Revised Fact Sheet

Public Comment Start Date: August 12, 2008
Public Comment Expiration Date: September 11, 2008

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Proposed Reissuance of a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA)

City of Burley
Industrial Wastewater Treatment Plant

EPA Proposes To Reissue NPDES Permit
EPA proposes to reissue an NPDES permit to the facility referenced above. The draft permit places conditions on the discharge of pollutants from the industrial wastewater treatment plant 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

Clean Water Act Section 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
1363 Fillmore St.
Twin Falls, ID 83301

Public Comment
Pursuant to 40 CFR 124.14(c), at this time, EPA is only accepting comments on aspects of the draft permit that are different from those in the draft permit that was issued for public comment on March 15, 2006. These are as follows:

- Effluent limits for BOD_5
- Effluent limits for TSS
- Effluent limits for ammonia
- Effluent monitoring requirements

Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing to the above address or by e-mail to "Nickel.Brian@epa.gov" 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 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 no sooner than 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 NPDES website at "http://epa.gov/r10earth/waterpermits.htm."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-6251 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

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

Idaho Department of Environmental Quality
1363 Fillmore St.
Twin Falls, ID 83301
(208) 736-2190

Burley Public Library
1300 Miller Avenue
Burley, ID 83318
(208) 878-7708

Acronyms

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
30Q10	30 day, 10 year low flow
AML	Average Monthly Limit
BOD_5	Biochemical oxygen demand, five-day
ºC	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
:g/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit
N	Nitrogen
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OW	Office of Water
O&M	Operations and maintenance
POTW	Publicly owned treatment works
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
WWTP	Wastewater treatment plant

I. Applicant

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

City of Burley, Idaho
Industrial Wastewater Treatment Plant
NPDES Permit # ID-000066-3

Physical Location:
Across the railroad tracks from the Burley Municipal Airport

Contact:
Mark Mitton, City Administrator

II. Facility Information

A. Facility Type and Background

The City of Burley, Idaho (City) owns the Burley-Heyburn Industrial Park, and owns and operates the associated industrial wastewater treatment plant (IWTP). The proposed permit would authorize a discharge from the IWTP. The previous permit expired on May 1, 2005, but since EPA received a timely application for renewal from the City of Burley on October 29, 2004, the previous permit will be administratively extended as provided for in 40 CFR 122.6 until the permit can be reissued. The City submitted an updated renewal application on February 13, 2006.

The J.R. Simplot Company had operated the facility now known as the Burley-Heyburn Industrial Park as a frozen potato products manufacturing plant until 2003. Subsequently, the City acquired the facility and the permit was transferred to the City to reflect the change of ownership.

The City intends to lease manufacturing space at the industrial park. The City-owned and operated IWTP will treat liquid wastes from the tenants of the industrial park, and the treated wastewater will be discharged to the Snake River through Outfall 003. In addition to the discharge from Outfall 003, the permit authorizes seepage from the polishing ponds to groundwater that is hydrologically connected to the Snake River. In order to ensure that this seepage complies with secondary treatment requirements (40 CFR 133.102) and that the permit ensures protection of water quality in the Snake River, the permit requires compliance with certain effluent limits prior to discharge to the polishing ponds.

The application lists two additional point source outfalls besides outfall 003; these are numbered 001 and 002. The application lists the flow rate for outfalls 001 and 002 as zero. The previous permit did not authorize a discharge from outfalls 001 and 002. The draft permit retains this prohibition. However, the permit may be modified at some future date to authorize a discharge from these outfalls, pursuant to 40 CFR 122.62.

For NPDES permitting purposes, the Burley-Heyburn Industrial Park IWTP is considered a Publicly Owned Treatment Works (POTW). The term “Publicly Owned Treatment Works” is defined in 40 CFR 403.3(o) as follows:

> "The term *Publicly Owned Treatment Works* or *POTW* means a treatment works as defined by Section 212 of the (Clean Water) Act[1], which is owned by a State or municipality (as defined by Section 502(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant[2]. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the Indirect Dischargers to and the discharges from such a treatment works."

Because the Burley-Heyburn Industrial Park IWTP is owned by a municipality (the City of Burley, Idaho) and treats industrial wastes of a liquid nature, it fits the definition of a POTW in 40 CFR 403.3. It is therefore subject to the "secondary treatment" requirements of 40 CFR 133 and the industrial pretreatment requirements of 40 CFR 403. The industrial wastewater treatment plant will not treat domestic wastewater. Domestic wastewater from the Burley-Heyburn Industrial Park will be collected and treated by the City of Heyburn's sewer system.

A draft reissuance of this permit was made available for public comment on March 15, 2006. The public comment period closed on April 14, 2006. Following the close of the public comment period, new information became available. The consideration of this new information has led to changes in the permit conditions as proposed in the March 15, 2006 draft. The changes involve effluent limitations for BOD, TSS, and ammonia and certain monitoring requirements. The scope of this public comment period is limited to changes that were made to the original draft permit. Permit conditions in the draft permit which are identical to those in the March 15, 2006 draft permit are not open for public comment.

Additional information about the facility and a map of its location are can be found in Appendices A and B, respectively.

B. Treatment Process

The facility's treatment processes were described in the fact sheet dated March 15, 2006. See also Appendix A.

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[1] The term "treatment works" means any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature to implement Section 201 of (the Clean Water) Act, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, sewage collection systems, pumping power, and other equipment, and their appurtances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process (including land use for the storage of treated wastewater in land treatment systems prior to land application) or is used for ultimate disposal of residues resulting from such treatment.

[2] The term "POTW Treatment Plant" is defined in 40 CFR 403.3(p) as "that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste."

III. Receiving Water

A. Low Flow Conditions

EPA has recalculated the critical low flows of the Snake River using more recent data than were used to develop the original draft permit. The period of record for the data used in these calculations is 1970 – 2008 for the October – April season, and 1970 – 2007 for the May – September season.

The *Technical Support Document for Water Quality-Based Toxics Control* (hereafter referred to as the TSD) (EPA, 1991) and the Idaho Water Quality Standards (WQS) recommend the flow conditions for use in calculating water quality-based effluent limits (WQBELs) using steady-state modeling. The TSD and the Idaho Water Quality Standards state that WQBELs intended to protect aquatic life uses should be based on the lowest seven-day average flow rate expected to occur once every ten years (7Q10) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (1Q10) for acute criteria. Because there are significant seasonal variations in the flow rate of the Snake River at the point of discharge, EPA has elected to calculate the 1Q10 and 7Q10 on a seasonal basis.

The chronic water quality criterion for ammonia is a 30-day average concentration. Therefore, EPA used the 30Q10 flow rate to calculate water quality-based effluent limits based on the chronic ammonia criterion. The 30Q10 was also calculated on a seasonal basis.

Table 1: Seasonal Low Flows in the Snake River (at USGS Station #13081500)

Season	1Q10 (CFS)	7Q10 (CFS)	30Q10 (CFS)
October through April	272	347	424
May through September	2560	3060	4420

B. Water Quality Standards

The water quality standards of the receiving water are discussed in the fact sheet for the initial public comment period, dated March 15, 2006. However, in the original draft permit, EPA misapplied the water quality criteria for ammonia. EPA has therefore re-calculated the ammonia limits, as shown in appendices C and D.

C. Lake Walcott TMDL

As stated in the fact sheet dated March 15, 2006, the draft permit contains an average monthly limit of 359 lb/day total phosphorus, consistent with the TMDL. NPDES regulations require that NPDES permits include effluent limitations that are consistent with approved TMDLs (40 CFR 122.44(d)(1)(vii)(B)). NPDES regulations also require that effluent limits for POTWs be expressed as average weekly limits and average monthly limits, unless impracticable (40 CFR 122.45(d)(2)). The average weekly limit was calculated using the same ratio of the average weekly limit to the average monthly limit as the "secondary treatment" limits for BOD_5 and TSS (1.5:1). Therefore, the average weekly limit is equal to 1.5 times the average monthly limit, or 539 lb/day. A

more detailed discussion of the TMDL and its effect on the draft permit is provided in the fact sheet dated March 15, 2006.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards of a waterbody are being met and may be more stringent than technology-based effluent limits. The bases for the proposed effluent limits in the draft permit are provided in Appendices C and D. Effluent limits shown in bold type in Table 2 are different from those in the original draft permit issued for public comment on March 15, 2006. EPA is accepting comments on these effluent limits.

B. Proposed Effluent Limitations

Below are the proposed effluent limits that are in the draft permit.

1. The permittee must not discharge hazardous materials in concentrations found to be of public health significance or to impair beneficial uses of the receiving water.
2. The permittee must not discharge toxic pollutants in concentrations that impair beneficial uses of the receiving water.
3. The permittee must not discharge deleterious materials in concentrations that impair beneficial uses of the receiving water.
4. 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.

Table 2 (below) presents the proposed numeric average monthly, average weekly, and maximum daily effluent limits.

Table 2: Effluent Limits for Outfall 003

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Maximum Daily Limit
BOD_5 (Monthly Average Effluent Flow ≥ 0.40 mgd)	**mg/L**	**30**	**45**	**—**
	lb/day	**600**	**901**	**—**
	% Removal	**85% (min.)**	**—**	**—**
BOD_5 (Monthly Average Effluent Flow < 0.40 mgd)	**lb/day**	**101**	**152**	
	% Removal	**85% (min.)**	**—**	**—**
TSS (Monthly Average Effluent Flow ≥ 0.51 mgd)	**mg/L**	**30**	**45**	**—**
	lb/day	**600**	**901**	**—**
	% Removal	**85% (min.)**	**—**	**—**

Table 2: Effluent Limits for Outfall 003				
Parameter	**Units**	**Average Monthly Limit**	**Average Weekly Limit**	**Maximum Daily Limit**
TSS (Monthly Average Effluent Flow < 0.51 mgd)	**lb/day**	**127**	**191**	**—**
	% Removal	**85% (min.)**	**—**	**—**
pH	s.u	6.0 to 9.0 at all times		
Total Phosphorus as P	lb/day	359	539	—
Total Ammonia as N (October 1 – April 30)	**lb/day**	**292**	**—**	**658**
Total Ammonia as N (May 1 – September 30)	**lb/day**	**1759**	**—**	**3966**
Temperature	°C	—	—	32
Oil and grease	Visual	No Visual Sheen		
Floating, Suspended or Submerged Matter	Visual	Narrative Limitation (see above)		

C. Basis for Deletion of Previous Effluent Limits

The maximum daily limits for total phosphorus (TP), total suspended solids (TSS) and BOD_5 have been deleted (the proposed permit has average monthly and average weekly limits for these pollutants). All other effluent limits in the proposed permit are at least as stringent as those in the previous final permit. The rationale for the deletion of maximum daily limits is provided in the fact sheet dated March 15, 2006.

V. Monitoring Requirements

A. Basis for Effluent and Surface 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 surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permit also requires the pemittee to perform effluent monitoring required by the NPDES Form 2A application, so that these data will be available when the permittee applies for a renewal of its NPDES permit. 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).

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 can be used for averaging if they are conducted using EPA approved test methods (generally found in 40 CFR 136) and if the minimum levels are less than the effluent limits.

The fact that an ethanol-for-fuel plant will be contributing wastewater to the IWTP has prompted EPA to include routine monitoring for additional pollutants relative to the

monitoring required in the draft permit made available for public comment on March 15, 2006. The revised draft permit proposes twice per year monitoring of the effluent for all pollutants listed in Tables 3-20, 3-21 and 3-23 of the *Multimedia Technical Support Document for the Ethanol-for-Fuel Industry* (EPA 440/1-86-093) as having been measured in treated effluent from ethanol-for-fuel or beverage alcohol facilities at concentrations above Idaho's water quality criteria for those pollutants. If these effluent data show that the Burley IWTP has the reasonable potential to cause or contribute to excursions above water quality standards for any of these pollutants, EPA will establish water quality-based effluent limits for these pollutants when the permit is reissued.

The City stated that it does not yet have enough automatic composite samplers for the facility, to allow for collection of 24-hour composite samples, as proposed in the original draft permit. Therefore, the revised draft permit now requires 8-hour composite samples instead of 24-hour composite samples (except for whole effluent toxicity), allowing samples to be composited manually over an 8-hour work day.

Table 3 presents the proposed effluent monitoring requirements for the Burley IWTP. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

The definitions of the monitoring location codes are as follows:

- "1" means "effluent gross value." For pollutants monitored at this location, the permittee must sample at a point in the effluent waste stream at which all treatment processes are complete and prior to discharge through Outfall 003.
- "E" means "secondary or biological process complete." For pollutants monitored at this location, the permittee must sample at a point in the effluent waste stream upstream of the polishing ponds and downstream of all treatment processes that are located upstream of the polishing ponds in the treatment train.
- "G" means "raw sewage/influent." For pollutants monitored at this location, the permittee must sample the combined influent waste stream at a point upstream of any of the Burley IWTP treatment processes.
- "K" means "percent removal." For each parameter, the monthly average percent removal must be calculated from the arithmetic mean of the influent concentration and the arithmetic mean of the effluent concentration for that month. Influent and effluent samples must be taken over approximately the same time period. For TSS, the effluent values for use in calculating percent removal must be those sampled at monitoring location "1." For BOD_5, the effluent values for use in calculating percent removal must be those sampled at location "E."

Monitoring location codes 1, G, and K are commonly used in NPDES permits for POTWs. The additional monitoring location code "E" is used in this case because EPA and IDEQ believe that there is a potential for some pollutants to reach the Snake River through seepage from the polishing ponds. Therefore, the permittee must achieve compliance with the effluent limits for BOD_5, total phosphorus, and total ammonia prior to discharging effluent into the polishing ponds. The monitoring location for all other effluent limits and monitoring requirements (except for nitrogen compounds) will be immediately prior to discharge from Outfall 003 (monitoring location code "1").

Table 3: Effluent Monitoring Requirements				
Parameter	**Units**	**Monitoring Location Codes**	**Sample Frequency**	**Sample Type**
Flow	mgd	1 and E	5/week	measure
BOD_5	mg/L	E and G	2/week	8-hour composite
	lbs/day			calculation[1]
	% Removal	K	1/month	calculation[2]
TSS	mg/L	1 and G	2/week	8-hour composite
	lbs/day			calculation[1]
	% Removal	K	1/month	calculation[2]
pH	standard units	1	5/week	grab
Total Phosphorus as P	mg/L	E and G	1/week	8-hour composite
	lb/day			calculation[1]
Total Ammonia as N	mg/L	E and G	2/week	8-hour composite
	lb/day			calculation[1]
Oil and Grease	mg/L	1	2/year[3]	grab
Oil and Grease	visual	1	1/month	visual
Floating, Suspended or Submerged Matter	visual	1	1/month	visual
Temperature	°C	1	5/week	grab
Alkalinity	mg/L as $CaCO_3$	1	2/year[3]	8-hour composite
Dissolved Oxygen	mg/L	1	1/month	grab
E. Coli Bacteria	#/100 ml	1	5/month	grab
Hardness	mg/L as $CaCO_3$	1	2/year[3]	8-hour composite
Nitrate + Nitrite as N	mg/L	E	2/year[3]	8-hour composite
Total Nitrate as N	mg/L	E	2/year[3]	8-hour composite
Total Kjeldahl Nitrogen	mg/L	E	2/year[3]	8-hour composite
Total Dissolved Solids	mg/L	1	2/year[3]	8-hour composite
Bis(2-Ethylhexyl) Phthalate	µg/L	1	2/year[3]	8-hour composite
Chloroform	µg/L	1	2/year[3]	8-hour composite
Methylene Chloride	µg/L	1	2/year[3]	8-hour composite
1,1,2-Trichloroethane	µg/L	1	2/year[3]	8-hour composite
Arsenic	µg/L	1	2/year[3]	8-hour composite
Cadmium	µg/L	1	2/year[3]	8-hour composite
Chromium III	µg/L	1	2/year[3]	8-hour composite
Chromium VI	µg/L	1	2/year[3]	8-hour composite
Copper	µg/L	1	2/year[3]	8-hour composite
Cyanide	µg/L	1	2/year[3]	8-hour composite
Lead	µg/L	1	2/year[3]	8-hour composite
Nickel	µg/L	1	2/year[3]	8-hour composite
Selenium	µg/L	1	2/year[3]	8-hour composite
Silver	µg/L	1	2/year[3]	8-hour composite
Thallium	µg/L	1	2/year[3]	8-hour composite
Zinc	µg/L	1	2/year[3]	8-hour composite
Total Residual Chlorine	mg/L	1	2/year[3]	grab
Whole Effluent Toxicity	TU_c	1	Annual	24-hour composite
NPDES Application Form 2A Expanded Effluent Testing	---	1	3x/5 years	---

Table 3: Effluent Monitoring Requirements				
Parameter	**Units**	**Monitoring Location Codes**	**Sample Frequency**	**Sample Type**

Notes:
1 Loading is calculated by multiplying the concentration in mg/L by the average daily flow in mgd and a conversion factor of 8.34.
2 Percent removal is calculated using the following equation:
(average monthly influent concentration – effluent concentration) ÷ average monthly influent concentration.
3 Results are to be reported on the June and December DMRs.

C. Surface Water Monitoring

The surface water monitoring requirements are identical to those proposed in the draft permit and fact sheet made available for public comment on March 16, 2006. See the fact sheet dated March 16, 2006 for an explanation of the surface water monitoring requirements.

VI. Other Permit Conditions

A. Quality Assurance Plan and Best Management Practices Plan

The quality assurance plan (QAP) and best management practices (BMP) plan requirements in the revised draft permit are identical to those proposed in the draft permit and fact sheet made available for public comment on March 16, 2006, except that the permit now allows the permittee 180 days (instead of 90 days for the original draft permit) to develop and implement the QAP plan, and 1 year (instead of 180 days for the original draft permit) to develop and implement the BMP plan. See the fact sheet dated March 16, 2006 for an explanation of those requirements.

B. Pretreatment

The Burley IWTP and the collection system associated with it is a publicly owned treatment works (POTW) as defined by 40 CFR 403.3(o). Because the POTW treatment plant is treating exclusively industrial waste, the pretreatment requirements of 40 CFR 403 apply to this facility. Indirect dischargers to the treatment plant must comply with the applicable requirements of 40 CFR 403, any categorical pretreatment standards promulgated by EPA, and any additional or more stringent requirements imposed by the City of Burley as part of its approved pretreatment program or sewer use ordinance (e.g. local limits).

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 and Essential Fish Habitat

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.

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 reissuance of this NPDES permit will have no effect on any endangered or threatened species or on any EFH species, therefore consultation is not required for this action. The basis for this determination was provided in the fact sheet for the initial public notice of the availability of a draft permit for this facility, on March 15, 2006. EPA will provide copies of the draft permit and Fact Sheet to USFWS at the beginning of the public comment period. EPA will consider any comments made by USFWS on the draft permit prior to issuance of a final permit.

B. State/Tribal Certification

Section 401 of the CWA requires EPA to seek State or Tribal 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.

C. 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.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

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

IDEQ. 1999. *Lake Walcott Subbasin Assessment and Total Maximum Daily Load, The*. Idaho Department of Health and Welfare, Division of Environmental Quality.

Appendix A: Facility Information

General Information

NPDES ID Number:	ID-000066-3
Physical Address:	999 East Railroad Avenue Burley, ID 83318 (Near Burley Municipal Airport)
Mailing Address:	320 Hiland Avenue Burley, ID 83318
Facility Background:	The Burley IWTP was acquired from the J.R. Simplot Company, after being de-commissioned in 2002 after nearly 60 years of operation. The City of Burley will retrofit the IWTP to treat industrial wastewater from cheese and ethanol producers occupying the Burley-Heyburn Industrial Park.

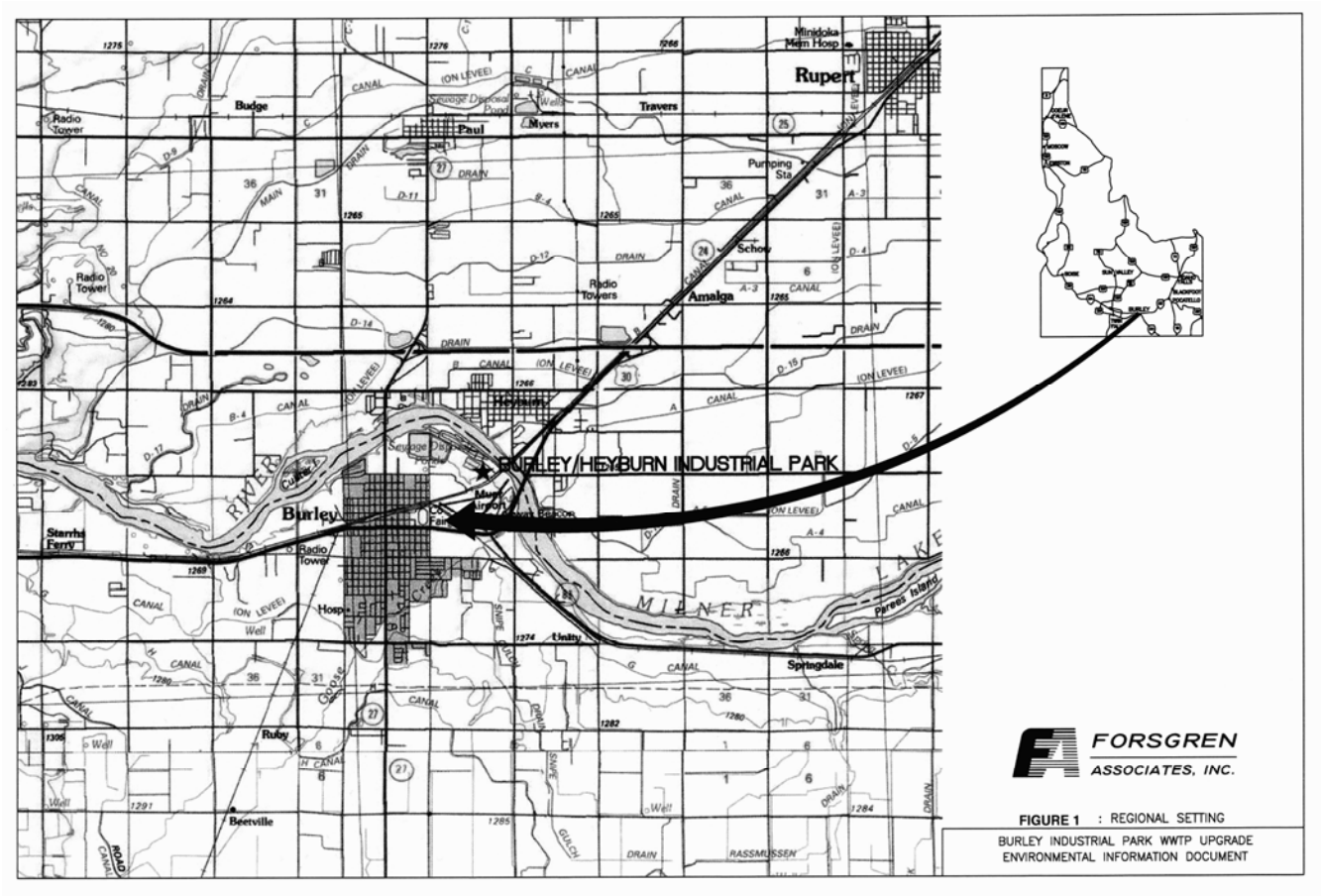
Facility Information

Type of Facility:	Publicly Owned Treatment Works (POTW) treating exclusively industrial wastewater.
Treatment Train (initial operation):	Anaerobic digestion, chemical phosphorus removal, facultative lagoon, sludge dewatering.
Treatment Train (full build-out):	Primary clarification, anaerobic digestion, chemical phosphorus removal (Chrystalactor® process), secondary treatment aeration basin with bioselector zones for biological nutrient removal, secondary clarification, facultative lagoons, UV disinfection, sludge dewatering
Flow:	Design flow is 2.4 mgd.
Outfall Location:	Outfall 003: latitude 42E 32' 02" N; longitude 113E 46' 09" W

Receiving Water Information

Receiving Water:	Snake River (Milner Pool)
Watershed:	Lake Walcott (HUC 17040209)
Beneficial Uses:	Warm water aquatic life Primary contact recreation Water supply for: • Agricultural • Industrial Wildlife Habitats Aesthetics

Appendix B: Facility Map



Appendix C: Basis for Effluent Limits

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

A. Technology-Based Effluent Limits

Secondary Treatment

In sections 301(b)(1)(B) and 304(d)(1), the CWA established a performance level, referred to as "secondary treatment," which all POTWs are required to meet from the date of permit issuance (40 CFR 125.3(a)(1)(i)). EPA developed and promulgated "secondary treatment" regulations that are found in 40 CFR 133. These technology-based effluent limits apply to all POTWs, and identify the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH. The secondary treatment effluent limits are listed in Table C-1.

Table C-1: Secondary Treatment Effluent Limits
(40 CFR 133.102)

Parameter	Average Monthly Limit	Average Weekly Limit	Range
BOD_5	30 mg/L	45 mg/L	---
TSS	30 mg/L	45 mg/L	---
Removal Rates for BOD_5 and TSS	85% (minimum)	---	---
pH	---	---	6.0 - 9.0 s.u.

Mass Limits

In general, effluent limits in NPDES permits must be expressed in terms of mass (40 CFR 122.45(f)), and effluent limits for POTWs must be based on the design flow of the POTW treatment plant (40 CFR 122.45(b)(1). Therefore, EPA has calculated mass-based effluent limits from the concentration limits in Table C-1, as follows:

BOD and TSS Average Monthly Limit:

30 mg/L × 2.4 mgd × 8.34[1] = 600 lb/day

BOD and TSS Average Weekly Limit:

45 mg/L × 2.4 mgd × 8.34 = 901 lb/day

Special Considerations for Industrial Wastes

The Burley IWTP is a POTW, but it treats industrial wastes. The regulations implementing the "secondary treatment" technology-based limits allow the limits for POTWs to be adjusted upward for POTWs treating industrial wastes from industrial categories, to the extent that the effluent limit guidelines that would be applicable to the industrial categories if they were to discharge directly to waters of the United States are less stringent than the "secondary treatment" requirements (40 CFR 133.103(b)).

[1] This is a conversion factor equal to the density of water, in pounds per gallon.

At the time that the original draft permit was made available for public comment, it was expected that most of the flow and BOD_5 and TSS loading to the IWTP would be from a single, small cheese processing facility. Since the application of the applicable effluent limit guidelines (found in 40 CFR 405.65) for this small facility would not have resulted in less stringent limits than the secondary treatment effluent limits, EPA did not adjust the secondary treatment effluent limits upward due to the fact that the POTW accepts industrial wastes, in the original draft permit.

However, after the close of the initial public comment period, an additional dairy facility, which will eventually produce dried milk, butter and cheese, committed to locate at the industrial park and discharge to the ITWP, and the existing cheese processor increased its production. This new information prompted EPA's re-evaluation of technology-based effluent limits for the IWTP.

For industrial facilities where multiple industrial categories are operating, "building block" technology-based limits are calculated by summing the technology-based limits for BOD_5 and TSS for each individual industrial category, as described in the *U.S. EPA NPDES Permit Writers' Manual* (EPA 833-B-96-003). EPA calculated building block effluent limits for BOD_5 and TSS for the industries discharging to the IWTP. To the extent that the building block limits are less stringent than the secondary treatment limits, EPA has used the building block limits in the permit in lieu of the secondary treatment limits, pursuant to 40 CFR 133.103(b).

When calculating technology-based effluent limits for the industries discharging to the IWTP in order to implement 40 CFR 133.103(b), EPA has in all cases used the applicable "new source performance standards" effluent limit guidelines for the industries discharging to the ITWP. While the Burley IWTP itself is not a "new source," as that term is defined in 40 CFR 122.2, the individual facilities discharging to the IWTP would be "new sources" if they were to discharge directly to waters of the United States.

Production Rates

Effluent limit guidelines for some of the industries contributing wastewater to the IWTP are production-based. 40 CFR 122.45(b)(2) states that, for dischargers currently operating, (e.g. Gossner Cheese), effluent limitations that are based on production shall be based on a reasonable measure of actual production at the facility, and for new dischargers not currently operating, the production-based limits shall be based on projected production.

The production rates of the various industries contributing wastewater to the IWTP are expected to vary over the term of the permit. EPA has calculated production-based limits, using the average production rate projected over the term of the permit (five years). EPA believes this is a reasonable measure of the actual or projected production.

Effluent limit guidelines for dairy products processing are production-based. The level of production is measured as the BOD_5 input, meaning the biochemical oxygen demand of the materials entered into the process of manufacturing various dairy products (e.g. fluid milk, cheese, butter, etc.). The materials entered into the process may include milk, cream, and any non-dairy products entered into the process (e.g. sugar and fruit for ice cream or yogurt).

New Source Performance Standards Limits for Natural and Processed Cheese

Effluent limit guidelines for cheese processors have been promulgated by EPA in 40 CFR 405, Subpart F. The new-source performance standards effluent limit guidelines appear in 40 CFR 405.65. There are two cheese processors that are expected to discharge wastewater to the IWTP over the term of this permit, one operated by Gossner Cheese, and another operated by High Desert Milk.

Gossner Cheese

According to information provided by the permittee, the expected production of the Gossner Cheese facility, averaged over the term of the permit, is 572,000 lb/day of BOD_5 input. Therefore, the technology-based average monthly effluent limits for the cheese processing facility are as follows:

BOD_5:

572,000 lb/day BOD_5 input × 0.008 lb BOD_5/100 lb BOD_5 input = 46 lb/day BOD_5

TSS:

572,000 lb/day BOD_5 input × 0.010 lb TSS /100 lb BOD_5 input = 57 lb/day TSS

High Desert Milk

According to information provided by the permittee, the expected cheese production of the High Desert Milk facility, averaged over the term of the permit, is 129,600 lb/day of BOD_5 input. Therefore, the technology-based average monthly effluent limits for the cheese processing facility are as follows:

BOD_5:

129,600 lb/day BOD_5 input × 0.008 lb BOD_5/100 lb BOD_5 input = 10 lb/day BOD_5

TSS:

129,600 lb/day BOD_5 input × 0.010 lb TSS /100 lb BOD_5 input = 13 lb/day TSS

New Source Performance Standards for Dry Milk

Effluent limit guidelines for dry milk manufacturers have been promulgated by EPA in 40 CFR 405, Subpart J. The new-source performance standards effluent limit guidelines appear in 40 CFR 405.105. High Desert Milk intends to produce dry milk and discharge the associated wastewater to the IWTP for treatment. According to information provided by the permittee, the expected production of dry milk, averaged over the term of the permit, is 231,000 lb/day of BOD_5 input. Therefore, the technology-based average monthly effluent limits for the dry milk manufacturing operation are as follows:

BOD:

231,000 lb/day BOD_5 input × 0.018 lb BOD_5/100 lb BOD_5 input = 42 lb/day BOD_5

TSS:

231,000 lb/day BOD_5 input × 0.023 lb TSS/100 lb BOD_5 input = 53 lb/day TSS

New Source Performance Standards for Butter

Effluent limit guidelines for butter manufacturers have been promulgated by EPA in 40 CFR 405, Subpart D. The new-source performance standards effluent limit guidelines appear in 40 CFR 405.45. High Desert Milk intends to produce butter and discharge the associated wastewater to the IWTP for treatment. According to information provided by the permittee, the expected production of butter, averaged over the term of the permit, is 42,000 lb/day of BOD_5 input. Therefore, the technology-based average monthly effluent limits for the dry milk manufacturing operation are as follows:

BOD:

42,000 lb/day BOD_5 input × 0.008 lb/100 lb BOD_5 input = 3 lb/day

TSS:

42,000 lb/day BOD_5 input × 0.010 lb/100 lb BOD_5 input = 4 lb/day

New Source Performance Standards for Poultry Processing

New source performance standards for poultry processing are found in 40 CFR 432, Subparts K and L. The NSPS effluent limit guidelines for discharges of BOD_5 and TSS from poultry processing facilities are concentration based, and are more stringent than the secondary treatment requirements. Therefore, the poultry processing facility will not be a factor in adjusting the "secondary treatment" BOD_5 and TSS limits pursuant to 40 CFR 133.103(b).

Ethanol for Fuel

An ethanol-for-fuel facility is planning to locate at the Burley – Heyburn industrial park and discharge wastewater to the Burley IWTP. However, EPA has not promulgated effluent limit guidelines for the ethanol-for-fuel industry. 40 CFR 133.103(b) only allows the secondary treatment limits to be adjusted upward based on promulgated effluent limit guidelines (i.e. guidelines promulgated under Sections 301(b)(1)(A)(1), 301(b)(2)(E), and 306 of the Act). Therefore, the secondary treatment effluent limits may not be adjusted upward due to the discharge from an ethanol-for-fuel facility.

Building Block Limits

The building block average monthly limits for this facility (the sum of the average monthly BOD_5 and TSS limits applicable to the dairy processing facilities) are as follows:

BOD_5 Average Monthly Limit:

46 lb/day (cheese, Gossner)
\+ 10 lb/day (cheese, High Desert Milk)
\+ 42 lb/day (dry milk)
\+ 3 lb/day (butter)
= 101 lb/day

TSS Average Monthly Limit:

57 lb/day (cheese, Gossner)
\+ 13 lb/day (cheese, High Desert Milk)
\+ 53 lb/day (dry milk)
\+ 4 lb/day (butter)
= 127 lb/day

Because the secondary treatment effluent limits are concentration-based, the building block effluent limits may or may not be less stringent than the secondary treatment effluent limits of 40 CFR 133, depending on the effluent flow rate. 40 CFR 133.103(b) allows the secondary treatment limits to be adjusted upwards to the extent that the above limits are less stringent than secondary treatment.

The BOD limits are only less stringent than the "secondary treatment" limits for effluent flows less than 0.40 mgd. Therefore, at flows below 0.40 mgd, the "building block" BOD limits, which are expressed solely in terms of mass, apply to the facility. At flows above 0.40 mgd, the "secondary treatment" BOD_5 limits apply.

The TSS limits are only less stringent than the "secondary treatment" limits for effluent flows less than 0.51 mgd. Therefore, at flows below 0.51 mgd, the "building block" TSS limits, which are expressed solely in terms of mass, apply to the facility. At flows above 0.51 mgd, the "secondary treatment" TSS limits apply.

At effluent flow rates below the above values, the permittee could maintain compliance with the mass-based average monthly BOD_5 and TSS limits calculated above, yet be discharging at a higher concentration than the 30 mg/L secondary treatment average monthly limit. At higher effluent flow rates, the permittee could discharge a greater mass loading of BOD_5 and TSS than the figures calculated above, as long as it maintains compliance with the 30 mg/L effluent limit from the secondary treatment requirements, as well as the mass limits based on the secondary treatment limits, as calculated on Page C-1 above.

Average Weekly Limits

The regulation at 40 CFR 133.103(b) states that the average weekly limits should be adjusted proportionately when the average monthly limits are adjusted. This means that the 1.5:1 ratio of the average weekly limit to the average monthly limit in the secondary treatment rule must be maintained. Therefore, the average weekly limits are as follows:

BOD_5:

101 lb/day × 1.5 = **152 lb/day**

TSS:

127 lb/day × 1.5 = **191 lb/day**

Percent Removal

The "special considerations for industrial wastes" regulation (40 CFR 133.103(b)) has no provision for adjustment of the percent removal requirements for BOD and TSS; therefore the 85% minimum monthly average percent removal limits from the secondary treatment requirements (40 CFR 133.102) are included in the revised draft permit.

Facility-specific Technology-based Effluent Limits

The technology-based effluent limits applicable to this facility are shown in Table C-2. EPA has determined that the technology-based effluent limits in table C-2 are stringent enough to protect water quality and it is not necessary to impose water quality-based effluent limits for BOD, TSS or pH.

Table C-2: Technology-based Effluent Limits for the Burley Industrial Wastewater Treatment Plant

Parameter	Units	Average Monthly Limit	Average Weekly Limit	Basis
BOD_5 (Effluent Flow ≥ 0.40 mgd)	mg/L	30	45	40 CFR 133.102
	lb/day	600	901	40 CFR 133.102, 122.45(b)(1), and 122.45(f)
	% Removal	85% (min.)	—	40 CFR 133.102
BOD_5 (Effluent Flow < 0.40 mgd)	lb/day	101	152	40 CFR 133.103(b) and 405
	% Removal	85% (min.)	—	40 CFR 133.102
TSS (Effluent Flow ≥ 0.51 mgd)	mg/L	30	45	40 CFR 133.102
	lb/day	600	901	40 CFR 133.102, 122.45(b)(1), and 122.45(f)
	% Removal	85% (min.)	—	40 CFR 133.102
TSS (Effluent Flow < 0.51 mgd)	lb/day	127	191	40 CFR 133.103(b) and 405
	% Removal	85% (min.)	—	40 CFR 133.102
pH	s.u	6.0 to 9.0 at all times		40 CFR 133.102

B. Water Quality-based Effluent Limits

Ammonia

The Idaho water quality standards contain criteria for the protection of aquatic life from the toxic effects of ammonia. After the close of the 2006 public comment period for the original draft permit, EPA discovered an error in the calculation of the ammonia limits. EPA had used the acute ammonia criterion which would apply if the receiving water were designated for aquatic life uses, when, in fact, the receiving water is designated for warm water aquatic life. EPA has corrected this error in the revised draft permit. The resulting effluent limits are less stringent than those in the previous draft permit, but are more stringent than those in the previous final permit. Therefore the ammonia limits do not violate the anti-backsliding provisions of the Clean Water Act.

The ammonia criteria are dependent on pH and temperature, because the fraction of ammonia present as the toxic, un-ionized form increases with increasing pH and temperature. Therefore, the criteria become more stringent as pH and temperature increase. Table C-3, below, details the equations used to determine water quality criteria for ammonia, and the values of these equations at the 95^{th} percentile pH (for the entire year), which is 8.8 standard units, and the 95^{th} percentile seasonal temperature observed in the Snake River upstream from the discharge.

EPA has determined that the discharge has the reasonable potential to cause or contribute to water quality standards violations for ammonia (40 CFR 122.44(d)(1)(i)), and has therefore proposed effluent limits that are derived from and comply with the water quality criteria for ammonia (40 CFR 122.44(d)(1)(vii)(A)). Effluent limits for ammonia were calculated as shown in Appendix D.

Table C-3: Water Quality Criteria for Ammonia		
Equations:	**Acute Criterion[1]**	**Chronic Criterion**
	$\frac{0.411}{1+10^{7.204-pH}}+\frac{58.4}{1+10^{pH-7.204}}$	$\left(\frac{0.0577}{1+10^{7.688-pH}}+\frac{2.487}{1+10^{pH-7.688}}\right)\times MIN\left(2.85,1.45\times10^{0.028\times(25-T)}\right)$
Seasonal Results (mg/L):		
October – April	1.845	0.661
May – September		0.395
1. No seasonal variation was assumed for pH, therefore, there is no seasonal variation in the acute criterion (which is a function of pH only).		

Phosphorus, Temperature, Oil and Grease, and Floating, Suspended or Submerged Matter, Hazardous Materials and Deleterious Materials

The bases for these water quality-based effluent limits are explained in the fact sheet for the original draft permit for this facility, dated March 15, 2006.

C. References

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

IDEQ. 1999. *Lake Walcott Subbasin Assessment and Total Maximum Daily Load, The*. Idaho Division of Environmental Quality.

Appendix D: WQBEL Calculations – Ammonia

The following calculations demonstrate how the water quality-based effluent limits (WQBELs) for ammonia in the draft permit were calculated. The WQBELs for ammonia are intended to protect aquatic life criteria for toxicity. The following discussion presents the general equations used to calculate the water quality-based effluent limits for the October through April ammonia WQBEL.

A. Reasonable Potential

Regulatory Requirements

40 CFR 122.44(d)(1)(i) states that "Limitations must control all pollutants or pollutant parameters…which (EPA) determines 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…." 40 CFR 122.44(d)(1)(ii) states that, "when determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water."

Maximum Projected Effluent Concentration

Pursuant to the above regulations, when EPA evaluated the discharge to determine if it had the reasonable potential to cause or contribute to an excursion above Idaho's water quality standards for ammonia, EPA estimated the maximum projected effluent concentration of ammonia using information provided by the permittee and the procedures of the *Technical Support Document for Water Quality-based Toxics Control* (TSD).

Information provided by the permittee indicated that the effluent concentration of ammonia would be 11.1 mg/L. This was calculated from the estimated flows and loadings (pounds per day) of ammonia that the indirect dischargers would send to the IWTP for treatment. For the purposes of this analysis, EPA assumed that the IWTP treatment processes would not remove ammonia. The actual effluent ammonia concentration is uncertain. The procedures of the TSD are intended to allow the permitting authority to calculate a maximum projected effluent concentration that recognizes the uncertainty inherent in a small data set, or, in this case, a single estimate of effluent concentration.

If only one measurement or estimate of the effluent concentration is available, the estimated or measured concentration is multiplied by a factor of 13.2 to calculate the maximum projected effluent concentration. This assumes that the coefficient of variation (the ratio of the standard deviation of the effluent concentration to the mean effluent concentration) is 0.6 (see TSD at Page 53), and uses the 99% confidence level and 99% probability basis (see Table 3-1 of the TSD). Therefore, the maximum projected effluent concentration is 11.1 mg/L × 13.2 = 146 mg/L. This maximum projected effluent concentration addresses the uncertainty and the variability of the ammonia in the effluent.

Considering the ambient concentration of ammonia (existing controls on point and non-point sources of pollution) and the dilution available in the receiving water, EPA determined that the discharge has the reasonable potential to cause or contribute to excursions above water quality standards for ammonia, because the projected receiving water concentrations are greater than the criteria.

The receiving water concentrations were calculated from the ambient concentration, the effluent concentration, and the dilution factors, using the equation below:

$$RWC = \frac{C_e - C_u}{D} + C_u$$

Where:
RWC = Receiving water concentration
C_e = Effluent Concentration
C_u = Upstream Concentration

Calculations are summarized in Table D-2, below.

Reasonable Potential Calculations – Burley IWTP Outfall 003

Dilution Factors	**Acute**	**Ammonia Chronic**
October - April	19.3	24.9
May - September	173	299
Maximum Projected Effluent Conc.		146
October thru April		
Maximum Upstream Concentration		0.12
Maximum Acute Receiving Water Concentration (RWC)		7.7
Maximum Chronic/Single Value RWC		6.0
Acute Aquatic Life Criterion		1.84
Chronic Aquatic Life Criterion		0.66
Reasonable Potential?		**YES**
May thru September		
Maximum Ambient Concentration		0.12
Maximum Acute RWC		0.97
Maximum Chronic/Single Value RWC		0.61
Acute Aquatic Life Criterion		1.84
Chronic Aquatic Life Criterion		0.40
Reasonable Potential?		**YES**

B. Calculate the Wasteload Allocations (WLAs)

To calculate the wasteload allocations, the downstream concentratin (C_d) is set equal to the acute or chronic water quality criterion and a mass balance equation is solved for the effluent concentration (C_e). The calculated C_e is the acute or chronic WLA.

$$C_e = WLA = D \times (C_d - C_u) + C_u \qquad \text{(Equation D-1)}$$

Where:

C_e = effluent concentration
D = dilution factor
C_d = downstream concentration (criterion)
C_u = upstream concentration

In the case of ammonia, for the acute criterion, from October through April

$WLA_a = 19.3 \times (1.845 - 0.12) + 0.12$
$WLA_a = 33.4$ mg/L

For the chronic criterion,

$WLA_c = 24.9 \times (0.661 - 0.12) + 0.12$
$WLA_c = 13.5$ mg/L

The next step is to compute the "long term average" concentrations which will be protective of the WLAs. This is done using the following equations from EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD):

$LTA_a = WLA_a \times \exp(0.5\Phi^2 - z\Phi)$ (Equation D-2)
$LTA_c = WLA_c \times \exp(0.5\Phi_n^2 - z\Phi_n)$ (Equation D-3)

where,

$\Phi^2 = \ln(CV^2 + 1)$
$\Phi = \sqrt{\sigma^2}$
n = number of days in averaging period = 30
$\Phi_{30}^2 = \ln(CV^2/30 + 1)$
$\Phi = \sqrt{\sigma_{30}^2}$
z = 2.326 for 99th percentile probability basis
CV = (standard deviation) ÷ (mean) When there are fewer than 10 data points from which to calculate a standard deviation and mean, the TSD recommends making the assumption that the CV is equal to 0.6. In this case, there are no ammonia effluent data available, therefore EPA has assumed the CV is equal to 0.6.

In the case of ammonia,

$\Phi^2 = \ln(0.6^2 + 1) = 0.307$
$\Phi = \sqrt{\sigma^2} = 0.555$
$\Phi_{30}^2 = \ln(0.6^2/30 + 1) = 0.0119$
$\Phi_{30} = \sqrt{\sigma_{30}^2} = 0.109$
z = 2.326 for 99th percentile probability basis

Therefore,

$LTA_a = 33.4 \text{ mg/L} \times \exp(0.5 \times 0.307 - 2.326 \times 0.555)$
$LTA_a = 10.7$ mg/L

$LTA_c = 13.5 \text{ mg/L} \times \exp(0.5 \times 0.0119 - 2.326 \times 0.109)$
$LTA_c = 10.6$ mg/L

The LTAs are compared and the more stringent is used to develop the daily maximum and monthly average permit limits, as shown below. In this case, the chronic LTA is more stringent.

C. Derive the maximum daily and average monthly effluent limits

Using the TSD equations, the MDL and AML effluent limits are calculated as follows:

$$MDL = LTA \times \exp(z_m\Phi - 0.5\Phi^2) \quad \text{(Equation D-4)}$$
$$AML = LTA \times \exp(z_a\Phi_n - 0.5\Phi_n^2) \quad \text{(Equation D-5)}$$

where Φ, and Φ^2 are defined as they are for the LTA equations (D-2 and D-3) and,

$\Phi_n^2 = \ln(CV^2/n + 1)$
$\Phi = \sqrt{\sigma_8^2}$
$z_a = 1.645$ for 95th percentile probability basis
$z_m = 2.326$ for 99th percentile probability basis
n = number of sampling events required per month (equal to 8 because there are two samples required per week)

In the case of ammonia,

MDL = 10.6 mg/L × exp(2.326 × 0.555 - 0.5 × 0.307)
MDL = 32.9 mg/L

AML = 10.6 mg/L × exp(1.645 × 0 .2098 - 0.5 × 0.086)
AML = 14.6 mg/L

These concentrations were converted to mass limits by multiplying by the design flow of the IWTP (2.4 mgd) and a conversion factor of 8.34.

Effluent limitations for May – September were similar to those presented above for October – April, with the exception of the chronic water quality criterion, and the dilution factors. Table D-1, below, summarizes the effluent limit calculations for ammonia.

Table D-1: Effluent Limit Calculations for Ammonia

Statistical variables for permit limit calculation						
		AML Probability Basis	MDL Probability Basis	# of Samples per Month	Acute Dilution Factor	Chronic Ammonia Dilution Factor
PARAMETER	Season	dimensionless				
Ammonia	Oct-April	0.95	0.99	8	19.3	24.9
	May - Sep	0.95	0.99	8	173	299

Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations								
		WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	LTA Coeff. Var. (CV)	LTA Prob'y Basis	Limiting LTA
PARAMETER	Season	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Ammonia	Oct-April	33.4	13.5	10.7	10.6	0.6	0.99	10.6
	May - Sep	299	81.5	95.9	63.6	0.6	0.99	63.6

Effluent Limit Calculation Summary								
		Ambient Conc.	Water Quality Criterion Acute	Water Quality Criterion Chronic	Conc. Average Monthly Limit (AML)	Conc. Maximum Daily Limit (MDL)	**Mass Average Monthly Limit (AML)**	**Mass Max. Daily Limit (MDL)**
PARAMETER	Season	mg/L	mg/L	mg/L	mg/L	mg/L	**lb/day**	**lb/day**
Ammonia	Oct-April	0.12	1.845	0.661	14.6	32.9	**292**	**658**
	May - Sep	0.12	1.845	0.395	87.9	198	**1759**	**3966**