



STATE OF IDAHO  
DEPARTMENT OF  
ENVIRONMENTAL QUALITY

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www.deq.idaho.gov

C.L. "Butch" Otter, Governor  
John H. Tippetts, Director

May 2, 2016

**CERTIFIED MAIL: 7015 3010 0000 2018 0040  
RETURN RECEIPT REQUESTED**

Mr. Dan Richter  
Avimor Water Reclamation Co.  
18454 N. McLeod Way  
Boise, Idaho 83714

Subject: Reuse Permit No. M-211-03 Avimor Water Reclamation Company (Boise, Ada County)  
Final Reuse Permit

Dear Mr. Richter:

The Idaho Department of Environmental Quality (DEQ) is issuing Reuse Permit No. M-211-03 to Avimor Water Reclamation Company. The enclosed document is your official copy of the reuse permit, and demonstrates that you are authorized to operate the reuse facility subject to the conditions specified in the reuse permit.

Attachment 1, enclosed with this letter, includes the comments received on the draft permit with DEQ's responses. No changes were made to the final reuse permit as a result of the comments.

Your reuse permit is issued as of May 2, 2016, and expires on May 2, 2021. If you have any questions, please contact Gary Carroll at (208) 373-0117, or via e-mail at [gary.carroll@deq.idaho.gov](mailto:gary.carroll@deq.idaho.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Aaron Scheff".

Aaron Scheff  
Regional Administrator  
Boise Regional Office

Attachments: Attachment 1 – Comments on Draft Reuse Permit with DEQ Responses

Enclosures: Final Reuse Permit M-211-03

ec: Carl Hipwell, P.E., Pharmer Engineering (w/ attachments and enclosures)  
Rich Reavis, E.I., Pharmer Engineering (w/ attachments and enclosures)  
Bill Duncan, OMCS LLC (w/ attachments and enclosures)  
Chris Linder, OMCS LLC (w/ attachments and enclosures)  
Austin Hopkins, Idaho Conservation League (w/ attachments)  
C. Gary Carroll, P.E., Boise Regional Office  
Todd Crutcher, P.E., Boise Regional Office  
Janelle Larson, Wastewater Program, DEQ State Office  
TRIM Record 2016AGH773

## Attachment 1

The Idaho Conservation League provided comments on draft reuse permit M-211-03 in a letter sent to the Idaho Department of Environmental Quality (DEQ) dated March 21, 2016. The letter was received during the public comment period for the draft reuse permit. The following are the comments followed by DEQ's response.

### 1. Landscaped Common Area Acreage

The total area for the pressure irrigated landscaped common area (MU-2115) is listed as 16.2 acres. It is unclear if that area reflects the total area within the perimeter of MU-2115 shown in Figure 2-2 or the summation of the smaller irrigated areas shown in Figure A-2. We ask that DEQ please clarify this point.

Response: The 16.2 acres is the total combined acreage of the small, individual landscaped common areas shown in Figure A-2. In Section 4.6.2.1 of the Staff Analysis, in the second paragraph on page 24, it states that 6.79 acres of MU-2115 is irrigated. The areas currently irrigated are primarily the area along the western edges of the development (adjacent to Highway 55) and along the Avimor entrance road and the road to the AWRF. The vegetation in these areas is almost entirely turfgrass.

### 2. Background Water Quality

Table 4-5 and Figure 4-2 present ground water quality data collected from 2009-2014. Certain constituents, particularly nitrate, have background concentrations that occasionally exceed limits in Idaho's *Ground Water Quality Rule*, IDAPA 58.01.11. It appears from Figure 4-2 that there is a seasonal component to this issue, with high nitrate concentrations observed in the Spring. High nitrate concentrations during the Spring are common as a result of agricultural operations applying fertilizer to fields; however there appears to be no agricultural land nearby that would contribute nitrate to groundwater. We are curious if either DEQ or AWRF has any idea what is causing the high background concentrations of nitrate.

Response: Neither the Avimor Water Reclamation Company (AWRC) (the permittee) nor DEQ has determined the reason the ground water has these nitrate background levels.

### 3. Irrigation Water Requirements

The calculation of irrigation water requirement (IWR) for each irrigated MU was based on a turf grass given that it made up the largest portion of irrigated areas. We are concerned that although turf grass makes up the largest portion of irrigated land, its water consumption may not accurately represent the remaining species. Although comprising a smaller area, accounting for varying water consumption for the different plants present could significantly change the net irrigation requirement. For example, irrigated turf grass has a mean Pdef of 985 mm during the growing season, while native sage brush has a

mean P<sub>def</sub> of 59 mm during this same season<sup>1</sup>. Given such a large variance, it seems necessary to account for each plant type to ensure loading allocations are accurate.

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<sup>1</sup> Estimates of P<sub>def</sub> taken from ETIdaho 2012 using data from Boise WSFO Airport, accessed online via: <http://data.kimberly.uidaho.edu/ETIdaho/>

Response: The Staff Analysis evaluated the actual and projected hydraulic loadings on MU-21115 and compared it to an estimated irrigation water requirement (IWR). The estimated IWR was based on turfgrass because turfgrass makes up the largest portion of the irrigated landscaped common areas in MU-21115 and is what the permittee used in their 2013 and 2014 annual reports. The 6.79 acres of MU-21115 that is currently being irrigated is almost entirely planted with turfgrass, so it has an even higher percentage of turfgrass than the total of MU-21115. The IWR estimated in the Staff Analysis is not the IWR that the permittee will use to annually evaluate and determine the hydraulic loading to MU-21115. The reuse permit requires that the hydraulic loadings applied to MU-21115 be substantially at the IWR for the vegetation being irrigated (Section 4.2 – Hydraulic Loading Limits). The reuse permit further states, in footnote b of that section, that the P<sub>def</sub> data used to calculate the IWR will be specified in the Crop Management Plan of the Plan of Operation (required by compliance activity CA-211-01 of the reuse permit). The Crop Management Plan (which must be approved by DEQ) will have to specify how the IWR is determined for the various types of vegetation, and must provide justification for that determination.

Furthermore, for 2014 the IWR was exceeded on average by 209% for the months of May-October. This exceedance is relative to the 6.79 acres that were irrigated in 2014. Table 4-8 estimates IWR of 23,961,418 gallons for the entire permitted 16.2 acres. If this value was exceeded at the same average level (209%) as the 2014 data, that would represent a total of 50,080,225 gallons. Does Avimor have the water rights to sustain this volume of usage?

Response: The permittee presently applies water to the 6.79 acres of MU-21115 substantially above the IWR for turfgrass. Most of this is supplemental irrigation water. In 2014, of the 18,534,458 gallons of irrigation water applied to the 6.79 acres of MU-21115, 89% of it (16,494,111 gallons) was supplemental irrigation water. The source of nearly all the supplemental irrigation water is potable water supplied by Suez (formerly United Water Idaho), via the public water supply distribution system, which the permittee has to pay for, not through water rights. See Sections 3.2.1 and 6.5 of the Staff Analysis for a description of the source of supplemental irrigation water.

#### 4. Phosphorus Loading Rate

The Staff Analysis recommends that no total phosphorus loading rate limit for land application of recycled water to MU-21115 be required in the reuse permit at this time.

However, the draft permit requires Avimor to monitor effluent phosphorus concentrations and report total loading to MU-21115. Given that Avimor is still required to perform monitoring, we strongly encourage DEQ to include a P loading limit, such as the 40 lbs P/ac-year suggested by the EPA, in order to provide enforceable measures should the need arise.

Response: A phosphorus loading rate is not necessary in the reuse permit because there is no ground water quality standard for phosphorus, and there is no indication that phosphorus in the recycled water applied to MU-21115 will reach surface water where it could be a concern. The phosphorus loadings determined in the permittee's annual report are well below estimated phosphorus uptake rates of turfgrass and recommended fertilizer application rates reported in the literature. Therefore, it is unlikely that phosphorus will infiltrate below the root zone of the vegetation. The reuse permit requires that the permittee monitor the phosphorus levels in the recycled water applied to MU-21115 and determine the loading rate. The reuse permit also requires that phosphorus be monitored in the ground water, soil, and surface water. These monitoring requirements are adequate to determine if it appears that phosphorus may reach surface water. If an adverse impact on surface water due to recycled water loadings at MU-21115 is indicated, the reuse permit can be modified to include a limit on phosphorus loading to MU-21115. IDAPA 58.01.17.700.01.c and d (the *Recycled Water Rules*) allow DEQ to modify a reuse permit if DEQ determines that there is good cause to modify the terms or conditions of the permit, or if there is an indication that a pollutant, not limited in the reuse permit, may cause an adverse impact on surface water or ground water.

## 5. COD Loading Rates

The previous permit required monitoring and calculation of loading rates for COD, yet this permit eliminates those requirements. DEQ has justified this by stating they typically don't impose loading rates or require monitoring of COD in other municipal reuse facilities. We are curious as to what the initial motivation was for including COD loading rates and monitoring in the initial permit. If these concerns persist, we think it is pertinent to continue including loading rates and monitoring requirements in the current permit regardless of what typical municipal reuse permits contain.

Response: Adding organic matter (COD) is actually helpful to the soil. However, if too much COD is applied to the soil it can "clog" the upper few inches of the soil. Research indicates that an upper limit for COD loading to soils is approximately 50 lb COD/ac-day to prevent soil "clogging." This is the loading limit (calculated as a seasonal average) that DEQ typically sets in reuse permits for facilities that have high COD loads in the recycled water. This loading equates to a very high level of COD in the recycled water. For example, if recycled water were applied at an average flowrate of 1,700 gal/ac-day (this is the approximate average flow of recycled water applied to MU-21115 in 2014), the 50 lb COD/ac-day loading would equal an average

COD concentration of 3,500 mg/L in the recycled water. In 2014, the average COD concentration in the recycled water applied to MU-21115 was less than 20 mg/L, and the seasonal average COD loading was 0.27 lb COD/ac-day. The current and previous Avimor reuse permits required COD monitoring because, at the time, this was frequently included by DEQ in municipal reuse permits even though the COD loadings were substantially below the loading limit. Now, however, DEQ has eliminated this superfluous requirement and usually only requires COD monitoring and sets COD loading limits in industrial reuse permits for industrial facilities that have high COD levels in the recycled water (typically food processors).

The COD load in the Avimor recycled water is of no concern and does not need to be monitored.