



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

900 North Skyline Drive, Suite B • Idaho Falls, ID 83402 • (208) 528-2650

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

CERTIFIED RETURN RECEIPT:

January 23, 2018

Mayor Annette Eddins 7013 1090 0001 7435 7651
City of Dubois
PO Box 27
Dubois, ID 83423

Ace Hensley 7013 1090 0001 7435 7668
City of Dubois
PO Box 27
Dubois, ID 83423

Subject: reuse permit renewal M-166-04 issued for the City of Dubois

Dear Mayor Eddins and Mr. Hensley:

The Idaho Department of Environmental Quality is issuing the renewed reuse permit M-166-04 for the City of Dubois wastewater treatment facility. The enclosed permit is your official copy and demonstrates that you are authorized to operate the facility subject to the conditions specified in the permit.

A summary of the changes made in the final permit as a result of comments received on the draft permit, as well as responses to those comments, is enclosed with this letter.

Your permit is effective as of February 15, 2018 and expires on February 15, 2028.

The DEQ will contact you to arrange a permit handoff meeting.

Please contact Charlie Mazzone at 208-528-2650 if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Erick Neher".

Erick Neher
Regional Administrator
DEQ Idaho Falls

Enclosures: response to comments, final permit and staff analysis

C: Larry Waters, DEQ Wastewater Program Manager
 Greg Eager, DEQ Idaho Falls Engineering Manager
 Whitney Rowley, DEQ Wastewater Program Boise

Attachment 1: Summary of Permit Changes and Response to Public Comments

Summary of Permit Changes in Response to Comments

Permit changes in response to public comments received during this permit renewal are listed in section 2.d, below.

Response to Public Comments

The DEQ received three comments in the January 8, 2018 letter from the Idaho Conservation League.

1. Permit Renewal Period

Comment

The Staff Analysis supports the renewal of this reuse permit for a period of ten years. However, the previous permit was only issued for a period of five years. Why has the duration been extended for the proposed permit to be renewed?

Response

The longer permit duration is due to the strait forward operations at the facility and no expectations for major operational changes or changes in influent wastewater characteristics.

2. Future Disinfection Performance

Comment

Section 4.6.1 of the Staff Analysis states that this facility has had prior issues meeting requirements for the Class D effluent that they are permitted to reuse for land application. The analysis dismisses concern for these prior issues by citing improvements made to the disinfection system in 2015 and 2016. While it is true that the total coliform result in 2017 (after those improvements) is substantially lower, the key point is that it was only a single result. A single result is clearly insufficient basis for DEQ's assumption that the improvements to the disinfection system have fully solved the facility's total coliform problem.

To illustrate this point, one need not look further than the 2016 disinfection results from the table on page 4. If you only looked at one result, and that one result was the May 10th sampling, then you would conclude that the facility did an excellent job of total coliform disinfection in 2016. However, if you incorporate the other three results from that year, the median number of total coliform organisms far exceeds the Class D limit of 250 organisms/100 mL. By the same reasoning, it would be incorrect to take that one result from 2017 as representative of the whole, and accordingly irresponsible for DEQ to base assumptions on this single data point.

While we are pleased to see that this facility has made improvements to their disinfection system, there are not enough measured samples to demonstrate compliance with the Class D effluent requirements since those improvements to the system have been made. Therefore, we ask that DEQ include a new compliance activity within this reuse permit that requires the facility to conduct additional sampling of the effluent to be land applied. This compliance activity should mandate that the facility conduct monthly effluent sampling/monitoring for total coliform from May through September 2018 to confirm that the facility is meeting the specific disinfection requirements specified in IDAPA 58.01.17.601.04.a.i. Furthermore, we note that groundwater monitoring wells may be needed in the future if this facility is unable to prove consistent compliance with Class D recycled water standards.

Response

A. Monitoring frequency

The facility is required to sample for total coliform on a monthly basis during periods of use. The number of samples taken do equal the months of recycled water application. That is – the facility often applies recycled water for only two or three months per year. The 2015 single sample event reflects only 30 days of recycled water application which happened to fall over two calendar months.

B. Sample averaging

Total coliform exceedances are attributed to the disinfection system not operating properly, incorrect procedures, or other problems. If a problem is found and corrected, resulting in acceptable total coliform concentrations, it would not be correct to assume previous total coliform concentration exceedances negate the correction.

C. Total coliform exceedance frequency

The DEQ concurs that recycled water total coliform concentration exceedances are problematic at the facility. In an effort to correct problems as they occur, the following items were added to the permit.

Section 4.5 *Other Permit Limits and Conditions:*

Category	Permit Limits and Conditions
Reuse water total coliform exceedances	Report to the DEQ in accordance with permit Section 7, Item 6.d within 5 days any recycled water total coliform exceedances along with the residual free chlorine concentration at the time of the sample.

Section 3 *Compliance Schedule for Required Activities*

Compliance Activity & Due Date	Compliance Activity Description
CA-166-02 Prior to 2018 irrigation	Recycled Water Disinfection Plan: Submit to DEQ for review and approval a proposed procedure for recycled water disinfection, including a target residual free chlorine concentration to adequately disinfect to Class D recycled water total coliform concentration requirements.

3. Total Coliform Sampling

Comment

Building upon our previous comment, we also have a few comments specific to total coliform sampling. The Staff Analysis discusses total coliform sampling but does not specify the point of compliance. Per IDAPA 58.01.17.601.04.a.ii.(2): “the point of compliance for Class D recycled water for total coliform shall be at any point in the system following final treatment and disinfection contact time.” We ask that DEQ please confirm that this is the case for this facility.

In addition, IDAPA 58.01.17.601.04.a.ii.(1) requires a monthly sampling frequency for Class D recycled water with a few caveats, which is either not being adhered to by this facility or the full dataset is not being presented to the public in this Staff Analysis. We request that DEQ provide an explanation as to why this facility is apparently not sampling as frequently as required in the Recycled Wastewater Rules. If this explanation cites reasons why this facility should be allowed to sample less frequently, we request that DEQ provide a thorough justification for allowing reduced sampling for a facility with prior violations of recycled water standards.

Response

A. Point of compliance

Sampling is conducted at the end of the chlorine contact chamber at the irrigation pump.

B. Sampling frequency

The facility is required to sample for total coliform on a monthly basis during periods of use. The number of samples taken do equal the months of recycled water application. That is – the facility often applies recycled water for only two or three months per year. The 2015 single sample event reflects only 30 days of recycled water application which happened to fall over two calendar months.

Idaho Department of Environmental Quality Reuse Permit M-166-04

(Previous Permit No. M-166-03)

The City of Dubois (hereafter "permittee") is hereby authorized to construct, install, and operate a reuse facility in accordance with (1) this permit; (2) IDAPA 58.01.17 "Recycled Water Rules"; (3) an approved plan of operation; and (4) all other applicable federal, state, and local laws, statutes, and rules. This permit is effective from February 15, 2018 and expires on February 15, 2028.



Signature

1-23-18

Date

Erick Neher

Regional Administrator
Idaho Falls Regional Office
Idaho Department of Environmental Quality

Idaho Department of Environmental Quality
Idaho Falls Regional Office
900 N. Skyline, Suite B, Idaho Falls, ID 83402
Phone (208) 528-2650

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Table of Contents

1. Common Acronyms/Abbreviations and Definitions	5
2. Facility Information	7
3. Compliance Schedule for Required Activities	8
4. Permit Limits and Conditions	9
4.1 Hydraulic Management Unit Descriptions	9
4.2 Hydraulic Loading Limits.....	9
4.3 Constituent Loading Limits	10
4.4 Management Unit Buffer Zones	10
4.5 Other Permit Limits and Conditions.....	10
5. Monitoring Requirements	12
5.1 Recycled Water and Supplemental Irrigation Water Sampling and Analyses	12
5.1.1 Constituent Monitoring	12
5.1.2 Management Unit and Other Flow Monitoring.....	12
5.2 Soil Monitoring.....	12
5.2.1 Soil Monitoring Unit Descriptions	12
5.2.2 Soil Monitoring, Sampling, and Analyses.....	13
5.3 Crop Monitoring	13
5.3.1 Crop Harvest Monitoring	13
5.3.2 Plant Tissue Monitoring	14
5.4 Lagoon Information	14
6. Reporting Requirements	15
6.1 Annual Report Requirements	15
6.1.1 Due Date.....	15
6.1.2 Required Contents	15
6.1.3 Submittals.....	16
6.2 Emergency and Noncompliance Reporting	17
7. Standard Permit Conditions	18
8. General Permit Conditions	20
8.1 Operations.....	20
8.1.1 Backflow Prevention	20
8.1.2 Restricted to Premises	20
8.1.3 Health Hazards, Nuisances, and Odors Prohibited.....	21
8.1.4 Solids Management	21
8.1.5 Temporary Cessation of Operations and Closure (IDAPA 58.01.17.801).....	22
8.1.6 Plan of Operation (IDAPA 58.01.17.300.05).....	22
8.1.7 Seepage Testing Requirements (IDAPA 58.01.16.493.02.c).....	22
8.1.8 Ground Water Quality Rule (IDAPA 58.01.11).....	23
8.2 Administrative	23
8.2.1 Permit Modification (IDAPA 58.01.17.700).....	23
8.2.2 Permit Transferable (IDAPA 58.01.17.800)	23
8.2.3 Permit Revocation (IDAPA 58.01.17.920)	23
8.2.4 Violations (IDAPA 58.01.17.930)	24
8.2.5 Severability.....	24

9. Other Applicable Laws25

 9.1 Owner Responsibilities for Well Use and Maintenance25

 9.1.1 Well Use25

 9.1.2 Well Maintenance.....25

 9.1.3 Wells Posing a Threat to Human Health and Safety or Causing Contamination of
 the Ground Water Resource25

10. Site Maps26

 10.1 Regional Map.....26

 10.2 Facility Map.....27

1. Common Acronyms/Abbreviations and Definitions

DEQ	Idaho Department of Environmental Quality
DEQ Guidance	DEQ Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater, latest revision
Director	Director of the Idaho Department of Environmental Quality or designee unless otherwise specified
EPA	Environmental Protection Agency
E_i	irrigation efficiency
FM	prefix for flow measurement/monitoring location, device, or method reporting serial number
GW	prefix for ground water reporting serial number
IDAPA	Numbering designation for all administrative rules in Idaho promulgated according to the Idaho Administrative Procedure Act
IDWR	Idaho Department of Water Resources
IWR	irrigation water requirement - any combination of wastewater and supplemental irrigation water applied at rates commensurate to the moisture requirements of the crop, and calculated monthly during the growing season (GS). The equation used to calculate the IWR is: $IWR = P_{def}/E_i$
LG	prefix for lagoon reporting serial number
MG	million gallons
mg/kg	milligram per kilogram
mg/L	milligram per liter
MU	prefix for management unit reporting environmental serial number
NPDES	National Pollutant Discharge Elimination System
P_{def}	precipitation deficit - is synonymous with the net irrigation water requirement of the crop and for the purposes of this permit can be found at the following website http://data.kimberly.uidaho.edu/ETIdaho/
PO	plan of operation
QAPP	quality assurance project plan
Responsible Official	is the facility contact person authorized by the permittee to communicate with DEQ on behalf of the permittee on any matter related to the permit, including without limitation, the authority to communicate with and receive notices from DEQ regarding notices of violation or non-compliance, permit violations, permit enforcement, and permit revocation. The Responsible Official is also responsible for providing written certification of permit application materials, annual report submittals, and

other information submitted to DEQ as required by the permit. Any notice to or communication with the Responsible Official is considered a notice to or communication with the permittee. The Responsible Official may designate an Authorized Representative to act as the facility contact person for any of the activities or duties related to the permit, except signing and certifying the permit application, which must be done by the Responsible Official. The Authorized Representative shall act as the Responsible Official and shall bind the permittee as described in this definition. Designation of the Authorized Representative shall follow the requirements specified in Section 6.1.3 of the permit.

- SU prefix for soil monitoring unit reporting serial number
- SW prefix for supplemental irrigation water reporting serial number
- WW prefix for wastewater reporting serial number

2. Facility Information

Information Type	Information Specific to This Permit
Type of recycled water	Class D Municipal water
Method of treatment and reuse	Facultative lagoon treatment of domestic wastewater to a storage lagoon, then slow rate application to cropped acreage.
For public municipal systems, specify the collection and treatment system classification. See IDAPA 58.01.16.202.01.a	Wastewater collection system classification: Class I Wastewater treatment system classification: Class I
Facility location	SE of Dubois, next to the municipal airport
Facility mailing address	PO Box 27, Dubois, ID 83423 Telephone 208-374-5241; fax 208-374-5241
Facility responsible official and authorized representative	Responsible Official: Annette Eddins, Mayor Authorized Representative: Ace Hensley, Public Works Superintendent Notify DEQ within 30 days if there is a change in personnel for any of the above facility contacts. A minor permit modification will be issued by DEQ to confirm the change.
Ground water	The Snake River Plain Aquifer is 300 feet deep and flows northeast to southwest. The nearest domestic well is 2,067 feet distant. The nearest municipal well is 3,562 feet distant.
Surface water	Beaver Creek is over 400 feet distant

3. Compliance Schedule for Required Activities

Compliance Activity (CA) Number and Completion Due Date	Compliance Activity Description								
CA-166-01 July 31, 2018	<p>Buffer Zone Improvements: Achieve the buffer zone distances required in section 4.4 by completing the following actions.</p> <ol style="list-style-type: none"> 1. Remove sufficient sections of the wheel line irrigation system to provide 300 feet of separation from the irrigation wetted perimeter to the management unit north border. 2. Post a sign on the lagoon access road near the management unit northeast corner to prohibit public access. 								
CA-166-02 Prior to 2018 irrigation	<p>Recycled Water Disinfection Plan: Submit to DEQ for review and approval a proposed procedure for recycled water disinfection, including a target residual free chlorine concentration to adequately disinfect to Class D recycled water total coliform concentration requirements.</p>								
CA-166-03 As specified	<p>Seepage Testing: The following table shows the date by which the permittee shall complete seepage testing on the specified lagoons:</p> <table border="1"> <thead> <tr> <th>Lagoon</th> <th>Seepage Test Due Date</th> </tr> </thead> <tbody> <tr> <td>Lagoon 1</td> <td>August 2024</td> </tr> <tr> <td>Lagoon 2</td> <td>August 2024</td> </tr> <tr> <td>Lagoon 3</td> <td>August 2024</td> </tr> </tbody> </table> <p>Submit to DEQ for review and approval a proposed schedule and procedure for performing the required seepage tests at least 45 days before to the planned seepage test. The seepage test procedures shall be sealed by the Idaho licensed professional engineer or professional geologist in responsible charge for the test.</p> <p>Seepage tests shall be completed according to the procedures approved by DEQ. The seepage test report shall be sealed by the person in responsible charge and submitted within 90 days after completion of the seepage test.</p> <p>Allowable seepage rates can be found in IDAPA 58.01.16.493.03. Requirements for lagoons leaking above the allowable amount are outlined in IDAPA 58.01.16.493.04.</p>	Lagoon	Seepage Test Due Date	Lagoon 1	August 2024	Lagoon 2	August 2024	Lagoon 3	August 2024
Lagoon	Seepage Test Due Date								
Lagoon 1	August 2024								
Lagoon 2	August 2024								
Lagoon 3	August 2024								
CA-166-04 As necessary	<p>Plan of Operation (PO): The PO shall be updated as needed to reflect current operations. The permittee shall notify DEQ of material changes to the PO and copies shall be kept on site and made available to DEQ upon request.</p>								
CA-166-05 As necessary	<p>Quality Assurance Project Plan (QAPP): The permittee shall amend the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP. The permittee shall notify DEQ of material changes to the QAPP and copies shall be kept on site and made available to DEQ upon request.</p>								

Compliance Activity (CA) Number and Completion Due Date	Compliance Activity Description
CA-166-06 February 15, 2027	Pre-Application Workshop: If the permittee intends to continue operating the reuse facility beyond the expiration date of this permit, the permittee shall contact DEQ and schedule a pre-application workshop to discuss the compliance status of the facility and the content required for the reuse permit application package.
CA-166-07 August 16, 2027	Renewal Permit Application: The permittee shall submit to DEQ a complete permit renewal application package, which fulfills the requirements specified at the pre-application workshop identified in CA-166-05.

4. Permit Limits and Conditions

4.1 Hydraulic Management Unit Descriptions

Serial Number	Description	Irrigation System Type and Irrigation Efficiency	Maximum Acres ^a Allowed
MU-166-01	Irrigated acreage	Wheel line sprinkler system at 85% efficiency ($E_i = 0.85$).	45
Total acreage			45

- a. Maximum acres represent the total permitted acreage of the MU as provided by the permittee. If the permittee uses less acreage in any season or year, then loading rates shall be presented and compliance shall be determined based on the actual acreage utilized during each season or year.

4.2 Hydraulic Loading Limits

Serial Number	Growing Season Hydraulic Loading	Nongrowing Season Maximum Hydraulic Loading
MU-166-01	Substantially at the irrigation water requirement (IWR) ^a	Nongrowing season application is not allowed

- a. For compliance purposes, the source of P_{def} data used to calculate the IWR shall be specified in the PO.

4.3 Constituent Loading Limits

Serial Number	Nitrogen Loading Limit (from all sources)
MU-166-01	150% of typical crop uptake ^a

- a. Typical crop uptake is the median constituent crop uptake from the 3 most recent years the crop has been grown. For crops having less than 3 years of on-site crop uptake data, other crop yield data or nutrient content values may only be used if approved in writing by DEQ in advance of use.

4.4 Management Unit Buffer Zones

Serial Number	Buffer Distances - Class D Reuse Water (feet)					
	Public Water Supplies	Private Water Supplies	Inhabited Dwellings	Permanent and Intermittent Surface Water	Irrigation Ditches and Canals	Areas Accessible to the Public
MU-166-01	1,000	500	500	100	50	300

4.5 Other Permit Limits and Conditions

Category	Permit Limits and Conditions
Growing season	April 1 through October 31 (214 days)
Nongrowing season	November 1 through March 31 (151 days)
Reporting year for annual loading rates	January 1 through December 31
Operator certification and endorsement	The wastewater treatment facility and reuse system shall be operated by personnel certified and licensed in the State of Idaho wastewater operator training program at the operator class level specified in IDAPA 58.01.16.203 and properly trained to operate and maintain the system.
Disinfection limits in recycled water	Class D: The median number of total coliform organisms does not exceed 230 total coliform organisms/100 mL, as determined from the bacteriological results of the last 3 days for which analyses have been completed. No sample shall exceed 2,300 total coliform organisms/100 mL in any confirmed sample.
Reuse water total coliform exceedances	Report to the DEQ in accordance with Section 7, Item 6.d within 5 days any recycled water total coliform exceedances along with the residual free chlorine concentration at the time of the sample.
Crop or vegetation allowed	Crops grown for human consumption are not allowed. For in-depth allowable uses and crops for Class D recycled water see the IDAPA 58.01.17 <i>Recycled Water Rules</i> , Section 602 <i>Municipal Recycled Water: Classification and Uses Tables</i> , Table 3 <i>Recycled Water Uses</i> .
Grazing	Grazing is not allowed.

Category	Permit Limits and Conditions
Posting	Signs shall read "Warning: Recycled Water—Do Not Enter," or equivalent signage both in English and Spanish. Signs to be posted every 500 feet and at each corner of the outer perimeter of the irrigated site. Signs are required where management unit border areas are accessible to the public.
Fencing	Three-wire fencing
Construction plans	Pursuant to Idaho Code §39-118, IDAPA 58.01.16, and IDAPA 58.01.17, detailed plans and specifications shall be submitted to DEQ for review and approval prior to construction, modification, or expansion of any wastewater treatment, storage, conveyance structures, ground water monitoring wells, or reuse facility. Inspection requirements shall be satisfied and within 30 days of completion of construction, the permittee shall submit as-built plans or a letter from an Idaho Professional Engineer certifying the facilities or structures were constructed in substantial accordance with the approved plans and specifications.
Backflow prevention and testing requirements	Backflow prevention is required to protect surface water and ground water from an unauthorized discharge of recycled water or wastewater. Refer to section 8.1.1 of this permit.
Records retention requirements	Keep records generated to meet the requirements of this permit for the duration of permit, including administrative extensions, plus 2 years.
Effluent flow meter calibration	The prop flow meter to irrigation shall be calibrated every five years; the next calibration is due in 2022.
Airport residence	The airport residence shall remain unoccupied as long as the facility is Class D recycled water.
Wheel line irrigation	The wheel line irrigation system shall maintain 300 feet separation from the wetted perimeter to the management unit north border.

5. Monitoring Requirements

5.1 Recycled Water and Supplemental Irrigation Water Sampling and Analyses

5.1.1 Constituent Monitoring

Monitoring Point Serial Number & Location	Sample Description	Sample Type and Frequency	Constituents (units in mg/L unless otherwise specified)
WW-166-01 Post chlorination reuse water to irrigation field.	Lagoon 3 effluent (combined supplemental irrigation and treated municipal wastewater)	Grab/monthly (during periods of use)	<ul style="list-style-type: none"> - Total Kjeldahl nitrogen - Nitrite + nitrate-nitrogen; - Total phosphorus - Total dissolved solids (TDS) - pH - Total coliform (CFU/100 mL) - Free chlorine residual

5.1.2 Management Unit and Other Flow Monitoring

Flow Measurement Serial Number	Sample Description	Sample Type and Frequency	Measured Parameters
FM-166-01 Prop flow meter to irrigation	Flow from LG-166-03 to MU-166-01	<ul style="list-style-type: none"> - Daily meter reading - Monthly compilation of data 	<ul style="list-style-type: none"> - Volume (MG/month) - Application depth (inches/month)

5.2 Soil Monitoring

5.2.1 Soil Monitoring Unit Descriptions

Monitoring Point Serial Number	Description	Associated Hydraulic Management Unit
SU-166-01	Irrigated acreage	MU-166-01

5.2.2 Soil Monitoring, Sampling, and Analyses

Monitoring Point Serial Number	Sample Type	Sample Frequency	Constituents
SU-166-01	Composite samples ^a	Annually in spring, prior to irrigation	<ul style="list-style-type: none"> - Electrical conductivity ($\mu\text{mhos/cm}$ in saturated paste extract) - Nitrate-nitrogen as N (mg/L) - Ammonium nitrogen as N (mg/L) - Plant available phosphorus (mg/L) - Chloride (mg/L) - Cation Exchange Capacity (meq/100 g) - pH

- a. Five (5) locations shall be sampled. At each location, samples shall be obtained from three depths: 0–12 inches; 12–24 inches; and 24–36 inches or refusal. The five (5) subsamples obtained from each depth shall be composited by depth to yield three composite samples for each soil monitoring unit; one composite sample for each depth.

5.3 Crop Monitoring

5.3.1 Crop Harvest Monitoring

Associated Hydraulic Management Unit	Sample Type	Sample Frequency	Parameters ^a
MU-166-01	Harvested portion, each crop, each MU	Each harvest	<ul style="list-style-type: none"> - Crop type - Harvest date - Sample collection date - Harvested acreage (acres) - As-harvested ('wet') yield in customary harvested units (tons, bushels, cwt, etc.). - As-harvested (field) moisture content (%) - Dry yield (lb)

- a. Documentation of reported yields shall be provided for each harvest from each MU.

5.3.2 Plant Tissue Monitoring

Associated Hydraulic Management Unit	Sample Type	Sample Frequency	Parameters ^a
MU-166-01	Harvested portion, each crop, each harvest	Each harvest	- Moisture content (%) - Total Kjeldahl nitrogen (%) - Nitrate nitrogen, as N (ppm) - Phosphorus as P (ppm) - Ash (%)

a. Report dry-basis results for all parameters except lab moisture content.

5.4 Lagoon Information

Serial number	Description	Surface Area acres	Maximum Operating Volume Million gallons	Liner Type
LG-166-01	Lagoon 1: facultative treatment; the north lagoon	3.2	5,720,000	Membrane
LG-166-02	Lagoon 2: facultative treatment; the center lagoon	3.2	5,720,000	Membrane
LG-166-03	Lagoon 3: storage lagoon; the south lagoon	6.2	13,000,000	Membrane

6. Reporting Requirements

6.1 Annual Report Requirements

The permittee shall submit to DEQ an Annual Report prepared by a competent environmental professional covering the previous reporting year.

6.1.1 Due Date

The Annual Report is due no later than January 31 of each year, which shall cover the previous reporting year.

6.1.2 Required Contents

The Annual Report shall include the following:

1. A brief interpretive discussion of all required monitoring data. The discussion shall address data quality objectives, validation, and verification; permit compliance; and reuse facility environmental impacts. The reporting year for this permit is specified in section 4.5.
2. Results of the required monitoring as described in section 5 of this permit. If the permittee monitors any parameter for compliance purposes more frequently than required by this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual report. The report shall present all monitoring data in organized data summary tables to expedite review.
3. Status of all work described in section 3 of this permit.
4. Results of all backflow testing, repairs, and replacements required by section 8.1.1 of this permit.
5. Discussion of major maintenance activities such as major equipment replacement, lagoon liner maintenance, and wastewater treatment and reuse facility maintenance.
6. A summary of all noncompliance events that occurred during the reporting year. Examples of noncompliance events that must be discussed include, but are not limited to: exceedance of permit limits, complaints, missed monitoring events, incorrect monitoring dates or frequencies, dry monitoring wells, uncontained spills causing runoff, construction without DEQ engineering plan approval, construction without engineering inspection, and reporting incorrect acreage.
7. Submittal of the calculations and observations for hydraulic management units specified in the table below.
8. Laboratory analytical reports for monitoring specified in section 5 of the permit. Chain of custody forms, supporting information for laboratory analytical reports, and quality assurance documentation shall be available for review upon request by DEQ.
9. The parameters in the following table:

Monitoring Point Serial Number	Parameter (Calculate for each MU)	Units
MU-166-01	Recycled water loading rate	Million gallons/month Inches/month
	Irrigation water requirement (IWR) for each crop grown	Inches/month Inches/GS
	Recycled water nitrogen, phosphorus, TDS loading rates	Pounds/acre-year
	Fertilizer nitrogen and phosphorus application rates, reported as elemental N and P	Pounds/acre-year
	Crop harvest and yield: - Report each harvest and the annual totals for each MU.	Crop types harvested Total harvested area (acres) Total 'wet' yield (lb/yr, lb/acre-yr) Total 'dry' yield (lb/yr, lb/acre-yr)
	Crop nitrogen, phosphorus, and ash removal rates (dry-basis): - Report each harvest and the annual totals for each MU.	Pounds-N/acre-year Pounds-P/acre-year Pounds Ash/acre-year

6.1.3 Submittals

All applications, annual reports, or information submitted to DEQ as required by this permit shall be signed and certified as follows:

1. Permit applications shall be signed by the Responsible Official as follows:
 - a. For a corporation: by a responsible corporate officer;
 - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
 - c. For a municipality, state, federal, Indian tribe, or other public agency: by either the principal executive officer, ranking elected official, or a person of decision-making authority who can legally bind the permittee with respect to the permit.
2. Annual reports and other information required by this permit shall be signed by the Responsible Official or by a duly Authorized Representative of that person. A person is a duly Authorized Representative only if:
 - a. The authorization is made in writing by the responsible official;
 - b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual having overall responsibility for environmental matters for the company; and
 - c. The written authorization is submitted to DEQ.

Submit all applications, annual reports, and other information required by this permit to the following DEQ regional office at this address:

Engineering Manager
Idaho Department of Environmental Quality
Idaho Falls Regional Office
900 N. Skyline, Suite B
Idaho Falls, ID 83402

The annual report shall include the following certification statement and be signed, dated, and certified by the permittee's Responsible Official or duly Authorized Representative:

"I certify that the information provided in this submittal was prepared in conformance with the Quality Assurance Project Plan required by permit M-166-03 and is to the best of my knowledge, true, accurate and complete and I acknowledge that knowing submission of false or incomplete information may result in permit revocation as provided for in IDAPA 58.01.17.920.01 or other enforcement action as provided for under Idaho law."

Permit applications shall include the following certification statement and be signed, dated, and certified by the permittee's Responsible Official:

"I certify that the information provided in this submittal is, to the best of my knowledge, true, accurate and complete and I acknowledge that knowing submission of false or incomplete information may result in permit revocation as provided for in IDAPA 58.01.17.920.01, non-issuance of the permit, or other enforcement action as provided for under Idaho law."

Other information submitted to DEQ as required by the permit shall include the above certification statement and be signed, dated, and certified by the permittee's Responsible Official or duly Authorized Representative.

6.2 Emergency and Noncompliance Reporting

Report noncompliance incidents to DEQ's regional office at (208) 528-2650.

In case of emergencies, call the emergency 24-hour number at 1-800-632-8000 and DEQ's regional office.

See Section 7, "Standard Permit Conditions," and IDAPA 58.01.17.500.06 for reporting requirements for facilities.

All instances of 1) permit non-compliance which may endanger public health or the environment and 2) unauthorized discharges to surface waters of the State of Idaho shall be reported to DEQ's regional office by telephone within 24 hours from the time the permittee becomes aware of the discharge at the phone numbers provided in this section.

A written follow-up shall be provided to the DEQ regional office within 5 days from the time the permittee became aware of the permit non-compliance or unauthorized discharge.

Reporting of unauthorized discharges to surface waters of the United States to the Environmental Protection Agency (EPA) may also be required. Contact information for EPA is provided below:

EPA Contact Information:
NPDES/Stormwater Coordinator, USEPA Idaho Operations Office
950 W. Bannock, Suite 900
Boise, ID 83702
(208) 378-5746 / (208) 378-5744 and EPA Hot Line (206) 553-1846

7. Standard Permit Conditions

The following standard permit conditions are included as terms of this permit as required by the "Recycled Water Rules," (IDAPA 58.01.17.500).

500. STANDARD PERMIT CONDITIONS.

The following conditions shall apply to and be included in all permits. (4-1-88)

01. **Compliance Required.** The permittee shall comply with all conditions of the permit. (4-1-88)
02. **Renewal Responsibilities.** If the permittee intends to continue operation of the permitted facility after the expiration of an existing permit, the permittee shall apply for a new permit in accordance with these rules. (4-1-88)
03. **Operation of Facilities.** The permittee shall at all times properly maintain and operate all structures, systems, and equipment for treatment, control and monitoring, which are installed or used by the permittee to achieve compliance with the permit or these rules. (4-1-88)
04. **Provide Information.** The permittee shall furnish to the Director within a reasonable time, any information including copies of records, which may be requested by the Director to determine whether cause exists for modifying, revoking, re-issuing, or terminating the permit, or to determine compliance with the permit or these rules. (4-1-88)
05. **Entry and Access.** The permittee shall allow the Director, consistent with Title 39, Chapter 1, Idaho Code, to:
 - a. Enter the permitted facility. (4-1-88)
 - b. Inspect any records that must be kept under the conditions of the permit. (4-1-88)
 - c. Inspect any facility, equipment, practice, or operation permitted or required by the permit. (4-1-88)
 - d. Sample or monitor for the purpose of assuring permit compliance, any substance or any parameter at the facility. (4-1-88)
06. **Reporting.** The permittee shall report to the Director under the circumstances and in the manner specified in this section: (4-1-88)
 - a. In writing at least thirty (30) days before any planned physical alteration or addition to the permitted facility or activity if that alteration or addition would result in any significant change in information that was submitted during the permit application process. When the alteration or addition results in a need for a major modification, such alteration or addition shall not be made prior to Department approval issued in accordance with these rules. (4-7-11)
 - b. In writing thirty (30) days before any anticipated change which would result in noncompliance with any permit condition or these rules. (4-1-88)
 - c. Orally within twenty-four (24) hours from the time the permittee became aware of any

noncompliance which may endanger the public health or the environment at telephone numbers provided in the permit by the Director. (4-1-88)

d. In writing as soon as possible but within five (5) days of the date the permittee knows or should know of any noncompliance unless extended by the Department. This report shall contain: (4-1-88)

i. A description of the noncompliance and its cause; (4-1-88)

ii. The period of noncompliance including to the extent possible, times and dates and, if the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and (4-7-11)

iii. Steps taken or planned, including timelines, to reduce or eliminate the continuance or reoccurrence of the noncompliance. (4-7-11)

e. In writing as soon as possible after the permittee becomes aware of relevant facts not submitted or incorrect information submitted, in a permit application or any report to the Director. Those facts or the correct information shall be included as a part of this report. (4-1-88)

07. Minimize Impacts. The permittee shall take all necessary actions to eliminate and correct any adverse impact on the public health or the environment resulting from permit noncompliance. (4-1-88)

08. Compliance with "Ground Water Quality Rule." Permits issued pursuant to these rules shall require compliance with IDAPA 58.01.11, "Ground Water Quality Rule." (4-7-11)

8. General Permit Conditions

The following general permit conditions are based on the cited rules at the time of issuance and are enforceable as part of this permit. Note that the rules cited in this section, and elsewhere in this permit, are supplemented by the rules themselves. Rules applicable to your facility are enforceable whether or not they appear in this permit.

8.1 Operations

8.1.1 Backflow Prevention

Reuse facilities with existing or planned cross-connections or interconnections between the recycled water system and any water supply (potable or nonpotable) or surface water, shall have backflow prevention assemblies, devices, or methods as required by applicable rule or as specified in this permit and approved by DEQ.

For public water systems, backflow assemblies shall meet the requirements of IDAPA 58.01.08.543. Assemblies shall be adequately maintained and shall be tested annually by a certified backflow assembly tester, and repaired or replaced as necessary to maintain operational status.

For domestic water supply wells, backflow prevention devices shall meet the requirements of IDAPA 07.02.04 and shall be adequately operated and maintained.

Irrigation water supply wells shall meet the requirements of IDAPA 37.03.09.36 for preventing any waste or contamination of the ground water resource. Backflow prevention assemblies or devices used to protect the ground water shall be adequately operated and maintained.

Discharge of recycled water to surface water is regulated by the EPA NPDES program. An NPDES permit is required for any discharge to surface water and backflow prevention shall be implemented to prevent any unauthorized discharge. Backflow prevention assemblies or devices used to protect surface water shall be adequately operated and maintained.

Records of all testable backflow assembly test results, repairs, and replacements shall be kept at the reuse facility along with other operational records, and shall be discussed in the Annual Report and made available for inspection by DEQ. Other approved means of backflow prevention, such as siphons and air-gap structures that cannot be tested, shall be maintained in operable order.

8.1.2 Restricted to Premises

Wastewaters or recharge waters applied to the land surface must be restricted to the premises of the application site. Wastewater discharges to surface water that require a permit under the Clean Water Act must be authorized by the United States Environmental Protection Agency (IDAPA 58.01.16.600.02).

8.1.3 Health Hazards, Nuisances, and Odors Prohibited

Health hazards, nuisances, and odors are prohibited as follows:

- Wastewater must not create a public health hazard or nuisance condition (IDAPA 58.01.16.600.03).
- No person shall allow, suffer, cause or permit the emission of odorous gases, liquids, or solids into the atmosphere in such quantities as to cause air pollution (IDAPA 58.01.01.776.01).
 - Air Pollution. The presence in the outdoor atmosphere of any air pollutant or combination thereof in such quantity of such nature and duration and under such conditions as would be injurious to human health or welfare, to animal or plant life, or to property, or to interfere unreasonably with the enjoyment of life or property (IDAPA 58.01.01.006.06).

8.1.4 Solids Management

Biosolids are the nutrient-rich organic materials resulting from the treatment of sewage sludge. When treated and processed, sewage sludge becomes biosolids which can be safely recycled and applied as fertilizer to sustainably improve and maintain productive soils and stimulate plant growth.

Biosolids generated from sewage sludge are regulated by EPA under 40 CFR Part 503 and require a DEQ approved sludge disposal plan as outlined in IDAPA 58.01.16.650. Contact DEQ prior to application of biosolids at any permitted reuse facility.

Sludge is the semi-liquid mass produced and removed by wastewater treatment processes. This does not include grit, garbage, and large solids.

Sludge may be generated by wastewater treatment processes at municipal and industrial facilities. A DEQ-approved sludge disposal plan, as outlined in IDAPA 58.01.16.650, may be required.

Solid Waste is any garbage or refuse, sludge from a waste water treatment plant, water supply treatment plant, or air pollution control facility and other discarded material including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under Section 402 of the Federal Water Pollution Control Act, as amended or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended.

Solid waste does not include inert wastes, manures and crop residues ultimately returned to the soils at agronomic rates, and any agricultural solid waste which is managed and regulated pursuant to rules adopted by the Idaho Department of Agriculture. DEQ reserves the right to use existing authorities to regulate agricultural waste that impacts human health or the environment.

Solid waste is regulated under IDAPA 58.01.06, "Solid Waste Management Rules". Wastes otherwise regulated by DEQ (i.e. this permit) are not regulated under 58.01.06.

Waste Solids include sludge and wastes otherwise regulated by DEQ in accordance with IDAPA 58.01.06.001.03.a.xii. Waste solids may include vegetative waste, silt and mud containing organic matter, and other non-inert solid wastes.

Inert wastes are defined as non-combustible, nonhazardous, and non-putrescible solid wastes that are likely to retain their physical and chemical structure and have a deminimis potential to generate leachate under expected conditions of disposal, which includes resistance to biological attack.

Waste solids require a DEQ approved sludge disposal plan as outlined in IDAPA 58.01.16.650.

8.1.5 Temporary Cessation of Operations and Closure (IDAPA 58.01.17.801)

Temporary cessation of operations and closure must be addressed as follows:

01. Temporary Cessation. A permittee shall implement any applicable conditions specified in the permit for temporary cessation of operations. When the permit does not specify applicable temporary cessation conditions, the permittee shall notify the Director prior to a temporary cessation of operations at the facility greater than sixty (60) days in duration and any cessation not for regular maintenance or repair. Cessation of operations necessary for regular maintenance or repair of a duration of sixty (60) days or less are not required to notify the Department under this section. All notifications required under this section shall include a proposed temporary cessation plan that will ensure the cessation of operations will not pose a threat to human health or the environment. (4-7-11)

02. Closure. A closure plan shall be required when a facility is closed voluntarily and when a permit is revoked or expires. A permittee shall implement any applicable conditions specified in the permit for closure of the facility. Unless otherwise directed by the terms of the permit or by the Director, the permittee shall submit a closure plan to the Director for approval at least ninety (90) days prior to ceasing operations. The closure plan shall ensure that the closed facility will not pose a threat to human health and the environment. Closure plan approval may be conditioned upon a permittee's agreement to complete such site investigations, monitoring, and any necessary remediation activities that may be required. (4-7-11)

8.1.6 Plan of Operation (IDAPA 58.01.17.300.05)

The PO must comply with the following:

05. Reuse Facility Operation and Maintenance Manual or Plan of Operations. A facility's operation and maintenance manual must contain all system components relating to the reuse facility in order to comply with IDAPA 58.01.16 "Wastewater Rules," Section 425. Manuals and manual amendments are subject to the review and approval provision therein. In addition to the content required by IDAPA 58.01.16.425, manuals for reuse facilities shall include, if applicable: operation and management responsibility, permits and standards, general plant description, operation and control of unit operations, land application site maps, wastewater characterization, cropping plan, hydraulic loading rate, constituent loading rates, compliance activities, seepage rate testing, site management plans, monitoring, site operations and maintenance, solids handling and processing, laboratory testing, general maintenance, records and reports, store room and inventory, personnel, an emergency operating plan, and any other information required by the Department. (4-7-11)

8.1.7 Seepage Testing Requirements (IDAPA 58.01.16.493.02.c)

Subsequent Tests. All lagoons covered under these rules must be seepage tested by an Idaho licensed professional engineer, an Idaho licensed professional geologist, or by individuals under their supervision every ten (10) years after the initial testing. (5-8-09)

8.1.8 Ground Water Quality Rule (IDAPA 58.01.11)

The permittee shall comply with the requirements of “Ground Water Quality Rule” (IDAPA 58.01.11).

8.2 Administrative

Requirements for administration of the permit are defined as follows.

8.2.1 Permit Modification (IDAPA 58.01.17.700)

01. Modification of Permits. A permit modification may be initiated by the receipt of a request for modification from the permittee, or may be initiated by the Department if one (1) or more of the following causes for modification exist: (4-7-11)

a. Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit. (4-7-11)

b. New standards or regulations. The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued. (4-7-11)

c. Compliance schedules. The Department determines good cause exists for modification of a compliance schedule or terms and conditions of a permit. (4-7-11)

d. Non-limited pollutants. When the level of discharge of any pollutant which is not limited in the permit exceeds the level which may cause an adverse impact to surface or ground waters. (4-7-11)

e. To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions. (4-7-11)

f. When a treatment technology proposed, installed, and properly operated and maintained by the permittee fails to achieve the requirements of the permit. (4-7-11)

8.2.2 Permit Transferable (IDAPA 58.01.17.800)

01. General. A permit may be transferred only upon approval of the Department. No transfer is required for a corporate name change as long as the secretary of state can verify that a change in name alone has occurred. An attempted transfer is not effective for any purpose until approved in writing by the Department. (4-7-11)

8.2.3 Permit Revocation (IDAPA 58.01.17.920)

01. Conditions for Revocation. The Director may revoke a permit if the permittee violates any permit condition or these rules, or the Director becomes aware of any omission or misrepresentation of condition or information relied upon when issuing the permit. (4-7-11)

02. Notice of Revocation. Except in cases of emergency, the Director shall issue a written notice of intent to revoke to the permittee prior to final revocation. Revocation shall become final within thirty-five (35) days of receipt of the notice by the permittee, unless within that time the permittee requests an administrative hearing in writing. The hearing shall be conducted in accordance with IDAPA 58.01.23, Rules of Administrative Procedure

before the Board of Environmental Quality.”

(5-3-03)

03. Emergency Action. If the Director finds the public health, safety or welfare requires emergency action, the Director shall incorporate findings in support of such action in a written notice of emergency revocation issued to the permittee. Emergency revocation shall be effective upon receipt by the permittee. Thereafter, if requested by the permittee in writing, the Director shall provide the permittee a revocation hearing and prior notice thereof. Such hearings shall be conducted in accordance with IDAPA 58.01.23, “Rules of Administrative Procedure Before the Board of Environmental Quality.”

(3-15-02)

04. Revocation and Closure. A permittee shall perform the closure requirements in a permit, the closure requirements of these rules, and complete all closure plan activities notwithstanding the revocation of the permit.

(4-7-11)

8.2.4 Violations (IDAPA 58.01.17.930)

Any person violating any provision of these rules or any permit or order issued thereunder shall be liable for a civil penalty not to exceed ten thousand dollars (\$10,000) or one thousand dollars (\$1,000) for each day of a continuing violation, whichever is greater. In addition, pursuant to Title 39, Chapter 1, Idaho Code, any willful or negligent violation may constitute a misdemeanor.

(4-1-88)

8.2.5 Severability

The provisions of this permit are severable, and if a provision or its application is declared invalid or unenforceable for any reason, that declaration will not affect the validity or enforceability of the remaining provisions.

9. Other Applicable Laws

DEQ may refer enforcement of the following provisions to the state agency authorized to enforce that rule. The permittee shall comply with all applicable provisions identified in this section. Compliance with this permit does not relieve the permittee from applicable requirements in other federal, state, and local laws, statutes, and rules.

9.1 Owner Responsibilities for Well Use and Maintenance

9.1.1 Well Use

The well owner must not operate any well in a manner that causes waste or contamination of the ground water resource. Failure to operate, maintain, knowingly allow the construction of any well in a manner that violates these rules, or failure to repair or properly decommission (abandon) any well as herein required will subject the well owner to civil penalties as provided by statute. See IDAPA 37.03.09.036.01 and consult the Idaho Department of Water Resources (IDWR) for more information.

9.1.2 Well Maintenance

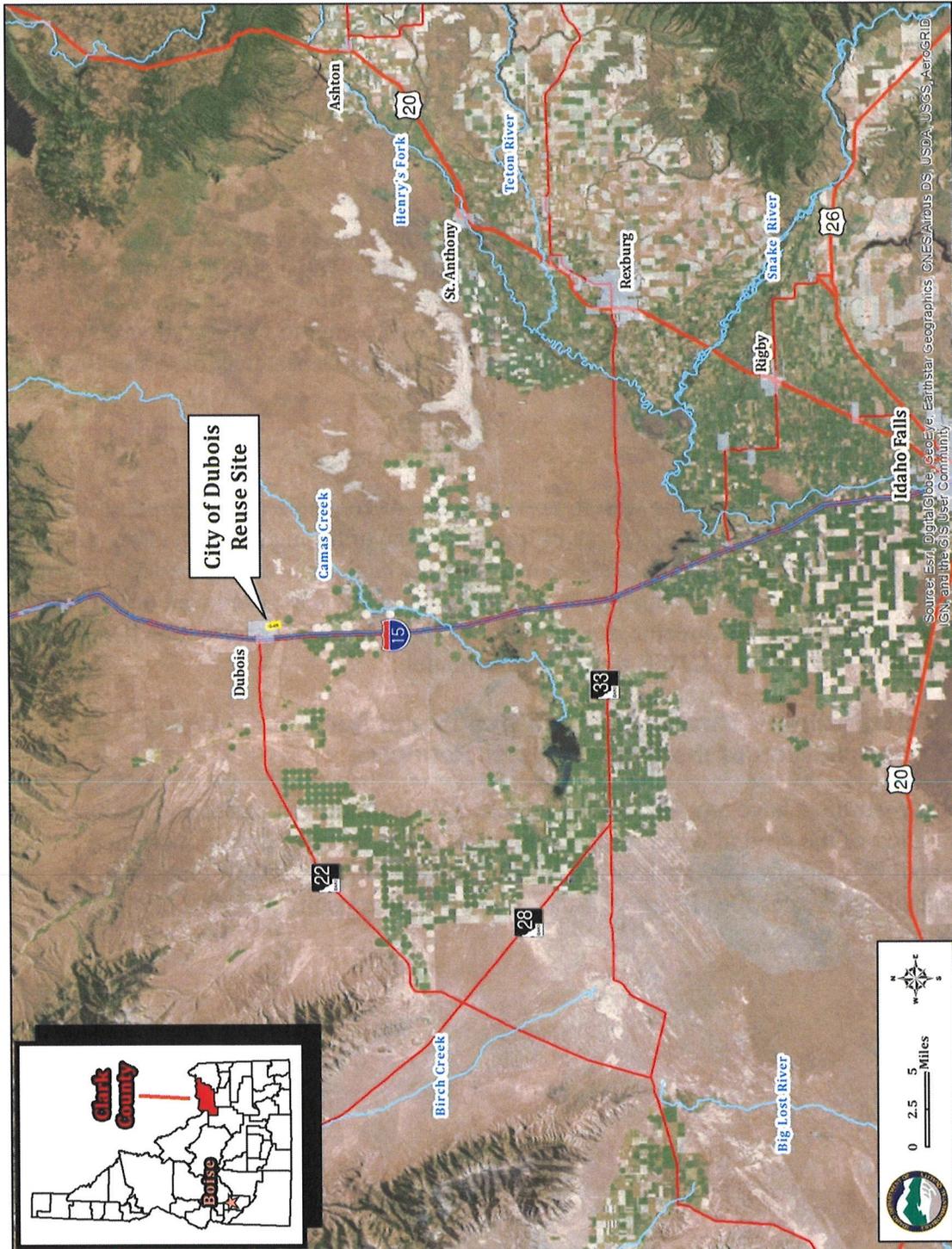
The well owner must maintain the well to prevent waste or contamination of ground waters through leaky casings, pipes, fittings, valves, pumps, seals, or through leakage around the outside of the casings, whether the leakage is above or below the land surface. Any person owning or controlling a noncompliant well must have the well repaired by a licensed well driller under a permit issued by the IDWR director in accordance with the applicable rules. See IDAPA 37.03.09.036.02 and consult IDWR for more information.

9.1.3 Wells Posing a Threat to Human Health and Safety or Causing Contamination of the Ground Water Resource

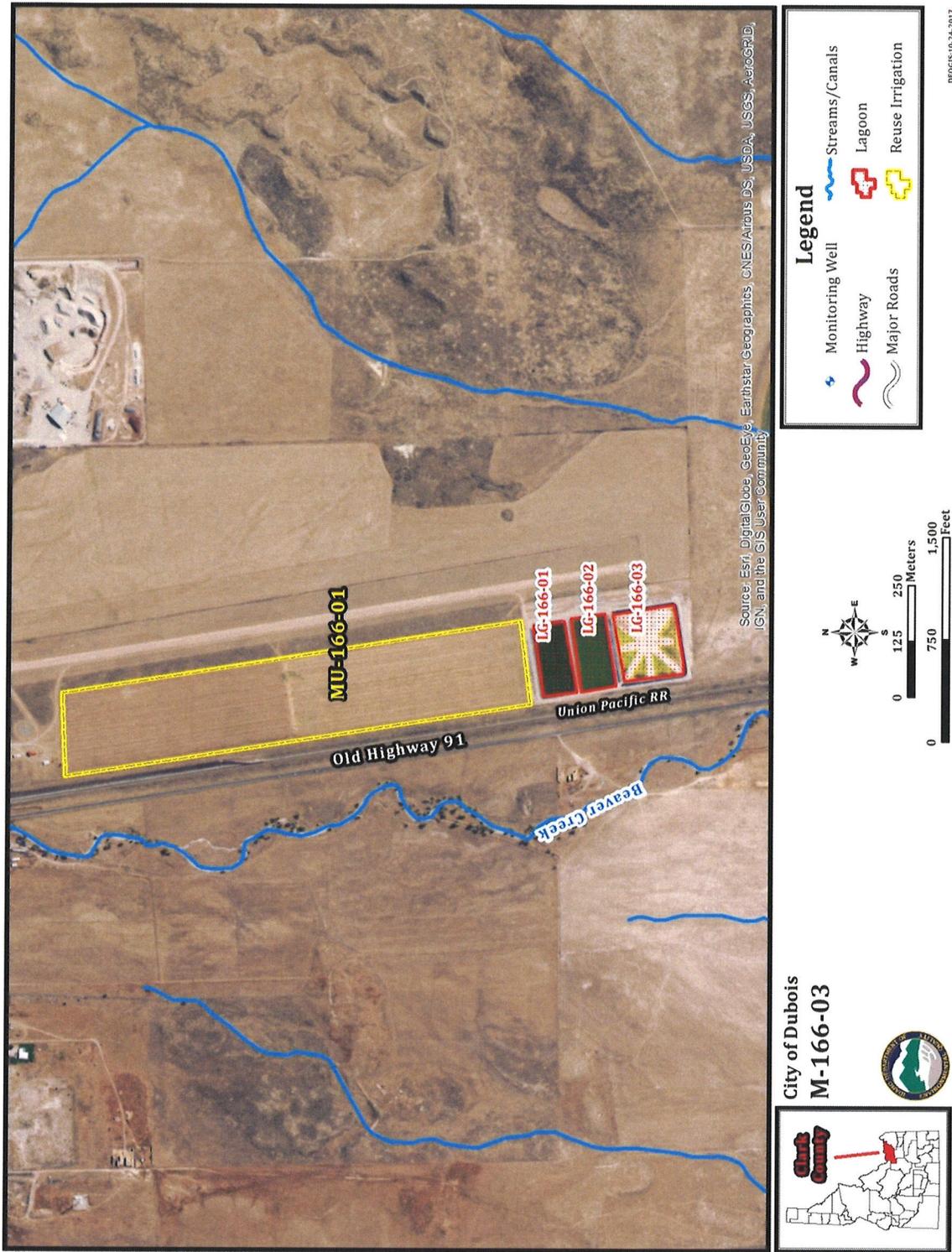
The well owner must have any well shown to pose a threat to human health and safety or cause contamination of the ground water resource immediately repaired or decommissioned (abandoned) by a licensed well driller under a permit issued by the IDWR director in accordance with the applicable rules. See IDAPA 37.03.09.036.06 and consult the IDWR for more information.

10. Site Maps

10.1 Regional Map



10.2 Facility Map



MEMORANDUM

TO: Larry Waters, Wastewater Program Manager
Erick Neher, Idaho Falls Regional Administrator
Greg Eager, Idaho Falls Engineering Manager

FROM: Mazzone, staff engineer

DATE: October 24, 2017

SUBJECT: City of Dubois Staff Analysis supporting reuse permit M-166-03 renewal

Executive Summary

The City of Dubois has applied an average of 14.50 million gallons (MG) per year of combined supplemental irrigation water and domestic wastewater over the last five years, ranging from a minimum of 3.3 MG in 2015 to a maximum of 31.84 MG in 2012. Supplemental irrigation water is combined in storage Lagoon 3 during the spring runoff period, and the combined supplemental irrigation water and treated wastewater is land applied according to the crop irrigation water requirements. The intermittent flow of the supplemental irrigation source creek results in variability of available irrigation water.

Wastewater reuse is permitted for the growing season only.

Recycled water is disinfected to Class D requirements and slow rate applied to a maximum of 45 cropped acres typically rotated in alfalfa, spring grains, or grass hay.

There have been no major changes in the facility since the 2013 permit.

Inspections and annual report reviews find this facility to be well managed.

This staff analysis supports renewal of the facility reuse permit for a period of ten years.

1 Introduction

This memorandum satisfies the requirements of the “Recycled Water Rules” (IDAPA 58.01.17.400) for issuing reuse permits. The principal facts and significant questions considered in preparing the draft permit and a summary of the basis for the draft permit conditions are provided.

Permit Renewal Timelines

- The current reuse permit was issued on April 3, 2013, and expires on April 3, 2018.
- The pre-application workshop as conducted on April 27, 2017.
- The workshop summary letter identifying the application requirements was mailed April 28, 2017.

- The permit application was received September 13, 2017.
- The DEQ permit application Completeness Determination letter date was September 13, 2017.

2 Site Location and Ownership

The facility is located approximately 1000 feet south southeast of Dubois on land owned by the city. A map is appended to this analysis.

The reuse field is located north of the lagoons. The facility is bordered by:

- the city airport east and north of the reuse fields and lagoons;
- farm land to the south; and,
- a rail line and Old Highway 91 to the west.

3 Process Description

The facility receives domestic wastewater via gravity flow to Lagoon 1. Both Lagoon 1 and Lagoon 2 provide facultative treatment of wastewater. The treated wastewater is stored in Lagoon 3.

Supplemental irrigation water is diverted via gravity flow from the intermittent Beaver Creek to Lagoon 3. Diversion takes place during the spring runoff period which is limited by creek flow duration – typically ending by June.

The mixed reuse water and supplemental irrigation water stored in Lagoon 3 is land applied after sodium hypochlorite disinfection to a maximum of 45 acres.

4 Site Characteristics

4.1 Site Management History

Dubois completed the wastewater treatment Facility Planning Study in 1995, and construction was completed in 1996. The initial facility reuse permit was issued in 1997. The 2013 permit renewal changed the recycled water from Class C to Class D disinfection requirements; otherwise operations have remained consistent through the years.

The facility utilizes three crops for reuse water nutrient uptake, depending on actual and anticipated precipitation:

- spring grains are cropped in typical precipitation years;
- alfalfa is cropped in high precipitation years; and,
- grass hay is cropped in dry years.

4.2 Climatic Characteristics

Dubois is 5150 feet above mean sea level. Average climatic conditions for the Dubois FAA airport are given below (Western Regional Climate Center: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?id2717>).

Average monthly climatic data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average max temp (F)	26.3	31.9	39.7	56.0	66.3	75.4	86.2	84.0	73.4	59.1	41.3	30.5	55.8
Average min temp (F)	6.0	11.3	18.3	28.5	37.8	44.8	52.4	50.8	41.7	31.0	19.2	11.0	29.4
Average total precipitation (in.)	0.73	0.87	0.58	0.54	1.57	1.46	0.55	0.66	0.72	0.62	0.41	0.75	9.47
Average total snow fall (in.)	9.4	9.7	4.7	1.5	0.5	0.0	0.0	0.0	0.2	1.1	2.2	9.1	38.4
Average snow depth (in.)	7	9	5	0	0	0	0	0	0	0	0	3	2

4.3 Soils

There is no USDA soil survey available for the facility. Management unit soil samples taken in 1996 composited 24 sample locations into two samples representing depths of six inches and eighteen inches. Soil texture is sandy loam based on sieve analysis (6 inch depth is 66.6% sand, 18.0% silt, 15.4% clay, and 18 inch depth is 57.6% sand, 24.0% silt, 18.4% clay). A sieve analysis on soil taken at eight feet deep resulted in sandy gravel classification.

Becreek gravelly fine sandy loam soil types occupy farmlands to the east and south of Dubois. Becreek soils are very deep, well drained and moderate permeability. Available water capacity is 3 to 4 inches.

4.4 Surface Water

The intermittently flowing Beaver Creek contains the 100 year flood plain within its channel. The creek runs parallel to the facility's west boundary and is approximately 400 feet distant. A bermed railroad track also provides a barrier between the creek and the land application site.

4.5 Ground Water/Hydrogeology

Ground water at the facility is the Snake River Plain Aquifer, which varies from 273 to 355 feet below ground surface. Groundwater flow is generally in a southwest direction. Groundwater monitoring has not been deemed necessary at the facility due to both a history of no hydraulic or nutrient overloading as well as the substantial aquifer depth.

The nearest public water supply well is a City of Dubois municipal water supply well located approximately 3,562 feet from the northern property line. It is upgradient of the ground water flow direction and will not be impacted by reuse operations.

The nearest private well is located 2,067 feet from the facility. It is upgradient of the ground water flow direction and will not be impacted by reuse operations.

4.6 Recycled Water Characterization and Loading Rates

4.6.1 Recycled Water Characterization

Recycled water at this facility is a combination of treated municipal wastewater and supplemental irrigation water stored in Lagoon 3. Constituent concentrations are tabled below. None of the constituents have concentrations high enough to be of concern.

Parameter	2013		2014		2015		2016			
	15-May	10-Jun	14-Jul	28-Jul	21-Jul	21-Jul	11-May	29-Jun	11-Jul	9-Aug
N, nitrite, mg/L	0.3	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3
N, nitrate, mg/L										
N, TKN, mg/L	1.02	3.07	8.39	5.00		3.43	0.79	2.55	1.58	1.46
pH	8.5		8.0	9.7	9.7	8.7	8.5	8.3	9.2	9.4
P, mg/L	0.96	1.57	3.65	0.69		0.76	0.71	1.08	0.66	0.24
TDS, mg/L	280	380	520	450		180	340	450	380	410
Summary										
N, total averaged	2.35		7.00		3.73		1.90			
P averaged	1.27		2.17		0.76		0.67			
TDS averaged	330		485		180		395			

The facility is permitted for Class D effluent, defined below.

Class D: The median number of total coliform organisms does not exceed 230 total coliform organisms/100 mL, as determined from the bacteriological results of the last 3 days for which analyses have been completed. No sample shall exceed 2,300 total coliform organisms/100 mL in any confirmed sample.

The facility has had problems meeting the Class D requirements.

Total Coliform disinfection results

2013		2014			2015	2016				2017
15-May	10-Jun	29-Jul	20-Aug	9-Sep	21-Jul	10-May	29-Jun	11-Jul	9-Aug	6-Jul
54	70	> 2420	> 2420	> 2420	260	0.5	365	1050	488	3

The following items pertain to disinfection at the facility.

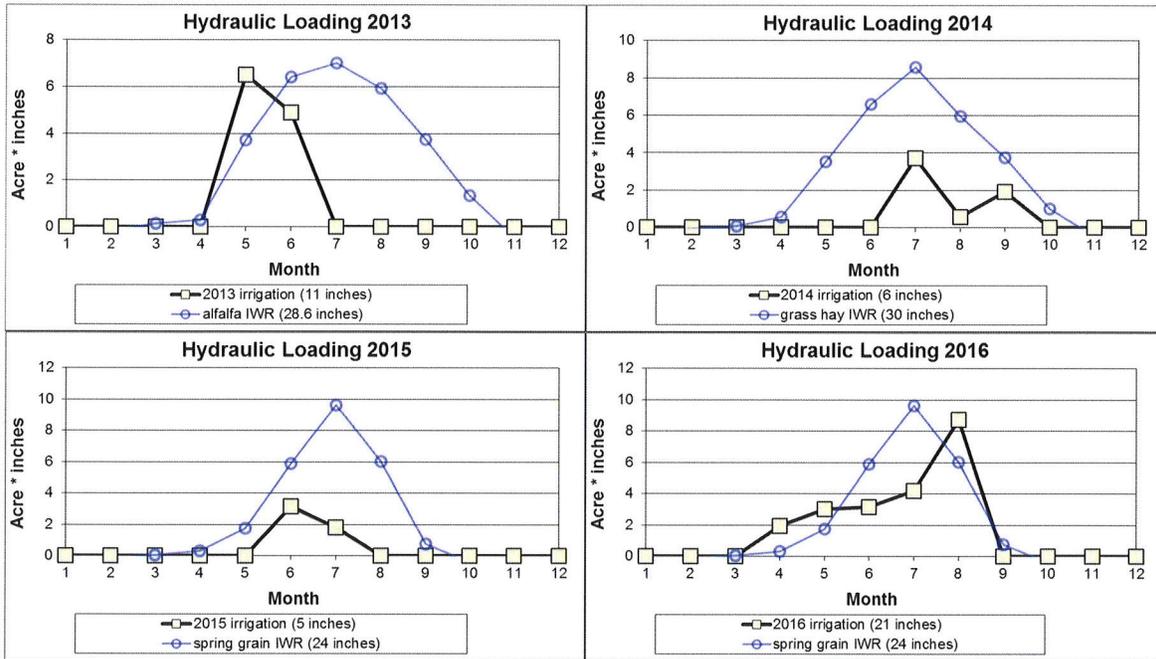
- In 2014 seepage testing requirements to fill storage Lagoon 3 resulted in influent wastewater piped directly to the storage lagoon without facultative treatment in Lagoons 1 and 2. That resulted in higher effluent concentration which the sodium hypochlorite disinfection system was unable to adequately treat.
- The operators rebuilt part of the chlorination delivery line in 2015 in response to the high total coliform counts.
- A new peristaltic pump for the chlorination system was installed in 2016 in response to the high total coliform counts.

Because of the improvements to the disinfection system made in 2015 and 2016, total coliform results in 2017 are more likely to be indicative of future disinfection performance. To help assure timely correction of total coliform exceedances, two items have been added to the permit: 1) a compliance activity requiring a Recycled Water

Disinfection Plan which includes target residual free chlorine concentrations; and, 2) Section 4.5 *Other Permit Limits and Conditions* includes a requirement to report total coliform exceedances within 5 days. The 5 day reporting requirement is reinforced in Section 7, Item 6.d of the permit.

4.6.2 Hydraulic Loading Rates

The historical hydraulic loading rates for each of the management units are shown below.



The hydraulic loading limit in new permit, the same as in M-166-03, allows only growing season application of recycled water substantially equal to the irrigation water requirement for the crop.

Irrigation water requirements are based on the ET_{Idaho} website located at:

<http://data.kimberly.uidaho.edu/ETIdaho/> using the Dubois Experiment Station at latitude 44° 15' North, longitude 112° 12' West at an elevation of 5460 feet.

The irrigation water requirements are:

- Alfalfa, frequent cuttings: 28.6 inches;
- Spring grain: 24 inches; and,
- Grass hay: 30.12 inches.

Inflow to the facility averages 38,000 to 40,000 gallons per day (gpd) during the summer months and 50,000 gpd during the winter months (residences run water in the winter to avoid pipe freeze), for an average of 15.896 million gallons per year. The facility estimates it can store up to 5 years of influent, and never experiences volumes in excess of what can be land applied.

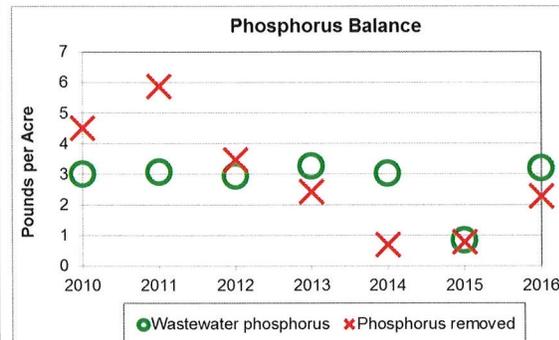
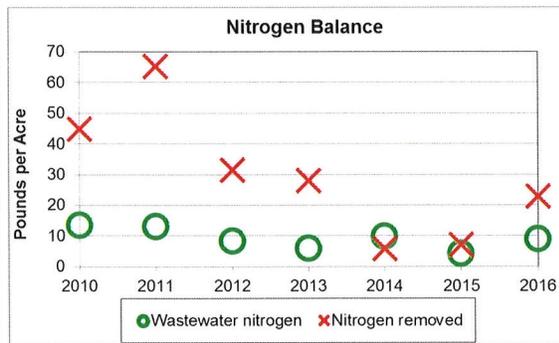
Lagoon volumes are tabled below.

Lagoon	Description	Acreage	Depth (feet)	Volume (gallons)	Storage (gallons)
Lagoon 1	Non-aerated, facultative lagoon	3.2	6	5,720,000	—
Lagoon 2	Non-aerated, facultative lagoon	3.2	6	5,720,000	—
Lagoon 3	Winter storage & supplemental irrigation storage lagoon	6.2	6	13,000,000	13,000,000
Total				24,440,000	13,000,000

4.6.3 Constituent Loading Rates

Historic constituent loading rates are tabled below. None of the loading rates are high enough to be of concern. Constituent loading limits in the permit renewal remain unchanged: nitrogen is limited to 150% of typical crop uptake.

Process	2013	2014	2015	2016
HMU-1				
Acres	49	49	25	25
Days per year	214	214	214	214
Irrigation water				
MG	15.180	8.228	3.300	14.000
ac*in.	559	303	122	516
ac*in/ac	11.4	6.2	5.0	21.0
Nitrogen:				
N _{TKN} + N _{NO3} ppm	2.35	7.00	3.73	1.90
lb/yr	296	479	102	221
Phosphorus:				
ppm	1.27	2.17	0.76	0.67
lb/yr	159.9	148.7	20.9	78.4
TDS:				
ppm	330	485	180	395
lb/yr	41,713	33,230	4,946	46,048
HMU Totals				
Total water applied:				
MG	15.180	8.228	3.300	14.000
ac*in.	559	303	122	516
ac*in/ac	11.4	6.2	5.0	21.0
Total nitrogen applied:				
lb/yr	296	479	102	221
lb/ac*yr	6	10	4	9
Total phosphorous applied:				
lb/yr	160	149	21	78
lb/ac*yr	3	3	1	3
Total TDS applied:				
lb/yr	41,713	33,230	4,946	46,048
lb/ac*yr	851	678	202	1,880
	2013	2014	2015	2016
Facility Total Removal				
Total nitrogen removed:				
lb/yr	1,367	287	173	557
avg lb/ac*yr	28	6	7	23
Total phosphorous removed:				
lb/yr	119	34	19	56
avg lb/ac*yr	2	1	1	2
Total TDS removed:				
lb/yr	8,147	1,354	1,223	5,994
avg lb/ac*yr	166	28	50	245



5 Site Management

5.1 Buffer Zones

Buffer zones for protection of surface water, ground water, drinking water supplies, and the public is required by IDAPA 58.01.17.604. The DEQ Reuse Guidance Manual provides recommended buffer distances for various reuse scenarios. For this permit, the following scenario was used in determining buffer distances: municipal Class D recycled water in a rural area with sprinkler irrigation.

City of Dubois Class D Buffer Distances

Feature	DEQ guidance buffer distance	Permit buffer distance	Actual distance
Inhabited dwellings	500 feet	500 feet	850 feet
Public water supplies	1,000	1,000	3,562
Private water supplies	500	500	2,067
Areas accessible to the public	300	300	300
Surface water	100	100	Beaver Creek: 400 feet
Irrigation ditches and canals	50	50	Greater than 400 feet
Fencing	The facility utilizes the DEQ guidance recommended wire pasture fence around the lagoons.		
Posting	The facility displays required signs at the DEQ guidance separation of 500 feet.		

As part of the Class D wastewater disinfection level, an old house at the airport must remain vacant to meet Class D buffer distances. The facility is aware that any occupancy must be reported to the DEQ and the permit will be modified to Class C effluent.

Areas Accessible to the Public

A section of the airport area north of the management unit may be considered accessible to the public.

A compliance activity on this permit renewal is intended conform to the DEQ Reuse Guidance Manual recommended 300 feet buffer distance to areas accessible to the public:

- Sufficient pipe sections of the wheel line irrigation system will be removed to provide 300 feet of separation from the irrigation wetted perimeter to the unit north border. The maximum permitted acreage for recycled water application has been reduced from 49 acres to 45 acres due to the 300 feet setback.
- A sign will be posted on the facility access road to keep the public away from the management unit east border and lagoon area.

Fencing

The facility has never had fencing requirements for the management unit due to its location outside of town. Although the lagoon area is fenced and a railroad fence exists

on the west side of the management unit, the north and east sides of the unit are posted, but unfenced. The three hundred feet buffer distance to the north side will be met by shortening the irrigation system, and posting the access road at the northeast corner of the management unit will remove public accessibility to the east side, and negate the need to install fencing.

5.2 Runoff

The 2013 City of Dubois runoff plan resulted in a 1.5 foot berm which runs along the north side of the management unit and continues south for 143 feet along the east and west sides.

5.3 Seepage Rate Testing

All three lagoons were seepage tested in 2014 and do not require testing again until 2024.

Lagoon	Test Date	Seepage Rate (inches/day)	Allowable Rate (inches/day)	Next test due date
Lagoon 1	2014	0.009	0.25	August 2024
Lagoon 2	2014	0.022	0.25	August 2024
Lagoon 3	2014	0.037	0.25	August 2024

Test procedures for completing seepage tests are recommended to be submitted at least 45 days prior to the due date shown in the table above.

5.4 Waste Solids, Biosolids, Sludge, and Solid Waste

Biosolids have never been removed from the facility lagoons or disposed of on facility acreage. Lagoon 1 sludge depth measured in 2014 revealed the maximum depth at 1 foot (the average depth was less than 0.2 feet). The minimal accumulation in Lagoon 1 negated the need for measurements in Lagoons 2 & 3.

5.5 Nuisance Odors

A nuisance odor management plan was submitted and approved by the DEQ in 2013. There have been no odor complaints at the facility.

5.6 Cropping Plan

The 2017 cropping plan utilizes three crops for reuse water nutrient uptake, depending on actual and anticipated precipitation.

1. In typical precipitation years, spring grains are cropped.
2. In higher precipitation years, alfalfa is cropped.
3. In dry years, emergency grass is cropped.

6 Monitoring

The monitoring requirements for the permit are described in detail in the following subsections. All monitoring will be conducted in accordance with the facility's Quality Assurance Project Plan (QAPP). See section 7 for requirements regarding the QAPP.

6.1 Recycled Water Monitoring

Recycled water monitoring remains unchanged for this permit renewal:

Total Kjeldahl nitrogen	Nitrite + nitrate-nitrogen	Total phosphorus
Total dissolved solids	pH	Total coliform (CFU/100 mL);
Free chlorine residual		

This facility mixes available supplemental irrigation water with treated wastewater in Lagoon 3; the combined water is sampled as recycled water.

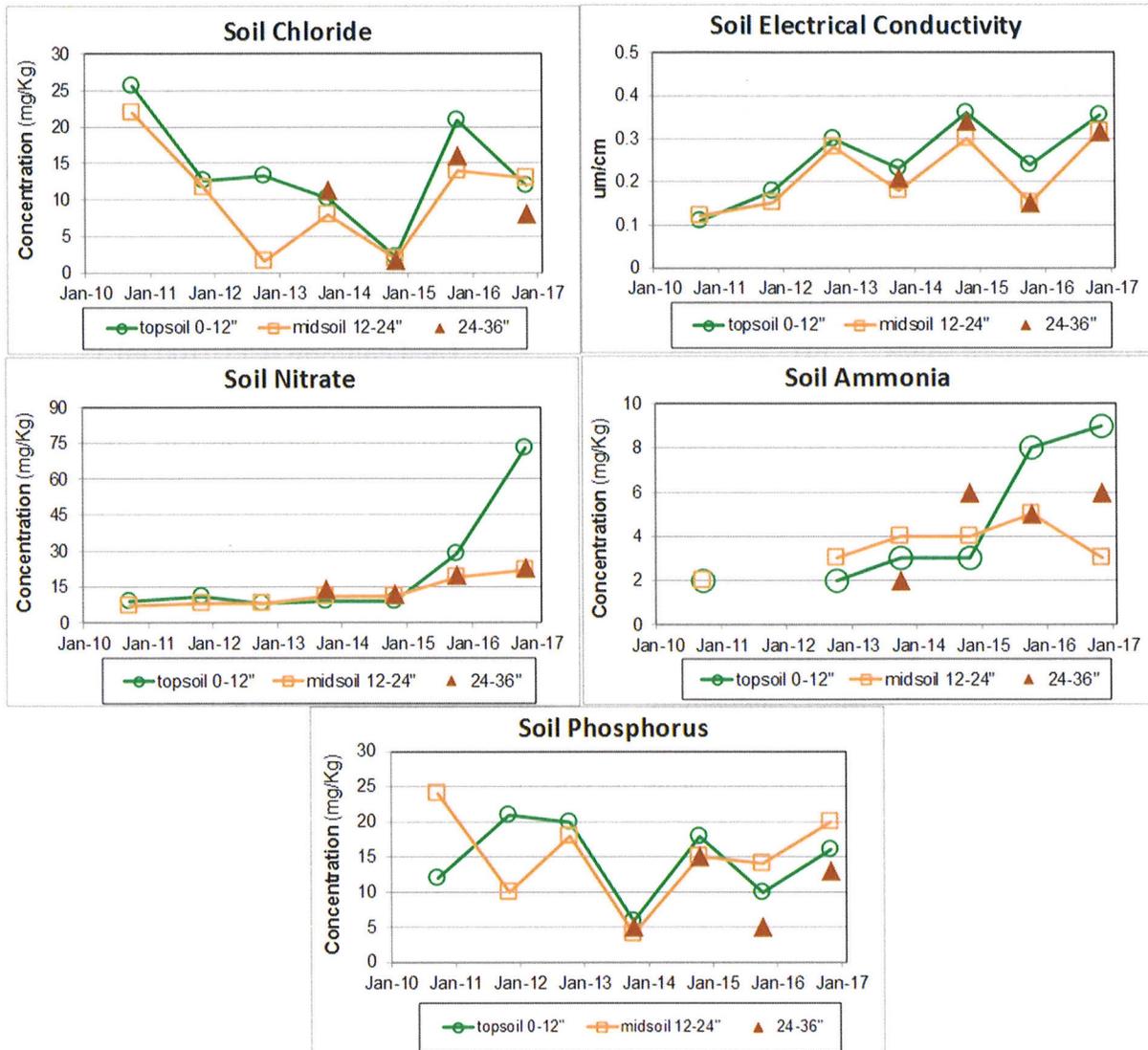
6.2 Soil Monitoring

Soil monitoring remains unchanged with this permit renewal:

Chloride	Nitrate-nitrogen as N	Ammonium nitrogen as N
pH	Electrical conductivity	Plant available phosphorus
Cation Exchange Capacity		

Historic soil samples show no concentrations of concern.

2011 to 2016 soil sample results



6.3 Ground Water Monitoring

Groundwater monitoring is not required at this site:

- available irrigation water volumes are below crop irrigation requirements; and,
- the Snake River Plain Aquifer – at 300 feet below ground surface – is prohibitively deep for monitoring.

6.4 Supplemental Irrigation Water Monitoring

Supplemental irrigation derived from the intermittently flowing Beaver Creek is stored in Lagoon 3 with treated wastewater. The combined waters are monitored prior to irrigation.

6.5 Crop Yield and Tissue Monitoring

Crop yield and tissue monitoring requirements remain unchanged in this permit renewal: the facility is required to monitor and report crop yields and crop tissue analyses to determine nutrient removal from the management units.

6.6 Calculation Methodologies

DEQ will use the methods described below to determine permit compliance. DEQ recommends the Plan of Operations and QAPP present the specific meters, methods, and equations that will be used.

6.6.1 Hydraulic Loading

Hydraulic volumes of wastewater and supplemental irrigation water to each individual management unit should be recorded daily using the flow meters and hour meters as applicable. Daily volumes should be compiled and reported in monthly and annual volumes.

Per-acre hydraulic application depths should also be documented daily and compiled monthly, seasonally, and annually for each individual management unit based on the actual acreage irrigated in a particular season or year. Hydraulic volumes on each management unit should be converted to application depths as follows:

$$\text{application depth (inches)} = (\text{gallons applied}) / (\text{acres used} \times 27,154 \text{ gal/ac-in})$$

6.6.2 Constituent Loading

Wastewater constituent loading to each individual management unit should be calculated and compiled into monthly and annual totals. Monthly loads should be the product of the monthly volume applied to the individual management unit and the monthly compliance sample result from the analytical laboratory, divided by the actual acreage irrigated on the particular management unit as shown below. The monthly loads for each constituent can then be added together to determine seasonal and annual loads for each individual management unit:

$$\text{monthly constituent loading (lb/acre/month)} = [(\text{volume applied in million gallons/month}) \times (\text{monthly constituent concentration in mg/L}) \times (8.34)] / (\text{management unit acres utilized})$$

Helpful unit conversions include the following:

$$1 \text{ mg/L} = 8.34 \text{ lb/MG (pounds per million gallons)}$$

$$1 \text{ MG (million gallons)} = 36.827 \text{ acre-inches} = 3.069 \text{ acre-feet}$$

6.6.3 Crop Yield

Crop yields should be individually measured for each cutting on each management unit using scales and bale counts. Both wet-basis and dry-basis yields should be reported for each individual yield. The individual dry-basis yields from each harvest or cutting on each

management unit (MU) should be added together to report the total seasonal yield for each MU. The per-acre yields for each management unit will be determined as follows. Both wet basis and dry basis yields can be calculated in the same manner:

$$\text{management unit yield/acre} = (\text{MU yield in lbs}) / (\text{MU acreage utilized})$$

6.6.4 Nutrient Uptake and Removal

Total and per-acre nutrient uptake from each individual yield for each individual management unit should be calculated on a dry-basis by converting the as-harvested wet yield to a dry yield based upon the moisture content of the crop at the time of harvest. The total dry-basis constituent uptake (in pounds) can then be converted to a per-acre uptake when divided by the actual acreage utilized on the individual management unit.

6.6.5 Crop Nitrogen Uptake Permit Compliance

For this permit cycle, DEQ recommends compliance with the nitrogen loading requirement of 150% of crop uptake by comparing current year nitrogen loading and crop nitrogen removal rate on each individual management unit. Nitrogen loading limit for each individual management unit should be calculated on a dry-basis as follows:

$$\text{nitrogen loading limit, lb/ac} = (\text{season total crop nitrogen uptake, lb/ac} \times 1.5) / (\text{season total wastewater nitrogen loading, lb/ac})$$

7 Quality Assurance Project Plan

The facility submitted a Quality Assurance Project Plan (QAPP) in 2014. A compliance activity in this permit renewal requires the facility to update the QAPP whenever there is a modification in sample collection, sample analysis, or other procedure addressed by the QAPP.

The Quality Assurance Project Plan (QAPP) is a written document outlining the procedures used by the permittee to ensure the data collected and analyzed meets the requirements of the permit. The QAPP is used to assist the permittee in planning for the collection, analysis, and reporting of all monitoring data in support of the reuse permit and explaining data anomalies when they occur.

The format of the QAPP should adhere to the recommendations and references in: 1) the Assurance and Data Processing sections of the DEQ Guidance; and, 2) EPA QAPP guidance documents. EPA QAPP guidance documents are available at the following website:
<http://www.epa.gov/quality/qapps.html>

8 Site Operation and Maintenance

The City of Dubois will operate and maintain the facility. Operators – in addition to Land Application licensure - are required to maintain licensure equivalent to the system classification:

- Class 1 Collection; and,

➤ Class 1 Treatment.

9 Compliance Activities

The list of compliance activities include in the current permit and those that will be required by the new permit is provided below.

9.1 Status of Compliance Activities in Current Permit

Compliance Activity	Description	Status
CA-166-01	Prepare and implement a Quality Assurance Project Plan (QAPP)	Complete
CA-166-02	Perimeter signage to include the Spanish language.	Complete
CA-166-03	Seepage Testing on all three wastewater lagoons.	Completed in 2014.
CA-166-04	The prop flow meter to irrigation shall be calibrated.	Calibrated in 2017.
CA-166-05	An updated Plan of Operation shall be submitted for DEQ approval if any facility operational changes are made.	Ongoing

9.2 Compliance Activities Required in New Permit

Compliance Activity 1 (CA-166-01): Buffer zone improvements will assure 300 feet of separation from irrigated acreage to areas accessible to the public.

Compliance Activity 2: a Recycled Water Disinfection Plan is required to help the facility reduce frequent recycled water Class D total coliform concentration exceedances.

Compliance Activity 3: Seepage testing will be required on all three lagoons in 2024 – ten years after the 2014 seepage tests.

Compliance Activity 4: The Plan of Operation shall be updated as necessary. This is an ongoing process intended to keep the *Plan* pertinent to current operations.

Compliance Activity 5: The Quality Assurance Project Plan shall be updated as necessary. This is an ongoing process intended to keep the *Plan* pertinent to current operations.

Compliance Activity 6: the permit renewal pre-application workshop shall be conducted one year prior to permit expiration.

Compliance Activity 7: the permit renewal application is due six months prior to permit expiration.

10 Recommendations

Staff recommends the draft reuse permit be issued. The permit specifies hydraulic and constituent loading limits and establishes monitoring and reporting requirements to evaluate system performance, environmental impacts, and permit compliance.

11 References

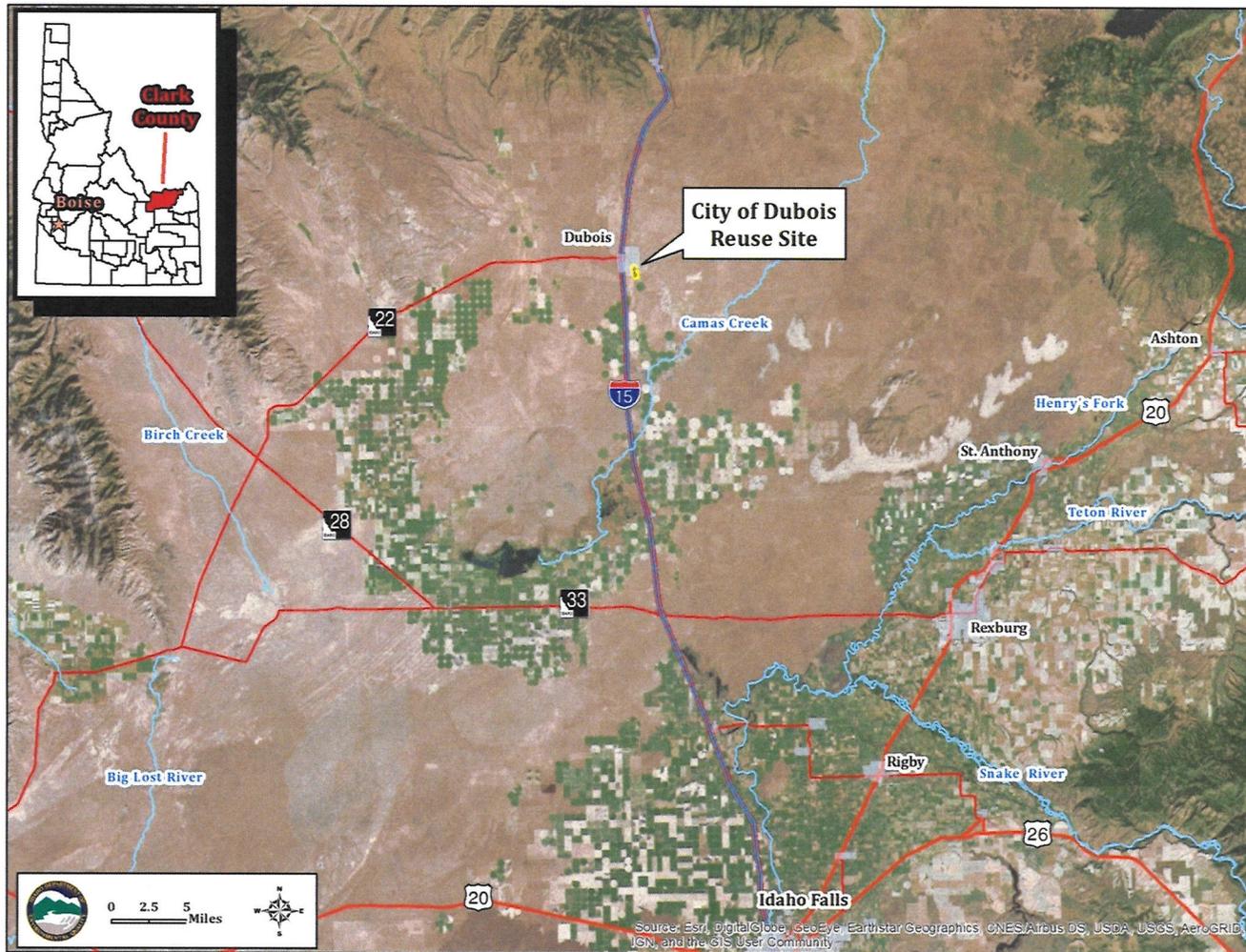
DEQ, 2007. *Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater*.

DEQ, 2013 through 2016 annual reports reviews; reuse permit M-166-03

Dubois, 2013 through 2016 annual reports; reuse permit M-166-03

Appendix A. Site Maps

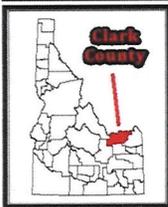
Regional Map



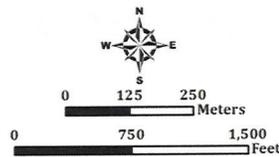
Facility Map



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



City of Dubois
M-166-03



Legend	
Monitoring Well	Streams/Canals
Highway	Lagoon
Major Roads	Reuse Irrigation

DEQGIS-10-24-2017