

RESPONSE TO COMMENTS
REGARDING THE RESISSUANCE OF THE FOLLOWING NPDES PERMIT
CHANG FARMS, INC. MA0040207

Introduction:

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited public comments from August 25, 2006 through September 23, 2006 on the draft National Pollution Discharge Elimination System (NPDES) permit to be issued to Chang Farms, Inc. (Chang Farms).

The Draft NPDES Permit is for the discharge of process wastewater. The facility discharges to the Connecticut River.

During the public-notice (comment) period EPA-New England received comments from the permittee, Chang Farms, from the Connecticut River Watershed Council (CRWC), and from the Massachusetts Riverways Program (Riverways). Several of the comments submitted were supportive of the approach and provisions of the draft permit. Two comments expressed concern that Chang Farms had been discharging to Sugarloaf Brook without a permit for a number of years. EPA acknowledges these comments. EPA provides responses to those which offer suggested changes to permit provisions or seek clarifications.

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES permit and any appropriate changes made to the public-noticed draft permit as a result of the comments. The final permit is substantially identical to the draft permit that was available for public comment. Although EPA's decision making has benefited from the comments submitted, the information and arguments submitted did not result in any substantial new changes to the permit. EPA did, however, improve certain requirements in the permits as a result of the comments raised. These improvements and changes are summarized below, are further explained in this document and are reflected in the Final Permit.

Changes Made to the Final Permit

- 1. The address for Chang Farms has been corrected on the permit.**
- 2. The permit has been revised to require continuous pH monitoring.**
- 3. The permit has been revised to reflect that continuous monitoring and composite sampling will be from the flume and grab samples for total residual chlorine and bacteria will be taken just downstream of the disinfection system at a sampling port which is about 10 feet downstream of the flume.**
- 4. The permit has been revised to require certification that the best management practices (BMP) plan has been fully implemented within 150 days of the effective date of the permit.**
- 5. The permit has been revised to include a monitoring requirement for *E. coli*.**
- 6. Part I.A.2 has been revised to indicate that the discharge from outfall 002 is authorized until the discharge from outfall 001 begins.**

Comments from Mark Krcmarik, Environmental Engineer, The Dennis Group, LLC on behalf of Chang Farms

COMMENT NO. 1

For the record the correct address is 301 River Road, Whately, MA.

RESPONSE NO. 1

EPA has corrected the address on the permit.

COMMENT NO. 2

Since the time of the application, Chang Farms has made some progress in limiting the chemical usage. A letter dated 16 February 2006 to Dana Hill of the MA DEP gave the cleaning chemical and the approximate daily usage.

Chang Farms requests that the chemical usage table in Attachment A be up-dated per the table in Dennis Group letter dated 16 February 2006

RESPONSE NO. 2

The revised chemical usage table is acknowledged and added to the record. The new table indicates that both P1 fertilizer and Super Lime-Sol cleanser are no longer used at Chang Farms. No chemicals were added to the list. Attachment A was part of the fact sheet which is not being updated with the final permit. No change to the permit is necessary.

COMMENT NO. 3

The draft permit indicates that disinfection will not be required from 1 November to 1 April each year. In order to minimize wear on the UV light system, a by-pass pipe and valve will be added to the system. The valve will have a locking handle to prevent its use during unauthorized periods.

Chang Farms requests the process schematic (Figure 3) be revised to include piping and a valve to by-pass the UV Light system when not in use from 1 November to 1 April each year.

RESPONSE NO. 3

The revised process schematic is acknowledged and added to the record. Figure 3 was part of the fact sheet which is not being updated with the final permit. No change to the permit is necessary.

COMMENT NO. 4

Chang Farms has an American Sigma 60 degree extra large trapezoidal flume with an ultrasonic depth sensor that will be used to monitor flow. The flow meter is connected to a refrigerated flow sampler to collect 24 hour, flow proportional samples. This system is also fitted with a pH and temperature probe. The flow, pH and temperature are continuously recorded on a Campbell Scientific datalogger.

Chang Farms requests that the pH monitoring be revised to be continuous and reflect the use of this pH sensor and datalogger.

RESPONSE NO. 4

The permit has been revised to reflect continuous pH monitoring.

COMMENT NO. 5

The testing for free chlorine residual and fecal coliform are to be done on a grab sample. This grab sample will be collected downstream of the Ultraviolet Light disinfection system. A sample port will be provided on the effluent piping.

This sample location is noted as the composite samples are taken from a gravity line prior to the pump station which is also prior to the UV lights.

Chang Farms requests that the free chlorine residual and the fecal coliform test samples be collected from a pressurized pipe downstream of the UV Light disinfection system.

RESPONSE NO. 5

EPA understands from discussions with Chang Farms' consultant, Mark Krmarik, that all continuous monitoring and composite sampling will be done from a location near the flume which is just upstream of the UV disinfection system. The grab samples for total residual chlorine and fecal coliform will be taken just downstream of the disinfection system at a sampling port which is about 10 feet downstream of the flume. The permit has been revised to reflect this understanding.

Comment from Andrea F. Donlon, Steward, CRWC

COMMENT NO. 6

CRWC submitted three comments expressing concern that the draft permit did not encompass potential expansion of the facility to include juice production and potentially larger discharge flow with changing characteristics. According to the comments, the intention of Chang Farms to expand to juice production has been reported in the local newspapers and is well known in the community.

RESPONSE NO. 6

The permit requirements are based on information related to sprout production submitted by Chang Farms in its permit application. No other discharges are authorized under this permit.

In accordance with federal regulations and Part II.D.1.a of this permit, Chang Farms is required to give notice to EPA and MassDEP as soon as possible of any planned physical alterations or additions to the permitted facility. Under 40 CFR 124.5 and 122.62, EPA may modify the permit as appropriate if Chang Farms submits a request for modification.

Comments from Cindy Delpapa, Stream Ecologist, Riverways

COMMENT NO. 7

While the discharge from Chang Farms is minute relative to the flows in the Connecticut River, it is unfortunate this new discharge could not be accommodated through reuse as irrigation water or beneficially recharged to groundwater. These alternatives would have eliminated the need for new point source discharge into the river and potentially have reduced other environmental impacts or stresses related to water withdrawal and groundwater depletion.

RESPONSE NO. 7

EPA agrees that reuse and recharge are protective of our water resources and are to be encouraged. However, in its project narrative which was attached to the June 2004 permit application, Chang Farms explained that reuse was not the industry standard due to the high bacterial count in the wastewater. According to Mark Krmarik, Chang Farms' engineering

consultant, groundwater recharge is precluded by the high water table on the site, the very large area that would be required and the close proximity of shallow wells.

COMMENT NO. 8

It is unclear if the facility has installed the ultraviolet disinfection equipment or if the installation is tied to the completion of the outfall pipe to the Connecticut River. The flow diagram in the permit packet (figure 3) shows the two UV units but it is unclear if they are housed in the greenhouse growing areas or are remote units associated with Outfall 001 which would leave discharges via Outfall 002 untreated. Based on the permit requirements, it appears that the bacteria limits will be in place once the final permit is issued regardless of the status of the UV disinfection and where they are located.

RESPONSE NO. 8

The bacteria limits will be in effect from April 1st through October 31st at both outfalls upon the effective date of the permit. Therefore, given the timing of the permit issuance (the effective date being 60 days beyond the issuance), Chang Farms must complete the installation and startup of the new UV disinfection system by April 1, 2007. As required by the MassDEP Administrative Consent Order (File No. ACO-WE-04-1G001-f), Chang Farms must complete the construction of the effluent pipe to the Connecticut River within 120 days after issuance of the NPDES permit. The permit is based upon the understanding provided by Chang Farms that Outfall 002 will be abandoned when construction on Outfall 001 is complete and that there will not be a time when discharge is occurring at both outfalls.

Part I.A.2 has been revised to clarify that the discharge from outfall 002 is authorized until the discharge from outfall 001 begins.

COMMENT NO. 9

The narrative mentioned the facility had problems with accurate flow estimating due to foam build up but the issue has apparently been resolved by spraying the foam with water. Has the origin/cause of the foam been ascertained? Might the foam develop when the effluent is released at the outfall? If there is a possibility of foam buildup, we would like to suggest Part I.A.1.6 have a requirement for visual inspection at the outfall location to determine if there is a problem with oil sheens, foam or floating solids related to the discharge.

RESPONSE NO. 9

According to the Mark Krcmarik, consulting engineer for Chang Farms, the origin of the foam is the release of organic matter from the soybeans as they germinate into sprouts. The flow of the water from the growing beds to the flume is circuitous and results in some aeration and foaming. The installation of the water spray to knock down the foam has been successful and no foam is currently visible at the outfall to Sugarloaf Brook. The new outfall pipe construction project includes straightening out the wastewater piping to reduce or eliminate foam generation. The water spray will continue at the flume. In order to meet the permit requirements, including Part I.A.6 which prohibits the effluent from containing foam, Chang Farms must implicitly inspect the outfall. No permit changes are necessary.

COMMENT NO. 10

As stated in the draft permit, the Permittee does not have a deadline for implementation only a time requirement for submission of the plan and reporting requirements to inform the agencies of the commencement of implementation. Does the Permittee need to have the

best management practices (BMP) plan reviewed and approved by the regulatory agencies before implementation? If possible, we would [like] to see the draft permit have specific guidance on when implementation must begin after submission of the BMP plan or agency review is completed, (if agency approval is needed). We feel one month would be a reasonable time frame to begin implementation.

RESPONSE NO. 10

EPA may comment on the BMP plan. However, no EPA or MassDEP approvals are required to implement the plan. The permittee will be subject to inspection during the permit period.

EPA agrees that a time frame for implementation will clarify the intention of the BMP requirements in the permit. Part I.C.3 of the permit has been amended to require Chang Farms to submit a letter certifying that the BMP plan has been fully implemented within 150 days of the effective date of the permit.

COMMENT NO. 11

The Fact Sheet states the pH is to be monitored daily (page 7) but the draft permit calls for weekly monitoring. Which is the correct frequency? Footnote #4 explains the collection methodology for 24 hour composite samples. Since the effluent does not undergo a treatment process or other mechanism likely to variability in the daily flow, we would like to recommend augmenting the footnote with additional sampling criteria requiring the individual grab samples be combined proportional to flow or continuously collected proportional to flow.

RESPONSE NO. 11

During the public notice period for the draft permit, Chang Farms confirmed to EPA (see Comment No. 4) that it does use an automatic proportional flow sampling device for composite samples as well as a continuous pH monitoring at the flume. Part I.A.1 has been amended to reflect continuous pH monitoring. The flume is located upstream of the UV disinfection system. However, the bacteria and total residual chlorine sampling must be done downstream of the UV disinfection system in a different location. EPA finds that the weekly bacteria and total residual chlorine sampling will provide representative data to assess the effectiveness of the disinfection system and the potential for environmental impacts on the Connecticut River.

Comment regarding whole effluent toxicity (WET) testing from Chang Farms , CRWC, and Riverways

COMMENT NO. 12

From Chang Farms:

The sampling schedule requires that the effluent be tested twice per year for acute toxicity. The effluent would not have any concentration of materials that would create a toxic condition. This would include the wastes generated during cleaning. The expectation is that the effluent would not be toxic even if the cleaning waters were segregated and tested separately.

Note: as the irrigation water is 24/7, the cleaning wastes will be well diluted by the irrigation waters. The wastes from this facility will not vary in character from day to day as there is essentially only one product and one means of cleaning and packaging.

Chang Farms requests that the testing requirement be relaxed to two tests in the initial year and none thereafter. The two per year requirement could be reinstated in the toxicity levels in the two tests are indicative of toxicity.

From CRWC:

The draft permit calls for whole effluent toxicity (WET) testing twice a year, to be collected the second week of June and September. Footnote 6 for Part 1.a.1 of the draft permit states that the permittee may request a reduction in the frequency of required WET testing to no less than once per year, after submitting two consecutive set of WET test results. Given that this is a new permit for surface water discharge, and the possibility that the business may include juice production in addition to bean sprouts, we recommend that twice annual WET testing be required to take place for the life of this permit.

From Riverways:

Since this facility introduces several additives into its mostly untreated waste stream, we advocate strongly for WET testing that is not only tied to a specific month but also coinciding with the maximum use of additives and chemicals at the facility. ...We would also like to request, since this is a new discharge and its relative toxicity is unknown, the Permittee be required to repeat the test should there be a failure to meet the permit limitation. Repeating a failed test would provide needed information to ascertain if the failure was an uncommon occurrence or represented a more serious problem with the effluent.

RESPONSE NO. 12

As can be seen above, EPA received conflicting opinions regarding the number of required WET tests. No change has been made in the permit. In establishing permit requirements, EPA strives to establish effluent limits and monitoring requirements which are both protective of the environment and not unduly burdensome for the permittee. EPA believes that, given the nature of the discharge, after two successful semi-annual WET tests, annual WET testing will be sufficient. In the event that there is a permit violation due to wet test failure, EPA may require additional testing to identify the cause of the failure. If Chang Farms submits an application to increase flow and/or change its process, EPA will again consider the need for modified or increased WET testing.

If a WET test (or any other permit limited parameter) indicates a failure to meet permit limits, additional testing may be called for to identify the cause for and mitigate toxicity. However, in accordance with the general conditions in Part II of the permit, it is the permittee's obligation to identify and mitigate any upsets or other causes of permit violation.

Similar Comments received from CRWC and Riverways

COMMENT NO. 13

Several draft permits recently issued in the Connecticut River Watershed require *E. coli* testing, in anticipation of the drafted changes to Massachusetts state water quality standards. We recommend that EPA and DEP require *E. coli* testing concurrent with fecal coliform testing in the final permit for Chang Farms.

RESPONSE NO. 13

EPA agrees. Given the pending changes to the Massachusetts Water Quality Standards (WQS) which are expected to be finalized before the end of 2006, EPA has revised the permit to include monthly monitoring requirements for *E. coli*.

COMMENT NO. 14

The draft permit calls for twice monthly BOD and TSS testing. We recommend weekly testing, at least for an interim period, seeing as how this is a new point source discharge into the Connecticut River that should be adequately characterized. We note that, based on the data provided, the facility exceeded the proposed limits for BOD during four months in the past two years and January and February 2005 experienced higher TSS than the proposed limits.

RESPONSE NO. 14

EPA based the effluent limits on statistical analysis of 66 BOD analyses and 70 TSS analyses of Chang Farms effluent taken over a 2 year period at Chang Farms. EPA is confident that the discharge is adequately characterized and that, with careful adherence to best management practices, Chang Farms can meet the effluent limits. No changes have been made to the permit.

COMMENT NO. 15

The timing of the completion of the new outfall pipe and the installation of the UV disinfection unit are unclear (it is now a year behind the original schedule). Perhaps the Administrative Order states a deadline for installation? Untreated discharge to Sugarloaf Brook must cease as soon as possible.

RESPONSE NO. 15

The Administrative Consent Order (ACO), dated June 1, 2004 required Chang Farms to submit an NPDES permit application by July 1, 2004 and begin immediately measuring fecal coliform, nitrogen, phosphorus, flow, pH, BOD, TSS, temperature and total residual Chlorine. The resulting data formed the basis of the permit. EPA has responded to the permit application as rapidly as resources allow. In addition, the ACO required Chang Farms to complete construction of an effluent sewer and outfall to the Connecticut River within 120 days after issuance of a new NPDES permit jointly issued by EPA and MassDEP, a Water Management Act permit issued by MassDEP, and all other necessary federal state and local permits are issued. As of this writing, EPA understands that no other permits are pending.

Part I.A.2 has been revised to clarify that the discharge from outfall 002 is authorized until the discharge from outfall 001 begins.