditch, wellhead or pipeline from the stream, well or other source of public water. Plans for such headgates, rating flumes or other measuring devices shall be approved by the department of water resources.

(2) If an appropriator determines that installation and maintenance of a measuring device required by the director would be burdensome for his diversion, the appropriator may, upon approval of the director, execute an agreement with the director and submit to the director such information and technical data concerning the diversion and pumping facilities as the director determines necessary to establish the relationship of power usage to water withdrawal by any pump used to divert public water.

(3) Any appropriator or user of the public waters of the state of Idaho that neglects or refuses to construct or maintain such headgates, controlling works, or measuring devices..., upon receiving ten (10) days' notice from the director of the department of water resources within which to begin and diligently pursue to completion the construction or installation of the required device or devices or to begin and diligently pursue to completion a remedy to such defects as exist in accordance with said notice, then the director of the department of water resources may order the duly qualified and acting watermaster of the water district to shut off and refuse to deliver at the point of diversion, the water owned by such appropriator or user until the user does construct and maintain such headgates, controlling works or measuring devices or remedy the defects which exist or the director may take action pursuant to section 42-1701B, Idaho Code, to enforce the requirement to construct, install or maintain such devices.

(4) The appropriators or users of the public waters of the state of Idaho shall be given a reasonable time within which to complete construction of such headgates, controlling works or measuring devices, depending upon the size and extent thereof, when due diligence has been used in the prosecution of such work.

2. Rule 35 of the *Idaho Department of Water Resources Water Distribution Rules – Water District 34* provides in relevant part:

In addition to measuring devices or control works specifically described the listing of the water right, each water user, except small domestic and stock water users from ground water, shall, at the water user's expense, install and maintain measuring devices and control works of a type acceptable to the director, at all points of diversion and any other points, as determined necessary by the director for the proper administration of the use of water. The director may prohibit or prevent the diversion of water by a water user who refuses or fails to comply with this rule in accordance with the provisions of Chapter 7, Title 42, Idaho Code.

3. There is currently a disparate group of measurement orders in place on the ESPA for Water District Nos. 31, 34, 100, 110, 120, 130 and 140 that were issued between 2001 and 2013. The existing measurement orders address specifically identified water rights within water district boundaries. The measurement orders are not comprehensive as to all water rights within a water district. The measurement orders have inconsistently discussed the acceptable conditions under which a PCC-based measurement can be granted as an exception to an approved closed conduit measurement device. The Director should issue a single order requiring installation of measuring devices for all diversions of ground water rights that are subject to administration within the portions of Water District Nos. 31, 34, 100, 110, 120, 130 and 140, overlying the ESPA. The Director should supersede all existing measurement orders with a single comprehensive measurement order that applies evenly and consistently to all ground water rights subject to administration on the ESPA.

4. Currently, approximately 3,500 of the 5,500 administered ground water diversions on the ESPA rely on an exception to an approved closed conduit measurement device to estimate water usage. The vast majority of these exceptions are for PCC-based measurements. In the intervening years between the creation or modification of water districts on the ESPA to regulate ground water rights and the issuance of measurement orders within those districts and now, the following practices have become common place for PCC-based measurements to estimate ground water diversions:

- Reporting of annual water diversion volumes derived from PCC-based measurements with assumed operating conditions and/or field measurements older than three years;
- Updating of PCC ratios based on peak monthly power demand readings without corroborating field measurements and/or verification of any or all operating conditions; and
- Reliance on PCC ratios to estimate water diversions on systems too complex or with too many operating conditions to allow for an accurate estimation of water usage—including the inappropriate reliance on PCC ratios to estimate water diversions by pumps powered by a VFD or variable speed motor.

In addition, IDWR audits of PCC-based measurements have found that, for systems with more than one operating condition, it is difficult for reporting districts to: (a) accurately determine multiple PCC ratios for each operating condition; (b) conduct regular field measurements during each operating condition; and (c) obtain accurate water user records for the irrigation run times for each operating condition.

5. Because of the widespread inaccurate PCC-based measurements, the single comprehensive measurement order should limit when a PCC-based measurement exception can be substituted for an approved closed conduit measurement device.

6. The Director should limit employment of the PCC method as a measurement method and should not grant a variance to substitute the PCC method for actual measurement when ground water pumping systems: (1) receive supplemental water using booster pumps typically powered from the same kilowatt hour meter as the deep well, and are tied into the same

mainline; (2) are complex, operating at more than one well and one irrigation discharge point or one distinct flow and demand condition; or (3) induce significant pumping drawdown during the irrigation season. Employment of the PCC method for any one or more of these circumstances results in an unacceptable inaccurate estimate of ground water diversion.

ORDER

IT IS HEREBY ORDERED AS FOLLOWS:

1. Holders of ground water rights within the portions of Water District Nos. 31, 34, 100, 110, 120, 130, and 140, overlying the ESPA except those ground water rights, uses and diversions identified below, shall install and maintain on each point of diversion or well, a measuring device of a type acceptable to the Department. Installation of measuring devices will assist the watermasters of Water District Nos. 31, 34, 100, 110, 120, 130, and 140 in reporting the amount of water withdrawn from each well. **Owners of irrigation wells or diversions that are required to be measured shall install acceptable measuring devices by the start of the 2018 irrigation season. Owners of non-irrigation diversions that are required to be measured shall install acceptable measuring devices by January 1, 2018.** The measurement and reporting required by this order is waived for the following ground water uses and diversions unless further notified by the Department:

   a. Domestic and stockwater uses as defined by Idaho Code § 42-111;

   b. Diversions of ground water or water systems with multiple diversions irrigating less than or equal to five (5) acres; and

   c. Diversions of ground water or water systems with multiple diversions delivering ground water for any purpose other than irrigation that divert less than or equal to 0.24 cubic feet per second (approximately 108 gallons per minute).

2. This measuring order shall supersede existing measurement orders in affect for all or portions of Water District Nos. 31, 34, 100, 110, 120, 130, and 140, overlying the ESPA.

3. Measuring devices acceptable to the Department for wells required to be measured shall be flow meters identified in the Department's *List of Approved Closed Conduit Flow Meters* (Version 2.9 updated 6-6-2016) *(*copy attached*).* These specifications apply to both irrigation and non-irrigation water uses.

4. The Department will consider a request for variance of the Department approved flow meter requirement upon submittal of a written plan to the Department. Acceptable variances may include the following methods or devices:

   - Development of a PCC, which is a ratio of power usage to water withdrawal. Acceptance of the PCC method may be provided *only for irrigation diversions that consist of one (1) well and one irrigation discharge point or one distinct flow and demand condition, and water levels do not change significantly during the irrigation season (example: a well diverting water to one center pivot only with*

no end gun, a well diverting water to one wheel line, or multiple wheel lines as long as the same multiple wheel lines are always on at the same time);

- Timing diversion with an hour meter (time clock) *for one well that discharges to an open ditch or pond where a) discharge is constant and not controlled by valves, b) ground water levels do not change significantly during the annual season of use, and c) the rate of flow is measured annually by a ground water district hydrographer*;

- Measurement with a properly functioning flow meter that was installed *prior to the date of this order, and determined as acceptable by the Department* (meters installed prior to the date of this order and included in the Department's *List of Approved Closed Conduit Flow Meters version 2.9* are deemed acceptable); and

- Measurement with a standard open channel measuring device installed in an open channel or ditch for measuring multiple wells in a well field and the measuring device is read daily, or daily flows are recorded by use of a continuous recorder or data logger.

5. Requests for variance must be submitted to the Department and will be considered by the respective Water District watermaster and the Department on a case-by-case basis. Variances proposing measurement with an existing flow meter or measuring device must satisfy Department criteria and accuracy tests. Existing meters or measuring devices that do not satisfy standards, or that fail, will be required to be replaced with an approved flow meter unless another variance is obtained. Requests for variance must be made using the Department's form *"Request for Variance of IDWR Approved Flow Meter Requirement for Irrigation Wells"* available on the Department's website or upon request.

6. Extensions and Exemptions. If a user cannot comply with the deadlines in item 1 above, the Department may grant an extension of time. The Department will consider requests for extensions on a case-by-case basis. Requests for extension must be made to the Department in writing. A water right holder may request an extension because of non use. Nonuse may be required by a federal land set aside program, or the water user may be temporarily not diverting as authorized by the water right. In some situations, the Department may exempt a diversion from the measurement requirements of this order. Conditions that may result in an exemption include, but may not be limited to, the following:

- Abandonment, non-use, or consolidation of diversions that results in a diversion being unused, or which reduces the total diversion rate to less than or equal to 0.24 cubic feet per second (cfs) and/or irrigation of less than five acres.

7. The requirements of this Order apply to new ground water diversions authorized after the date of this Order, except those ground water uses or diversions identified in items 1 a. through 1c. of this section. This Order does not require the installation of lockable controlling works, although nothing in this Order shall preclude the Director and/or the watermaster from mandating the installation of lockable controlling works on any diversion if such works are determined to be necessary for adequate administration and control of the diversion.

8. All watermasters shall shut off and refuse to deliver water to any ground water user who does not have, or who fails to maintain, an adequate measuring device on a diversion from the ESPA after the start of the 2018 irrigation season (irrigation diversions) or after January 1, 2018 (non-irrigation diversions), unless an extension or exemption has been provided by the Department.

9. Watermasters shall be responsible for the collection and annual reporting of all measurement data for the diversions within their respective water district boundaries subject to this order. All diversions shall be reported to the Department using the Department's WMIS online database application.

Dated this 15th day of June, 2016.

GARY SPACKMAN
DIRECTOR

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 17th day of June 2016, the above and foregoing document was served on each individual or entity on the service list for this matter on file at the Idaho Department of Water Resources, 322 East Front Street, Boise, Idaho, and posted on the Department's website: www.idwr.idaho.gov Each individual or entity on the service list was served by placing a copy of the above and foregoing document in the United States mail, postage prepaid and properly addressed.

Deborah Gibson

Deborah Gibson
Administrative Assistant to the Director

EXPLANATORY INFORMATION TO ACCOMPANY A FINAL ORDER

(To be used in connection with actions when a hearing was **not** held)

(Required by Rule of Procedure 740.02)

The accompanying order is a "**Final Order**" issued by the department pursuant to section 67-5246, Idaho Code.

PETITION FOR RECONSIDERATION

Any party may file a petition for reconsideration of a final order within fourteen (14) days of the service date of this order as shown on the certificate of service. **Note: The petition must be received by the Department within this fourteen (14) day period.** The department will act on a petition for reconsideration within twenty-one (21) days of its receipt, or the petition will be considered denied by operation of law. See section 67-5246(4), Idaho Code.

REQUEST FOR HEARING

Unless the right to a hearing before the director or the water resource board is otherwise provided by statute, any person who is aggrieved by the action of the director, and who has not previously been afforded an opportunity for a hearing on the matter shall be entitled to a hearing before the director to contest the action. The person shall file with the director, within fifteen (15) days after receipt of written notice of the action issued by the director, or receipt of actual notice, a written petition stating the grounds for contesting the action by the director and requesting a hearing. See section 42-1701A(3), Idaho Code. **Note: The request must be received by the Department within this fifteen (15) day period.**

APPEAL OF FINAL ORDER TO DISTRICT COURT

Pursuant to sections 67-5270 and 67-5272, Idaho Code, any party aggrieved by a final order or orders previously issued in a matter before the department may appeal the final order and all previously issued orders in the matter to district court by filing a petition in the district court of the county in which:

i. A hearing was held,
ii. The final agency action was taken,
iii. The party seeking review of the order resides, or
iv. The real property or personal property that was the subject of the agency action is located.

The appeal must be filed within twenty-eight (28) days of: a) the service date of the final order, b) the service date of an order denying petition for reconsideration, or c) the failure within twenty-one (21) days to grant or deny a petition for reconsideration, whichever is later. See section 67-5273, Idaho Code. The filing of an appeal to district court does not in itself stay the effectiveness or enforcement of the order under appeal.