

BRIAN D. HIGGS, P.G.
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June 19, 2008

Ms. Cindy Yenter, Watermaster, WD 130/140
c/o IDWR
1341 Fillmore St., Ste 200
Twin Falls, Idaho 83301-3380

RECEIVED

JUL 01 2008

DEPARTMENT OF
WATER RESOURCES

RE: LETTER DESCRIBING INSUFFICIENCIES TO NSGWD AND MVGWD

Ms. Yenter,

I am stunned by the audacity of your letter to the North Snake Ground Water District (NSG) and the Magic Valley Ground Water District (MV) dated June 11, 2008. You were presumptuous in your assumption that your QA query revealed mistakes committed wholly by myself and others. I reviewed the first 20 "corrected" wells on your list and found that I was responsible for merely 2 of the "corrections" while you and your staff were responsible for many more. Carbon copying this letter and subsequent letters (letter to South West Irrigation District, June 16, 2008, and letter to Goose Creek Irrigation District of the same date) to all clients of Water Well Consultants, Inc., including those completely out of your jurisdiction as Watermaster, is slander. A simple letter describing the need for a meeting to discuss some problems and possible solutions would have been the moral approach.

The terms I used in the paragraph above are very harsh. However, I back up my use of those terms with the following facts.

1. 2006 was the first year that web based WMIS was utilized. The IDWR used WWC, including NSG and MV, South West Irrigation District (SWID), and Bonneville Jefferson Ground Water District (BJ) as the guinea pigs for the new application. Many times IDWR personnel thanked us for our comments. On one occasion an employee of IDWR Boise, said he appreciated our comments because we were the only company using the new WMIS version and he needed the feed-back. You must have forgotten that WWC was also the first to use the old WMIS. IDWR had not compiled an instruction manual. It was my employees and I who wrote an instruction manual and IDWR who asked us for a copy. The current instruction manual you refer to is completely inadequate and lacking in critical help areas.
2. IDWR does not allow WWC to query WMIS. Therefore, we have no way to run the QA checks your office uses. A simple quality assurance query run by you or your staff and sent to WWC with a request to review the listed wells would have been appreciated.
3. You have made it very plain to me that IDWR has the responsibility to enforce meter installation, application, and operation. Several of the wells on your "corrected" list have meters that you have known have been broken for more than 3 years. You and I have discussed several of these wells in person on many occasions. Every year I enter a comment that there is no meter or the meter is broken and every year you or your staff estimates an incorrect usage volume. More than one of the wells you "corrected" you estimate the owner over-diverted his water right. It is absolutely irresponsible to *estimate* an over-diversion. Your comment in the letter, discussed in this correspondence, states, "The Watermaster and IDWR staff must be able to confirm and attest to the credibility of the public record which is created by these data." Estimating volumes from non-data by you and your staff make it impossible to "confirm and attest to the credibility of the public record".

4. WWC must rely on IDWR to supply lists for data input, calculations, measurements, labels, and etc. Every list we receive has errors requiring WWC to fix. WWC has yet to receive a list that does not need work to be used. In fact, the American Falls Aberdeen list of owners and wells was the absolute worst list yet. More than 50% of the wells have the incorrect owners. WWC is then required to field the on-slaught of phone calls from irrigators concerning their water rights. It is embarrassing for us to tell them that we receive our lists from queries of the IDWR WMIS database.
5. During one of our recent conversations you told me that you use the Watermaster administrative budget to pay for collecting end of year totalizer meter readings. You and your staff collect these meter readings. For the 2006 records you deliberately withheld these readings from WWC decreasing our ability to compile accurate and complete records. The monies in the Watermaster administration budget are collected from the irrigators. Therefore, the irrigators paid you and your staff to collect those readings and now you are using the readings against them in a threat. That is unconscionable by a civil servant, particularly one in an office with immense responsibility as yours. In addition, you or your staff delete the owner submitted reading if it does not match your audit reading. Perhaps if you or your staff kept the owner readings, the readings might match year to year.
6. That you ran the QA query is important and required. However, this exercise should be viewed as an opportunity to improve the system rather than to produce a base threat; particularly after finding that a large portion of the problems could have been avoided directly through your office.
7. I reviewed the first 20 "corrected" wells on your list. Of the 20 wells I misplaced a decimal point on one record and apparently input calibration data into the wrong record. Those are my only 2 mistakes. If that percentage continues throughout the non-irrigation flow meter data then it calculates that I made 9 mistakes out of 270. Therefore, my accuracy percentage is 97% accurate.

When I first began measuring and reporting for NS one of the largest dairy owners told me, "They (IDWR personnel) treat me like a friggin criminal" (his exact words). At the time I thought his comment was a little harsh. Following your series of letters I see his comment in a different light. The fact of the matter is that the members of all the ground water districts are sincerely trying to comply with the requirements. None of them are trying to steal water or purposely withhold information.

I expect you and your staff to review the "corrections" list and re-evaluate your threat. I accept your offer to "cooperate and work with" us to "devise acceptable solutions and provide necessary training". I am at your disposal following the current irrigation season.

In the near future SWID and GC will request to annex several non-irrigation wells into their district. There will be one critical difference in these districts you should be welcoming. That difference is that WWC will calibrate the meters, collect the monthly readings, and perform the volume calculations. The necessity to rely on the owners, TSK Enterprises, Meter Maids, you and your staff, or others will end. This will eliminate opportunity for much of the error that currently exists. In addition it will help determine who is at fault for non-irrigation data collection and calculation.

Brian Higgs, P.G.

Idaho Department of Water Resources
Idaho Department of Water Resources
AAFGWD Board Member
AAFGWD Board Member
AAFGWD Board Member
AAFGWD Board Member
AAFGWD Board Member
BJGWD Board Member
BJGWD Board Member
BJGWD Board Member
GCID Board Member
GCID Board Member
GCID Board Member
MVGWD Board Member
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NSGWD Board Member
SWID Board Member
SWID Board Member
SWID Board Member

The history of the first 20 wells on your "corrected" list follows.

- 401205 My comment for 2006 states that there was a "new meter in July so beginning reading is not correct." My comment in the site visit states that the "meter way off on arrival" and it is necessary to adjust the total for the year. Previous year totals are around 20 AF, and I calculated AF for 2006 at 29.47. You or your staff "corrected" the total to 297.73 AF. The WR for this well is 93 AF per year. It is not reasonable to assume that your "correction" is accurate. Estimating an over-diversion is absolutely wrong. Does the procedure require the Watermaster send a *Notice of Violation* because you or your staff estimated that the owner over-diverted?
- 400095 An IDWR employee performed a calibration on 8/22/06. The calibration by that employee checked the meter to be +1.70 with a calibration confidence of "excellent". Completely unaware of the 8/22/06 calibration, I calibrated this meter on 9/21/06 and found it to be reading well within tolerance at 1.01; same meter, the serial number matches. My comment on usage 2006 states that the "readings this year not related to last year." Further investigation reveals that you or your staff changed the totalizer readings and that rollovers were assumed. While the calculation may be correct it is not reasonable to level blame for non-calculation or assumption for total volume on this well. Water right for this well is 195 AF. You or your staff estimated the volume at 227.29 AF.
- 401189 My calculated usage for this well in 2006 was zero because the meter was broken during the year. My note during calibration states "this meter is broken and not registering flow." My comment during calculation for annual volume states, "Data for A0001271 is already filled out and these #'s still don't match. This meter was broken when it was calibrated in 9/06." Hence, my calculation is zero as I do not know what the well pumped for the year. You or one of your staff copied the previous calibration information (2002) and moved it up to 2006 and applied the factor to the 2006 meter readings and stated the confidence as "good". Again, average volume from previous year's show usage of this well at approximately 100 AF. You or your staff estimated the volume pumped at 200 AF. Water right for this well is 191 AF. You or your staff estimated a "corrected" volume as an over-diversion again. The readings were input into WMIS as reported by the owner.
- 401493 I visited this well for calibration in 2004. My comment, in all capital letters states, "POOR METER LOCATION. NO CALIBRATION POSSIBLE IN CURRENT CONFIGURATION. SEE SITE VISIT NOTES. BDH." In the site visit I stated that the meter does not measure all the flow, it is in the wrong location and, in addition, there is nowhere to make a calibration measurement. Therefore, I calculated the usage at zero. Interestingly I repeat the same comments in 2007. Therefore, I calculated usage as unknown, 0 AF. You or your staff carried the 1998 calibration forward and estimate volume for 2006 at 148.63 AF. Average usage for the previous 4 years is 45.59 AF. You or your staff estimated usage at 3 times the average and 2.5 times the water right. You or your staff have done nothing to remedy the situation but kept moving the poor calibration forward and applied the factor every year.
- 401934 I visited this well on 9/21/06 for calibration. My comment states "meter not working properly. When the flow is greater than 65 gpm the meter is +5%. When the flow is less than 65 gpm the meter reads 0. Well pumped consistent 60 gpm during visit. Turned on wash booster to get high flow." Owner reported readings from January through April. You or your staff estimated a full year record, selected in the qualifier column. This record does not need to be "corrected." The owner realized the meter was broken, fixed it, and sent what readings he had or understood he needed to send.
- 401832 ARF apparently records the readings from well 401833 on 401832 ARF and vice versa. However, you or your staff recorded both wells on your "corrected" list when in reality there is only one mistake. It is possible that the label for the ARF is wrong, the meter reader is wrong or both. The actual serial numbers should be verified prior to changing the readings.
- 401529 Owner failed to submit meter readings.

- 401204 Meter failed sometime during 2003. You and your staff were aware of the failure as stated in the comments from 2003-2006. A new meter was installed during 2006 and was calibrated by me in September 2006. You or your staff ask in the FM calibration field, "is this a true test?" Since this was a new meter there is no factor prior to calibration. Therefore, calibration on this Grainland was 1.00. I do not understand the question. Of course it is a true test. However, it appears that I misplaced the decimal by 1 digit in calculating the total.
- 400119 One reading was supplied by the owner dated 2/25/07 of 32,700. Therefore, I cannot calculate a total volume. You or your staff calculated a total using ending audit reading of 2005 and 2006. However, the reading from the owner dated in February is lower than the beginning of 2006.
- 400449 No readings received from owner.
- 401542 My site visit comment of 10/6/2007 states, "A0004642 does not have a meter." You or your staff in the 1/1/2007 FM calibration field record, "Per bdh's comments, meter reliability may be an issue.(mr)" I do not know where that came from as it is not in the record. Readings continued to be sent in by the owner, you or your staff have audit readings, and you or your staff continued calculating a total each year. My comment on the FM usage field states, "Readings start in May and make no sense because it rolls over about every other month." Therefore, I did not make a calculation. It appears that I was at the wrong location in 2007 or the meter was removed between January 2007 and September 2007. Regardless, the meter does not meet IDWR standards and should have been replaced upon you or your staff discovering that fact.
- 401890 Meter is questionable beginning in 2003 according to IDWR comments. Owner reports problems with meter in 2005. No readings whatsoever in 2006. All readings from audit or otherwise are suspect. You and your staff rely on the readings regardless. I visited in 2007 and owner reported the well is used for 2 houses and for emergency milk tank back-up. Probably not necessary to meter. You or your staff need to visit and check on changing status of this well.
- 400547 Owner failed to send meter readings. Comment by you or your staff in FM calibration for 2002 states the meter "may need replaced or re-tested." This casts doubt on the reliability of the readings from the meter. Calibrated by me in 2005, with a factor of 1.15. Definitely out of calibration. You or your staff note in the comments, "flows entered incorrectly." I question if that statement is correct. However, since they have been changed I am unable to check correction. I did not make a calculation in 2006 due to the lack of readings. You and your staff rely on the audit readings of this questionable meter. Has the owner been notified by your office that he needs to replace his meter? He definitely saw the statement on his Summary Sheet sent by WWC that "no readings" were submitted.
- 400605 The FM calibration of 9/7/2006 should have been entered into Well 400603 by WWC personnel. You and your staff should have noticed this problem during the audit especially when you or someone from your staff "changed volume multiplier to 1000 from 100" (comment on FM calibration field). In addition, the factor is 0.98 instead of 0.83. Record needs to be corrected. Changing the multiplier from 1000 to 100 should have been verified by you or your staff prior to change. This could have been accomplished by checking the field form in the NS office. No excuse for my mistake.
- 400093 You or your staff thought this well did not pump enough water so you or your staff added 2 roll-overs to the record. I have never calibrated this well and in fact I have no site visit notes. This well does not show up on any of the lists I have received from you or your staff.
- 401198 "Readings from Jan through April" in comment. Site visit states to use total because pump was cycling. The numbers in the Installed Meter Flow and the Standard Meter Flow were total volumes during the entire test and not rates. For some reason you or your staff changed the flow numbers. Comment in FM calibration field states, "corrected volume multiplier". The field form will have to be reviewed prior to verification of this change.
- 401854 Comment-"readings start in April". You or your staff used the ending 2005 reading for the start of the year but still miss January through April volumes.

- 400040 Operator records monthly totals instead of actual meter readings. For a reason unknown to me, you and your staff calculated a different volume than the operator. Whether the meter readings are used or the total gallons pumped are used the totals should be the same.
- 401145 Comment on FM Usage states, "New mag meter in March. No readings prior to that time." It is unknown when the old meter failed so it becomes necessary for you or your staff to estimate the volume for 3 months. Even audit data cannot help this problem. That means the old meter was broken and not reading. Assuming that the new meter started at 0 then the record is only missing 3 months. However, determining the volume for the 3 months is not possible. You or your staff estimated it and place this well on the "corrected" list.
- 401833 See 401832.



STATE OF IDAHO
WATER DISTRICT 140
C/O IDAHO DEPARTMENT OF WATER RESOURCES
1341 FILLMORE ST., STE. 200
TWIN FALLS, ID 83301-3380
TELEPHONE NUMBER (208) 736-3033
FACSIMILE NUMBER (208) 736-3037

IDWR DIRECTOR
DAVID R TUTHILL, JR

WATERMASTER
CINDY YENTER
Cindy.Yenter@idwr.idaho.gov

June 16, 2008

BOARD OF DIRECTORS
GOOSE CREEK IRRIGATION DISTRICT
PO BOX 207
OAKLEY IDAHO 83346

BRIAN HIGGS
WATER WELL CONSULTANTS
6330 W 33rd S
IDAHO FALLS ID 83402

Dear Board Members and Mr. Higgs:

I am responding to Mr. Critchfield's correspondence dated February 15, 2008, which petitions the Idaho Department of Water Resources (IDWR) for Goose Creek Irrigation District (GCID) to measure and report to Water District 140. GCID is recognized as a sub-district in WD140 and is therefore eligible to measure and report for its member ground water users, upon demonstration that these activities will be in compliance with IDWR measurement standards and statutory reporting requirements.

GCID indicates that they have secured or will secure Mr. Higgs and his firm, Water Well Consultants (WWC) as Hydrographer for GCID. Mr. Higgs is currently serving as a contract hydrographer for Bonneville-Jefferson and Aberdeen-American Falls Ground Water Districts in WD120, Magic Valley and North Snake Ground Water Districts in WD130, and Southwest Irrigation District in WD140. The total number of wells measured and reported by WWC within these Water Districts is approximately 2765. The addition of ground water diversions in GCID would add approximately 60 diversions to this total.

Measurement and reporting data provided by WWC for irrigation diversions in Water Districts 120, 130 and 140 meet present IDWR standards. However, I have recently required the North Snake Ground Water District (NSG) and WWC to resolve some ongoing problems specifically related to the reporting and data entry for non-irrigation (commercial dairy) diversions within NSG. Until these problems are resolved, authorization for WWC to conduct measurement and reporting in GCID and in WD140 will be limited to *irrigation diversions only*.

Consistent with our responses to other measurement requests, IDWR and WD140 are seeking assurance that the overall quality of WWC's work will not decline as the firm continues to build its client base. I am requesting on behalf of both WD140 and IDWR that Mr. Higgs submit an updated report or work plan that substantiates the ability of the firm to accommodate the increased workload created by the additional GCID diversions. The report must include the following:

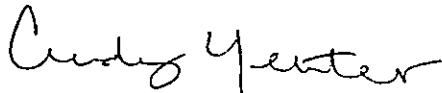
- A list of the field staff hired for the 2008 irrigation season, including the geographical areas in which they will be working and the dates they are available, and an estimate of the number of diversions reasonably expected to be measured by each staff member.
- A list of office personnel and their availability during and after the irrigation season for data entry and related followup, and the number of computers available for WMIS data entry.

- An estimate of the percentage of Mr. Higgs' time that is spent on other WWC projects not related to ESPA / Water District measurement and reporting.
- A list or count of measurement equipment and other relevant equipment resources, and operational status of all equipment.
- WD140 has recommended to IDWR that flow meters be ordered as standard measuring devices for irrigation wells in WD140. Please discuss the changes WWC is prepared to make in its operations and staffing to guarantee that all device data can be collected and reported each year as required.

At this time, all ground water diversions for commercial, municipal, industrial or other non-irrigation uses within WD140 will be measured, assessed by, and reported directly to WD140. Any of these water users may petition to join GCID or other groups as mitigation-only members, if necessary to avoid curtailment of water rights. In the future, a request to include non-irrigation ground water users in GCID for measurement and reporting might be considered, provided the request is accompanied by a viable measurement plan.

As soon as I receive and review Mr. Higgs' report, I will notify GCID with a final decision. While I do not anticipate a problem with the approval of the GCID measurement request for irrigation diversions, I must complete the formal review process. I realize that WWC has already been working in GCID, and I will forward the GCID diversion lists as soon as I am able.

Regards,



Cindy Yenter, Watermaster
Water District 140

cc: Tim Luke, IDWR
North Snake GWD
Magic Valley GWD
Aberdeen-American Falls GWD
Bonneville-Jefferson GWD
Southwest Irrigation District

WATER WELL CONSULTANTS, INC.
Report to Water Master regarding GCID

2008 FIELD STAFF (our field staff work 12-14 hour days, 5-6 days a week)

Brian D. Higgs, Licensed Professional Geologist

BS in Geology from BYU, Previously employed by USGS and INL. 25 years experience

Available 24-7 year round (less than 5% of time spent on other WWC projects not related to ESPA/Water District measurement and reporting)

Working in all districts

Jaxon B. Higgs, Hydrologic Technician

Geology Major at BYU-Idaho (Jr.), 7+ years previous experience, Fluent in Spanish

Available 4-14-08 to 9-6-08, 12-15-08 to 1-6-09 as needed

Working in NS, SW, & AFA

Brian A. Krupp, Hydrologic Technician

BS in Geology from BYU-Idaho, Secondary Education Teaching Certificate from ISU, 8th Grade Earth Science Teacher, 4 years previous experience

Available 6-10-08 to 7-24-08

Working in BJ & AFA

Barry C. Miller, Hydrologic Technician

Geology Major at BYU-Idaho (Jr.), 1 year previous experience

Available 4/14/08 to 9-6-08, 12-15-08 to 1-6-09 as needed

Working in MV, SW, & AFA

Chris Perkins, Hydrologic Technician

Geology Major at BYU-Idaho (Soph.), Intern

Available 4-14-08 to 9-6-08, 12-15-08 to 1-6-09 as needed, committed to 2009

Working in MV, SW, & AFA

Brent Doty, Hydrologic Technician

Geology Major at BYU-Idaho (Sr.), Fulfilled internship in 2007 with IDWR in IF. Intern, Fluent in Spanish

Available 4-14-08 to 6-3-08 (Geology Field Camp) 7-21-08 to 9-6-08, 12-15-08 to 1-6-09 as needed, committed to 2009

Working in BJ & AFA

"An estimate of the number of diversions reasonably expected to be measured by each staff member": With the addition of Goose Creek Irrigation District, Water Well Consultants, Inc. (WWC, Inc.) will measure and report approximately 2825 diversions. This requires measurement of 942 diversions each year. The actual total number of diversions is less than that due to the fact that some of the diversions are no longer used. Each Hydrologic Technician works 12 hour days, 6 days a week from May thru August or approximately 90 days. Consequently, each technician needs to make at least 2.1 measurements per day to meet the requirement.

WATER WELL CONSULTANTS, INC.
Report to Water Master regarding GCID

2008 OFFICE STAFF

Brian D. Higgs, P.G.

see above

Available 24-7 year round

Barbara M. Higgs, Office Manager

Water Well Consultants, Inc. - 13 years, Office Manager for 2 other professional offices, Producer of several high budget professional & semi-professional Musical Theater Productions (retired), Served on the Board of Directors for the Idaho Falls Youth Arts Centre for 8 years (resigned)

Available 24-7 year round

Harmony H. White

BS in Music from BYU

Available full-time year round as needed

Jaimie H. Krupp

RN from BYU-Idaho

Available full-time 6-10-08 to 8-7-08

Jaxon B. Higgs

see above, trained in GIS

Available part-time 9-8-08 to next field season, full-time 12-15-08 to 1-6-09 as needed

Barry C. Miller

see above

Available part-time 9-8-08 to next field season, full-time 12-15-08 to 1-6-09 as needed

Kristi Miller

BYU-Idaho Student (Sr.), Elementary Education Major

Available full-time 4-16-08 to 9-8-08 & 12-15-08 to 1-6-09 as needed, part-time 9-8-08 to next field season

Brent Doty

see above, trained in GIS

Available part-time 9-8-08 to next field season, full-time 12-15-08 to 1-6-09 as needed

Brenda Doty

BYU-Idaho Student (Sr.), General Studies Major

Available full-time 6-9-08 to 9-8-08 & 12-15-08 to 1-6-09 as needed, part-time 9-8-08 to next field season

Brittany Bakow

BYU-Idaho Student (Jr.), English Major

Available full-time 4-14-08 to 5-29-08 & 12-15-08 to 1-6-09 as needed, part-time 9-8-08 to next field season

Rachel Thornton

BYU-Idaho Student (Jr.), Recreation Management Major

Available full-time 4-14-08 to 4-29-08, part-time 9-8-08 to next field season

Megan Cox

BYU-Idaho Student (Soph.)

Available part-time 9-8-08 to next field season, full-time 12-15-08 to 1-6-09 as needed

Paul Pelot

BS in Geology from ISU, Minor in GIS

Available evenings and weekends as needed

WATER WELL CONSULTANTS, INC.
Report to Water Master regarding GCID

VEHICLES

'07 Toyota Tundra Pickup Double Cab
'07 Toyota Tacoma Pickup Double Cab
'04 Toyota Tundra Pickup Double Cab
'03 Dodge Ram Cummins Diesel Pickup Crew Cab
'99 Dodge Ram Cummins Diesel Pickup Extended Cab

EQUIPMENT (All equipment is in good working order)

6 Fuji Ultrasonic Flow meters including transducers & bars (calibrated at Kimberly Laboratory)
5 small diameter transducer sets
1 Doppler Flow meter
5 Ultrasonic Thickness Gauges
5-50' Extension Cables
7 Inverters
Down-Hole TV Camera
4 E-line Water Level Indicators
5 Cell Phones
7 Computers (2 equipped with GIS)
7 Employee Computers Available
Miscellaneous Office & Field Equipment
'03 Honda ATV
'00 Honda ATV

OFFICE & HOUSING

Office - 6330 W. 33rd S., Idaho Falls, ID (equipped with high speed internet)
Work House - 411 S. Crestview Rd., Paul, ID (equipped with high speed internet)
'01 Tahoe 5th Wheel – 28 ft.
'78 Airstream Camp Trailer – 23 ft.
'73 Airstream Camp Trailer – 31 ft.

"Changes WWC is prepared to make in it's operations and staffing to guarantee that all device data can be collected and reported each year as required": Water Well Consultants, Inc. (WWC, Inc.) currently contracts measuring and reporting for 5 Groundwater and Irrigation Districts. All irrigation measuring and reporting is consistent throughout all the districts. If IDWR determines that flow meters will be standard measuring devices in WD 140 WWC, Inc. is already prepared to meet this requirement. The calibration of a flow meter requires no extra field effort. In fact, flow meters require less field work. Currently in all districts the owner is responsible to provide monthly readings of these meters at the end of the year. If Southwest Irrigation District and Goose Creek Irrigation District desire WWC, Inc. to read the meters monthly it is obvious from the list of our employees and equipment that this will not be an added burden. Southwest Irrigation District & Goose Creek Irrigation District are planning to annex dairy and feedlot wells into their districts. The contract with WWC, Inc. will include measuring and reporting, and monthly meter readings. WWC, Inc. is more than able to complete these tasks.



STATE OF IDAHO
WATER DISTRICT 130
C/O IDAHO DEPARTMENT OF WATER RESOURCES
1341 FILLMORE ST., STE. 200
TWIN FALLS, ID 83301-3380
TELEPHONE NUMBER (208) 736-3033
FACSIMILE NUMBER (208) 736-3037

IDWR DIRECTOR
DAVID R TUTHILL, JR

WATERMASTER
CINDY YENTER
Cindy.Yenter@idwr.idaho.gov

June 11, 2008

NORTH SNAKE GROUND WATER DISTRICT
152 E MAIN ST
JEROME ID 83338

RE: Insufficiencies in Measurement and Reporting for Non-Irrigation Diversions within NSGWD

Dear Board Members:

Measurement and reporting for non-irrigation diversions within North Snake GWD (NSG) is presently not meeting IDWR standards. The Board's prompt attention to this issue will be necessary if NSG is to continue measurement and reporting for these diversions.

From the time non-irrigation diversions, primarily commercial dairies, began petitioning to join NSG in 2002, Water District 130 (WD130) has struggled to obtain consistent and accurate data for these diversions. Quality of commercial, industrial and municipal data has improved somewhat since 2004, but remaining insufficiencies relating specifically to collection and entry of flow meter data, have raised serious concerns about the adequacy of NSG's resources to measure and report for this group of water users.

To better identify and quantify data insufficiencies, I asked Michelle Richman (IDWR) to complete an analysis of 2006 NSG non-irrigation flow meter data, using WMIS database records captured before and after WD130 completed quality assurance checks in those records (analysis attached). The results of the data analysis indicate that WD130 staff corrected, completed or modified 33% of 270 NSG records¹ for 2006 which contain non-irrigation flow meter data (measurement option 8). About 20 of the corrected records initially contained no data at all due to non-reporting by the water user. The above data were collected by NSG and data entered into WMIS by hydrographer Brian Higgs or employees of Water Well Consulting (WWC).

Data entry errors varied, but corrections made by WD130 include:

- Non-sequenced totalizer data – end totalizer reading from previous year did not match start totalizer from current year, resulting in data gaps or data overlaps.
- Data entered in the wrong record – either totalizer data or flow meter calibration data entered for an incorrect diversion. Some reported totalizer data are habitually switched by the user or by the data collector (this is usually obvious if totalizer data are properly sequenced). This must be noted and corrected at the time of data entry.
- Records not completed – Associated records for diversions with shared flow meters not filled out to cross-reference data stored in another record.
- Missing or erroneous volume multipliers and flow units – incorrect units and/or multipliers entered, so resulting annual volumes are incorrect. Sometimes totalizer entries are altered to compensate (typically by the addition of zeros or decimals).
- Missing calibration factors – standard meter units (a required field) are not entered in flow meter calibration record, which results in calibration factor to not calculate. All diversion records subsequent to this calibration record are not properly adjusted.
- Non-reported data – user did not report. No apparent attempt made by NSG to physically collect data. Diversion data either missing for current year or noted that "report not received".

¹ Primary data records only. Records which represent a second well sharing a common flow meter (qualifier = OW) are not included in this number.

This level of ongoing error is not acceptable, and immediate action is required by NSG. The following criteria must be met for non-irrigation flow meter data which are collected and reported by NSG for years 2007 and later:

- All identified data entry standards for the WMIS database must be adhered to. The WMIS help document, including all data definitions, is available as a download through the WMIS.net platform, or may be requested from IDWR.
- At least 95% of active non-irrigation flow meter annual diversion records must be populated with valid totalizer data (no more than 5% incomplete or showing no data). This criterion will be calculated on primary data records only and will not include records for shared meters.
- No more than 5% of active non-irrigation flow meter annual diversion records must require correction after data entry. This criterion will apply to all records, including associated records for shared flow meters and for flow meter calibrations.

IDWR has been notified by WWC that data entry has been completed for 2007. WD130 quality assurance checks will begin on 2007 NSG non-irrigation flow meter data after August 1, 2008. I encourage NSG to use the time between now and August 1 to conduct a thorough review of the 2007 data which have been entered by WWC on your behalf. **If 2007 non-irrigation data reported by NSG are found to be unacceptable and/or are not in accordance with the above criteria, WD130 will assume measurement and reporting responsibilities for all NSG non-irrigation diversions beginning in 2009.**

A similar analysis has not yet been completed for flow meters or hour meters on irrigation diversions in the NSG. However, there is a known similar problem with this data set. Based on the NSG conversion well data only, 23% of conversion wells using hour or flow meters to measure diversions (7 of 30 wells) are still missing 2007 reported data. Accordingly, Water District 130 will also conduct an initial analysis on 2007 irrigation data collected from all NSG irrigation flow meters and hour meters. This analysis will also occur after August 1, 2008, using the above criteria. Based on the results, notice of insufficiency may also be given regarding irrigation diversions.

WD130 is responsible for accurate and complete diversion data. The Watermaster and IDWR staff must be able to confirm and attest to the credibility of the public record which is created by these data. Consequently, ground water districts that serve as sub-districts within Water District 130 for measurement and reporting purposes must be accountable to WD130 for all data they collect and report.

Correcting deficiencies in 2007 reporting and data entry must be a priority issue for NSG during 2008. The Board's immediate consideration of solutions and timely implementation of changes will be necessary to avoid intervention by IDWR and WD130. Any changes or additions to 2007 reported data prior to August 1, 2008 will be accepted as timely by WD130.

Please be advised that I am willing to cooperate and work with the NSG Board, the NSG Office Manager, Brian Higgs and the WWC staff to devise acceptable solutions and provide necessary WMIS training. However, NSG must be responsible for its measurement and reporting plan, and must ensure that contract hydrographers are performing work at satisfactory levels.

Regards,



Cindy Yenter, Watermaster
Water District 130

cc: Tim Luke, IDWR
Brian Higgs, Water Well Consulting
Magic Valley Ground Water District

Summary:**Count of Changes:**

180 records of 270 have no change

90 records of 270 changed (33%)

33% of the reported volumes in WMIS were corrected by IDWR. Some volumes were under-reported and some were over-reported.

Actual Change in AcFt:

-8450.7 AF

Corrections by IDWR resulted in a decrease of 8451 AF for the total volume reported. In other words, the volume was over-reported by 8451 AF.

Percent Change in AcFt:

-28.10 %

Corrections by IDWR resulted in a 28.1% drop in the volume reported in WMIS.

Under-reported FM Usage:

63 records, errors totaling 2597 AF, with the largest error at 268 AF

Of the 63 under-reported records, the largest single error resulted in an under-reporting of 268 AF.

Over-reported FM Usage:

27 records, errors totaling 11048 AF, with the largest error resulting in an over-reporting of 5325 AF.

Of the 27 over-reported records, the largest single error resulted in an over-reporting of 5325 AF. The two largest errors resulted in a total over-reporting of 8796 AF.

Data prepared by: Michelle Richman, IDWR

Date: Feb 25, 2008

All data provided by Water District 130. Annual reported user data are subject to ongoing review and verification.

Reporting District ID	WMIS Number	Report Year	Measurement OptionID	PreQA AdjustedA creFeet	Post QA AdjustedA creFeet	Diff in AF	
15	401205	2006	8	29.47	297.73	268.26	under-reported
15	400095	2006	8	5.84	227.29	221.45	under-reported
15	401189	2006	8	0	197.81	197.81	under-reported
15	401493	2006	8		148.63	148.63	under-reported
15	401934	2006	8	44.67	160	115.33	under-reported
15	401832	2006	8	14.64	124.72	110.08	under-reported
15	401529	2006	8	0	94.21	94.21	under-reported
15	401204	2006	8	10.4	103.8	93.40	under-reported
15	400119	2006	8		87.34	87.34	under-reported
15	400449	2006	8		87.04	87.04	under-reported
15	401542	2006	8	0	69.53	69.53	under-reported
15	401890	2006	8		68.16	68.16	under-reported
15	400547	2006	8		63.73	63.73	under-reported
15	400605	2006	8	6.82	68.16	61.34	under-reported
15	400093	2006	8	13.98	72.62	58.64	under-reported
15	401198	2006	8	0.01	53.35	53.34	under-reported
15	401854	2006	8	25.8	74.08	48.28	under-reported
15	400040	2006	8	590.91	636.73	45.82	under-reported
15	401145	2006	8		42.56	42.56	under-reported
15	400840	2006	8		39	39.00	under-reported
15	401539	2006	8		36.54	36.54	under-reported
15	400049	2006	8	187.61	222.34	34.73	under-reported
15	401897	2006	8	26	60.69	34.69	under-reported
15	400048	2006	8	142.77	174.97	32.20	under-reported
15	400063	2006	8	65.37	97.27	31.90	under-reported
15	401902	2006	8	35	66.03	31.03	under-reported
15	400038	2006	8	650.89	681.11	30.22	under-reported
15	400436	2006	8	11.9	41.12	29.22	under-reported
15	401160	2006	8	50.85	79.09	28.24	under-reported
15	400841	2006	8	3.05	30.56	27.51	under-reported
15	401163	2006	8		26.86	26.86	under-reported
15	400195	2006	8	6.61	31.76	25.15	under-reported
15	400219	2006	8		23.55	23.55	under-reported
15	401138	2006	8	252.23	274.93	22.70	under-reported
15	400078	2006	8	10.4	32.8	22.40	under-reported
15	401833	2006	8	113.59	133.35	19.76	under-reported
15	401519	2006	8	27.26	45.87	18.61	under-reported
15	400091	2006	8	0.02	16.08	16.06	under-reported
15	400066	2006	8	316.99	333	16.01	under-reported
15	400105	2006	8		15.4	15.40	under-reported
15	401191	2006	8	72.71	87.73	15.02	under-reported
15	400071	2006	8	15.62	30.23	14.61	under-reported
15	400096	2006	8		9.91	9.91	under-reported
15	100573	2006	8	59.48	68.4	8.92	under-reported
15	100601	2006	8	0.01	5.94	5.93	under-reported
15	400083	2006	8	0.06	5.88	5.82	under-reported
15	401834	2006	8	0.3	5.2	4.90	under-reported
15	401151	2006	8	241.54	246.38	4.84	under-reported

Commercial 2006 audit comparison FINAL.xls

Reporting District ID	WMIS Number	Report Year	Measure-ment OptionID	PreQA AdjustedA creFeet	Post QA AdjustedA creFeet	Diff in AF	
15	400082	2006	8		4.82	4.82	under-reported
15	400108	2006	8	0.02	4.78	4.76	under-reported
15	400187	2006	8		3.62	3.62	under-reported
15	400838	2006	8		3.46	3.46	under-reported
15	100597	2006	8	20.39	23.67	3.28	under-reported
15	401898	2006	8	30.21	32.85	2.64	under-reported
15	401931	2006	8	17.65	19.54	1.89	under-reported
15	400109	2006	8	35.69	37.12	1.43	under-reported
15	401202	2006	8	48.32	49.7	1.38	under-reported
15	400102	2006	8	1.99	2.95	0.96	under-reported
15	400846	2006	8	9.37	10.12	0.75	under-reported
15	401155	2006	8	0.07	0.72	0.65	under-reported
15	400100	2006	8	0	0.53	0.53	under-reported
15	401837	2006	8	8.9	8.97	0.07	under-reported
15	401696	2006	8	6.2	6.26	0.06	under-reported
15	401935	2006	8	2.46	2.26	-0.20	over-reported
15	400123	2006	8	55.3	55	-0.30	over-reported
15	401503	2006	8	17.22	16.53	-0.69	over-reported
15	400101	2006	8	2.87	1.93	-0.94	over-reported
15	400135	2006	8	179.58	177.38	-2.20	over-reported
15	400115	2006	8	228.29	226.01	-2.28	over-reported
15	401502	2006	8	233.88	231.2	-2.68	over-reported
15	400062	2006	8	297.7	294.72	-2.98	over-reported
15	401823	2006	8	45.32	41.7	-3.62	over-reported
15	401153	2006	8	33.4	29.73	-3.67	over-reported
15	100616	2006	8	86.83	82.91	-3.92	over-reported
15	400117	2006	8	222.61	218.52	-4.09	over-reported
15	400116	2006	8	271.31	264.29	-7.02	over-reported
15	400166	2006	8	49.25	24.17	-25.08	over-reported
15	400079	2006	8	72.6	34.97	-37.63	over-reported
15	401843	2006	8	63.82	19.95	-43.87	over-reported
15	401520	2006	8	124	79.39	-44.61	over-reported
15	401161	2006	8	106.6	24	-82.60	over-reported
15	400159	2006	8	181.04	73.97	-107.07	over-reported
15	400174	2006	8	121.6	12.52	-109.08	over-reported
15	400493	2006	8	201.81	58.93	-142.88	over-reported
15	400045	2006	8	173.67	29.41	-144.26	over-reported
15	401844	2006	8	232.5	21.32	-211.18	over-reported
15	401936	2006	8	630.04	0	-630.04	over-reported
15	400858	2006	8	639.69	1.24	-638.45	over-reported
15	401206	2006	8	3575.87	104.08	-3471.79	over-reported
15	400198	2006	8	5330	5.47	-5324.53	over-reported
			TOTALS	30085.27	21634.59	-8450.68	