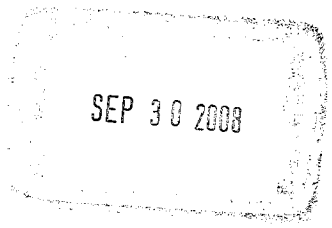


APPENDIX 5

Suggested Form for Notice of Intent (NOI) for the Noncontact Cooling Water General Permit

1. General facility information. Please provide the following information about the facility.

a) Name of facility: Baker Commodities		**Type of Business:** Rendering
Facility Location Address : 134 Billerica Ave N. Billerica MA 01862 **longitude:** 71°-17'42" **latitude:** 42°-36'27"	**Facility SIC codes:** 2077	**Facility Mailing Address (if not location address)** Baker Commodities P.O. Box 132 N. Billerica MA 01862
b) Name of facility owner: Baker Commodities		**Email address of owner:**
Owner's Tel #: 978-454-8811 ext 331 **Owner's Fax #** 978-654-7734		**Owner is (check one): 1. Federal**____ **2. State** ____ **3.Tribal**____ **4. Private** X **4. Other** _____**(Describe)**
Address of owner (if different from facility address) Baker Commodities 4020 Bandini Boulevard Vernon CA 90058		

Legal name of Operator, if not owner: _____

Operator Contact Name: Walter Gurschick

Operator Tel Number: 978-454-8811 ext331 **Fax Number:** 978-654-7734

Operator's email: wgurschick@bakercommodities.com

Operator Address (if different from owner)

d) Attach topographic map indicating the locations of the facility and the receiving water; all NCCW discharge points; upstream and downstream monitoring points. Map attached? X

e) Check Yes or No for the following:

1. **Has a prior NPDES permit been granted for the discharge? Yes** X **No**____ **If Yes, Permit Number:** MAG250026
2. **Is the discharge a "new discharge" as defined by 40 CFR Section 122.22? Yes**____ **No** X
3. **Is the facility covered by an individual NPDES permit? Yes**____ **No** X **If Yes, Permit Number** ____
4. **Is there a pending application on file with EPA for this discharge? Yes** ____ **No** X **If Yes, date of submittal:**

2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed)

a) Name of receiving water into which discharge will occur: Concord River
State Water Quality Classification: _____ Freshwater: _____ Marine Water: _____

b) Describe the discharge activities for which the owner/applicant is seeking coverage: non contact cooling

c) FOR MASSACHUSETTS FACILITIES ONLY: Engineering Calculations: Submit the completed engineering calculation of the surface water temperature rise as shown in Attachment A of the General Permit. Check if attached: _____

d) Number of outfalls 1

For each outfall:

e) What is the maximum daily and average monthly flow of the discharge? Note that EPA will use the flow reported here as the facility's permitted effluent flow limit. Max Daily Flow 21,600 GPD Average Flow 14,400 GPD

f) What is the maximum daily and average monthly temperature of the discharge (in degrees F)? Max Temp. 83 Average Temp. _____

g) What is the maximum and minimum monthly pH of the discharge (in s.u.)? Max pH 8.3 Min pH 6.5

h) FOR MASSACHUSETTS FACILITIES ONLY: Is the source water of the NCCW potable water? Yes_____ No X If Yes, EPA will calculate the Total Residual Chlorine limit for facilities located in Massachusetts.

i) Is the discharge continuous? Yes X No _____ If no, is the discharge periodic (P) (occurs regularly, i.e., monthly or seasonally, but is not continuous all year) or intermittent (I) (occurs sometimes but not regularly) or both (B) _____
If (P), number of days or months per year of the discharge _____ and the specific months of discharge _____;
If (I), number of days/year there is a discharge _____

j) Latitude and longitude of each discharge within 100 feet: outfall 1: long. 71°17'42" lat. 42°36'27"; outfall 2: long. N/A lat. N/A;
outfall .3: long. N/A lat. N/A (See http://www.epa.gov/tri/report/siting_tool)

k) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 23.2 cfs
Please attach any calculation sheets used to support stream flow and dilution calculations. See General Permit Attachment B for equations and additional information.

MASSACHUSETTS FACILITIES: See Part 3.4 and Appendix 1 of the General Permit for more information on ACEC.
Areas of Critical Environmental Concern (ACEC): Does the discharge occur in an ACEC? Yes _____ No X
If yes, provide the name of the ACEC: _____

3. NCCW Source Water Information. Please provide information about the NCCW source water, using separate sheets as necessary:

a) Indicate source of the NCCW (i.e., municipal water supply, private well, surface water withdrawal, groundwater):

Source: Surface Water

Name of Source Water: Concord River

Is the source registered/permitted under MA Water Management Act or NHDES Water User Registration Rule (Env Wq 2202)?

Yes____ No X

If yes, registration number: _____

b) If source water is surface water:

i) Is it a freshwater river or stream Yes X No____

ii) Is it a lake? _____ reservoir?_____

iii) Is it tidal river? _____ estuary? _____ ocean?_____

c) Is the source water groundwater? Yes _____ No X If yes, see Appendix 8 and submit effluent and surface water test results, as required in Part 5.4 of the General Permit.

d) Does the facility use both a primary and backup source of noncontact cooling water?

Yes _____ No X

If yes, attach information that identifies and explains the primary and backup sources of noncontact cooling water for and how often the backup supply was used in last three years.

4. Best Technology Available for CWIS

Are you subject to BTA requirements at Part 4.2 of the General Permit? (Facility's discharge is covered by this General Permit and the facility withdraws noncontact cooling water from surface source water). Yes____ No_____ If No, explain:

If YES, attach the facility-specific BTA description as required in Part 4.3 of the General Permit. For additional information and guidance, see Questions 13-23 of the NCCW Fact Sheet, posted at http://www.epa.gov/region1/npdes/nccwgp.html. Provide a map showing the location of each CWIS intake structure; NCCW outfall(s) and any CWIS feature referred to in the BTA description.

Include in your description:

- X Measures to meet the General Permit Part 4.3.a general BTA requirements, including documentation that describes the facility's monitoring program for impinged fish and/or invertebrate; or the required alternative monitoring plan frequency and/or protocol
- X A characterization of the source water body's aquatic life habitat in the vicinity of each CWIS during the seasons when the CWIS may be in use
- X The attributes of the current CWIS
- X Design measures of the CWIS
- X Operation measures of the CWIS
- X Historical occurrence of impinged fish for the past five years
- X If applicable, a demonstration that the facility's intake rate is commensurate with a closed-cycle recirculation system
- X Other components to reduce impingement and/or entrainment of aquatic life

4. BTA FOR CWIS CONTINUED:

Provide the following information for each CWIS to support your attached facility-specific BTA description.
Design capacity of the of the CWIS _____MGD
Maximum monthly average intake of the CWIS during the previous five years _____MGD Month in which this flow occurred _____
Maximum through-screen design intake velocity _____feet/second (fps)

For facilities where the CWIS is located on a freshwater river or stream, provide the following information:
The source water's annual mean flow _____cubic feet/second (cfs) as available from USGS or other appropriate source
The design intake flow as a % of the source water's annual mean flow _____ Attach calculations if equal to or less than 5% of annual mean flow.
The source water's 7Q10 _____cfs. See Attachment B of the General Permit for more information on 7Q10 determinations.
The design intake flow as a percent of the source water's 7Q10 _____

5. Contaminant Information

If applicable, attach a listing of all non-toxic pH neutralization and/or dechlorination chemicals used, including chemical name and manufacturer; maximum and average daily quantity used as well as the maximum and average daily expected concentrations (mg/l) in the NCCW discharge, and the vendor's reported aquatic toxicity (NOAEL and/or LC_{50} in percent for aquatic organism(s)).

6. Determination of Endangered Species Act Eligibility: Provide documentation of ESA eligibility as required at Part 3.4 and Appendix 2, Part C, Step 4, of the General Permit. In addition, respond to the following questions.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes___ No_X_
b) Has any consultation with the federal services been completed? Yes___ No_X_
c) Is consultation underway? Yes____ No_X_
d) What were the results of the consultation with the U.S. Fish and Wildlife Service and/or NOAA Fisheries Service (check one):
a "no jeopardy" opinion _____or written concurrence____ on a finding that the discharges are not likely to adversely affect any endangered species or
e) Which of the five eligibility criteria listed in Appendix 2, Section B (A,B,C,D or E) have you met? _____
f) Attach a copy of the most current federal listing of endangered and threatened species from the USF&W web site listed in Appendices 2, 2.1 and 4

7. Documentation of National Historic Preservation Act requirements: Please respond to the following questions:

a) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility site or in proximity to the discharge? Yes _____ No ____
b) Have any State or Tribal historic preservation officers been consulted in this determination? Yes _____ or No _____ If yes, attach the results of the consultation(s).
c) Which of the three National Historic Preservation Act requirements listed in Appendix 3, Section C (1,2 o3) have you met? _____

8. Supplemental Information: Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit

9. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22 (see below) including the following certification:

I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the noncontact cooling water (NCCW) system; (2) the discharge consists solely of NCCW (to reduce temperature) and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, water product (other than heat) or finished product; (4) if the discharge of noncontact cooling water subsequently mixes with other wastewater (i.e.stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for noncontact cooling water; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act; and (6) this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility Name: Baker Commodities

Operator signature: Walter Gunschel Jr.

Title: Plant Manager

Date: 9/29/08

Federal regulations require this application to be signed as follows:
1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

DEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

B. Applicant Information – Firm or Individual

Baker Commodities Inc.
1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. **Last Name** of Individual | 3. **First Name** of Individual | 4. MI

134 Billerica Ave.I
5. Street Address

N. Billerica	MA	01862	978-454-8811	331
6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #

Walter Gurschick Jr.
11. Contact Person | 12. e-mail address (optional)

C. Facility, Site or Individual Requiring Approval

Baker Commodities Inc.
1. Name of Facility, Site Or Individual

134 Billerica Ave.
2. Street Address

N. Billerica	MA	01862	978-454-8811	331
3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #

	95-2137748	
8. DEP Facility Number (if Known)	9. Federal I.D. Number (if Known)	10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual

2. Address

3. City/Town | 4. State | 5. Zip Code | 6. Telephone # | 7. Ext. #

8. Contact Person | 9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
   If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. ☐ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
   There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

	$385.00	2/16/05
Check Number	Dollar Amount	Date

1. INTRODUCTION

1.1 General Description of Facility

The Baker Commodities, Inc. (Baker) facility at 134 Billerica Avenue, North Billerica, Massachusetts (**Figure 1)** is a rendering plant that processes waste frying oil from restaurants and animal by-products from the meat packing industry, i.e., supermarkets, meat packers and slaughterhouses. Baker uses non-contact cooling water (NCCW) for the heat exchangers in the rendering plant. The Baker facility includes a rendering plant, spare parts warehouse, two garage buildings, and a finish material warehouse. The primary Standard Industrial Classification (SIC) code is 2077, Rendering Plants, inedible grease and tallow manufacturing.

1.2 Description of Cooling Water Intake Structure

The cooling water is "once-through" cooling water obtained from the Concord River, used in the rendering plant heat exchangers and returned to the Concord River via the stormwater management system **(Figure 2)**. The average flow of the NCCW is 14,400 gallons per day (GPD) and the maximum daily flow is 21,600 GPD.

Baker was authorized to discharge NCCW to the Concord River under the National Pollutant Discharge Elimination System (NPDES) noncontact cooling water general permit issued on April 25, 2000. This general permit had expired on April 25, 2005 but was administratively continued by the U.S. Environmental Protection Agency (EPA). EPA issued a Massachusetts General Permit (Permit No. MAG250000) on July 18, 2008. EPA must receive a Notice of Intent (NOI) for the new general permit within 60 days of the August 1, 2008 letter to Baker (or by October 1, 2008).

For the purposes of the NCCW General Permit, the cooling water intake structure (CWIS) extends from the point at which the water is withdrawn from the surface water up to, and including, the intake pumps.

The NCCW is withdrawn from the Concord River through a 30-inch diameter corrugated metal pipe (CMP) that extends approximately 25 feet into the river at an approximate 30 degree angle (from a line perpendicular to the shoreline) in the downstream river flow direction (North). The depth of water over the top of the 30-inch pipe varies with the river stage and ranges between approximately 4 feet and 8 feet. The end of the 30-inch intake pipe is fitted with a galvanized metal mesh screen (approximately 1-inch by 1-inch mesh as described by the plant personnel that have observed the intake pipe at a low river level). A small concrete structure (approximately 2 foot by 4 foot in plan area) is located at the point where the 30-inch pipe angles to an alignment perpendicular to the shoreline to the "River Pumphouse". A concrete structure with an approximate 3.5-foot by 3.5-foot inside dimension is located between the shoreline and the pumphouse. The structure is covered with a metal plate.

The NCCW intake flow enters the wet well of the pumphouse where it is pumped by the primary dry pit pump. The pump suction pipe is fitted with an inlet strainer/screen. A back-up centrifugal pump is used in the event that the primary pump is not available. The back-up pump has a separate 4-inch suction line with strainer/screen. The 2.5-inch diameter discharge line from the primary pump connects to the 4-inch diameter stainless steel discharge line that conveys NCCW to the rendering plant. The primary pump has recently been fitted with a variable frequency drive (VFD) to minimize the amount of cooling water

withdrawn and reduce operating costs. The pump operates to maintain a discharge pressure of 70 psi and is controlled by a Siemens Controller. The pump is rated at 250 gallons per minute (GPM) at full speed.

The NCCW is utilized at heat exchangers in the rendering plant. The NCCW is discharged to a 21-inch diameter reinforced concrete (RCP) storm drain that discharges into an on-site cooling pond (Outfall 01B). A 36-inch diameter RCP storm drain also discharges to the cooling pond (Outfall 01C). The cooling pond also accepts water from an unnamed intermittent stream, also via Outfall 01C. The cooling pond then outlets via a concrete/wooden board weir, delineated as Outfall 01D. The pond outlet re-establishes the unnamed intermittent stream that discharges to the Concord River, approximately 200 yards away. The Concord River flows to the Merrimack River, which empties into the Atlantic Ocean.

2. BEST TECHNOLOGY AVAILABLE FOR COOLING WATER INTAKE STRUCTURE – GENERAL REQUIREMENTS

If a facility has discharges covered by the General Permit and the facility withdraws water from surface source waters for use, in fill or part as non-contact cooling water, the requirements of Part 4.3, Best Technology Available (BTA), apply. This is the case for the Baker facility. There are three general BTA requirements and one BTA-related requirement that are applicable to all facilities with one or more CWIS. This section presents how the Baker facility currently meets or will implement the Part 4.3 General BTA Requirements.

2.1 Cease or Reduce the Intake of Cooling Water Whenever Withdrawal of Source Water is Not Necessary

The first general requirement is to cease or reduce the intake of cooling water whenever withdrawal of source water is not necessary to reduce the intake "through screen" flow velocity and potential for impingement of fish and aquatic organisms into the NCCW. The Baker facility requires the use of non-contact cooling water in the rendering process (for the heat exchangers). The process is started early Monday afternoons (approximately at 1:00 p.m.) and runs 24 hours per day until early Saturday afternoons (approximately at 1:00 p.m.). Thus, intake of NCCW and the resultant CWIS "through screen" flow velocity is zero between early Saturday afternoon and early Monday afternoon.

In the past the intake pump has operated continuously during the above mentioned weekly process cycle. The pump has recently been fitted with a VFD that is operated to maintain a discharge pressure of 70 psi. This will reduce intake pump operating time and increase the time when the "through screen" flow velocity is zero.

2.2 Return All Impinged Live Fish

The second general BTA requirement is returning all observed live fish impinged on or in the CWIS to the source water to the extent practicable in a manner that maximizes their chance of survival. The "extent practicable" is expected to depend, in part, on facility specific features and is not a requirement for a particular technology.

The "through screen" flow velocity is very low (0.07 feet per second (fps) at the maximum flow volume and 0.004 fps at the average daily flow). The flow of the NCCW was observed on September 18, 2008 at the small concrete structures at the bend on the intake pipe and the access structure before the wet well. The flow rate is so low that a discernable flow was not observed. Weekly inspections of the River Pumphouse are conducted as part of the current NPDES NCCW General Permit/stormwater management inspections program. Impinged fish or aquatic organisms have not been observed in the wet well of the pumphouse. If live fish are observed, Baker personnel will net the fish and return the fish to the river.

2.3 Ensure No Chlorinated Water

The third general BTA requirement is ensuring that no chlorinated water is sprayed on impinged fish or invertebrates if water is sprayed to remove impinged fish or invertebrates from the CWIS. Water is not

sprayed to remove impinged fish or invertebrates at the Baker facility; therefore, this requirement is not applicable to the Baker facility.

2.4 Monitoring Program for Impinged Fish and/or Invertebrates

The BTA-related requirement is to conduct and document a program tailored to the facility's CWIS to regularly monitor for impinged fish and impinged invertebrates and retain the results of this monitoring on-site for inspection by, or submission to EPA, for at least five calendar years from the date of the monitoring event.

Site-Specific Factors:

The General Permit states that the site-specific factors used to determine the facility's monitoring program include, but are not limited to:

- Access to the CWIS – the intake of the CWIS is the 30-inch pipe submerged in the river. There is no access structure to allow safe access to the 30-inch pipe for inspection. Construction of an access structure would require a 30-foot long walkway or dock and a structure at the end of the 30-inch pipe. The structure would have to be constructed to withstand damage from ice. Considering the angle of the intake pipe to the river flow, it would be expected that significant ice jams may occur at any structure. Thus, access to the end of the 30-inch intake pipe is considered impractical.

  Access to either concrete structure between the pipe inlet and the wet well is impractical due to the need to clear snow for access to the structures in the winter. Therefore, the proposed monitoring location is at the wet well in the pumphouse.

- Ability to observe potential impingement events – as previously mentioned, weekly inspections of the River Pumphouse are conducted as part of the current NPDES NCCW General Permit/stormwater management system program. For the new NCCW General Permit, Baker will observe the wet well on a weekly basis for any evidence of live fish or aquatic organisms during these inspections. The results of the inspections will be documented in the monthly Discharge Monitoring Reports which will be submitted on a quarterly basis to EPA Region 1 and MADEP.

- The intermittent or continuous nature of CWIS withdrawals – the withdrawal is continuous between early Monday afternoon (approximately at 1:00 p.m.) and runs 24 hours per day until early Saturday afternoon (except for periods when the VFD does not call for the pump to be on to maintain discharge pressure).

- The timing of operational shifts – there are three (3) shifts per day.

- The nature of the facility's fish return system – the "fish return system" will be manual by Baker personnel using a fish net.

- The facility's fish return procedures – any live fish or aquatic organisms observed in the wet well will be removed with a net and returned to the river.

- The abundance of fish in the source water body – see Section 3.1.

- Documentation of past impingement monitoring – impingement monitoring has not been conducted in the past..

Baker Commodities, Inc. Billerica Plant Fish Impingement Monitoring Program:

Baker's fish impingement monitoring program is summarized below:

Baker will observe the wet well on a weekly basis for any evidence of live fish or aquatic organisms during these inspections. Any live fish or aquatic organisms observed in the wet well will be removed with a net and returned to the river. All inspections will be recorded in writing, and this record will include the date, time, presence or absence of impinged organisms, and the name of the inspector. If organisms are observed, the number, species and length of the impinged fish, the condition of the fish (dead or alive), and actions taken (e.g., fish returned to the river, fish collected, cooling water intake flow reduced, etc.).

2.4.1 Unusual Impingement Event

An unusual impingement event, as defined in the NCCW General permit, will be reported to the Regional Administrator and the Commissioner within 24 hours by telephone.

2.4.2 Maintain a Physical Screening or Exclusion Technology

The through-screen flow velocity is very low (0.07 feet per second (fps) at the maximum flow volume and 0.004 fps at the average daily flow). Thus, the "through screen" flow velocity is less than the required maximum through-screen flow velocity of 0.5 fps.

3. FACILITY SPECIFIC BTA REQUIREMENTS

Facilities that meet the applicability requirements of Section 4.2 must implement, in addition to the six general BTA requirements listed in 4.2(a), measure that satisfy a facility-specific use of the Best Technology Available. The NOI must include a facility-specific BTA description. Other required facility-specific information is included in this Section.

3.1 Facility-Specific BTA Description

The facility-specific BTA description consists of one or a combination of the attributes of the current CWIS, the design measures, and the operational measures of the CWIS.

3.1.1 Attributes of the Current CWIS

The attributes of the current CWIS consist of a description of the intake structure and its location. A description of the CWIS is presented in Section 1.1 of this document. A process flow schematic is presented as Figure 3. The location of the CWIS is shown on Figure 2.

3.1.2 Design Measures of the Current CWIS

Design measures consist of information relating to the design of the CWIS that reduces impingement mortality and/or entrainment. The following elements of the CWIS design reduce impingement mortality and/or entrainment:

1. The relative volume (GPD) of NCCW intake and size of the intake pipe (30-inch) result in very low through-screen flow velocities - as presented in Section 2.3.2, the through-screen flow velocity is very low (0.07 feet per second (fps) at the maximum flow volume and 0.004 fps at the average daily flow). This very low velocity decreases the likelihood that fish and/or invertebrates will be impinged on the mesh screen on the pipe.

2. Galvanized metal mesh screen (approximately 1-inch by 1-inch mesh) over the end of the intake pipe – the mesh screen will decreases the likelihood that fish will enter the pipe.

3. Strainer/screen over the end of the pump inlet pipes (in the wet well) – the mesh strainer/screen will decrease the likelihood that fish and/or invertebrates will enter the pump.

3.1.3 Operational Measures of the Current CWIS

Operational measures of the CWIS are actions taken at the facility while the CWIS is withdrawing water that will reduce impingement and/or entrainment. The following elements of the CWIS operation reduce impingement mortality and/or entrainment:

1. Operation of variable frequency drive to minimize the amount of cooling water withdrawn – The primary intake pump has recently been fitted with a VFD that is operated to maintain a discharge pressure of 70 psi. This will reduce intake pump operating time and increase the time when the "through screen" flow velocity is zero.

3.1.4 Other Information to Support the Facility-Specific BTA Description

Design capacity of the CWIS – 21,600 GPD.

Measure to be taken to maintain a daily maximum withdrawal of 1.0 MGD – not applicable.

Maximum monthly average intake of the CWIS for the last five years and the month in which this flow occurred – The high average monthly flow is 9 GPM (approximately 13,000 GPD or 0.013 MGD). The maximum monthly intake is typically in August.

Whether the facility withdraws cooling water at a rate commensurate with a closed-loop cooling water system – Baker's NCCW system capacity of 21,600 GPD (15 GPM) is a low capacity NCCW system and an order of magnitude less than what might be considered to be cost effective for a closed-loop cooling water system (e.g., cooling towers, circulating evaporative cooling systems) . The environmental benefits of a closed-loop cooling water system would be offset by the use of de-scaling and/or biological treatment chemicals to keep cooling tower water and piping systems from fouling, and the use of electrical power for the pumps and/or chilled water systems.

The water body type of the source water – freshwater river. This portion of the Concord River is classified as a Class B warm water fishery (314 CMR4.00) **(see Appendix A).**

The maximum through-screen design intake velocity – 0.07 feet per second.

Source water's annual mean flow – Data used for the annual mean flow for the Concord River was obtained from the USGS' web site. The USGS gage # 0199500 is located on the Concord River below Meadow Brook at Lowell, MA. Per Question #18(g) of the permit, the annual mean for Water Year 2005 of 927 cubic feet per second (cfs) is to be used (see **Appendix A).**

The design intake flow as a percentage of the source water's annual mean flow – 21,600 gpd = 0.0334 cfs; 0.0334 cfs divided by 927 cfs x 100 = 0.0036%

Source water's 7Q10 – The *7Q10* flow is 23.2 millions gallons per day (MGD) per Attachment B of the NCCW General Permit.

The design intake flow as percentage of the source water's 7Q10 – 21,600 gpd = 0.0216 MGD; 0.0216 MGD divided by 23.2 MGD x 100 = 0.093%

A description of the historical occurrence of impinged fish on or in the CWIS during the five years prior to the date of the applicant's Notice of Intent – A description of impinged fish on or in the CWIS in the last five years is not available as no formal program for the observation of impinged fish has been implemented and therefore no records have been taken or maintained.

3.2 Characterization of Source Water Body's Aquatic Habitat

A characterization of the habitat provided for aquatic life by the source water body in the vicinity of the CWIS is required to be included in the NOI. An internet search was conducted to identify currently available reports and documents. The following information was obtained:

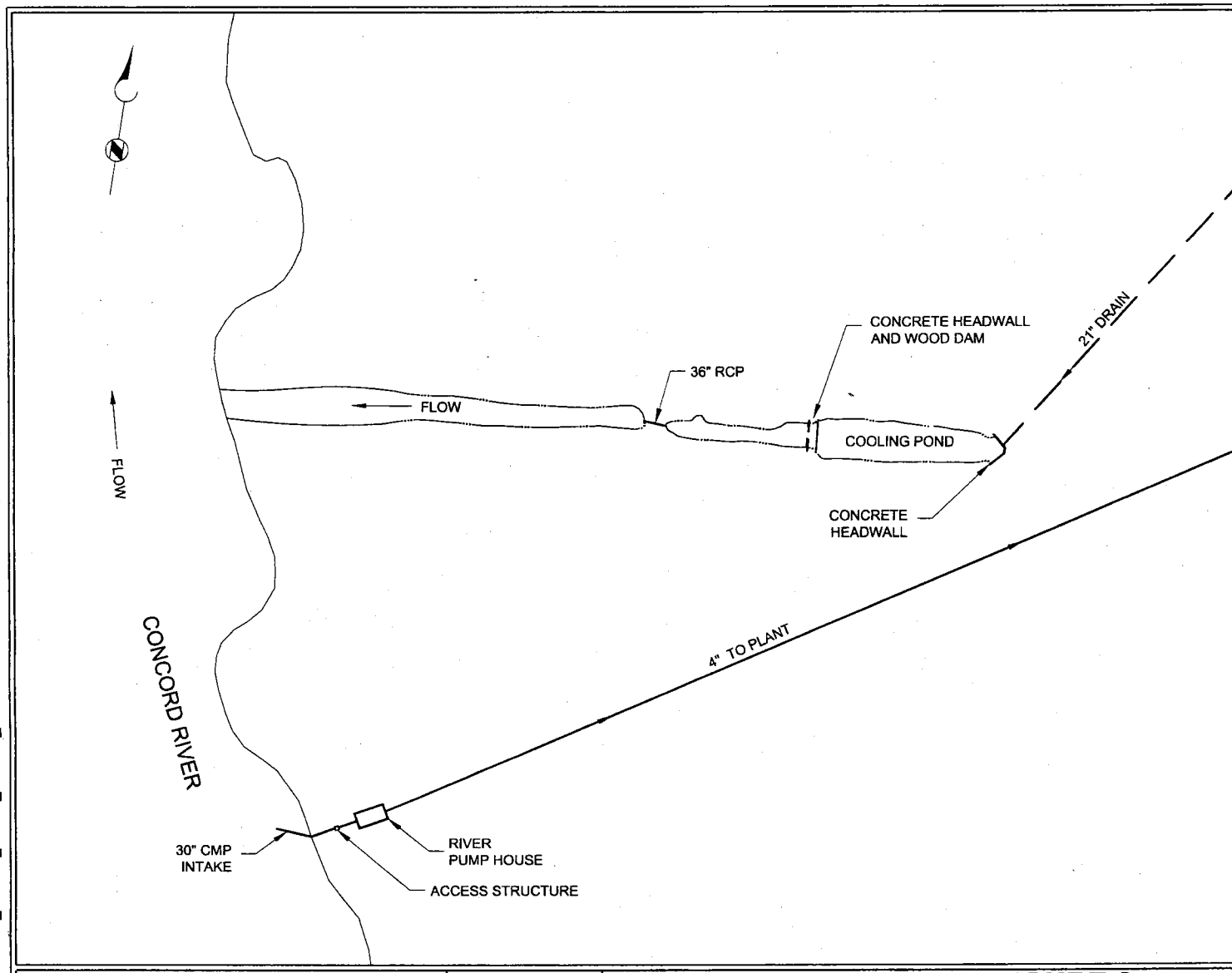
1. *SuAsCo Watershed Year 2001 Water Quality Assessment Report* – Commonwealth of Massachusetts, Executive Office of Environmental Affairs, Massachusetts Department of Environmental Protection, Division of Watershed Management, August 2005.

Massachusetts Division of Fisheries and Wildlife (MDFW) conducted fish population sampling at one station on segment MA82A-08 of the Concord River, behind the fire station off of Lowell Street in Billerica, on May 21, 2001 using boat electroshocking equipment (Richards 2003a). One hundred thirty-eight bluegill, 71 pumpkinseed, 63 white perch, 56 common carp, 29 yellow perch, 30 black crappie, 21 largemouth bass, 16 white sucker, nine golden shiner, nine chain pickerel, eight brown bullhead, five alewife, four redfin pickerel, three American eel, two green sunfish, two smallmouth bass, one northern pike, and one yellow bullhead were collected. The total number of fish collected was high. Macrohabitat generalists dominated the sample. Only one species, white sucker, is considered a fluvial specialist. All species present are considered moderately tolerant or tolerant to pollution. This segment of the Concord River is predominantly slow-moving and meandering. Given the nature of this segment the dominance by a diverse mix of tolerant and moderately tolerant macrohabitat generalists is to be expected. Few anadromous fish (alewife) and catadromous fish (American eel) were found.

Excerpts from this report are included in **Appendix B.**

BROWN AND CALDWELL *48 Leona Drive, Suite C* *Middleborough, Massachusetts, 02346* *Tel. (508) 923-0879 Fax. (508) 923-0894*	**FIGURE 1** **SITE LOCUS MAP**	N / W / E / S	Date: 4/24/2003
	Baker Commodities, Inc. N. Billerica, Massachusetts		Project: 22854.001
Note: USGS Quad Maps obtained from MassGIS scanned 5-CDset, dated July 1996. All other data from MassGIS Data Viewer software, updated September 2002.		0 1,000 2,000 Ft	Scale: 1" = 2000'
	Prepared for: Baker Commodities, Inc.		File: Baker Locus

BROWN AND CALDWELL *48 Leona Drive, Suite C* *Middleborough, Massachusetts, 02346* *Tel. (508) 923-0879 Fax. (508) 923-0894*	**FIGURE 2** **AERIAL PHOTO**	N W E S 0 100 200 Ft	Date: 9/26/2008
	Baker Commodities, Inc. N. Billerica, Massachusetts		Project: 136183
Note: USGS Quad Maps obtained from MassGIS scanned 5-CDset, dated July 1996. All other data from MassGIS Data Viewer software, updated May 2008.	Prepared for: Baker Commodities, Inc.		Scale: 1" = 200' File: Baker Photo



BROWN AND CALDWELL

151 Campanelli Drive, Suite B
Middleborough, Massachusetts 02346
*Tel. (508) 923-0879 * Fax. (508) 923-0894*

DATE:	9/26/08
SCALE:	NOT TO SCALE
PROJECT:	136183
FILE:	Figure 3

FIGURE 3
NCCW PROCESS FLOW SCHE

BAKER COMMODITIES, INC.
N. BILLERICA, MASSACHUSETTS

PREPARED FOR:
BAKER COMMODITIES, INC.

Sep 26, 2008 - 8:57am bforgette
T:\Baker Commodities\136183_Billerica_NCCW_General_Permit\CADD\2-Sheets\C-Civil\Figure 3.dwg

01099500 CONCORD RIVER BELOW RIVER MEADOW BROOK AT LOWELL, MA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	877	418	1,060	1,120	e995	1,080	2,740	1,450	1,630	494	179	159
2	935	427	1,180	1,100	e950	1,060	2,820	1,430	1,530	487	232	153
3	953	409	1,230	1,100	907	1,050	3,040	1,420	1,440	464	197	135
4	901	417	1,260	1,170	870	1,040	3,190	1,380	1,340	434	165	117
5	836	486	1,240	1,200	840	1,030	3,400	1,340	1,230	400	147	103
6	769	511	1,170	1,250	830	1,000	3,310	1,290	1,130	379	128	92
7	701	516	1,130	1,300	828	969	3,160	1,290	1,060	396	112	83
8	642	513	1,240	1,300	826	982	3,010	1,320	1,000	502	104	73
9	589	497	1,250	1,300	829	1,030	2,850	1,360	1,090	841	96	65
10	532	475	1,300	1,290	972	1,060	2,700	1,390	1,100	933	86	59
11	452	460	1,490	1,260	1,070	1,070	2,540	1,380	1,120	1,040	76	56
12	405	407	1,550	1,230	1,140	1,060	2,380	1,320	1,100	1,070	74	53
13	350	423	1,600	1,220	1,180	1,040	2,230	1,260	1,040	1,030	72	50
14	314	423	1,600	1,440	1,170	1,030	2,070	1,210	970	958	74	53
15	306	416	1,540	1,700	1,260	1,010	1,940	1,140	928	880	117	58
16	406	416	1,480	1,890	1,380	1,000	1,800	1,090	893	812	168	107
17	471	422	1,400	2,020	1,610	1,000	1,640	1,060	887	750	179	193
18	501	428	1,300	2,010	1,740	1,000	1,480	1,030	844	694	168	237
19	510	425	1,200	1,950	1,790	1,010	1,350	996	833	645	148	253
20	518	409	1,100	1,830	1,750	1,020	1,240	957	806	596	127	245
21	540	396	1,000	1,690	1,660	1,040	1,150	904	770	553	118	198
22	539	404	939	1,590	1,580	1,060	1,100	896	732	e520	110	156
23	535	404	946	1,420	1,520	1,090	1,060	869	700	e460	101	121
24	510	420	1,110	1,360	1,420	1,120	1,150	944	665	e440	89	98
25	488	487	1,170	1,230	1,340	1,160	1,230	1,140	628	e400	84	86
26	464	534	1,220	1,190	1,270	1,170	1,300	1,460	587	369	83	82
27	430	559	1,190	e1,180	1,200	1,190	1,360	1,660	554	342	70	70
28	416	612	1,280	e1,180	1,120	1,380	1,390	1,790	528	310	74	70
29	398	829	1,210	e1,130	---	1,980	1,410	1,820	526	280	87	79
30	389	895	1,170	1,090	---	2,290	1,410	1,790	512	237	92	78
31	403	---	1,130	1,030	---	2,590	---	1,720	---	193	130	---
Total	17,080	14,438	38,685	42,770	34,047	36,611	61,450	40,106	28,173	17,909	3,687	3,382
Mean	551	481	1,248	1,380	1,216	1,181	2,048	1,294	939	578	119	113
Max	953	895	1,600	2,020	1,790	2,590	3,400	1,820	1,630	1,070	232	253
Min	306	396	939	1,030	826	969	1,060	869	512	193	70	50
Cfsm	1.79	1.57	4.06	4.49	3.96	3.85	6.67	4.21	3.06	1.88	0.39	0.37
In.	2.07	1.75	4.69	5.18	4.13	4.44	7.45	4.86	3.41	2.17	0.45	0.41

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 2005, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep

01099500 CONCORD RIVER BELOW RIVER MEADOW BROOK AT LOWELL, MA—Continued

SUMMARY STATISTICS

	Calendar Year 2004		Water Year 2005		Water Years 1937 - 2005	
Annual total	259,766		338,338			
Annual mean	710		927		652	
Highest annual mean					1,112	1984
Lowest annual mean					242	1966
Highest daily mean	3,030	Apr 5	3,400	Apr 5	5,340	Jan 28, 1979
Lowest daily mean	118	Jun 30	50	Sep 13	4.0	Sep 29, 1957
Annual seven-day minimum	145	Jun 30	56	Sep 9	16	Sep 26, 1957
Maximum peak flow			3,460	Apr 5	5,410	Jan 28, 1979
Maximum peak stage			8.34	Apr 5	[a]9.60	Jan 28, 1979
Instantaneous low flow			34	Aug 27		
Annual runoff (cfsm)	2.31		3.02		2.12	
Annual runoff (inches)	31.48		41.00		28.85	
10 percent exceeds	1,480		1,630		1,400	
50 percent exceeds	508		970		485	
90 percent exceeds	188		115		100	

[a] Also occurred Apr. 10, 1987.