Fact Sheet

Public Comment Start Date: July 11, 2005
Public Comment Expiration Date: August 10, 2005

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Proposed issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge pollutants pursuant to the provisions of the Clean Water Act (CWA)

Sorrento Lactalis, Inc.

EPA Proposes To Issue an NPDES Permit
EPA proposes to issue an NPDES permit to the facility referenced above. The draft permit places conditions on the discharge of pollutants from the proposed wastewater treatment facility to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

401 Certification
EPA is requesting that the Idaho Department of Environmental Quality certify the NPDES permit for this facility, under section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

Regional Administrator
Idaho Department of Environmental Quality
1445 N. Orchard
Boise, ID 83706

Finding of No Significant Impact (FONSI)
Because the proposed discharge from the Sorrento Lactalis, Inc. facility is subject to New Source Performance Standards in 40 CFR 405, the permit is subject to National Environmental Policy Act (NEPA) review as required under EPA's NEPA implementing regulations at 40 CFR Part 6. EPA developed an Environmental Assessment (EA) evaluating the impacts of the proposed actions and has issued a Finding of No Significant Impacts (FONSI).

The FONSI is available for a 30-day review period. Comments on the FONSI may be mailed, e-mailed, or faxed to:

Hanh Shaw
NEPA Compliance Coordinator
U.S. Environmental Protection Agency
1200 Sixth Avenue, OWW-130
Seattle, WA 98101
Phone: (206) 553-0171
Fax: (206) 553-0165
Email: Shaw.Hanh@epa.gov

Comments must be received by August 10, 2005.

Public Comment
Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. 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 Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. 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 an appeal is submitted to the Environmental Appeals Board within 30 days.

Documents are Available 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 at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 website at http://epa.gov/r10earth/waterpermits.htm.

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-0523 or
1-800-424-4372, extension 0523
(Toll free within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permit are also available at:

EPA Idaho Operations Office
1435 North Orchard Street
Boise, Idaho 83706
(208) 378-5746

and

Idaho Department of Environmental Quality
Boise Regional Office
1445 North Orchard Street
Boise, Idaho 83706
(208) 373-0550

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Acronyms

AML	Average Monthly Limit
BOD_5	Biochemical oxygen demand, five-day
°C	Degrees Celsius
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
IDEQ	Idaho Department of Environmental Quality
lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
ml	milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
N	Nitrogen
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
s.u.	Standard Units
TMDL	Total Maximum Daily Load
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WWTF	Wastewater treatment facility

I. Applicant

This fact sheet provides information on the draft NPDES permit for the following entity:

Sorrento Lactalis, Inc.
NPDES Permit # ID-002803-7

Mailing Address:
P.O. Box 1280
Nampa, ID 83653

Facility Address:
4912 Franklin Road
Nampa, ID 83687

Contact:
Dusty Galliher
Wastewater Manager

II. Facility Information

Sorrento Lactalis, Inc. (Sorrento) is currently constructing a wastewater treatment facility (WWTF) which would treat all of the process wastewater from its existing cheese processing facility located just east of the Nampa, Idaho city limits. Currently, process wastewater from the cheese processing plant is stored on-site in two unlined, earthen lagoons and then land applied off-site.

The new treatment facility will not be used to treat sanitary (domestic) wastewater from the plant, which will continue to be treated using the existing sanitary leach field. The treated effluent would be discharged from outfall 001 to Purdam Drain. The average flow rate of the proposed discharge will be approximately 500,000 gallons per day (gpd) and the maximum flow rate will be approximately 775,000 gpd. A map showing the location of the proposed discharge can be found in Appendix A.

The cheese processing facility operates under three standard industrial classification (SIC) codes: 2022 (natural cheese), 2023 (dry whey products) and 2026 (cultured cream cheese). The processes used by the treatment plant will include screening, grit removal, pH control, biological and chemical phosphorous removal, activated sludge, clarification, filtration, and aeration. Sludge handling processes will include aerobic digestion, dewatering, and temporary on-site storage followed by landfill or land application.

III. Receiving Water

The operator of this facility intends to discharge to Purdam Drain in Canyon County, Idaho.

A. Low Flow Conditions

In 2003, Sorrento commissioned Scanlan Engineering of Boise, Idaho to measure the flow rates in Perkins Drain and Purdam Drain during periods of high and low flow. Flow in Purdam Drain was measured at the culvert underneath Star Road, near the planned outfall location, and downstream of a drain near the Idaho Center on October 1, 2003 and December 6, 2003. Results of the flow measurements for are summarized in Table 1, below:

Table 1: Flow Rates in Purdam Drain

Date	Location	Flow Rate (CFS)
High Flow Season (Irrigation)		
10/1/03	Culvert Beneath Star Road	29.9
10/1/03	Below Idaho Center	45.3
6/27/00	Mouth	84.4
7/19/00	Mouth	83.5
8/23/00	Mouth	55.8
9/26/00	Mouth	60.2
Low Flow Season (Non-Irrigation)		
12/6/03	Culvert Beneath Star Road	11.3
12/6/03	Culvert Beneath Benniton Road	17.6

EPA will use the low flow season measurement taken at Star Road as an estimate of the low flow rate at the point of discharge. The draft permit requires that the permittee monitor the receiving water flow rate so that the low flow rate can be more accurately quantified when the permit is reissued.

B. Water Quality Standards

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. The federal regulation at 40 CFR 122.4(d) prohibits the issuance of any NPDES permit which does not ensure compliance with the water quality standards of all affected States. A State's water quality standards[1] are composed of use classifications, numeric and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as cold water biota, 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 support 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.

[1] Idaho's water quality standards are codified in *Water Quality Standards and Wastewater Treatment Requirements* (IDAPA 58.01.02).

Purdam Drain does not have specific use designations in sections 110 through 160 of the WQS. However, the State of Idaho has identified Purdam Drain as a "Man-Made Waterway" (as defined by Section 003.63 of the WQS) in a letter dated June 16, 2005. Section 101.02 of the WQS states that, unless they are specifically designated in Sections 110 through 160 of the WQS, man-made waterways are to be protected for the uses for which they were developed. Purdam Drain was developed for use as an irrigation return drain and therefore, like all waters of the State of Idaho, it is protected for the use of agricultural water supply.

The Idaho Water Quality Standards (WQS) state, in Section 100, that all waters of the State of Idaho are protected for the uses of industrial and agricultural water supply (100.03.b. and c.), wildlife habitats (100.04.) and aesthetics (100.05.). The WQS state, in Sections 252.02, 252.03, and 253 that these uses are to be protected by narrative criteria which appear in Section 200. These narrative criteria state that all surface waters of the State shall be free from hazardous materials; toxic substances; deleterious materials; radioactive materials; floating, suspended or submerged matter; excess nutrients; oxygen-demanding materials; and sediment in concentrations which would impair beneficial uses. The WQS also state, in Section 252.02 that the criteria from *Water Quality Criteria 1972*, also referred to as the "Blue Book" (EPA-R3-73-033) can be used to determine numeric criteria for the protection of the agricultural water supply use.

Sections 050.02.b., 051.01 and 052.01 of the WQS also require that existing uses of all waters of the State of Idaho be protected. "Existing uses" are defined in Section 003.40 in the WQS as "Those beneficial uses actually attained in waters on or after November 28, 1975." In the June 16, 2005 letter, IDEQ indicated that, based on data from streams of similar size to Purdam Drain and limited observations of Purdam Drain itself, the State of Idaho believes that any existing aquatic life use in Purdam Drain will be protected by the narrative criteria in Section 200 of the WQS. Because Purdam Drain is not explicitly protected for the aquatic life or recreation uses referenced in Section 051.02 of the WQS ("High Quality Waters") the only section of Idaho's antidegradation policy which is applicable to Purdam Drain is Section 051.01, "Maintenance of Existing Uses for All Waters."

Effluent limits in NPDES permits must also protect the uses and water quality criteria of downstream waters. Purdam Drain is tributary to Mason Creek, which is designated for cold water aquatic life and primary contact recreation. These uses are protected by numeric water quality criteria which appear in Sections 210, 250 and 251 of the WQS, in addition to the narrative criteria protecting the beneficial uses of Purdam Drain. Therefore, EPA must ensure that the discharge does not cause or contribute to water quality standards violations in Mason Creek,

as well as in Purdam Drain.

Table 2, below, outlines the relevant numeric water quality criteria that are applicable to Purdam Drain and Mason Creek. EPA is requesting that the state of Idaho state in its 401 certification that the conditions and requirements within the permit are protective of the uses of the receiving waters.

Table 2: Numeric Water Quality Criteria for Purdam Drain and Mason Creek

Pollutant (units)	Agricultural Water Supply[1] (Mason Creek and Purdam Drain)	Cold Water Aquatic Life (Mason Creek Only)	Primary Contact Recreation (Mason Creek Only)
Ammonia Acute[2] (mg/L)	—	2.59	—
Ammonia Chronic[2] (mg/L)	—	0.92	—
E. Coli Geo. Mean (#/100 ml)	—	—	126
E. Coli Maximum (#/100 ml)	—	—	406
Nitrate + Nitrite (mg/L)	100	—	—
Nitrite (mg/L)	10	—	—
pH (standard units)	4.5 to 9.0	6.5 to 9.0	—

1. Agricultural water supply criteria are from *Water Quality Criteria 1972* (EPA-R3-73-033)
2. Water quality criteria for ammonia are dependent on pH and temperature. The criteria listed are for the maximum pH and temperature observed in Mason Creek at USGS station #13210985.

C. Water Quality Limited Segment

A water quality limited segment is any waterbody, or definable portion of a waterbody, 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 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.

Purdam Drain is tributary to the Boise River via Mason Creek. The Boise River and Mason Creek are both on the 1998 303(d) list. A TMDL for the Lower Boise River addressing bacteria, sediment and temperature (IDEQ, 1999) was adopted by the State of Idaho and approved by EPA in January of 2000. The TMDL may be downloaded from the following Internet address:

http://www.deq.state.id.us/water/data_reports/surface_water/tmdls/boise_river_lower/boise_river_lower.cfm

Sediment

The Lower Boise River TMDL uses Total Suspended Solids (TSS) as a surrogate for sediment in the wasteload allocations for point sources. This facility is subject to a New Source Performance Standards (NSPS) technology-based effluent limit (TBEL) for TSS. EPA and IDEQ have determined that the increased sediment load to the Boise River resulting from the Sorrento Lactalis discharge at the technology-based TSS effluent limits will be negligible. Further, the TBEL results in concentration limits which are well below the 50 mg/L (60-day average) and 80 mg/L (14-day average) concentration targets that the TMDL is intended to protect, and have much shorter averaging periods. Therefore, a discharge of TSS at the technology-based effluent limit will not cause or contribute to a water quality standards violation for sediment and is consistent with the Lower Boise River TMDL. Please see Appendix B for an analysis of the proposed discharge's effect on sediment loading in the Lower Boise River.

Temperature

The Lower Boise River TMDL does not recommend assigning wasteload allocations for temperature. Purdam Drain is not currently protected for any uses that have numeric temperature criteria associated with them, and EPA does not expect that the discharge will have a significant effect on the temperature of the downstream waters. The permittee is required to monitor effluent and receiving water temperature to determine if a water quality-based effluent limit for temperature may be necessary in the future.

Bacteria

The Lower Boise River TMDL bases its targets for bacteria on the state water quality criteria. At the time the TMDL was written, Idaho's contact recreation criteria were based on fecal coliform concentrations, but the switch to the current *Escherichia Coli* (E. Coli) criteria was under consideration. The TMDL states that, if the E. Coli criteria were to be approved, as they now have been, that

"compliance with the load allocations in this TMDL could be demonstrated using E. Coli samples, rather than fecal coliform" (Page 75). The TMDL also states that the Boise River is protected for primary contact recreation from May 1 through September 30th, and for secondary contact recreation for the balance of the year. However, based on the current WQS, EPA has applied primary contact recreation criteria to the Boise River year-round.

Because there is no relationship between river flow and bacteria levels, and because it is not possible to perform a mass balance on bacteria, the Lower Boise River TMDL (LBR-TMDL) uses bacteria concentration as the surrogate for the load capacity. The "loading" targets for bacteria in the river vary with flow rate, so long as the concentration criteria are met (LBR-TMDL Page 69 and Page 15 of Appendix I of the LBR-TMDL). The load allocations for tributaries to the Boise River are also purely concentration-based. Tributaries must meet the criteria for bacteria at the point where they enter the main stem Boise River.

The proposed permit requires that Sorrento Lactalis discharge meet water quality criteria for E. Coli before the effluent is discharged to Purdam Drain. Since the "load capacity" is set at the water quality standard concentration, a new discharge to the waterbody with limits set at or below the water quality standard does not increase the bacteria "load" to the waterbody. Setting the effluent limits equal to the criteria will ensure that the Sorrento Lactalis discharge will not cause or contribute to a water quality standards violation for E. Coli, nor will it cause or contribute to an exceedance of Mason Creek's bacteria load allocation. This approach is consistent with the TMDL and with effluent limits for existing point source dischargers in the Lower Boise watershed. Appendix I of the LBR-TMDL recommends that this approach be continued for NPDES permits in the watershed (page 17). Water quality criteria for E. Coli appear in Section 251.01 of the WQS.

Total Phosphorous

The segments of the Lower Boise River between Star and Notus and between Notus and the Snake River are on the 1998 303(d) list for nutrients, as is Mason Creek from its headwaters to the Boise River. According to the Lower Boise River TMDL, the Lower Boise River is highly enriched with phosphorous, with concentrations as high as 0.5 mg/L at Parma and as high as 0.8 mg/L at Middleton. The Mason Creek Subbasin Assessment (IDEQ, 2001) states that Mason Creek also contains high concentrations of phosphorous, as high as 0.71 mg/L. Monitoring data submitted to EPA by the permittee shows that total phosphorous concentrations in Purdam Drain are also quite high, with a maximum of 0.3 mg/L.

The elevated phosphorous loading in the Boise River is contributing to the

impairment of the Snake River, and the Snake River Hells Canyon TMDL (Idaho DEQ and Oregon DEQ 2003, 2004) calls for a reduction in phosphorous loading to the Snake River from the Boise River and other tributaries during a critical season (May 1st through September 30th) . Therefore, EPA has calculated phosphorus effluent limits based on the target total phosphorus concentration for the Boise River in the Snake River Hells Canyon TMDL, which is 70 µg/L. The 70 µg/L target is an interpretation of Idaho's narrative criterion for nutrients. This will ensure that the Sorrento discharge will not cause or contribute to an exceedance of the Lower Boise River's loading target in the Snake River Hells Canyon TMDL.

The WQS (in Section 400.03) state 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. The proposed permit contains a compliance schedule, which requires that Sorrento comply with the final total phosphorus effluent limits within four and one half years of the effective date of the final permit. If Sorrento does not request a compliance schedule and no such schedule is included in the Section 401 certification by the state, then EPA will require that Sorrento meet the final effluent limits on the effective date of the final permit.

Pending completion and EPA approval of a phosphorus TMDL, the Lower Boise river is under a "no net increase" policy for phosphorus loading. State regulations (IDAPA 58.01.02.054.04) state that, for "high priority" water quality-limited waters, new or increased discharges of pollutants which have caused the water quality-limited listing may be allowed if the total load remains constant or decreases within the watershed. A conservative estimate of the total phosphorus loading resulting from Sorrento's current method of wastewater disposal is 2.0 lb/day (HDR, 2004). This will be Sorrento's wasteload allocation for the interim compliance schedule period.

A TMDL for phosphorus in the Lower Boise watershed is forthcoming. This TMDL may require different final effluent limits for total phosphorus than those proposed in the draft permit. Because of this, the proposed permit contains a reopener section which allows EPA to revise the final phosphorus limits should this become necessary.

IV. Effluent Limitations

A. Basis for Permit Effluent Limits

In general, there are two types of effluent limits that may appear in an NPDES permit: technology-based and water quality-based. Technology-based effluent

limits are promulgated by EPA and, for industrial facilities, represent the minimum level of effluent quality attainable through application of the best practicable control technology currently available (BPT), the best available technology economically achievable (BAT), or the best conventional pollutant control technology (BCT). All discharges were required to comply with BPT guidelines by July 1, 1977 and to comply with BAT and BCT guidelines by March 31, 1989.

New source performance standards (NSPS) effluent guidelines are more stringent than BAT, BPT or BCT guidelines and are applicable only to new sources. The Sorrento facility fits the definition of a new source in 40 CFR 122.2. The Clean Water Act requires that effluent limits be the more stringent of either technology-based or water quality-based limits.[2]

Technology-Based Effluent Limits

On June 29, 1995, EPA promulgated NSPS effluent guidelines for the Natural and Processed Cheese Subcategory in 40 CFR Part 405.60 (Subpart F). Please see Appendix C for a detailed description of the technology-based limits applied to this permit. Once technology-based limits have been established, EPA must determine if the technology-based limits are stringent enough to protect ambient water quality. If they are not, EPA must develop more stringent water quality-based limits. In this case, EPA has determined that the technology-based limits for five-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS) will be protective of the water quality criteria for Purdam Drain and the downstream waterbodies.

Technology-based limits may not limit every pollutant that is in an effluent. The effluent limit guidelines codified in 40 CFR 440.102(a) and 440.103(a) contain guidelines for five day biochemical oxygen demand (BOD_5), pH, and total suspended solids (TSS). However, the effluent from the Sorrento facility will contain other pollutants, such as phosphorous and ammonia. When technology-based limits do not exist for a particular pollutant expected to be present in an effluent, EPA determines if the discharge has reasonable potential to cause or contribute to a violation of the State's water quality standards for that pollutant. If reasonable potential exists, EPA will impose water quality-based effluent limits for the pollutant. Please see Appendix D for detailed reasonable potential calculations.

[2] Sections 301(b), 304, 401 and 402 provide the basis for the effluent limits and other conditions in the proposed permit. Water quality based limits are authorized under Section 301(b)(1)(c) of the Clean Water Act, NPDES regulations at 40 CFR 122.44(d) and the Idaho Water Quality Standards (IDAPA 58.01.02).

Water Quality-Based Effluent Limits

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards by July 1, 1977. Discharges to State waters must also comply with limitations imposed by the State as part of its certification of NPDES permits under section 401 of the CWA.

The NPDES regulation (40 CFR 122.44(d)(1)) implementing section 301 (b)(1)(C) of the CWA requires that permits include limits for all pollutants 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 or Tribal water quality standard, including narrative criteria for water quality.

When evaluating the effluent to determine if water quality-based effluent limits are needed based on chemical specific numeric criteria, EPA calculates the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. This process is called a "reasonable potential analysis." The concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, are factors used to project the receiving water concentration. If the projected concentration of a given pollutant in the receiving water exceeds the numeric criterion, then there is a reasonable potential that the discharge may cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

The regulations require that this evaluation be made using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality criteria are met, and must be consistent with any available wasteload allocation.

Mixing Zones

Sometimes it is appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances make the water quality-based effluent limits less stringent than they would be if water quality criteria were applied "end-of-pipe." Mixing zones can be used only when there is adequate receiving water flow volume and the concentration of the pollutant in the receiving water is below the numeric criterion necessary to protect the designated uses of the water body. Mixing zones must be authorized by the Idaho Department of Environmental Quality. There are no water quality-based limits in the permit which are based on a mixing zone. However, EPA considered the dilution available in Purdam Drain when determining reasonable potential to cause or contribute to water quality standards

violations in Mason Creek and Purdam Drain.

B. Proposed Effluent Limits

Table 3, below, outlines the proposed effluent limits that are in the draft permit for Outfall 001. Detailed calculations for the water quality-based effluent limits can be found in Appendix D.

1. The permittee must not discharge 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. The permittee must not discharge hazardous materials in concentrations found to be of public health significance or to impair designated beneficial uses of the receiving water.
3. The permittee must not discharge chemicals or toxic pollutants in concentrations that impair beneficial uses of the receiving water.
4. The permittee must not discharge deleterious materials in concentrations that impair beneficial uses of the receiving water.
5. The permittee must not discharge floating, suspended or submerged matter of any kind in concentrations causing nuisance or objectionable conditions or that may impair beneficial uses of the receiving water.
6. The permittee must not discharge excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing designated beneficial uses of the receiving water.

Table 3: Effluent Limitations and Monitoring Requirements

Parameter	Units	Effluent Limitations			Monitoring Requirements	
		Average Monthly	Maximum Daily	Instantaneous Maximum	Sample Frequency	Sample Type
Outfall Flow	mgd	–	–	–	daily	recording
Biochemical Oxygen Demand (BOD5)	mg/L	10[1]	20[1]	–	weekly	24-hour composite
	lbs/day	42	84	–		
Total Suspended Solids (TSS)	mg/L	13[1]	25[1]	–	weekly	24-hour composite
	lbs/day	53	106	–		
E. Coli Bacteria	#/100ml	126[2]	–	406	5x/month	grab
pH	s.u.	6.0 to 9.0 at all times			daily	grab
Total Ammonia as N	mg/L	–	–	–	monthly	24-hour composite
	lbs/day	–	–	–		
Total Phosphorus as P (Interim)[3]	mg/L	0.48[1]	0.96[1]	–	monthly	24-hour composite
	lbs/day	2.00	4.02	–		
Total Phosphorus as P (Final)[3]	mg/L	0.070	0.140	–	monthly	24-hour composite
	lbs/day	0.29[1]	0.58[1]	–		
Floating, Suspended or Submerged Matter	Narrative Limitation				monthly	visual
Oil and Grease	No Visible Sheen				monthly	visual
Nitrate + Nitrite as N	mg/L	–	–	–	monthly	grab
Nitrite as N	mg/L	–	–	–	monthly	grab
Temperature	°C	–	–	–	weekly	grab

1. Effluent limits based on an average flow of 0.5 mgd (500,000 gallons per day).
2. The permittee must report the monthly geometric mean E. Coli concentration.
3. Please see part I.D. of the draft permit for the total phosphorus schedule of compliance.

Because the effluent limits in the draft permit are based on current water quality standards or technology-based limits that have been shown to not cause or contribute to violations of water quality standards, EPA does not anticipate that the discharge authorized in the draft permit will result in degradation of the receiving water.

V. Monitoring Requirements

A. Basis for Effluent and Receiving Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and receiving water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports

(DMRs) to the U.S. Environmental Protection Agency (EPA), with copies to IDEQ.

B. Effluent Monitoring

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. Permittees have the option of taking more frequent samples than are required under the permit. These samples may be used for averaging if they are conducted using EPA approved test methods (generally found in 40 CFR part 136) and if the Method Detection Limits are less than the effluent limits.

Table 3, above, presents the effluent monitoring requirements for Sorrento in the draft permit. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The monitoring samples must not be influenced by combination with other effluent. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

C. Receiving Water Monitoring

Table 4 presents the proposed receiving water monitoring requirements for the draft permit. Sorrento should work with the Idaho Department of Environmental Quality (IDEQ) Boise Regional Office to establish an appropriate upstream monitoring location. Sampling shall begin within 180 days of the effective date of the final permit. Surface water monitoring results must be submitted with the next NPDES permit application.

Table 4: Surface Water Monitoring Requirements

Parameter (units)	Sample Locations	Sample Frequency	Sample Type
Flow (mgd)	Upstream of outfall, mouth of Purdam Drain into Mason Creek	monthly	measure
Nitrite (mg/L)	Upstream of outfall	quarterly[1]	grab
Nitrate + Nitrite (mg/L)	Upstream of outfall	quarterly[1]	grab
Total Ammonia as N (mg/L)	Upstream of outfall, mouth of Purdam Drain into Mason Creek	quarterly[1]	grab
Total Phosphorous as P (μg/L)	Upstream of outfall, mouth of Purdam Drain into Mason Creek	quarterly[1]	grab
pH (s. u.)	Upstream of outfall, mouth of Purdam Drain into Mason Creek	quarterly[1]	grab
Temperature (°C)	Upstream of outfall, mouth of Purdam Drain into Mason Creek	quarterly[1]	grab

1. Quarters are defined as January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31.

VI. Other Permit Conditions

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. Sorrento is required to develop and implement a Quality Assurance Plan within 90 days of the effective date of the final permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The Plan must be kept on site and made available to EPA or IDEQ upon request.

B. Best Management Practices Plan

Federal regulations at 40 CFR 122.44(k) require the permittee to develop a Best Management Practices (BMP) Plan in order to prevent or minimize the potential for the release of pollutants to waters of the United States through plant site runoff, spillage or leaks, or erosion. The draft permit contains certain BMP conditions which must be included in the BMP plan. The draft permit requires the permittee to develop a BMP plan within 60 days of the effective date of the final permit and implement the plan within 90 days of the effective date of the final permit. The Plan must be kept on site and made available to EPA or IDEQ upon request.

C. Additional Permit Provisions

Sections III, IV, and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

VII. Other Legal Requirements

A. Endangered Species Act

Section 7 of the Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species.

In January of 2002, Sorrento received letters from the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the United States Fish and Wildlife Service (USFWS) stating that there are no populations of

threatened or endangered species in the vicinity of the proposed discharge. In a phone conversation on May 6, 2004, Chad Fealko of the NOAA Fisheries Idaho State Habitat Office reaffirmed NOAA's statement made in 2002 that there are no known populations of such species in the area. On May 12, 2004, EPA received a letter from Jeffery L. Foss of the Snake River office of the USFWS, stating that ESA Section 7 consultation is not necessary for this project.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. EPA has determined that the discharge from the Sorrento WWTF will not affect any EFH species in the vicinity of the discharge, therefore consultation is not required for this action.

C. State Certification

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. 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.

D. Permit Expiration

The permit will expire five years from the effective date.

VIII. References

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

EPA. 1973. *Water Quality Criteria 1972.* United States Environmental Protection Agency. EPA-R3-73-033.

HDR. 2004. *Technical Memorandum: Determination of Phosphorus Loading at Sorrento Lactalis Nampa Facility to Groundwater and Surface Waters.* HDR Engineering, Inc.

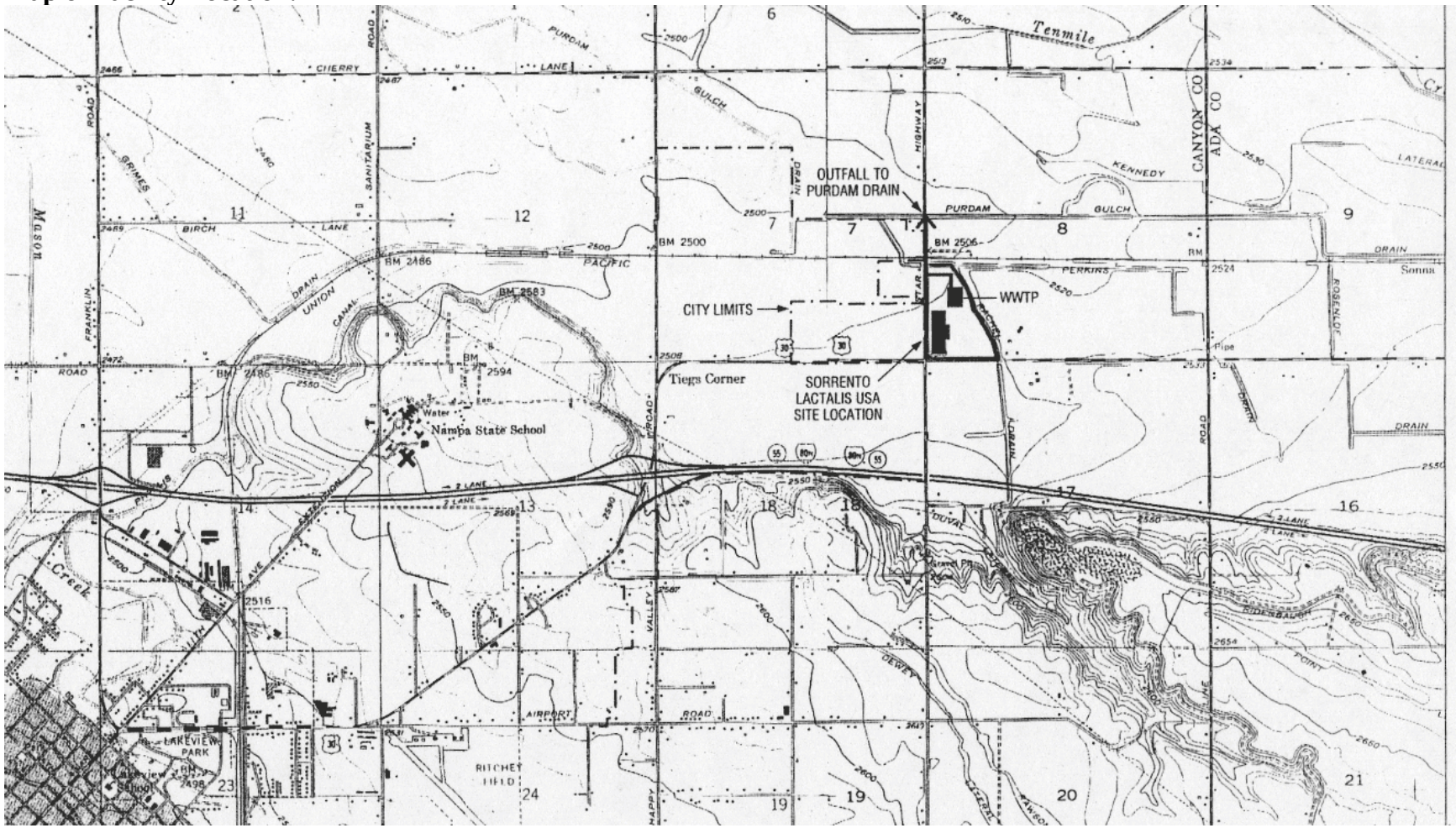
IDAPA 58. 2004. *Water Quality Standards and Wastewater Treatment Requirements.* Idaho Department of Environmental Quality rules., Title 01, Chapter 02.

IDEQ. 1998, 1999. *Lower Boise River TMDL: Subbasin Assessment, Total Maximum Daily Loads.* Idaho Department of Environmental Quality.

IDEQ, ODEQ. *2003, 2004. Snake River-Hells Canyon Total Maximum Daily Load (TMDL).* Idaho Department of Environmental Quality, Oregon Department of Environmental Quality.

Appendix A - Facility Information

Map of Facility Location:



General Information

NPDES ID Number:	ID-002803-7
Physical Address:	4912 Franklin Road Nampa, ID 83687
Mailing Address:	P.O. Box 1280 Nampa, ID 83653
Facility Background:	This is the facility's first NPDES permit. Wastewater is currently not discharged to surface water, but instead stored on-site and land applied off-site.

Facility Information

Facility SIC Codes:	2022 (natural cheese) 2023 (dry whey products) 2026 (cultured cream cheese)
Treatment Train:	Influent pumping, screening, grit removal, high strength divert, pH control, biological and chemical phosphorous removal, activated sludge, clarification, effluent filtration, effluent aeration.
Flow:	Estimated maximum daily flow rate is 775,000 gpd. Estimated average monthly flow rate is 500,000 gpd.
Outfall Location:	latitude 43° 36' 45" N; longitude 116° 29' 35" W

Receiving Water Information

Receiving Water:	Purdam Drain
Subbasin:	Lower Boise (HUC 17050114)
Beneficial Uses:	Agricultural and industrial water supply, aesthetics, wildlife habitats
Low Receiving Water Flow:	7.3 mgd

Additional Notes

Lower Boise River TMDL	Purdam Drain is tributary to the Boise river. The water quality-based effluent limits for E. Coli bacteria are based on the Lower Boise River TMDL, rather than the water quality criteria applicable to Purdam Drain. IDEQ and EPA have determined that the proposed effluent limits for TSS are consistent with the Lower Boise River TMDL. The effluent limits are protective of the downstream cold water aquatic life beneficial use in Mason Creek.

Appendix B: Total Suspended Solids Load Impact Evaluation

Sorrento's proposed TSS load was compared to the existing TSS load in the lower Boise River near the Mason Creek confluence to determine increase attributable to Sorrento. It was conservatively assumed that all of Sorrento's initial TSS load would reach the river. In reality, it is likely that some fraction of the solids in the discharge would break down, be consumed by aquatic organisms, or settle out by the time the mixture of the effluent and receiving water reaches the river.

Since Sorrento's TSS loading limits are two tiered (maximum daily and average monthly), both limits were compared to existing conditions in the lower Boise River. Table 2 shows the maximum daily and average monthly TSS loads expected from Sorrento as compared to the load in the lower Boise River.

Table B-1: Sorrento Lactalis TSS Load Analysis

	Sorrento Load		
	Conc. (mg/L)	*Flow (cfs)*	*Load (lbs/day)*
Maximum Daily	25.5	0.77	106
Average Monthly	12.7	0.77	53

	LBR Load at Mason Creek		
	Conc. (mg/L)	*Flow (cfs)*	*Load (lbs/day)*
	25	897	121095

Percent change in LBR load due to Sorrento maximum daily load	**0.09%**
Percent change in LBR load due to Sorrento average monthly load	**0.04%**

Table 2 shows that the maximum daily and average monthly TSS loads from Sorrento increase the load in the river by 0.09% and 0.04%, respectively.

Appendix C: Basis for Effluent Limitations

The following discussion explains in more detail the derivation of technology and water quality-based effluent limits. Part A discusses technology based effluent limits and Part B discusses water quality-based effluent limits.

A. Technology-Based Effluent Limits

Table C-1, below, summarizes the NSPS effluent limits codified in 40 CFR 405.65.

Table C-1: Technology-Based Effluent Limits (40 CFR 405.65)

Parameter	Maximum Daily Limit	Average Monthly Limit	Maximum Daily Limit	Average Monthly Limit
	lb/100 lb of BOD_5 input		based on 529,224 lb/day of BOD input (lb/day)	
BOD_5	0.016	0.008	85	42
pH	6.0 to 9.0		6.0 to 9.0	
Total Suspended Solids (TSS)	0.020	0.010	106	53

The technology-based effluent limits for BOD_5, TSS and pH are used in the draft permit. The *Technical Support Document for Water Quality-based Toxics Control* recommends, in situations where there is less than 100-fold dilution available in the receiving water, that permits include concentration limits as well as mass limits. Therefore, EPA has used the projected average effluent flow rate of 500,000 gallons per day to calculate concentration limits from the technology-based mass limits.

B. Water Quality-Based Effluent Limits

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A wasteload allocation is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water.

In cases where a mixing zone is not authorized, either because the receiving water already exceeds the criterion, the receiving water flow is too low to provide dilution, or the State does not authorize one, the criterion becomes the WLA. Establishing the criterion as the WLA ensures that the permittee will not contribute to an exceedance of the criterion. The wasteload allocations for total phosphorus and E. Coli bacteria have been determined in this way in order to ensure consistency with the Lower Boise River TMDL. The following discussion details the specific water quality-based effluent limits in the draft permit. The limit for total phosphorous is also based directly on an interpretation of Idaho's narrative water quality standard for nutrients.

E. Coli Bacteria

The Lower Boise River is designated for primary contact recreation. The primary contact recreation criteria are a monthly geometric mean of 126 organisms/100 ml and a single sample maximum of 406 organisms/100ml. The draft permit contains water quality-based effluent limits requiring these criteria to be met before the effluent is discharged to the receiving water, in order to ensure consistency with the Lower Boise River TMDL.

Total Phosphorous

The Lower Boise River does not currently meet the seasonal 0.07 mg/L (70 μg/L) total phosphorous loading target set for it in the Snake River Hells Canyon TMDL. Purdam Drain and Mason Creek are also highly enriched with phosphorous and cannot provide dilution of the effluent phosphorus. The 70 μg/L target for the Boise River is based on an interpretation of Idaho's narrative criterion for nutrients. In order to ensure that the discharge from the Sorrento facility does not cause or contribute to the Boise River's continued exceedance of this criterion, EPA will base the effluent limits for phosphorous on a wasteload allocation of 70 μg/L total phosphorous. The draft permit contains a compliance schedule for the water quality-based total phosphorus limit.

Appendix D - Reasonable Potential Determination

The following describes the process EPA has used to determine if the discharges authorized in the draft permit have the reasonable potential to cause or contribute to a violation of Idaho's federally approved water quality standards. EPA uses the process described in the Technical Support Document for Water Quality-based Toxics Control (EPA, 1991) to determine reasonable potential.

To determine if there is "reasonable potential" to cause or contribute to an exceedance of water quality criteria for a given pollutant, EPA compares the maximum projected receiving water concentration to the criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential for the discharge to cause or contribute to a water quality standards violation, and a water quality-based effluent limit must be included in the permit. This section discusses how the maximum projected receiving water concentration is determined.

A. Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_dQ_d = C_eQ_e + C_uQ_u \qquad \text{(Equation D-1)}$$

where,

C_d = Receiving water concentration downstream of the effluent discharge (concentration at the edge of the mixing zone)
C_e = Maximum projected effluent concentration
C_u = maximum receiving water upstream concentration
Q_d = Receiving water flow rate downstream of the effluent discharge = $Q_e + Q_u$
Q_e = Effluent flow rate
Q_u = Receiving water low flow rate upstream of the discharge

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_eQ_e + C_uQ_u}{Q_e + Q_u} \qquad \text{(Equation D-2)}$$

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with the entire flow the receiving stream. If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

$$C_d = \frac{C_e Q_e + C_u(Q_u \times MZ)}{Q_e + (Q_u \times MZ)} \quad \text{(Equation D-3)}$$

In Equation D-3, MZ is the fraction of the receiving water flow available for dilution. For criteria that apply in both Purdam Drain and Mason Creek, MZ is equal to 25% (0.25).

EPA must also determine if the discharge has the reasonable potential to cause or contribute to water quality standards violations downstream in Mason Creek. For criteria that apply in Mason Creek (but not in Purdam Drain), MZ is equal to 100% (1). That is, the full flow of Purdam Drain will be used for mixing for criteria that apply only in Mason Creek. In this case, the "complete mix" equation (D-2) is used to project the receiving water concentration at the mouth of Purdam Drain. Equations D-2 and D-3 are identical when MZ is equal to 100%.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \quad \text{(Equation D-4)}$$

Equation D-3 can be simplified by introducing a "dilution factor,"

$$D = \frac{Q_e + (Q_u \times MZ)}{Q_e} \quad \text{(Equation D-5)}$$

For the criteria applicable to Purdam Drain:

$$D_{purdam} = \frac{0.775 + (7.30 \times 0.25)}{0.775}$$

D_{purdam} = 3.356

For the criteria applicable to Mason Creek:

$$D_{mason} = \frac{0.775 + 7.30}{0.775}$$

D_{mason} = 10.42

After simplification, Equation 3 becomes:

$$C_d = \frac{C_e - C_u}{D} + C_u \quad \text{(Equation D-6)}$$

Equation D-6 is the form of the mass balance equation which was used to determine reasonable potential and calculate wasteload allocations.

B. Maximum Projected Effluent Concentration

For pollutants subject to technology-based effluent limits, the technology-based maximum daily limit was used as the maximum projected effluent concentration (C_e). The technology-based effluent limit was used in this manner because water quality-based effluent limits are required only when a discharge of the pollutant at the technology-based limit has the reasonable potential to violate water quality standards. For pollutants not affected by technology-based limits, the estimated maximum daily effluent concentration from the NPDES permit application was used.

C. Maximum Projected Receiving Water Concentration

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the criterion. The maximum projected receiving water concentration is calculated from Equation D-6:

$$C_d = \frac{C_e - C_u}{D_{mason}} + C_u \qquad \text{(Equation D-6)}$$

In the case of ammonia, the criteria are applicable in Mason Creek but not in Purdam Drain, therefore:

$$C_d = \frac{4 - 0.04}{10.42} + 0.04$$

C_d = 0.42 mg/L (Mason Creek)

For ammonia, the projected receiving water concentration (0.42 mg/L) is less than both the acute and chronic criteria, therefore a water quality-based effluent limit is not required.

Table D-1, on the following page, summarizes the reasonable potential calculations for pollutants expected to appear in the effluent from the Sorrento facility. No reasonable potential analysis was performed for nitrite and nitrate because of a lack of facility-specific data. No reasonable potential analysis was performed for temperature because no numeric temperature criteria apply to the receiving water. Effluent limits for bacteria are necessary to ensure consistency with the Lower Boise River TMDL, therefore it is not necessary to perform a reasonable potential calculation for bacteria. The draft permit requires the permittee to monitor the effluent for ammonia, nitrite, nitrite plus nitrate, and

temperature, to determine if water quality-based effluent limits may be required for these pollutants in the future.

Table D-1: Summary of Reasonable Potential Calculations

Common to All Parameters		
Dilution Factor for Purdam Drain	3.356	
Dilution Factor for Mason Creek	10.42	
	All Concentrations in mg/L	
Pollutant	**Total Phosphorous**	**Ammonia (Mason Creek)**
Mixing Zone Allowed?	NO[1]	YES
Data Source	Application	Application
Maximum Ambient Concentration	0.49	0.04
Maximum Projected Effluent Conc.	12.00	4.00
Maximum Purdam Drain RWC	12.00	1.22
Maximum Mason Creek RWC	12.00	0.42
Acute Aquatic Life Criterion	N/A	2.59
Chronic Aquatic Life Criterion	N/A	0.92
Most Stringent Single-Value Criterion	0.07	N/A
Reasonable Potential?	**YES**	**NO**

1. Dilution was not considered for phosphorus, because the downstream waterbodies are already above the criterion for total phosphorus and thus cannot provide dilution of the effluent phosphorus.

Appendix E: WQBEL Calculations - Total Phosphorus

The effects of total phosphorus on a watershed are a function of the average loading. In contrast, the effects of pollutants such as ammonia which have toxic effects on aquatic life, are based on short term exposure. Therefore, it is not appropriate to calculate effluent limits for total phosphorus using the procedures shown in Appendix E.

When the deleterious effects of a pollutant are based on long term average loading or concentration, the TSD recommends setting the average monthly limit equal to the WLA, and calculating a maximum daily limit based on effluent variability from the following relationship:

$$\frac{MDL}{AML} = \frac{\exp(z_m s - 0.5s^2)}{\exp(z_a s_n - 0.5s_n^2)}$$

Where:
CV = Coefficient of variation = 0.600
$\sigma^2 = \ln(CV^2 + 1) = 0.307$
$\sigma_n^2 = \ln(CV^2/n + 1) = 0.0862$
n = number of sampling events per month (minimum of 4 samples assumed if sample frequency is less than 4 per month)
z_m = 2.326 for 99th percentile probability basis
z_a = 1.645 for 95th percentile probability basis

This yields an MDL to AML ratio of 2.01. The WLAs for total phosphorus are calculated as follows:

Final

EPA has calculated the final total phosphorus effluent limits based on a WLA of 0.07 mg/L (70 µg/L). This is the target total phosphorus concentration set for the Boise River in the Snake River Hells Canyon TMDL. Setting the WLA equal to this target concentration will ensure that the Sorrento discharge will not cause or contribute to the Boise River's exceedance of this target.

Interim

The interim WLA to be used during the compliance schedule period was calculated based on Idaho's regulations for new or increased discharges of pollutants to water quality limited water bodies for which no TMDL has been developed (IDAPA 58.01.02.054.04). This regulation states that new or increased discharges of the pollutant which caused the water quality impairment may be allowed if the total load remains constant or decreases within the watershed. Once Sorrento constructs and begins operating the wastewater treatment facility and discharging the effluent to surface water, it will cease its current practice of storing raw wastewater on site

and land applying it. There is a finite loading of total phosphorus to the watershed associated with these disposal practices. HDR Engineering of Boise, Idaho has prepared a technical memorandum on Sorrento's behalf which estimates the current loading of total phosphorus to the watershed from Sorrento's current disposal practices. Based on the technical memorandum, EPA has estimated Sorrento's current total phosphorus loading at 2.0 lb/day. This will be Sorrento's wasteload allocation for the interim compliance schedule period. The TSD recommends that permits contain both mass and concentration limits for effluents discharging into waters with less than 100-fold dilution, therefore EPA has calculated a concentration-based WLA of 0.48 mg/L using the expected average effluent flow rate of 0.5 mgd.

Table E-1: Total Phosphorus Effluent Limits

Statistical variables for permit limit calculation					
PARAMETER	Coeff. Var. (CV)	AML Probability Basis	MDL Probability Basis	# of Samples per Month	Dilution Factor
All	0.60	0.95	0.99	4	N/A
Effluent Limit Calculation Summary					
	Ambient Concentration	Water Quality Criterion	WLA	**Average Monthly Limit (AML)**	**Maximum Daily Limit (MDL)**
PARAMETER	*mg/L*	*mg/L*	*mg/L*	***mg/L***	***mg/L***
Total Phosphorus (NNI, Interim)	N/A	N/A	0.48	**0.48**	**0.96**
Total Phosphorus (Final)	0.34	0.070	0.070	**0.070**	**0.140**