

# **Response to Comments on the Draft NPDES Permit for Sorrento Lactalis, Inc.**

## **NPDES Permit #ID-002803-7**

On July 11, 2005, EPA issued a public notice of the availability of a draft NPDES permit for Sorrento Lactalis, Inc. to discharge pollutants from a new wastewater treatment facility treating wastewater from its existing cheese processing facility in Nampa, Idaho.

### **Response to Public Comments on the Draft NPDES Permit**

EPA received comments on the Draft NPDES Permit from Mr. Scott L. Campbell, an attorney representing the Pioneer Irrigation District.

#### ***Comment #1***

Sorrento Lactalis' proposed discharge, even while subject to NPDES permit limitations, will introduce contaminants into the Purdam Drain that are either not currently present in the drain or in quantities that will accumulate in the drain at levels not routinely encountered in the drain.

For example, the draft permit sets average monthly and maximum daily Biochemical Oxygen Demand ("BOD") effluent limits at 42 lb/day and 84 lb/day, respectively. The draft permit additionally sets average monthly and maximum daily Total Suspended Solids ("TSS") effluent limits at 53 lb/day and 106 lb/day, respectively. These permit limits will result in the discharge to Purdam Drain of up to a maximum of 30,660 lbs of BOD per year and up to a maximum of 38,690 lbs of TSS per year – consistent discharges of these materials into the drain at levels never experienced before.

#### ***Response #1***

The commentor's calculation of the permitted annual BOD<sub>5</sub> and TSS loading is incorrect. To calculate the permitted annual loading, the commentor simply multiplied the BOD<sub>5</sub> and TSS maximum daily limits of 84 and 106 lb/day, respectively, by 365 days. In doing so, the commentor failed to consider the fact that the permit also requires Sorrento to meet average monthly limits for BOD<sub>5</sub> and TSS of 42 and 53 lb/day, respectively.

While the proposed permit would allow Sorrento Lactalis a maximum "daily discharge" of 106 pounds of TSS and 84 pounds of BOD<sub>5</sub>, the average monthly limits require that the average of these "daily discharges" measured over a calendar month not be greater than 42 lbs of BOD<sub>5</sub> per day and 53 lbs of TSS per day. Therefore, the permitted annual discharge of these pollutants cannot be greater than 15,330 pounds of BOD<sub>5</sub> per year<sup>1</sup> or 19,345 pounds of TSS per year<sup>2</sup>, half of what the commentor claimed. The terms "average monthly limit," "maximum daily limit," and "daily discharge" are defined in Part VI of the permit and in 40 CFR 122.2.

The commentor has also failed to consider the concentration limits for BOD<sub>5</sub> and TSS. The permittee must comply with both the mass and concentration limits in the permit. The commentor states that the discharge will result in "consistent discharges of these materials at

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<sup>1</sup> 42 lb/day × 365 days/year = 15,330 lb/year

<sup>2</sup> 53 lb/day × 365 days/year = 19,345 lb/year

levels never experienced before.” While the discharge will result in small increases in BOD<sub>5</sub> and TSS loading, the proposed permit would limit the concentrations of TSS in the Sorrento discharge to levels comparable to or lower than those measured in the drain, absent the discharge. Sorrento Lactalis has provided EPA with laboratory results for BOD<sub>5</sub> and TSS from samples taken from Purdam Drain near Star Road during the month of October 2001. These results are summarized in Table 1, below:

<b>Table 1: Concentration Limits, Ambient Conditions, and Projected Downstream Conditions for BOD<sub>5</sub> and TSS</b>						
Pollutant	Average Monthly Limit	Maximum Daily Limit	Average Ambient Concentration (October 2001)	Maximum Ambient Concentration (October 2001)	Maximum Projected Downstream Concentration	Percent Change
BOD <sub>5</sub> (mg/L)	10	20	Not Quantifiable	Not Quantifiable	1.9	N/A
TSS (mg/L)	13	25	31	51	48.5	-4.8%

The maximum projected downstream concentrations in Table 1 are based on worst-case conditions (minimum receiving water flow rate, maximum effluent flow rate, and effluent concentration equal to the maximum daily concentration limit). As shown in Table 1, the permit requires Sorrento Lactalis to limit discharges of TSS to concentrations which are consistently below those observed in Purdam Drain. Therefore, the discharge will generally decrease the concentrations of TSS measured downstream of the discharge, compared to the concentrations measured upstream. A discharge in compliance with the effluent limits will result in only modest increases in BOD<sub>5</sub> concentrations and only a slight decrease in dissolved oxygen concentrations, as discussed in the response to Comment #2.

The effluent limits for BOD and TSS are technology-based effluent limits, implementing the “new source performance standards” (NSPS) effluent limit guidelines (ELGs) for the Natural and Processed Cheese subcategory in 40 CFR 405.65. The Idaho Department of Environmental Quality has certified, pursuant to Section 401 of the Clean Water Act, that there is reasonable assurance that the discharge complies with the applicable requirements of the Idaho *Water Quality Standards and Wastewater Treatment Requirements*, including the requirements that waters of the State of Idaho be free from oxygen demanding pollutants (such as BOD<sub>5</sub>) and sediment in concentrations impairing designated beneficial uses (IDAPA 58.01.02.200.07 and 58.01.02.200.08). Therefore, EPA has satisfied the requirements of Section 301(b)(1)(C) of the Clean Water Act (and its implementing regulations) requiring that NPDES permits include effluent limitations necessary to meet water quality standards.

***Revisions to the permit:***

None

***Comment #2***

Increased BOD will likely lead to increased algal growth, thereby impacting water flows in the drain and limiting the drain’s efficiency in draining and conveying irrigation water. This will require Pioneer to expend additional maintenance efforts to maintain the flows of the drain, likely in the form of increased uses of chemical algaecides/herbicides.

## ***Response #2***

EPA disagrees with commentor's statement that Sorrento's discharge of BOD will likely lead to increased algal growth, but agrees with the commentor that Sorrento's discharge must not cause nuisance aquatic growths.

Biochemical Oxygen Demand (BOD) is a measure of the amount of oxygen required by aerobic microorganisms to decompose the organic matter in a sample of water. Discharges of biochemical oxygen demand can decrease dissolved oxygen concentrations in the receiving water, but they cannot cause increased algal growth as the commentor claims. As explained in the response to Comment #1, the discharge will not significantly increase BOD concentrations in Purdam Drain above current levels. According to the Environmental Assessment for the Sorrento Lactalis facility, current dissolved oxygen levels in Purdam Drain range between 7 and 10 mg/L with an average of 8.4 mg/L (McMahon 2003, 2004, 2005). EPA estimates that, under critical conditions, (minimum receiving water flow and DO, maximum effluent flow and BOD concentration, low effluent DO concentration<sup>3</sup>) the permitted discharge will not decrease dissolved oxygen concentrations in Purdam Drain below 6.5 mg/L. The dissolved oxygen sag directly attributable to Sorrento's discharge of BOD (as opposed to low effluent DO) is approximately 0.01 mg/L, which is well within the precision of available analytical methods for dissolved oxygen.

While discharges of BOD cannot cause algal growth, discharges of nutrients can cause such growth. EPA has addressed the possible effects of nutrient discharges in several ways. EPA has determined that the discharge does not have the reasonable potential to cause or contribute to water quality standards violations for ammonia (which is both a nutrient and a toxin) in downstream waters, but has required effluent and receiving water monitoring for ammonia. EPA has included water quality-based effluent limits for total phosphorus. See Appendix E of the Fact Sheet and the response to Comment #5 of this document for additional information on the total phosphorus limits. The permit also contains a narrative limitation prohibiting the discharge of excess nutrients that can cause visible slime growths or other nuisance aquatic growths impairing beneficial uses of the receiving water.

EPA has not performed a reasonable potential analysis for nitrite, nitrate plus nitrite, or total Kjeldahl nitrogen because no facility-specific data or estimates of the effluent concentrations of these pollutants were available. The draft permit proposed monthly monitoring of the effluent for nitrite and nitrate plus nitrite nitrogen using grab samples. To address the commentor's concerns about nuisance algal growth, EPA has added quarterly effluent and receiving water monitoring requirements for total Kjeldahl nitrogen and orthophosphate, and changed the sample type for nitrite and nitrate + nitrite to 24-hour composite samples, in order to better characterize the levels of nutrients in the discharge and the discharge's effect on the receiving water.

If effluent data show that the discharge has the reasonable potential to cause or contribute to water quality standards violations for these nutrients, EPA will include effluent limits for these nutrients in the future.

The Idaho Department of Environmental Quality has certified, pursuant to Section 401 of the Clean Water Act, that there is reasonable assurance that the discharge complies with the

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<sup>3</sup> For this analysis, EPA assumed that the effluent DO concentration was equal to the 5<sup>th</sup> percentile of the monthly minimum dissolved oxygen concentrations in the Permits Compliance System (PCS) for discharges from facilities with the same standard industrial classification (SIC) code as the permitted facility (2022), which is 2.6 mg/L.

applicable requirements of the Idaho *Water Quality Standards and Wastewater Treatment Requirements*, including the requirements that waters of the State of Idaho be free from excess nutrients (IDAPA 58.01.02.200.06). Therefore, EPA has satisfied the requirements of Section 301(b)(1)(C) of the Clean Water Act (and its implementing regulations) requiring that NPDES permits include effluent limitations necessary to meet water quality standards.

***Revisions to the permit:***

The sample type for effluent nitrite and nitrite plus nitrate was changed from “grab” to “24-hour composite.” Quarterly effluent and receiving water monitoring was added for total Kjeldahl nitrogen and orthophosphate.

***Comment #3***

While it was “conservatively assumed” that all of Sorrento Lactalis’ initial TSS load would reach the Boise River, in reality, some fraction of the TSS load will settle out of the water column and lead to increased sedimentation of the drain. This increased sedimentation will require Pioneer to increase its dredging efforts in order to ensure the efficient capture and flow of water to and in the drain.

***Response #3***

The assumption that all of Sorrento’s initial TSS load would reach the Boise River was made in the context of an evaluation of the discharge’s effect on sediment loading in the Boise River; in this context, it is a conservative assumption. This evaluation showed that the discharge will have a very small impact on sediment loadings to the Boise River and would not cause or contribute to water quality standards violations for sediment in the Boise River.

As stated in the response to Comment #1, the permit limits effluent concentrations of TSS to levels which are lower than those measured in Purdam Drain, without the discharge. Under critical conditions, the discharge will actually reduce TSS concentrations in Purdam Drain downstream of the discharge. Therefore, EPA does not agree with the commentor that Sorrento’s discharge of TSS will result in increased sedimentation in the drain.

As stated in the response to Comment #1, The Idaho Department of Environmental Quality has certified, pursuant to Section 401 of the Clean Water Act, that there is reasonable assurance that the discharge complies with the applicable requirements of the Idaho *Water Quality Standards and Wastewater Treatment Requirements*, including the requirements that waters of the State of Idaho be free from sediment in concentrations impairing designated beneficial uses (IDAPA 58.01.02.200.08). Therefore, EPA has satisfied the requirements of Section 301(b)(1)(C) of the Clean Water Act (and its implementing regulations) requiring that NPDES permits include effluent limitations necessary to meet water quality standards.

***Revisions to the permit:***

None

***Comment #4***

Purdam Drain is interconnected with, and provides water to, Pioneer wholly owned and operated facilities that deliver water to agricultural and residential lands within the District. Thus, (water compromised by Sorrento’s discharge) will be delivered to other Pioneer irrigators through

additional Pioneer facilities. The delivery of this water raises several concerns, including water quality issues pertinent to the uses to which the water is put by landowners within the district, environmental liability concerns, and increased operation and maintenance implications of additional Pioneer facilities.

***Response #4:***

EPA agrees with the commentor that the water quality in Purdam Drain must be of adequate quality for a variety of uses. A discussion of the various beneficial uses that Purdam Drain is protected for is provided in section III.B. of the Fact Sheet. These uses are agricultural and industrial water supply (IDAPA 58.01.02.100.03(b) and (c)), wildlife habitats (IDAPA 58.01.02.100.04) and aesthetics (IDAPA 58.01.02.100.05). The Idaho WQS state that these uses are to be protected by narrative criteria that appear in Section 200 of the WQS. 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.

EPA has used these criteria to determine reasonable potential and derive effluent limits for the Sorrento facility. EPA has also determined that the discharge, as authorized by the permit, does not have the reasonable potential to cause or contribute to violations of the water quality criteria that protect the aquatic life and contact recreation beneficial uses of the downstream waters (Mason Creek and the Boise River). The Idaho Department of Environmental Quality has certified, pursuant to Section 401 of the Clean Water Act, that there is reasonable assurance that the discharge complies with the applicable requirements of the Idaho *Water Quality Standards and Wastewater Treatment Requirements*. Therefore, EPA has satisfied the requirements of Section 301(b)(1)(C) of the Clean Water Act (and its implementing regulations) requiring that NPDES permits include effluent limitations necessary to meet water quality standards.

If the commentor believes that the criteria that the State of Idaho has promulgated to protect the beneficial uses of industrial and agricultural water supply, wildlife habitats and aesthetics are inadequate to protect these uses or that there are additional “existing uses” of Purdam Drain (as defined by Section 003.40 of the Idaho WQS) these issues are beyond the purview of this NPDES permitting action and should be addressed through the appropriate State authorities. Water quality-based limits in NPDES permits must be based on current, EPA-approved water quality standards.

***Revisions to the permit:***

None

***Comment #5***

Pioneer is concerned that the Sorrento Lactalis draft NPDES permit will allow Sorrento a four and one-half (4 ½) years “interim period” in which to meet the Lower Boise TMDL level of 0.07 mg/L for phosphorus. Allowing Sorrento Lactalis to temporarily exceed the TMDL level set for phosphorus in the Lower Boise River TMDL will further degrade the waters of the lower Boise River and make the TMDL more difficult to achieve. IDAPA Section 58.01.02.054.04 permits water quality impairment if total loads remain the same or decrease within the watershed. Sorrento Lactalis’ prior lagoon impoundment and land application of process waste water did not result in discharge to surface waters governed by the federal Clean Water Act. Now, however,

the draft NPDES permit is proposing to allow Sorrento Lactalis to directly discharge phosphorus to surface waters, further impairing those surface waters in a manner that did not exist prior to the new process waste water treatment plant, and in concentrations that exceed the levels set forth in the Lower Boise River TMDL. Pioneer should not have to bear this increased potential for operational and/or environmental liability.

#### ***Response #5***

EPA disagrees with the commentor's statement that the discharge, as authorized in the permit, will further impair the designated uses of the Boise River. EPA assumes that the "interim period" mentioned by the commentor is the State-certified compliance schedule and interim limits for total phosphorus. The commentor erroneously states that there is an EPA-approved TMDL for the lower Boise River which addresses phosphorus. Currently, the only EPA-approved TMDL for the lower Boise River (IDEQ 1998, 1999) includes load and wasteload allocations only for sediment and bacteria.

With regard to sediment and bacteria, EPA has demonstrated that the discharge, as authorized in the permit, will have a de minimis impact on sediment loading to the Boise River, will not cause or contribute to violations of Idaho's narrative sediment criterion in the Boise River, and will generally decrease sediment concentrations in Purdam Drain (see the response to Comment #1 in this document and Section III.C. and Appendix B of the Fact Sheet). The permit requires that State water quality criteria for bacteria be met before the wastewater is discharged, thus preventing the discharge from causing or contributing to water quality standards violations for bacteria in the near or far fields. See Section III.C. of the Fact sheet for additional information on the bacteria limits and their relationship to the TMDL.

The interim and final effluent limits for total phosphorus have different bases. The interim limits are a requirement imposed by the State of Idaho in their Clean Water Act Section 401 certification of this permit. While the commentor correctly states that the permittee has not discharged phosphorus directly to surface water in the past, the practice of storing and later land-applying raw wastewater contributes between 2 and 7.5 lb/day of phosphorus to the Lower Boise watershed (HDR, 2004). The most conservative estimate of Sorrento's current loading (2 lb/day) was used to calculate the interim average monthly limit for total phosphorus, and a maximum daily limit was calculated based on estimated effluent variability, as described in Appendix E of the Fact Sheet. The interim limits are therefore consistent with the "no net increase" requirement of Section 054.04 of the Idaho WQS referenced by the commentor.

The final total phosphorus effluent limitation is based on the interpretation of Idaho's narrative criterion for nutrients expressed in the Snake River Hells Canyon TMDL (IDEQ, ODEQ 2003, 2004). The Snake River Hells Canyon TMDL includes a concentration-based load allocation for the Boise River of 0.07 mg/L, which is an interpretation of Idaho's narrative "free from excess nutrients" criterion for the Snake River. Because phosphorus concentrations in Purdam Drain, Mason Creek and the Boise River are currently above 0.07 mg/L, no mixing zone was authorized and the permit requires that this criterion be met "end-of-pipe" on a monthly average basis. Once compliance with the final limits is achieved, the discharge will not cause or contribute to exceedances of this criterion in the Snake River, nor will it cause or contribute to exceedances of the Boise River's load allocation in the Snake River Hells Canyon TMDL. If Sorrento Lactalis is granted a wasteload allocation in the forthcoming Lower Boise River nutrient TMDL which

differs from the effluent limits in the permit, EPA has the authority to modify the permit to ensure that the effluent limits are consistent with the wasteload allocation.

Additionally, similar to TSS, the concentration limits in the permit for total phosphorus will protect water quality in the near field. When the interim limits are in effect, the discharge will not cause significant increases in total phosphorus concentrations in Purdam Drain, and when the final limits are in effect, the discharge will reduce near-field total phosphorus concentrations, as shown in Table 2, below. The maximum projected downstream concentrations in Table 2 are based on worst-case conditions (minimum receiving water flow rate, maximum effluent flow rate, and effluent concentration equal to the maximum daily concentration limit).

Pollutant	Average Monthly Limit	Maximum Daily Limit	Average Ambient Concentration (October 2001 and August 2004)	Maximum Ambient Concentration (October 2001 and August 2004)	Maximum Projected Downstream Concentration	Percent Change
TP (mg/L, interim limits)	0.48	0.96	0.28	0.49	0.54	10.2%
TP (mg/L, final limits)	0.07	0.14	0.28	0.49	0.46	-6.1%

The State of Idaho has certified, pursuant to Section 401 of the Clean Water Act, that there is reasonable assurance that the discharge complies with the applicable requirements of the Idaho *Water Quality Standards and Wastewater Treatment Requirements*, including the “no net increase” policy. The State has also certified the schedule of compliance for total phosphorus and the interim limits as proposed in the draft permit. Therefore, EPA has satisfied the requirements of Section 301(b)(1)(C) of the Clean Water Act (and its implementing regulations) requiring that NPDES permits include effluent limitations necessary to meet water quality standards.

***Revisions to the permit:***

None

**Other Revisions to the Permit**

***Correction of Typographical Errors***

A typographical error was made in Table 2 of the draft permit (receiving water monitoring requirements). The required minimum level for total phosphorus was listed as 0.010 µg/L. The units on this figure were incorrect. The final permit contains the correct minimum level requirement of 0.010 mg/L, which is equal to 10 µg/L.

The draft permit contained incorrect references to other parts of the permit or to tables. These references have been corrected in the final permit.

### ***Correction of Mistaken Interpretations of Law or Regulations***

EPA has deleted the “spill prevention, control, and countermeasure” requirement from the Best Management Practices Plan section (Part II.C.4.b.(iii)). The statutory and regulatory requirements referenced in this section do not apply to this type of facility. Requirements for control of spills are addressed by Parts I.B.3. and III.A. of the final permit.

### ***Clarification of Permit Requirements***

In order to clarify the requirements for reporting of monitoring results for pollutants not subject to effluent limits, EPA has added the following requirement, which appears as Part I.B.9. of the final permit:

“For all pollutants subject to effluent monitoring requirements but not effluent limits, the permittee must report the average monthly and maximum daily effluent values on the monthly discharge monitoring reports (See Part III.B.)”

EPA has also replaced compliance dates expressed as intervals after the effective date with dates certain.

### **References**

HDR Engineering, Inc. 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.

McMahon Associates, Inc. 2003, 2004, 2005. *Environmental Assessment: Wastewater Treatment Facility*. Prepared for Sorrento Lactalis, Inc. March 29, 2005.

USEPA. 2005. *Fact Sheet for Sorrento Lactalis, Inc.* July 11, 2005.