

FACT SHEET

The United States Environmental Protection Agency (EPA) proposes to issue a National Pollutant Discharge Elimination System (NPDES) permit to:

Jerome Cheese Company
47 West 100 South
Jerome, Idaho 83338

NPDES Permit Number: ID-002760-0

Date:

Public Notice Expiration Date:

and requests the state of Idaho to certify this NPDES permit pursuant to 40 CFR 124.53.

NPDES Permit Issuance.

EPA proposes to issue an NPDES permit to Jerome Cheese Company in Jerome, Idaho. The draft permit places conditions on the discharge of pollutants from the Jerome Cheese Company facility effluent to an irrigation ditch referred to as Lateral 12 pursuant to the provisions of the Clean Water Act.

This Fact Sheet includes:

- ♦ information on public comment, public hearing, and appeal procedures;
- ♦ a description of the discharge;
- ♦ a listing of proposed effluent limitations and monitoring requirements;
- ♦ a listing of proposed ambient monitoring requirements;
- ♦ a map and description of the wastewater discharge; and
- ♦ detailed technical material supporting the conditions in the permit.

State of Idaho Certification.

EPA requests that the Idaho Department of Environmental Quality (IDEQ) certify the NPDES permit for Jerome Cheese Company, under section 401 of the Clean Water Act. Prior to the Public Notice period, the state provided preliminary comments relating to the proposed effluent limitations and requirements which have been incorporated or addressed in the fact sheet and draft permit.

Public Comment.

Persons wishing to comment on or request a Public Hearing for the draft permit may do so in writing by the expiration date of the Public Notice. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for a Public Hearing must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If comments are received, EPA will

address the comments and issue the permit. The permit will become effective 30 days after the issuance date, unless a request for an evidentiary hearing is submitted within 30 days.

Availability of Documents for Review.

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (see address below). Draft permits, Fact Sheets, and other information can also be found by visiting the EPA Region 10 website at www.epa.gov/r10earth/water.htm.

United States Environmental Protection Agency
Region 10
Park Place Building, 13th Floor
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-0523 or
1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The Fact Sheet and draft permit are also available at:

United States Environmental Protection Agency (EPA)
Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706
(208) 378-5746

Scott Bybee, City Engineer
The City of Jerome
152 East Avenue A
Jerome, Idaho 83338
(208) 324-8189

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I. BACKGROUND

A. Applicant

Jerome Cheese Company
NPDES Permit No.: ID-002760-0
Contact Person: Peg Conley

Facility Mailing Address:
47 West 100 South
P.O. Box 485
Jerome, Idaho 83338

B. Activity

Jerome Cheese Company owns, operates, and has maintenance responsibility for a cheese manufacturing and whey drying facility (Standard Industrial Codes “SIC” 2022 and 2023) located in Jerome County in south central Idaho. The revised permit application (dated February 17, 2000) indicates that approximately 3,800,000 pounds of raw milk are processed per day as part of the cheese manufacturing. Both the raw milk and whey, a byproduct of cheese manufacturing, are processed using an evaporator system. The condensate from the milk and whey evaporators is tested using conductivity sensors and diverted to either the City of Jerome publicly owned treatment works (POTW) if the conductivity is greater than 175 microsiemens ($175 \mu\text{S}$) or to the “cow water tanks” for in house needs and subsequent discharge to Lateral 12 if the conductivity is $< 175 \mu\text{S}$. A process diagram is included in Appendix A and a map showing the location of Jerome Cheese Company facility is included in Appendix B.

C. Permit History

The Jerome Cheese Company facility is a new source as defined under federal regulations 40 CFR 122.2 and 122.29. Consequently, any new facility that proposes to discharge pollutants to waters of the United States must apply for an NPDES permit. On January 20, 1995 EPA received an NPDES permit application for the facility and on March 14, 1995, EPA specified that until an NPDES permit is issued by the agency that Jerome Cheese Company is expected to comply with the state’s water quality standards, and in particular those water quality standards specified in the March 6, 1995 letter from IDEQ to EPA.

D. Plant Performance History

Information from the monitoring results and the permit application were used in determining applicable effluent limitations for the Jerome Cheese Company facility (see Appendix C for calculations).

II. RECEIVING WATER

A. Outfall Location

Effluent from Jerome Cheese Company dairy processing facility is discharged from outfall 001, located at latitude: N 42° 42' 35"; longitude: W 104° 31' 10" to an irrigation ditch referred to as Lateral 12 which flows west to the N canal (both of which are owned and operated by the North Side Canal Company of Jerome, Idaho). The N canal flows in a southerly direction, diverging into the N23, N30 and N33 canals. According to information provided by the North Side Canal Company, approximately 80% of the flow in the N canal enters N30 and the remaining flow enters N23 and N33 (15 and 5%, respectively). The N23 and N30 canals flow directly into the segment of the Snake River between the Milner-Gooding Canal and Box Canyon Creek and the N33 canal enters this segment via the K canal. See Appendix B for the locations of the discharge and canals.

B. Water Quality Standards

A State's water quality standards consist of use classifications and numeric and/or narrative water quality criteria. The use classification system designates the beneficial uses (such as cold water biota, salmonid spawning, contact recreation, etc.) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary, by the State, to protect the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

The state of Idaho *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 16.01.02.101.02) (1998) specifies that unless designated in Section 110 through 160, man-made waterways are to be protected for the use for which they were developed. Idaho water quality standards (IDAPA 16.01.02.003.58) define man-made waterways as canals, flumes, ditches and similar features constructed for the purpose of water conveyance. Lateral 12 and N canal are used for agricultural purposes including irrigation and watering of livestock. Idaho water quality standards (IDAPA 16.01.02.252.02) specify the use of "Water Quality Criteria 1972 (Blue Book), Section V, Agricultural Uses of Water" when developing specific criteria to protect waters designated as agricultural water supplies. The numeric criteria of 100 mg/L nitrate-nitrite as N and 10 mg/L nitrite as N are listed for agricultural water supplies intended as drinking water for livestock.

In addition, federal regulations 40 CFR 122.44(d)(1)(vii) specify that when developing water quality based effluent limits, the permitting authority shall ensure that the level of water quality to be achieved by limits on point sources established under this paragraph is derived from and complies with all applicable water quality standards. Idaho water quality standards (IDAPA 16.01.02.100) specify that all surface waters of the state are to be protected for agricultural water supply (see above), industrial water supply, wildlife

habitat and aesthetics. Idaho water quality standards (IDAPA 16.01.02.252.03, 253.01 and 253.02) specify that water quality criteria for industrial water supplies, wildlife habitats and aesthetics will generally be satisfied by the general water quality criteria set forth in Section 200 (General Surface Water Quality Criteria). Section III of this fact sheet discusses Idaho water quality standards (IDAPA 16.01.02.200) in more detail and conditions proposed in the draft permit.

In addition to federal regulations 40 CFR 122.44(d)(1)(vii), Section 301(b) of the Clean Water Act requires NPDES permits to include limits for all pollutants or parameters which “are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.” Therefore, Idaho water quality standards for the segment of the Snake River into which the N canal flows (i.e. Milner-Gooding Canal to Box Canyon Creek) were considered in developing applicable effluent limitations for the Jerome Cheese Company facility. Idaho water quality standards (IDAPA 16.01.02.150.14) specify the following beneficial uses for the Snake River from Milner-Gooding Canal to Box Canyon Creek: cold water biota, salmonid spawning and primary contact recreation.

C. Water Quality Limited Segment

In 1994, the state of Idaho listed the segments of the Snake River where the N23 and N30 canals enter (Cedar Draw to Rock Creek) and where the K canal enters (Rock Creek to Shoshone Falls) as “water quality limited segments” for sediments, nutrients and temperature. A water quality limited segment is any waterbody, or definable portion of a water body, where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards. In accordance with section 303(d) of the Clean Water Act, the state of Idaho must identify state waters not achieving water quality standards in spite of application of technology-based controls in the National Pollutant Discharge Elimination System (NPDES) permits for point sources. Such waterbodies are known as water quality limited segments (WQLSs). Once a water body is identified as a WQLS, the state of Idaho is required under the Clean Water Act and Idaho Code 39-3601 et seq. to develop a total maximum daily load (TMDL). A TMDL is a mechanism for determining the assimilative capacity of a water body and allocating that capacity among point and non-point pollutant sources, taking into account natural background and a margin of safety. The assimilative capacity is the loading of a pollutant that a water body can assimilate without causing or contributing to a violation of water quality standards. The assimilative capacity is based on the river flow and the state water quality standards. The allocations for point sources are referred to as “waste load allocations” (WLAs) and are implemented through NPDES permits. Allocations for non-point sources are referred to as “load allocations” (LAs) and are implemented through the use of best management practices. The TMDL for the Middle Snake River (IDEQ, 1997) was adopted by the State of Idaho and approved by EPA on April 25, 1997.

The TMDL for the Upper Snake Rock Subbasin (IDEQ, 1999) was adopted by the State of Idaho and approved by EPA on August 25, 2000. The TMDL addressed additional pollutants including total suspended solids (TSS) and pathogens and specified for industrial-type facilities including Jerome Cheese Company a waste load allocation of zero (see Section 3.2.4 of the *Upper Snake Rock Watershed Management Plan*).

Federal regulations 40 CFR 122.44(d)(1)(vii)(B) require EPA to include effluent limitations for a discharge based on waste load allocations (WLAs) specified in an approved TMDL. The Mid Snake TMDL specifies a total waste load allocation of 953.6 pounds of phosphorus per day for the food processing industry, all of which is currently allocated to two facilities (see Table 25, Chapter 3 of the *Middle Snake River Watershed Management Plan*). The remaining food processing industries including Jerome Cheese Company were allocated a waste load allocation of zero for phosphorus.

Federal regulations 40 CFR 122.4(i) prohibit permits to be issued to a new source if the discharge will cause or contribute to a violation of water quality standards. Since the water segment of the Snake River into which the N canal flows is identified by the state of Idaho as water quality limited or “impaired”, the discharge cannot contribute to this impairment. Consequently, the development of effluent limitations in the permit did not include a mixing zone within the Snake River. In those instances where ambient monitoring data indicate that the N canal is meeting numeric criteria (i.e. ammonia) prior to convergence with the Snake River, the development of effluent limitations included mixing zones within the N canal and Lateral 12.

III. EFFLUENT LIMITATIONS

Sections 101, 301(b), 304, 308, 401, 402 and 405 of the Clean Water Act provide the basis for the effluent limitations and other conditions in the draft permit. EPA evaluates discharges with respect to these sections of the Clean Water Act and the relevant NPDES regulations in determining which conditions to include in the permit.

In general, EPA first determines which technology-based limits are required to be incorporated into the permit [40 CFR §122.44(a)] as well as best management practices and other applicable requirements. Jerome Cheese Company is an industrial discharger for which technology-based effluent limitations are based on two general approaches: (1) using national effluent limitations guidelines (ELGs) or (2) using Best Professional Judgement (BPJ) on a case-by-case basis in the absence of ELGs. National ELGs have been promulgated for dischargers which process dairy products (40 CFR Part 405). Federal regulations 40 CFR 405.65 and 405.66 (Natural and Processed Cheese Subcategory) are applicable to discharges resulting from the manufacture of natural and processed cheese and specify standards of performance for new sources such as the Jerome Cheese Company facility.

In addition to the technology-based limits, Section 301(b) of the Clean Water Act requires

that NPDES permits include limits for all pollutants or parameters which “are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.” The limits must be stringent enough to ensure that water quality standards are met (see section II.B. above), and must be consistent with any available waste load allocation (WLA). Therefore, the effluent limitations specified in an NPDES permit are developed from both technology available to treat the pollutants (“technology-based limits”) and limits that are protective of the designated uses of the receiving water (“water quality-based limits”). For a pollutant for which both technology-based and water quality-based limits exist, the more stringent limits will be included in the permit.

In determining whether water quality-based limits are needed and developing those limits when necessary, EPA uses the approach outlined below:

1. Determine the appropriate water quality criteria
2. Determine whether there is “reasonable potential” to exceed the criteria
3. If there is “reasonable potential”, then develop a WLA
4. Develop effluent limitations based on WLAs
5. Compare to technology-based limits and apply the more stringent limits

In addition, effluent monitoring data from the Darigold, Inc. (dba WestFarm Foods) was incorporated because the facility discharges into Lateral 12 approximately a half mile upstream from the Jerome Cheese Company facility.

A. Summary of Effluent Limitations and Monitoring Requirements

The following table summarizes the proposed effluent limitations and monitoring requirements included in the draft permit:

Table 1. Effluent Limitations and Monitoring Requirements

Parameter	Units	Effluent Limitations				Monitoring Requirements	
		Average Monthly	Instantaneous Maximum	Maximum Daily	Minimum Daily	Sample Frequency	Sample Type
Outfall Flow	gpd	--	--	--	--	daily	recording
Biochemical Oxygen Demand (BOD ₅)	mg/L	30	--	45	--	weekly	grab
	lbs/day	124.35 ¹	--	186.52 ¹	--	--	--
Total Suspended Solids (TSS) ³	mg/L	0	--	0	--	weekly	grab
	lbs/day	0 ¹	--	0 ¹	--	--	--
Fecal Coliform Bacteria ⁴	# / 100ml	0	--	0	--	weekly	grab
pH	s.u.	--	--	9.0	6.5	daily	grab
Temperature	°C	--	--	--	--	daily	grab
Dissolved Oxygen	mg/L	--	--	--	--	daily	grab
Total Ammonia as N ² (April 1- October 31)	mg/L	8.18	--	20.45	--	monthly	grab
	lbs/day	33.91 ¹	--	84.76 ¹	--	--	--
Total Phosphorus as P ⁵	mg/L	0	--	0	--	monthly	grab
	lbs/day	0 ¹	--	0 ¹	--	--	--
Nitrate as N	mg/L	--	--	--	--	quarterly	grab
Nitrite as N (November 1- March 31)	mg/L	2.94	--	10.00	--	monthly	grab
	lbs/day	12.19 ¹	--	41.45 ¹	--	--	--
Total Kjeldahl Nitrogen	mg/L	--	--	--	--	quarterly	grab
Orthophosphate as P	mg/L	--	--	--	--	monthly	grab
Turbidity	NTU	--	--	--	--	monthly	grab

¹ Effluent limits based on a 95th percentile daily flow of 497,000 gallons per day.
² Minimum level is 4 mg/L for total suspended solids.
³ Minimum level is < 1 organism per 100 ml for fecal coliform bacteria.
⁴ Reporting is required within 24-hours if the maximum daily limit is violated.
⁵ Method detection limit is 0.010 mg/L total phosphorus as P.

In addition to the requirements listed above, the following limitations shall also apply:

1. The permit does not authorize the discharge of any waste streams, including spills and other unintentional or non-routine discharges of pollutants, that are not part of the normal operation of the facility as disclosed in the permit application, or any pollutants that are not ordinarily present in such waste streams.
2. There shall be no discharge of hazardous materials in concentrations found to be of public health significance or to impair designated beneficial uses (IDAPA 16.01.02.200.01).
3. There shall be no discharge of chemicals or toxic pollutants in toxic amounts (Section

101(a)(3) of the Clean Water Act and IDAPA 16.01.02.200.02).

4. There shall be no discharge of deleterious materials in concentrations that impair beneficial uses of the receiving water (IDAPA 16.01.02.200.03).
5. There shall be no discharge of floating solids, visible foam, or oily wastes which produce a sheen on the surface of the receiving water (IDAPA 16.01.02.200.05).
6. There shall be no discharge of excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses (IDAPA 16.01.02.200.06).
7. There shall be no discharge of oxygen-demanding materials in concentrations that would result in anaerobic water conditions (IDAPA 16.01.02.200.07).
8. There shall be no discharge of sediment in quantities which would impair designated beneficial uses (IDAPA 16.01.02.200.08).
9. The discharge must be disinfected prior to discharge (IDAPA 16.01.02.440.02).

B. Evaluation of Effluent Limitations and Monitoring Requirements

1. Outfall Flow

The proposed monitoring frequency for flow is daily in order to determine compliance with the mass-based effluent limitations (i.e. lbs/day) proposed in the draft permit.

2. Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS)

Jerome Cheese Company is subject to the federal technology-based requirements for BOD₅ and TSS (40 CFR §405.65 and 405.66) which specify daily and monthly average limits for BOD₅ and TSS based on BOD₅ input of the materials entering into the process. BOD₅ input is calculated by multiplying the fat, protein and carbohydrate contents of the material entering into the process by factors of 0.890, 1.031 and 0.691, respectively. In addition, federal regulations 40 CFR §122.45(f) require that NPDES permits must also express the effluent limits in terms of mass based limits. Therefore, mass-loading limits based on the current plant capacity of 3.8 million pounds of raw milk per day (381,520 pounds of BOD₅ input per day) were determined. See Appendix C for calculations.

Preliminary comments provided by IDEQ included effluent limitations of 30 mg/L and 45 mg/L for Monthly Average and Maximum Daily limits for BOD₅. In addition, the TMDL for the Upper Snake Rock Subbasin (*Upper Snake Rock Watershed*

Management Plan, Idaho Department of Health and Welfare, Department of Environmental Quality) specified a waste load allocation of zero for TSS. Current EPA approved analytical methods specify that concentrations of total suspended solids ≥ 4 mg/L can be reliably detected. Therefore, effluent concentrations below this minimum level will be considered in compliance with the zero mg/L limit.

The more stringent limits apply, therefore the draft permit proposes the following effluent concentration-based and mass-loading limits:

Effluent Parameter	Unit of Measurement	Monthly Average	Maximum Daily
Biochemical Oxygen Demand (BOD ₅)	mg/L	30	45
	lbs/day	124.35 ¹	186.52 ¹
Total Suspended Solids (TSS)	mg/L	0	0
	lbs/day	0 ^{1,2}	0 ^{1,2}

¹ Effluent limits based on a 95th percentile daily flow of 497,000 gallons per day.
² Minimum level is 4 mg/L for total suspended solids.

Based on the effluent monitoring data, Jerome Cheese Company will not be able to meet this limit. State water quality standards (IDAPA 16.01.02.400.03) indicate that discharge permits for point sources may incorporate schedules of compliance which allow a discharger to phase in, over time, compliance with water quality-based effluent limitations when new limitations are in the permit for the first time. Jerome Cheese Company may request a compliance schedule from IDEQ which will be included in the state 401 certification of this permit. Federal requirements for schedules of compliance are specified under 40 CFR §122.47 and include submittal of annual progress reports to EPA. Based on preliminary comments from IDEQ, the draft permit proposes the following milestones in regards to the annual reports. If Jerome Cheese Company does not request a compliance schedule and one is not included in the 401 certification by the state, then EPA will remove the milestones and annual report requirements from the permit.

Schedule of Compliance for Total Suspended Solids		
Task No.	Due at End of Year	Task Activity
1	1	Source investigation. The permittee must investigate the sources, extent, transport, and fate of suspended solids in outfall 001. Deliverable: The permittee must prepare a progress report of findings, and recommendations for further actions to reduce total suspended solids.

Schedule of Compliance for Total Suspended Solids		
Task No.	Due at End of Year	Task Activity
2	2	<p>Feasibility study. The permittee must investigate the feasibility of measures to reduce total suspended solids in outfall 001 to meet the effluent limits. Evaluations should consider short- and long-term aspects of: 1) effectiveness of the measures (e.g. affords long-term protection, minimizes short term environmental impacts, and complies with effluent limits); and 2) implementability of the measures (e.g., technical feasibility).</p> <p>Readily implementable measures must be designed and constructed as soon as feasible. Measures that are more technically difficult or have more unknowns may need further investigations.</p> <p>Deliverable: The permittee must submit: 1) A report of the findings on the feasibility of measures; and 2) Design documents and/or construction completion reports for those measures that are readily implemented.</p>
3 ¹	3	<p>Design and construction. The permittee must construct measures to reduce levels of total suspended solids in outfall 001 to achieve the effluent limits.</p> <p>Deliverable: The permittee must submit construction completion reports, and/or progress reports if more technically difficult or unknown conditions prevent completion.</p>
4 ¹	4	Continued design and construction.
5 ¹	5	Construction completion and operating such that effluent limits are achieved.
¹ Tasks scheduled past Year 2 are listed in anticipation of potential unknown conditions. The permittee does not need to complete these later tasks if compliance with the effluent limits is achieved sooner.		

The proposed monitoring frequency is weekly in order to determine compliance with concentration-based limits specified by the state of Idaho and the Upper Snake Rock TMDL.

3. Fecal Coliform Bacteria

The TMDL for the Upper Snake Rock Subbasin (*Upper Snake Rock Watershed Management Plan*, Idaho Department of Health and Welfare, Department of Environmental Quality) specified a waste load allocation of zero for fecal coliform bacteria. Current EPA approved analytical methods specify that concentrations of fecal coliform bacteria ≥ 1 organism per 100 ml can be reliably detected. Therefore, effluent concentrations below this minimum level will be considered in compliance with the zero mg/L limit.

The draft permit proposes the following effluent limits:

Effluent Parameter	Unit of Measurement	Monthly Average	Maximum Daily
Fecal Coliform Bacteria ¹	# / 100 ml	0	0

Effluent Parameter	Unit of Measurement	Monthly Average	Maximum Daily
¹ Minimum level is < 1 organism per 100 ml.			

The proposed monitoring frequency is weekly in order to determine compliance with effluent limits specified by the Upper Snake Rock TMDL.

4. Hydrogen ion concentration (pH)

The federal technology-based requirements for pH (40 CFR §405.65) specify daily and monthly average pH limits of 6.0 to 9.0 standard units. The Idaho water quality standards for aquatic life specify pH limits of 6.5 to 9.5 standard units (IDAPA 16.01.02.250.01.a.). The more stringent pH range applies, therefore the draft permit proposes a pH limit of 6.5 to 9.0.

The proposed monitoring frequency is daily in order to determine compliance with federal regulations 40 CFR §405.65.

5. Temperature

Idaho water quality standards specify numeric temperature criteria for waters designated for cold water biota (IDAPA 16.01.02.250.02.b) and salmonid spawning (IDAPA 16.01.02.250.02.e). Waters designated for cold water biota must exhibit temperatures of 22°C or less with a maximum daily average of no greater than 19°C. Waters designated for salmonid spawning must exhibit temperatures of 13°C or less with a maximum daily average of no greater than 9°C during the spawning period and incubation for the particular species inhabiting those waters. In addition, Idaho water quality standards (IDAPA 16.01.02.401.03.a.) for point source wastewater discharges specify that the discharge must not induce a variation of more than plus one (+1) °C in the receiving waters. This technology-based limit was compared to the water-quality based limit and the more stringent limit was included in the draft permit.

The segments of the Snake River where the N canal enters are identified as “water quality limited segments” for temperature (see Section II.C.) and ambient monitoring data from United States Geological Service (USGS) gage station 1309000 near Kimberly, Idaho indicate temperature criteria are exceeded (95th percentile is 20.00 °C). Reasonable potential analysis could not be completed due to the lack of historical ambient temperature data for the N canal and Lateral 12, however the draft permit proposes monitoring requirements for temperature to assist in the evaluation of future effluent limitations (see also Section IV).

6. Dissolved Oxygen (DO)

The Idaho water quality standards for waters designated for cold water biota (IDAPA 16.01.02.250.02.a.) require that dissolved oxygen concentrations must exceed 6.0 mg/L at all times.

Due to the lack of historical ambient monitoring data (i.e. DO and BOD) for the N canal and Lateral 12, modeling to determine the potential dissolved oxygen sag could not be conducted. The draft permit proposes monitoring requirements for dissolved oxygen to assist in the evaluation of future effluent limitations (see also Section IV).

7. Nutrients

Nutrients typically found in wastewater generated by the processing of dairy products consist of phosphorus, nitrogen and carbon compounds (EPA, 1974). The monitoring results of the evaporator condensate and polisher permeate effluent from the Jerome Cheese Company facility confirm the presence of these compounds. Idaho water quality standards (IDAPA 16.01.02.200.06) specify narrative criteria which require that surface waters of the state shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses. Furthermore, numeric criteria are specified in Idaho water quality standards for ammonia (IDAPA 16.01.02.250.02.c. and 16.01.02.250.02.e.iii) and for nitrate and nitrite (IDAPA 16.01.02.252.02.).

- a. Excess Nutrients. The draft permit proposes that the facility meet a narrative standard for excess nutrients.
- b. Total Ammonia (NH₃ as N). Ammonia is considered a toxic substance to aquatic organisms and state water quality standards specify numeric criteria for cold water biota depending upon pH and temperature of the receiving water (IDAPA 16.01.02.250.02.c. and 16.01.02.250.02.e.iii). Based on water quality monitoring data obtained from the United States Geological Service (USGS) gage station 1309000 near Kimberly, Idaho, the 95th percentile temperature (20.00°C) and pH (8.70 s.u.) were used to calculate an acute criterion of 1.33 mg/L and the chronic criterion of 0.22 mg/L. These criterion were compared to the 95th percentile ambient or “background” ammonia concentration of 0.10 mg/L obtained from USGS gage station 2060619 near Piller Falls. Since ambient or background concentration of ammonia is less than the acute and chronic criterion, a mixing zone was incorporated into the reasonable potential calculations for ammonia. In addition, the more conservative criterion of 0.22 mg/L was compared to the ambient monitoring data of the N canal obtained from IDEQ and North Side Canal Company (NSCC). The 95th percentile ambient ammonia concentrations in the N canal upstream and downstream of the confluence with Lateral 12 were 0.06 and 0.07 mg/L, respectively. Because these concentrations did not exceed the state water quality standard of 0.22 mg/L, a mixing zone was also

incorporated into the reasonable potential analysis. Information provided by the NSCC indicates the flow in Lateral 12 averages approximately 3 cubic feet per second or 1.94 million gallons per day (a maximum of 4.5 cubic feet per second or 2.91 million gallons per day) during the irrigation season (April 1 to October 31). Due to the lack of historical data, a background concentration of zero milligrams per liter (0 mg/L) was assumed for the flow upstream of the discharge. Consequently, a mixing zone within Lateral 12 was incorporated into the reasonable potential analysis for the irrigation season. If the state of Idaho does not certify the mixing zones (IDAPA 16.01.02.060) in the 401 certification, then in accordance with 40 CFR § 122.44(d)(1), the effluent limitations for the irrigation season including the reasonable potential analysis will be recalculated without the mixing zones. See Appendix C for calculations.

The draft permit proposes the following effluent limitations for ammonia during the irrigation season:

Effluent Parameter	Unit of Measurement	Monthly Average	Maximum Daily
Ammonia (NH ₃ -N) (April 1 to October 31)	mg/L	8.18	20.45
	lbs/day	33.91 ¹	84.76 ¹
¹ Effluent limits based on a 95 th percentile daily flow of 497,000 gallons per day.			

Based on the effluent monitoring data, Jerome Cheese Company will not be able to meet the monthly average and maximum daily limits 44% and 11% of the time, respectively. State water quality standards (IDAPA 16.01.02.400.03) indicate that discharge permits for point sources may incorporate schedules of compliance which allow a discharger to phase in, over time, compliance with water quality-based effluent limitations when new limitations are in the permit for the first time. Jerome Cheese Company may request a compliance schedule from IDEQ which will be included in the state 401 certification of this permit. Federal requirements for schedules of compliance are specified under 40 CFR §122.47 and include submittal of annual progress reports to EPA. Based on preliminary comments from IDEQ, the draft permit proposes the following milestones in regards to the annual reports. If Jerome Cheese Company does not request a compliance schedule and one is not included in the 401 certification by the state, then EPA will remove the milestones and annual report requirements from the permit.

Schedule of Compliance for Ammonia		
Task No.	Due at End of Year	Task Activity
1	1	<p>Source investigation. The permittee must investigate the sources, extent, transport, and fate of ammonia in outfall 001.</p> <p>Deliverable: The permittee must prepare a progress report of findings, and recommendations for further actions to reduce ammonia concentrations in outfall 001.</p> <p>Feasibility study. The permittee must investigate the feasibility of measures to reduce ammonia in outfall 001 to meet the effluent limits. Evaluations should consider short- and long-term aspects of: 1) effectiveness of the measures (e.g. affords long-term protection, minimizes short term environmental impacts, and complies with effluent limits); and 2) implementability of the measures (e.g., technical feasibility).</p> <p>Readily implementable measures must be designed and implemented as soon as feasible. Measures that are more technically difficult or have more unknowns may need further investigations.</p> <p>Deliverable: The permittee must submit: 1) A report of the findings on the feasibility of measures; and 2) Design documents and/or implementation completion reports for those measures that are readily implemented.</p>
2	2	<p>Design and implementation. The permittee must implement measures such that effluent limits are achieved.</p> <p>Deliverable: The permittee must submit implementation completion reports.</p>

The proposed monitoring frequency is monthly in order to determine compliance with state water quality standards IDAPA 16.01.02.200.06 and the proposed effluent limitations which are based on the monitoring data of the effluent from Jerome Cheese Company facility in Jerome, Idaho.

- b. Nitrate-Nitrite as N. Idaho water quality standards (IDAPA 16.01.02.250.03.b) specify the use of “Water Quality Criteria 1972 (Blue Book), Section V, Agricultural Uses of Water” when developing specific criteria to protect waters designated as agricultural water supplies. The numeric criteria of 100 mg/L nitrate-nitrite as N is listed for agricultural water supplies intended as drinking water for livestock.

Reasonable potential analyses were conducted for both the irrigation and non-irrigation season to determine if the discharge would cause or contribute to an exceedance in the water quality standard. Based on information provided by the North Side Canal Company, there is no flow expected in Lateral 12 upstream from the location of the discharge during the non-irrigation season (November 1 to March 31). During the irrigation season (April 1 to October 31), the flow in

Lateral 12 averages approximately 3 cubic feet per second or 1.94 million gallons per day (a maximum of 4.5 cubic feet per second or 2.91 million gallons per day). Due to the lack of historical data, a background concentration of zero milligrams per liter (0 mg/L) was assumed for the flow upstream of the discharge. Consequently, a mixing zone within Lateral 12 was incorporated into the reasonable potential analysis for the irrigation season. If the state of Idaho does not certify the mixing zones (IDAPA 16.01.02.060) in the 401 certification, then in accordance with 40 CFR § 122.44(d)(1), the effluent limitations for the irrigation season including the reasonable potential analysis will be recalculated without the mixing zones. See Appendix C for calculations.

The draft permit does not propose any effluent limitations for nitrate-nitrite because there is no reasonable potential for the discharge to cause an exceedance of the applicable water quality criteria. The draft permit does propose monitoring requirements for nitrate and nitrite to determine compliance with state water quality standards IDAPA 16.01.02.200.06 and to assist in the evaluation of future effluent limitations (see also Section IV).

- d. Nitrite as N. Idaho water quality standards (IDAPA 16.01.02.250.03.b) specify the use of “Water Quality Criteria 1972 (Blue Book), Section V, Agricultural Uses of Water” when developing specific criteria to protect waters designated as agricultural water supplies. The numeric criteria of 10 mg/L nitrite as N is listed for agricultural water supplies intended as drinking water for livestock.

Reasonable potential analysis was conducted for both the irrigation and non-irrigation season to determine if the discharge would cause or contribute to an exceedance in the water quality standard. Based on information provided by the North Side Canal Company, there is no flow expected in Lateral 12 upstream from the location of the discharge during the non-irrigation season (November 1 to March 31). During the irrigation season (April 1 to October 31), the flow in Lateral 12 averages approximately 3 cubic feet per second or 1.94 million gallons per day (a maximum of 4.5 cubic feet per second or 2.91 million gallons per day). Due to the lack of historical data, a background concentration of zero milligrams per liter (0 mg/L) was assumed for the flow upstream of the discharge. Consequently, a mixing zone within Lateral 12 was incorporated into the reasonable potential analysis for the irrigation season. If the state of Idaho does not certify the mixing zones (IDAPA 16.01.02.060) in the 401 certification, then in accordance with 40 CFR § 122.44(d)(1), the effluent limitations for the irrigation season including the reasonable potential analysis will be recalculated without the mixing zones. See Appendix C for calculations.

The draft permit proposes the following effluent limitations for nitrite during the non-irrigation season:

Effluent Parameter	Unit of Measurement	Monthly Average	Maximum Daily
Nitrite (NO ₂ -N) (November 1 to March 31)	mg/L	2.94	10.00
	lbs/day	12.19 ¹	41.45 ¹
¹ Effluent limits based on a 95 th percentile daily flow of 497,000 gallons per day.			

The proposed monitoring frequency is monthly in order to determine compliance with state water quality standards IDAPA 16.01.02.200.06 and the proposed effluent limitations which are based on the monitoring data of the effluent from Jerome Cheese Company facility in Jerome, Idaho.

- e. Total Phosphorus as P. As indicated in Section II.C., federal regulations 40 CFR 122.44(d)(1)(vii)(B) require EPA to include effluent limitations for a discharge based on waste load allocations (WLAs) specified in an approved TMDL. The TMDL specifies a total load allocation of 953.6 pounds of phosphorus per day for the food processing industry, all of which is currently allocated to two facilities (see Table 25, Chapter 3 of the *Middle Snake River Watershed Management Plan*). The remaining food processing industries including Jerome Cheese Company were allocated a waste load allocation of zero for phosphorus. Current EPA approved analytical methods specify that concentrations of total phosphorus ≥ 0.010 mg/L can be reliably detected. Therefore, effluent concentrations below the method detection limit will be considered in compliance with the zero mg/L limit.

The draft permit proposes the following effluent limitations for total phosphorus:

Effluent Parameter	Unit of Measurement	Monthly Average	Maximum Daily
Total Phosphorus as P ¹	mg/L	0	0
	lbs/day	0 ²	0 ²
¹ Method detection limit is 0.010 mg/L total phosphorus as P.			
² Effluent limits based on a 95 th percentile daily flow of 497,000 gallons per day.			

Based on the effluent monitoring data, Jerome Cheese Company will not be able to meet this limit. State water quality standards (IDAPA 16.01.02.400.03) indicate that discharge permits for point sources may incorporate schedules of compliance which allow a discharger to phase in, over time, compliance with water quality-based effluent limitations when new limitations are in the permit for the first time. Jerome Cheese Company may request a compliance schedule from IDEQ which will be included in the state 401 certification of this permit. Federal requirements for schedules of compliance are specified under 40 CFR §122.47 and include submittal of annual progress reports to EPA. Based on preliminary

comments from IDEQ, the draft permit proposes the following milestones in regards to the annual reports. If Jerome Cheese Company does not request a compliance schedule and one is not included in the 401 certification by the state, then EPA will remove the milestones and annual report requirements from the permit.

Schedule of Compliance for Phosphorus		
Task No.	Due at End of Year	Task Activity
1	1	Source investigation. The permittee must investigate the sources, extent, transport, and fate of phosphorus (total and orthophosphate) in outfall 001. Deliverable: The permittee must prepare a progress report of findings, and recommendations for further actions to reduce total phosphorus concentrations in outfall 001.
2	2	Feasibility study. The permittee must investigate the feasibility of measures to reduce total phosphorus in outfall 001 to meet the effluent limits. Evaluations should consider short- and long-term aspects of: 1) effectiveness of the measures (e.g. affords long-term protection, minimizes short term environmental impacts, and complies with effluent limits); and 2) implementability of the measures (e.g., technical feasibility). Readily implementable measures must be designed and implemented as soon as feasible. Measures that are more technically difficult or have more unknowns may need further investigations. Deliverable: The permittee must submit: 1) A report of the findings on the feasibility of measures; and 2) Design documents and/or implementation completion reports for those measures that are readily implemented.
3 ¹	3	Design and implementation. The permittee must implement measures to reduce levels of total phosphorus in outfall 001 to achieve the effluent limits. Deliverable: The permittee must submit implementation completion reports, and/or progress reports if more technically difficult or unknown conditions prevent completion.
4 ¹	4	Continued design and implementation.
5 ¹	5	Implementation completed and operating such that effluent limits are achieved.
¹ Tasks scheduled past Year 2 are listed in anticipation of potential unknown conditions. The permittee does not need to complete these later tasks if compliance with the effluent limits is achieved sooner.		

The proposed monitoring frequency is monthly in order to determine compliance with state water quality standards IDAPA 16.01.02.200.06 and the proposed effluent limitations which are based upon the waste load allocations specified in the TMDL for the Middle Snake River.

- e. Orthophosphate as P. The proposed monitoring frequency is monthly in order to determine compliance with state water quality standards IDAPA 16.01.02.200.06 and assist with future decisions regarding waste load allocations in the Middle Snake River TMDL.

8. Total Residual Chlorine (TRC)

The Idaho water quality standards for aquatic life specify that the acute and chronic total chlorine residual shall not exceed 19 and 11 µg/L, respectively (IDAPA 16.01.02.250.01.c.). In addition, Idaho water quality standard IDAPA 16.01.02.401.03.c. requires that the wastewater must not affect the receiving water outside of the mixing zone so that the total chlorine residual concentration exceeds 11 µg/L. The draft permit does not contain permit limits for total chlorine residual because Jerome Cheese Company uses ultraviolet light instead of chlorine for disinfection. However, in accordance with Idaho water quality standard 16.01.02.440.02, the draft permit proposes that the discharge must be disinfected if it contains or may contain pathogenic organisms in concentrations capable of threatening actual or designated uses.

9. Turbidity

The Idaho water quality standards for cold water biota (IDAPA 16.01.02.250.d.) require that turbidity shall not exceed background turbidity by more than fifty Nephelometric Turbidity Units (NTU) instantaneously or more than twenty-five NTU for more than ten consecutive days. Water quality standards for point sources that discharge wastewater (IDAPA 16.01.02.401.03) require that the wastewater must not increase the turbidity of the receiving water outside the mixing zone by:

- i. more than five (5) NTU over background turbidity, when background turbidity is fifty (50) NTU or less; or
- ii. more than ten percent (10%) increase in turbidity when background turbidity is more than fifty (50) NTU, not to exceed a maximum increase of twenty-five (25) NTU.

Turbidity is related to total suspended solids (TSS) which has proposed concentration and mass-based limits. Therefore, the draft permit does not propose effluent limitations for turbidity. However, the proposed monitoring frequency is daily in order to assist with future decisions regarding waste load allocations in the Upper Snake Rock TMDL and efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria.

10. Hazardous Materials

In accordance with Idaho water quality standards (IDAPA 16.01.02.200.01), the surface waters of the state shall be free from hazardous materials in concentrations found to be of public health significance or to impair designated beneficial uses.

The draft permit proposes that the facility meet a narrative standard for hazardous materials.

11. Toxic Substances

The Idaho water quality standards (IDAPA 16.01.02.200.02) and Section 101(a)(3) of the Clean Water Act require surface waters of the state to be free from toxic substances in concentrations that impair designated beneficial uses. EPA has evaluated the Jerome Cheese Company discharge in accordance with the Agency's policy for controlling the discharge of toxic substances. The draft permit does not propose any numeric effluent limitations to assess potential effluent toxicity due to the nature and amount of the discharge indicated in the permit application and effluent monitoring data from Jerome Cheese Company facility in Jerome, Idaho.

The draft permit does propose chemical specific monitoring requirements to assist in any future evaluation of potential effluent toxicity (see also Section IV) and a narrative standard that the facility shall not discharge chemicals or toxic pollutants in toxic amounts.

12. Deleterious Materials

In accordance with Idaho water quality standards (IDAPA 16.01.02.200.03), the receiving waters of the state shall be free from deleterious materials in concentrations that impair beneficial uses.

The draft permit proposes that the facility meet a narrative standard for deleterious materials.

13. Floating, Suspended or Submerged Matter

In accordance with Idaho water quality standards (IDAPA 16.01.02.200.05), the receiving waters of the state shall be free from floating, suspended or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that impair designated beneficial uses.

The draft permit proposes that the facility meet a narrative standard for floating, suspended and submerged matter.

14. Excess nutrients (IDAPA 16.01.02.200.06)

(see Section III.B.6.a.)

15. Oxygen-demanding materials (IDAPA 16.01.02.200.07)

(see Section III.B.5.)

16. Sediment

In accordance with Idaho water quality standards (IDAPA 16.01.02.200.08), the sediment within the discharge shall not exceed quantities which impair designated beneficial uses.

The draft permit proposes that the facility meet a narrative standard for sediment as well as effluent limits for total suspended solids (see Section III.B.3.).

C. Antidegradation

The state of Idaho has adopted an anti-degradation policy (IDAPA 16.01.02.051) as part of their water quality standards. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses. The N Canal is considered as a nondesignated surface water (IDAPA 16.01.02.101). EPA considers waters identified as nondesignated surface waters as Tier 1 waters for purposes of Idaho's antidegradation policy. Tier 1 waters shall be protected and maintained for existing water uses. EPA is requesting that the state of Idaho certify in its 401 certification, that the conditions and requirements within the permit are consistent with and protective of the designated uses of the receiving waters.

D. Pretreatment

Federal regulations (40 CFR 405.66) specify that any new source that introduces process wastewater pollutants into a publicly owned treatment works (i.e. the City of Jerome POTW) must comply with 40 CFR Part 403 - General Pretreatment Regulations for Existing and New Sources of Pollution.

The draft permit proposes that the facility must comply with federal regulations 40 CFR Part 403.

IV. MONITORING REQUIREMENTS

Section 308 of the Clean Water Act and federal regulation 40 CFR §122.44(i) requires that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality. Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling

necessary to adequately monitor the facility's performance. The permittee is responsible for conducting the monitoring and for reporting results with Discharge Monitoring Reports (DMRs) to EPA.

A. Summary of Effluent Monitoring Requirements in Draft NPDES Permit

The proposed effluent monitoring requirements are summarized in Table 1 and described in Section III. Effluent Limitations.

B. Summary of Ambient Monitoring Requirements in Draft NPDES Permit

The purpose of ambient monitoring is to determine water quality conditions as part of the effort to reissue the permit and evaluate the reasonable potential for the discharge to cause the receiving waters to not meet state water quality criteria. Since the discharges from Jerome Cheese Company and WestFarm Foods impact the same water bodies including Lateral 12 and N canal, some ambient monitoring requirements were split between the two point sources. In this case, Jerome Cheese shall monitor Lateral 12 immediately prior to entering the N canal and WestFarm Foods shall monitor the N canal immediately upstream from Lateral 12. Table 2 summarizes the ambient monitoring requirements proposed in the draft permit:

Table 2: Ambient (Lateral 12) Monitoring Requirements¹				
Parameter	Units	Method Detection Limit (MDL)	Sample Frequency	Sample Type
Flow	cfs	--	monthly	recording
Biochemical Oxygen Demand (BOD ₅)	mg/L	--	monthly	grab
Turbidity	NTU	0.05	monthly	grab
pH	s.u.	--	monthly	grab
Temperature	°C	--	monthly	grab
Dissolved Oxygen (DO)	mg/L	0.050	monthly	grab
Total Ammonia as N	mg/L	0.010	monthly	grab
Nitrate as N	mg/L	0.100	monthly	grab
Nitrite as N	mg/L	0.010	monthly	grab
Total Kjeldahl Nitrogen	mg/L	0.050	monthly	grab
Total Phosphorus as P	mg/L	0.010	monthly	grab
Orthophosphate as P	mg/L	0.010	monthly	grab

Table 2: Ambient (Lateral 12) Monitoring Requirements ¹				
Parameter	Units	Method Detection Limit (MDL)	Sample Frequency	Sample Type
¹ The permittee must conduct ambient monitoring within the first two weeks of each month from April to November of each year.				

1. Flow

The draft permit proposes ambient monitoring requirements for flow of Lateral 12 to assist in future efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria for temperature, pH, nutrients and dissolved oxygen.

2. Biochemical Oxygen Demand (BOD₅)

Idaho water quality standards specify numeric dissolved oxygen criteria for waters designated for cold water biota (IDAPA 16.01.02.250.02.a.).

The draft permit proposes ambient monitoring requirements for BOD₅ to assist in future efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria.

3. Turbidity

The Idaho water quality standards for cold water biota (IDAPA 16.01.02.250.d.) require that turbidity shall not exceed background turbidity by more than fifty Nephelometric Turbidity Units (NTU) instantaneously or more than twenty-five NTU for more than ten consecutive days. Water quality standards for point sources that discharge wastewater (IDAPA 16.01.02.401.03) require that the wastewater must not increase the turbidity of the receiving water outside the mixing zone by 5 NTU or 10% depending on the background turbidity.

The draft permit proposes ambient monitoring requirements for turbidity to assist with future decisions regarding waste load allocations in the Upper Snake Rock TMDL and efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria.

4. Hydrogen ion concentration (pH)

The draft permit proposes ambient monitoring requirements for pH to assist in future efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria for ammonia.

5. Temperature

Idaho water quality standards specify numeric temperature and ammonia criteria for waters designated for cold water biota (IDAPA 16.01.02.250.02.b. and c.) and salmonid spawning (IDAPA 16.01.02.250.02.e.).

The draft permit proposes ambient monitoring requirements for temperature to assist in future efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting these state water quality criteria.

6. Dissolved Oxygen

Idaho water quality standards specify numeric dissolved oxygen criteria for waters designated for cold water biota (IDAPA 16.01.02.250.02.a.).

The draft permit proposes ambient monitoring requirements for dissolved oxygen to assist in future efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria.

7. Nutrients

Idaho water quality standards (IDAPA 16.01.02.200.06) specify narrative criteria which requires that surface waters of the state shall be free from excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses. Furthermore, numeric criteria are specified in Idaho water quality standards for ammonia (IDAPA 16.01.02.250.02.c. and e.) and for nitrate and nitrite (IDAPA 16.01.02.252.02.).

The draft permit proposes ambient monitoring requirements for total Kjeldahl nitrogen, total ammonia, nitrate, nitrite, orthophosphate and total phosphorus to assist in future efforts to evaluate the reasonable potential for the discharge to cause or contribute to the receiving waters not meeting state water quality criteria. Also, the proposed monitoring requirements will assist in evaluating current (IDEQ, 1997) and future waste load allocations for point sources discharging to the middle Snake River and its tributaries.

V. OTHER PERMIT CONDITIONS

A. Quality Assurance Plan (QAP)

The federal regulation 40 CFR §122.41(e) requires the permittee to ensure adequate laboratory controls and appropriate quality assurance procedures in order to properly operate and maintain all facilities which it uses. Therefore, the draft permit requires the permittee to develop a QAP that will 1) assist in planning for the collection and analysis

of samples in support of the permit, 2) ensure that the monitoring data submitted is accurate and 3) explain data anomalies if they occur. The QAP shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The permittee is required to submit the QAP within 60 days of the effective date of the draft permit.

EPA recommends the following references when developing an adequate QAP:

- ♦ Requirements for Quality Assurance Project Plans, EPA QA/R-5.
- ♦ Guidance for Preparation of Quality Assurance Project Plans, EPA, Region 10, Quality and Data Management Program, QA/G-5
- ♦ You and Quality Assurance in Region 10, EPA, Region 10, Quality and Data Management Program, March 1988.
- ♦ The Volunteer Monitors Guide to Quality Assurance Project Plans, EPA 841-B-96-003, September 1996.
- ♦ Internet site: <http://www.epa.gov/r10earth/offices/oea/qaindex.htm>.

B. Best Management Practices (BMPs)

Section 402 of the Clean Water Act and federal regulation 40 CFR Part 122.44(k) authorize EPA to require best management practices (BMPs) in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. These measures are typically included in the facility Operation & Maintenance (O&M) plans and are important tools for waste minimization and pollution prevention.

The draft permit requires that the permittee develop a plan and implement BMPs within 60 days of the effective date of the draft permit. EPA has a guidance manual (EPA, 1993) that may provide some assistance in the development of BMPs. Specifically, the permittee must consider spill prevention and control, optimization of chemical use and water conservation. Furthermore, it is considered a good management practice to maintain a log of daily plant operations and observations. To the extent that any of these issues have already been addressed, the permittee need only reference the appropriate document/section in its O&M plan. Additionally, the BMP operating plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants.

VI. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies to request a consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) regarding potential effects an action may have on listed endangered species. In letters dated November 23, 1999, EPA requested a listing of

threatened and endangered species in the vicinity of the Jerome Cheese Company facility and Jerome Cheese Company from NMFS and USFWS.

In a letter dated January 12, 2000, the U.S. Fish and Wildlife Service did not identify any issues that would indicate that consultation under Section 7 of the Endangered Species Act is needed. In a letter dated January 20, 2000, the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) stated that there are no anadromous fish species that are either proposed, listed or candidates for listing under the Endangered Species Act know to occur in the Snake River in the vicinity of the discharges. In addition, the letter indicates that the location of the discharges are not located within designated or proposed critical habitat for any species under NMFS' jurisdiction.

EPA will provide USFWS and NMFS with copies of the draft permit and fact sheet during the public notice period. Any comments received from these agencies regarding this determination will be considered prior to issuance of this permit.

B. State Certification

Section 401 of the Clean Water Act requires EPA to seek state certification before issuing a final permit. This certification by the state of Idaho ensures that federally issued permits are in compliance with the laws of the state. As a result of the certification, the state may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards. EPA is requesting the State of Idaho to review and provide appropriate certification to this NPDES permit pursuant to 40 CFR §124.53. Additionally, in accordance with 40 CFR §124.10(c)(1), public notice of the draft permit has been provided to the State of Idaho agencies having jurisdiction over fish, shellfish and wildlife.

C. Permit Expiration

This permit will expire five years from the effective date of the permit.

D. Facility Changes or Alterations

In accordance with 40 CFR §122.41(l) and IDAPA 16.01.02.401.01, the facility is required to notify EPA and IDEQ of any planned physical alteration or operational changes to the facility. This requirement has been incorporated into the proposed permit to ensure that EPA and IDEQ are notified of any potential increases or changes in the amount of pollutants being discharged and evaluate the impact of the pollutant loading on the receiving water.

VII. REFERENCES

EPA. 1974. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Dairy Products Processing Point Source Category*. U.S. Environmental Protection Agency, Office of Water, EPA/440/1-74-021-a.

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. U.S. Environmental Protection Agency, Office of Water, EPA/505/2-90-001, March 1991.

EPA. 1993. *Guidance Manual for Developing Best Management Practices (BMP)*. U.S. Environmental Protection Agency, Office of Water, EPA/833/B-93-004.

EPA. 1996. *U.S. EPA NPDES Permit Writer's Manual*. U.S. Environmental Protection Agency, Office of Water, EPA/833/B-96-003.

IDAPA. 1998. *Water Quality Standards and Wastewater Treatment Requirements*. Idaho Department of Health and Welfare Rules, Title 01, Chapter 02.

IDEQ. 1997. *Middle Snake River Watershed Management Plan*. Idaho Department of Environmental Quality. March 20.

IDEQ. 1999. *Upper Snake Rock Watershed Management Plan*. Idaho Department of Environmental Quality. December 31.

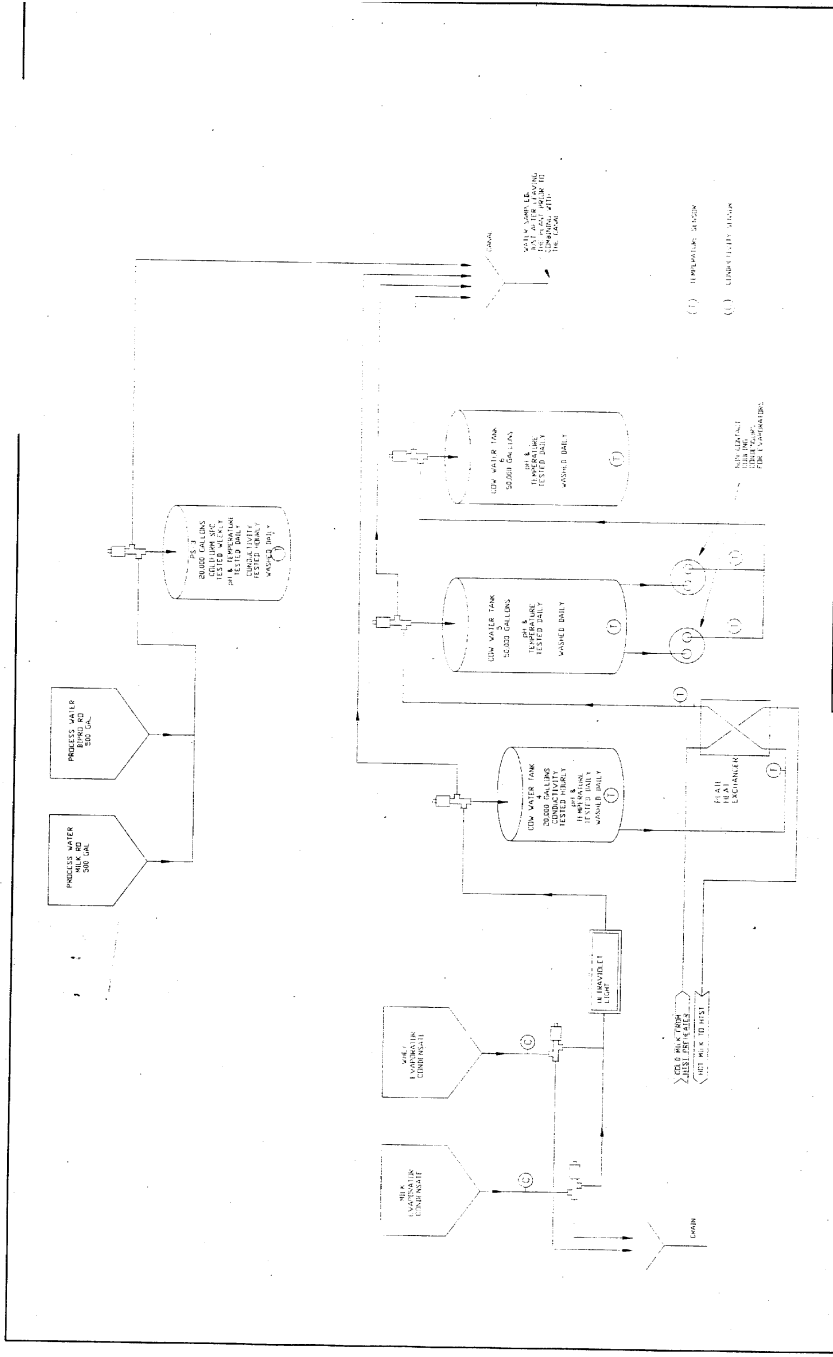
Water Pollution Control Federation. 1976. *Chlorination of Wastewater*. Subcommittee on Chlorination of Wastewater.

VIII. ACRONYMS

BMPs	Best management practices
BOD	Biochemical oxygen demand
BOD ₅	Biochemical oxygen demand, five-day
EC	Degrees Celsius
CFR	Code of Federal Regulations
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
LA	load allocation
lb	pounds
mg/L	milligrams per liter
µg/L	micrograms per liter
µS	microsiemens

mL	milliliter
N	Nitrogen
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric turbidity units
OW	Office of Water
P	Phosphorus
POTW	Publicly owned treatment works
QAP	Quality assurance plan
s.u.	Standard units
sp.	Species
TMDL	Total Maximum Daily Load
TRC	Total residual chlorine
TSD	Technical Support document (EPA, 1991)
TSS	Total suspended solids
TWTDS	Treatment works treating domestic sewage
USFWS	U.S. Fish and Wildlife Service
WLA	Waste load allocation
WQBEL	Water quality-based effluent limit
WQLS	Water quality limited segment
WWTP	Wastewater treatment plant

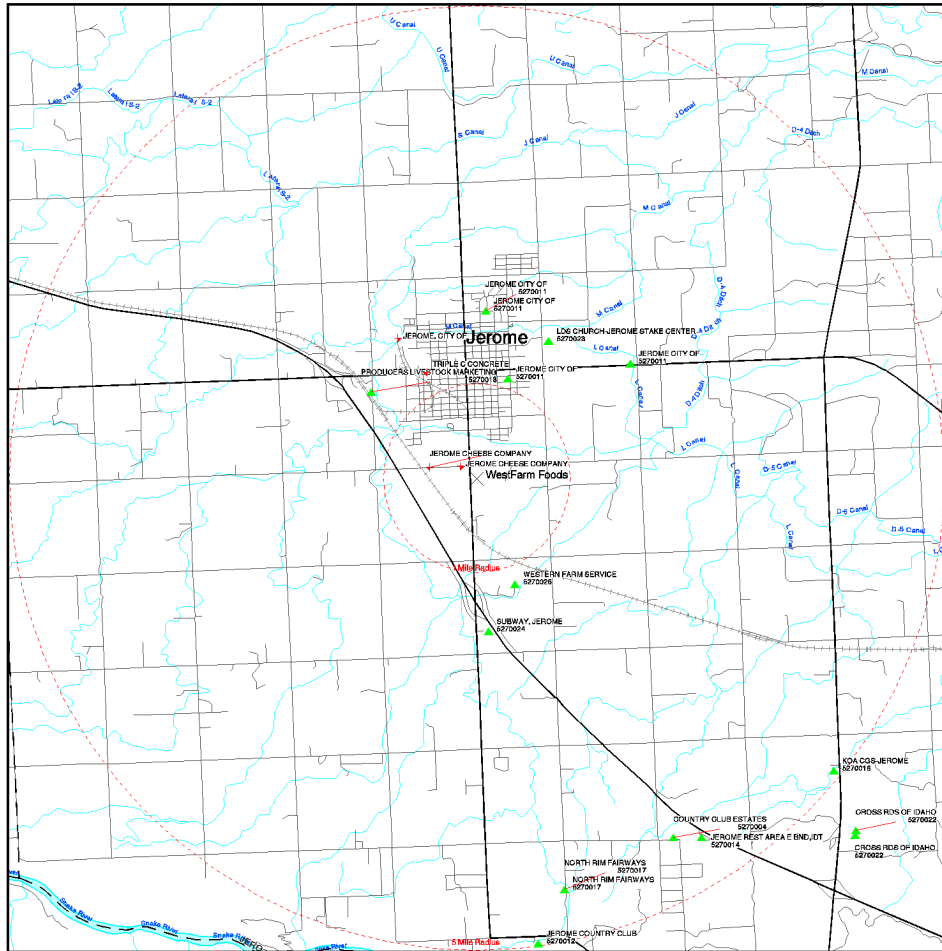
APPENDIX A
PROCESS DIAGRAM



 DAVISCO FOOD PRODUCTS, INC. JEROME CHEESE CO. JEROME, MICHIGAN	DRAWN BY J. J. JONES	CHECKED BY J. J. JONES	APPROVED BY J. J. JONES
	TITLE JEROME CHEESE CO.	DATE 10/1/54	SCALE AS SHOWN

APPENDIX B

MAP



WestFarm Foods (Darigold, Inc.)

Jerome, Idaho

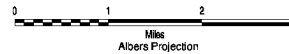
Lat: 42 42 28 Long: 114 30 58
JEROME County, ID.

This computer representation has been compiled by the U.S. Environmental Protection Agency (EPA) from sources which have supplied data or information that has not been verified by the EPA. This data is offered here as a general representation only, and is not to be used for commercial purposes without verification by an independent professional qualified to verify such data or information. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be liable for any loss or injury resulting from reliance upon the information shown.

LEGEND

Note: Facility labeling turned off for categories with more than 60 points. Some facilities without good addresses may plot at zip code centroids. Facility points have been restricted to user specified area.

- PCS Facility Site
- AFSIA/RS Site
- Public Ground Water Supply Well
- Public Surface Water Supply Intake
- Major Roads and Highways
- Other Roads
- National Park/Recreation Area
- County Boundary



Produced November 06, 1999
By: GTEPLUS (Req: s72786)

APPENDIX C
CALCULATIONS

I. Technology-Based Limits

Loading limits based on the current processing capacity of 4.0 million pounds of raw milk per day were calculated by multiplying the pounds of BOD₅ input per day by the limits specified in 40 CFR §405.65 and then compared to the BOD₅ limits proposed by IDEQ or the TSS limits specified in the Upper Snake TMDL as shown below:

A. Biological Oxygen Demand (BOD₅)

Monthly Average Loading

$$= (381,520 \text{ lbs BOD}_5 \text{ input / day})(0.038 \text{ lbs/100 lbs BOD}_5 \text{ input}) = 144.98 \text{ lbs/day}$$

Maximum Daily Loading

$$= (381,520 \text{ lbs BOD}_5 \text{ input / day})(0.076 \text{ lbs/100 lbs BOD}_5 \text{ input}) = 289.96 \text{ lbs/day}$$

IDEQ proposed limits:

Monthly Average Loading

$$= (30 \text{ mg/l BOD}_5)(8.34 \times 10^{-6})(497,000 \text{ gallons/day}) = 124.35 \text{ lbs/day}$$

Maximum Daily Loading

$$= (45 \text{ mg/l BOD}_5)(8.34 \times 10^{-6})(497,000 \text{ gallons/day}) = 186.52 \text{ lbs/day}$$

The waste load allocations proposed by IDEQ are more stringent than those specified in federal regulations. Therefore, the draft permit includes the monthly average and maximum daily concentration-based limits of 30 and 45 mg/l, respectively, and their corresponding mass-based limits of 32.24 and 48.36 lbs/day.

B. Total Suspended Solids (TSS)

Monthly Average Loading

$$= (381,520 \text{ lbs BOD}_5 \text{ input / day})(0.048 \text{ lbs/100 lbs BOD}_5 \text{ input}) = 183.13 \text{ lbs/day}$$

Maximum Daily Loading

$$= (381,520 \text{ lbs BOD}_5 \text{ input/day})(0.095 \text{ lbs/100 lbs BOD}_5 \text{ input}) = 362.44 \text{ lbs/day}$$

Upper Snake Rock TMDL:

Monthly Average Loading

$$= (0 \text{ mg/l TSS})(8.34 \times 10^{-6})(497,000 \text{ gallons/day}) = 0 \text{ lbs/day}$$

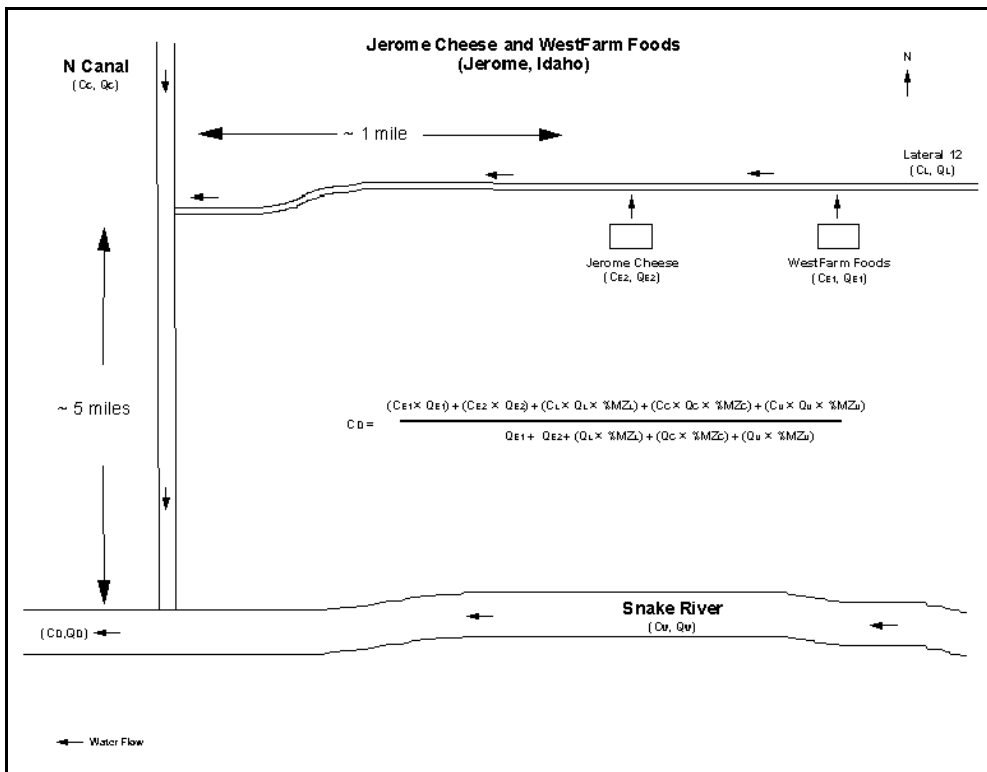
Maximum Daily Loading

$$= (0 \text{ mg/l TSS})(8.34 \times 10^{-6})(497,000 \text{ gallons/day}) = 0 \text{ lbs/day}$$

The waste load allocations specified in the Upper Snake Rock TMDL are more stringent than those specified in federal regulations. Therefore, the draft permit includes the monthly average and maximum daily concentration-based limits of 0 mg/L and corresponding mass-based limits of 0 lbs/day.

II. Water Quality-based Evaluation

This section describes the process of how EPA determined reasonable potential for pollutants and how the effluent limits were calculated. The calculations were performed according to procedures outlined in Chapter 5 of the *Technical Support Document for Water Quality-based Toxics Control* (TSD) (EPA, 1991) and are illustrated in the schematic below.



A. Ammonia

1. Reasonable Potential Determination

a. Determine the appropriate water quality criteria

Water quality criteria for waters designated for cold water biota and salmonid spawning require numeric criteria for ammonia . Using the 95th percentile temperature (20.00°C) and pH (8.70 s.u.) of monitoring data obtained from the United States Geological Service gage station 1309000 near Kimberly, Idaho, the one-hour (acute) average criterion is calculated to be to 1.33 mg/L and the four-day chronic criterion is 0.22 mg/L.

b. Determine whether there is “reasonable potential” to exceed the criteria

EPA used the following assumptions:

1. 1Q10 or 1-day low flow that has a 10 percent chance of occurring in any given year = 190 cfs (based on the monitoring data from the United States Geological Service gage station 1309000 near Kimberly, Idaho).
2. 7Q10 or 7-day average low flow that has a 10 percent chance of occurring in any given year = 278 cfs (based on the monitoring data from the United States Geological Service gage station 1309000 near Kimberly, Idaho).
3. Mixing zones = 100% of the flow in the N canal and Lateral 12, 25% of the flow in the Snake River because the background concentrations in the Snake River are less than criteria [if State does not authorize use of the mixing zones in its 401 Certification, the limit will be recalculated based on meeting water quality criteria at the point of discharge (“end-of-pipe”)].

There is reasonable potential to exceed water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the criterion. The maximum projected concentration is calculated from the following equation:

$$C_R = \frac{(C_{E1} \times Q_{E1}) + (C_{E2} \times Q_{E2}) + (C_L \times Q_L \times \%MZ_L) + (C_C \times Q_C \times \%MZ_C) + (C_S \times Q_S \times \%MZ_S)}{Q_{E1} + Q_{E2} + (Q_L \times \%MZ_L) + (Q_C \times \%MZ_C) + (Q_S \times \%MZ_S)}$$

where,

Nomenclature	Parameter	Value
	acute criterion	1.33 mg/l
	chronic criterion	0.22 mg/l
$C_{R-Acute}$	projected receiving water concentration (acute) at the edge of the mixing zone in Snake River	2.17 mg/l
$C_{R-Chronic}$	projected receiving water concentration (chronic) at the edge of the mixing zone in Snake River	1.64 mg/l
C_{E1}	maximum projected effluent concentration from WestFarm Foods = $C_{max} \times RPM$ where C_{max} is the maximum reported effluent concentration (6.24 mg/L) and RPM is the reasonable potential multiplier (2.36)	14.75 mg/L
C_{E2}	maximum projected effluent concentration from Jerome Cheese = $C_{max} \times RPM$ where C_{max} is the maximum reported effluent concentration (33.90 mg/L) and RPM is the reasonable potential multiplier (2.32)	78.64 mg/l
C_L	upstream concentration of pollutant in Lateral 12 (no historical data, therefore assume 0 mg/L)	0 mg/l
C_c	upstream concentration of pollutant in N canal	0.07 mg/l
C_s	upstream concentration of pollutant in Snake River	0.10 mg/l
Q_{E1}	proposed maximum effluent flow from WestFarm Foods	0.20 cfs
Q_{E2}	maximum effluent flow from Jerome Cheese	1.64 cfs
Q_L	minimum upstream flow in Lateral 12	3 cfs
Q_C	minimum upstream flow in N canal	11 cfs
Q_S	upstream flow in Snake River ♦ 1Q10 for acute = 190 cfs ♦ 7Q10 for chronic = 278 cfs	190 cfs/ 278 cfs
%MZ _L	mixing zone of Lateral 12 (% of flow volume)	100%
%MZ _C	mixing zone of N canal (% of flow volume)	100%
%MZ _S	mixing zone of Snake River (% of flow volume, background < criteria)	25%

The projected acute and chronic ammonia concentrations at the edge of the mixing zone in the receiving water (i.e. Snake River) are greater than their respective criterion. Therefore, there is reasonable potential for the discharge from WestFarm Foods wastewater treatment plant to cause an exceedance of the numeric criteria for ammonia.

2. Effluent Limitation Calculation

- a. Determine waste load allocations (WLA_{ac} and WLA_c) using both acute and chronic criteria, respectively, in the following equation:

$$C_R = \frac{(C_{E1} \times Q_{E1}) + (C_{E2} \times Q_{E2}) + (C_L \times Q_L \times \%MZ_L) + (C_C \times Q_C \times \%MZ_C) + (C_S \times Q_S \times \%MZ_S)}{Q_{E1} + Q_{E2} + (Q_L \times \%MZ_L) + (Q_C \times \%MZ_C) + (Q_S \times \%MZ_S)}$$

where,

Nomenclature	Parameter	Value
$C_{R(Acute)}$	receiving water concentration at the edge of the mixing zone in Snake River equals acute criterion	1.33 mg/l
$C_{R(Chronic)}$	receiving water concentration at the edge of the mixing zone in Snake River equals chronic criterion	0.22 mg/l
C_{E1}	waste load allocation for WestFarm Foods ♦ assume $C_{E1} = C_{E2}$	
C_{E2}	waste load allocation for Jerome Cheese	
C_L	upstream concentration of pollutant in Lateral 12 (no historical data, therefore assume 0 mg/L)	0 mg/l
C_C	upstream concentration of pollutant in N canal	0.07 mg/l
C_S	upstream concentration of pollutant in Snake River	0.10 mg/l
Q_{E1}	proposed maximum effluent flow from WestFarm Foods	0.20 cfs
Q_{E2}	95 th percentile effluent flow from Jerome Cheese	0.77 cfs
Q_L	minimum upstream flow in Lateral 12	3 cfs
Q_C	minimum upstream flow in N canal	11 cfs
Q_S	upstream flow in Snake River ♦ 1Q10 for acute = 190 cfs ♦ 7Q10 for chronic = 278 cfs	190 cfs/ 278 cfs
%MZ _L	mixing zone of Lateral 12 (% of flow volume)	100%
%MZ _C	mixing zone of N canal (% of flow volume)	100%
%MZ _S	mixing zone of Snake River (% of flow volume, background < criteria)	25%

For acute criteria: $WLA_{a,c} = C_{E1} = C_{E2} = 80.09 \text{ mg/L}$

For chronic criteria: $WLA_c = C_{E1} = C_{E2} = 11.22 \text{ mg/L}$

- b. Convert waste load allocation (WLA) to Long Term Average (LTA) for acute and chronic criteria using the following equation:

$$LTA_{a,c} = WLA_{a,c} \times e^{(0.5F^2 - zF)}$$

where,

$$F^2 = \ln(CV^2 + 1) = 0.673$$

CV = coefficient of variation = 0.98

z = 2.326 for 99th percentile probability basis

$$LTA_{a,c} = 16.64$$

$$LTA_c = WLA_c \times e^{(0.5F_n^2 - zF_n)}$$

where,

$$F_n^2 = \ln(CV^2/n + 1) = 0.215$$

n = number of sampling events required per month = 4 (default value)

$$z = 2.326 \text{ for } 99^{\text{th}} \text{ percentile probability basis}$$

$$LTA_c = 4.25$$

- c. Determine the lower (more limiting) of the two long-term averages ($LTA_{a,c}$ and LTA_c) and use to calculate maximum daily and average monthly limits (MDL and AML).

$$LTA = \text{minimum}(LTA_{a,c}, LTA_c) = LTA_c = 4.25$$

$$MDL = LTA \times e^{(zF - 0.5F^2)}$$

where,

$$F^2 = \ln(CV^2 + 1) = 0.673$$

CV = coefficient of variation = 0.98

$$z = 2.326 \text{ for } 99^{\text{th}} \text{ percentile probability basis}$$

$$MDL = 20.45 \text{ mg/L}$$

$$AML = LTA \times e^{(zF_n - 0.5F_n^2)}$$

where,

$$F_n^2 = \ln(CV^2/n + 1) = 0.215$$

CV = coefficient of variation = 0.98

n = number of sampling events required per month = 4 (default value)

$$z = 1.645 \text{ for } 95^{\text{th}} \text{ percentile probability basis}$$

$$AML = 8.18 \text{ mg/L}$$

B. Nitrite

1. Reasonable Potential Determination

- a. Determine the appropriate water quality criteria

Idaho water quality standards (IDAPA 16.01.02.250.03.b) specify the use of “Water Quality Criteria 1972 (Blue Book), Section V, Agricultural Uses of Water” when developing specific criteria to protect waters designated as agricultural water supplies. The numeric criteria of 100 mg/L nitrate-nitrite as N and 10 mg/L nitrite as N are listed for agricultural water supplies intended as drinking water for livestock.

- b. Determine whether there is “reasonable potential” to exceed the criteria

EPA used the following assumptions:

1. Based on information provided by the North Side Canal Company, there is no flow expected in Lateral 12 upstream from the location of the discharge

during the non-irrigation season (November 1 to March 31). During the irrigation season (April 1 to October 31), the flow in Lateral 12 averages approximately 3 cubic feet per second or 1.94 million gallons per day (a maximum of 4.5 cubic feet per second or 2.91 million gallons per day).

- Mixing zones = 100% of the flow in Lateral 12 because the background concentrations were assumed to be zero milligrams per liter (0 mg/l) due to the lack of historical data [if State does not authorize use of the mixing zones in its 401 Certification, the limit will be recalculated based on meeting water quality criteria at the point of discharge (“end-of-pipe”)].

There is reasonable potential to exceed water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the criterion. The maximum projected concentration is calculated from the following equation:

$$C_R = \frac{(C_{E1} \times Q_{E1}) + (C_{E2} \times Q_{E2}) + (C_L \times Q_L \times \%MZ_L)}{Q_{E1} + Q_{E2} + (Q_L \times \%MZ_L)}$$

where,

Nomenclature	Parameter	Value
	nitrite criterion	10 mg/l
C_R	projected receiving water concentration at the edge of the mixing zone in Lateral 12 ♦ irrigation season = 4.00 mg/l ♦ non-irrigation season = 10.51 mg/l	4.00 mg/L 10.51 mg/l
C_{E1}	maximum projected effluent concentration from WestFarm Foods = $C_{max} \times RPM$ where C_{max} is the maximum reported effluent concentration (0.01 mg/L) and RPM is the reasonable potential multiplier (2.22)	0.02 mg/L
C_{E2}	maximum projected effluent concentration from Jerome Cheese = $C_{max} \times RPM$ where C_{max} is the maximum reported effluent concentration (2.08 mg/L) and RPM is the reasonable potential multiplier (5.66)	11.78 mg/l
C_L	upstream concentration of pollutant in Lateral 12 (no historical data, therefore assume 0 mg/L)	0 mg/l
Q_{E1}	proposed maximum effluent flow from WestFarm Foods	0.20 cfs
Q_{E2}	maximum effluent flow from Jerome Cheese	1.64 cfs
Q_L	minimum upstream flow in Lateral 12 ♦ irrigation season = 3 cfs ♦ non-irrigation season = 0 cfs	3 cfs 0 cfs
$\%MZ_L$	mixing zone of Lateral 12 (% of flow volume)	100%

The projected nitrite concentration at the edge of the mixing zone in the receiving water (i.e. Lateral 12) is less than the criterion during the irrigation season and exceeds the criterion during the non-irrigation season. Therefore, there is

reasonable potential for the discharge from WestFarm Foods wastewater treatment plant to cause an exceedance of the numeric criterion for nitrite during the non-irrigation season (i.e. November 1 to March 31).

2. Effluent Limitation Calculation

- a. Determine waste load allocations (WLA) using the nitrite criteria of 10 mg/l in the following equation:

$$C_R = \frac{(C_{E1} \times Q_{E1}) + (C_{E2} \times Q_{E2}) + (C_L \times Q_L \times \%MZ_L)}{Q_{E1} + Q_{E2} + (Q_L \times \%MZ_L)}$$

where,

Nomenclature	Parameter	Value
C_R	receiving water concentration at the edge of the mixing zone in Lateral 12 equals nitrite criterion	10 mg/L
C_{E1}	waste load allocation for WestFarm Foods ♦ assume $C_{E1} = C_{E2}$	
C_{E2}	waste load allocation for Jerome Cheese	
C_L	upstream concentration of pollutant in Lateral 12 (no historical data, therefore assume 0 mg/L)	0 mg/l
Q_{E1}	proposed maximum effluent flow from WestFarm Foods	0.20 cfs
Q_{E2}	95 th percentile effluent flow from Jerome Cheese	0.77 cfs
Q_L	minimum upstream flow in Lateral 12 ♦ non-irrigation season	0 cfs
$\%MZ_L$	mixing zone of Lateral 12 (% of flow volume)	100%

For nitrite criterion: $WLA = C_{E1} = C_{E2} = 10.00 \text{ mg/L}$

- b. Convert waste load allocation (WLA) to long-term average (LTA) for nitrite criterion using the following equation:

$$LTA = WLA \times e^{(0.5F^2 - zF)}$$

where,

$$F^2 = \ln(CV^2 + 1) = 2.972$$

CV = coefficient of variation = 4.30

z = 2.326 for 99th percentile probability basis

$$LTA = 0.80$$

- c. Convert long-term average (LTA) to maximum daily and average monthly limits (MDL and AML) using the following equations:

$$MDL = LTA \times e^{(zF - 0.5F^2)}$$

where,
 $F^2 = \ln(CV^2 + 1) = 2.972$
CV = coefficient of variation = 4.30
z = 2.326 for 99th percentile probability basis
MDL = 10.00 mg/L

$$AML = LTA \times e^{(zFn - 0.5Fn^2)}$$

where,
 $F_n^2 = \ln(CV^2/n + 1) = 1.728$
CV = coefficient of variation = 4.30
n = number of sampling events required per month = 4 (default value)
z = 1.645 for 95th percentile probability basis
AML = 2.94 mg/L