

# Commission for Conservation of the Environment

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To: Town Board of the Town of Wallkill  
600 Route 211 East  
P.O. Box 398  
Middletown, NY 10940

Re: Proposed Amendment of the Town Code concerning Total Solids

## Introduction

On October 27<sup>th</sup>, 2005 the Town Board passed a resolution to allow the Conservation Commission an opportunity to review a proposed amendment to Article II of Chapter 194-48E(1) of the Town Code of the Town of Wallkill. The potential change to the code concerns the maximum concentrations of Total Solids that can be discharged into the sewer system by industrial users.

At our next scheduled meeting on November 14<sup>th</sup>, the commission formally began its investigation. Councilman John King briefly attended the meeting and expressed his concerns regarding the proposed change. Maureen Halahan and Marge LaPerle of the Orange County Partnership were also in attendance and presented their arguments in support of increasing the limit on Total Solids.

After Councilman King and the representatives from Orange County Partnership left the meeting, the commission debated the proposal. After a lengthy discussion we adjourned to review the documents provided and prepare questions for Superintendent Edward Smith of the Town of Wallkill Water and Sewer Department. Mr. Smith and Matthew Yonkin, an engineer with Malcolm Pirnie, Inc., attended the following (and our most recent) meeting on November 28<sup>th</sup>. After discussing the matter further we have finalized our report to the best of our ability in such a short amount of time.

## Definitions

Total Solids (TS) represents the total of all solids in a water sample. Total Solids are the sum of the Total Suspended Solids and the Total Dissolved Solids. Total Suspended Solids (TSS) represents the amount of filterable solids in a water sample. They are the solids which can be removed from the wastewater by physical or mechanical means, such as sedimentation or filtration. More precisely, they are the solids in a sample which are retained on a filter. Total Dissolved Solids (TDS) are the solids that pass through a filter.

The term “dissolved solids” as commonly used in discussing wastewater is not technically correct. Because of their size, some “dissolved” solids can pass through the filter even though they are not actually dissolved. Of the TDS, about 90 percent are in true solution and about 10 percent are colloidal (they passed through the filter but are not dissolved).<sup>\*</sup> To measure TDS, the water sample is filtered, and the water that has passed through is then evaporated. The mass of the residue is the TDS.

## **Regulations**

Presently the maximum concentration of Total Solids that an industry may discharge into the Town’s sewer system is 2000 mg/L. This and other limits are set forth in Article II of Chapter 194-48E of the Town Code of the Town of Wallkill. Specific pollutants, such as Toluene and Mercury, have discharge limitations. Additional parameters such as Temperature and PH also have set limits or other restrictions. Total Suspended Solids are limited to 300 mg/L.

While Total Solids in and of itself is not a “regulated parameter”, raising this limit does have a direct effect on the Total Dissolved Solids that can be discharged into the system. As already described, all solids in wastewater are either considered suspended solids (those that cannot pass through a filter), or they are considered dissolved solid (those that are able to pass through a filter). Since Total Suspended Solids are currently limited to 300 mg/L, Total Dissolved Solids are limited to a maximum of 2,000 to 1,700 mg/L, depending on the amount of TSS in the sample ( $TS = TDS + TSS$ ). Therefore, if the Total Solids limit is raised to the proposed 4,000 mg/L, the concentration of TDS possible will, in effect, be raised to a maximum of 4,000 to 3,700 mg/L, again depending on the amount of TSS in the sample.

This is of particular concern because some industrial wastes contain high amounts of salt, a dissolved solid that could require expensive pretreatment to prevent harming the microorganisms that are the main agent of treating wastewater. Some local governments make note of this concern in their own sewer ordinances. For example, both the City of Newburgh and the Town of Hamptonburgh prohibit, among other things, the discharge of any materials which exert or cause unusual concentrations of “dissolved solids (such as but not limited to sodium chloride and sodium sulfate),” if in the opinion of their superintendent, these wastes will have an adverse effect on the receiving stream, the treatment plant or the treatment process.

However, in the professional opinion of both Mr. Smith and Mr. Yonkin, the treatment plant can handle concentrations of salts at levels much higher than what would be possible under the proposed TS limit. In addition, the Town’s current sewer ordinance also contains a generic clause giving the Town the power to prohibit any substances that adversely affect the wastewater treatment plant.

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<sup>\*</sup> Colloidal components of wastewater are found in both the suspended and dissolved solid fractions.

## **Wastewater Treatment Plant**

The Town of Wallkill wastewater treatment plant experienced failures in late 2001 and early 2002. Apparently an unknown substance or substances in the wastewater entering the plant was causing the death of the biological agents that would normally break down the organic solids in the wastewater. As a result, untreated water had to be released to the Wallkill River to prevent the plant from overflowing.

Unfortunately, the cause of the death of the biological agents was never determined. The solution to the situation was accredited to an alteration to the biological agent mixture and an increase in the quantity of the biological agents added to the system. However, since the cause of the problem was never determined, it is unclear whether the biological agent alteration and increase actually rectified the situation or whether the unknown substance or parameter was simply no longer entering the system, as Mr. Smith believes is the case.

Since the source of the process upset was never identified for certain, the commission was immediately concerned that increasing the TS limit may again cause problems with the health of the biological agents and subsequently return us to a similar situation as was experienced in 2001-2002. Adding to our concerns was the fact that heavy metals and other wastes from metal processing plants are often considered serious threats to the microorganisms used in the treatment of wastewater. We have found, however, that heavy metals such as lead, mercury, cadmium and chromium have individual discharge limits for the reasons mentioned above.

## **Malcolm Pirnie, Inc.**

In 2002, Malcolm Pirnie was retained by the Town to assess its wastewater treatment plant (WWTP) and identify potential causes of the “periodic process upsets that were being experienced.” Wastewater discharges from industrial users were identified as one possible cause of the problems described above. To address this concern, Malcolm Pirnie worked with the Town to develop and implement an Industrial Pretreatment Program, including a revision of the Town’s Local Limits.

Local Limits are designed to protect the health and welfare of treatment plant employees and citizens of the town, minimize the likelihood of process upset at the treatment plant, and promote compliance with environmental requirements for sludge and water quality.

The process by which Malcolm Pirnie established these new Local Limits has been detailed in their letter to the Town Board dated June 15, 2005:

In 2002, samples were collected at each of the industries and at the WWTP. The samples were analyzed for a wide range of pollutants. These data, along with historic monitoring data collected at the WWTP, were used in a computer model that was developed by the United States Environmental Protection Agency (EPA). The model is used to determine how much of each pollutant can be handled by the WWTP without causing any problems, which in turn helps establish the Local Limits. Based on the model, a number of new

parameters were recommended for addition to the Town's Local Limits, and a number of the Town's existing Local Limits could be made less stringent. At that time, we reviewed the analytical results from the industrial sampling, and it appeared that the industrial users were largely able to meet the Local Limits. As a result, although the model indicated less stringent Local Limits were acceptable for a number of parameters, the existing Local Limits for many of the parameters were not changed.

Based on the limited amount of data, and the fact that no industrial users commented on the proposed Local Limits after being notified, the Town opted to keep the more stringent limits in place. Total Solids was one of the parameters that the study indicated could be made less strict.

Shortly after the Local Limits and the associated Industrial Pretreatment Program (IPP) were implemented and quarterly sampling events began (January 2004), it became clear to the Town and its consultants that several industries would not be able to meet the new Local Limits. Ball Corp. was discharging Total Solids at concentrations greater than the 2000 mg/L limit, and was also in violation for discharges of Oil and Grease, and Fluoride. In November of 2004, Ball was given a waiver by the Town Board to exceed the limit on fluoride. The company made the necessary changes to comply with the Oil and Grease parameter but was finding it difficult to meet the limit on Total Solids.

In June 2005, Malcolm Pirnie suggested that the Town amend the Local Limits to reflect the "actual model output" (the findings of the study), which would in their opinion, "relieve some of the burden that has been placed on the Town's industrial users with no increased risk to the health and welfare of the public, the performance of the WWTP, or the quality of the Wallkill River – meeting the needs of both the Town's residents and its businesses."

### **Ball Metal Beverage Container Corp.**

In August of 2005, Ball Corp completed an investigation to determine a methodology and engineering treatment system to enable its Wallkill facility to meet the total dissolved solids portion of its Total Solids pretreatment limit. They hired a wastewater treatment engineering firm to accomplish this objective. Ball Corporation has determined that they would be forced to invest more than \$5 million in equipment to meet the current Total Solids limit, and would still be unable to guarantee that the upgrades would be completely and consistently successful in meeting the limit.

In response to their findings, Ball sent a letter to the Town proposing a plan to provide independent research funding from users of the treatment plant to the Town and its consultants to conduct testing to see what limits on Total Solids are scientifically justified:

While data is being collected to study the validity of the TS standard and/or the necessity of the current level of the TS standard, other valuable research concerning TS standards could also be conducted on the operation of the WTP. Ball is aware that the WTP has had certain compliance issues in recent years with Federal and State agencies. Research could

be conducted which would provide valuable data and insight to the Town and its consultant on how to better operate the WTF and avoid future compliance problems. In addition, the data collected would provide a valuable data base to provide industries or commercial entities considering relocation to Wallkill as to how and if Wallkill could accommodate the increased waste discharge from those future businesses. In other words, it would be an important planning tool for future growth.

Why this very logical and fair plan was not embraced by the Town is still unclear.

### **Recommendations:**

The Conservation Commission has reviewed this proposed change on behalf of the residents of the Town of Wallkill and discussed and debated a number of concerns related to the proposed change in the limit on Total Solids amongst ourselves and with other Town officials and interested parties.

According to the Town's consultants at Malcolm Pirnie, there are typically no problems associated with influent TDS concentrations of up to 4,000 mg/L and both Mr. Smith and Mr. Yonkin believe the plant is easily capable of handling concentrations at these levels. We believe this assessment is fair and accurate and appears to be backed by solid science. However, we are concerned that it is still unclear or unknown to Town officials and consultants alike what specific dissolved solids are in Ball's wastewater. This fact, when considered alongside the still unknown cause of the 2001-2002 process upset, leads us to believe that a study of all industrial wastewater influent (similar to the study proposed by Ball Corp.) would be beneficial to the Town.

Therefore we recommend the Town refrain from increasing the Total Solids limit from 2,000 mg/L to 4,000 mg/L until further study is complete. Any evaluation should include a specific component aimed at characterizing the make up of Ball's dissolved solids. We would support granting an extension of Ball's compliance schedule for an additional 6 to 18 months while this study is completed. Raising the limit immediately could result in some industrial users abandoning existing pretreatment processes for the sake of convenience or basic economics. By continuing to monitor the existing users like the Ball Corporation, the Town will collect valuable data that can be used as a planning tool for future growth. Further study will allow the Town to determine exactly what dissolved solids are in Ball's wastewater and may identify possible adjustments to our existing Local Limits, or find new solids or parameters that can be added. When the Total Solids limit is ultimately increased, the Town will be better prepared for any potential problems.

It has also come to our attention that some, if not all, copies of the Town Code (including the electronic version on the Town's Web site) incorrectly label the current Total Solids limit of 2000 mg/L as "TSS" or Total Suspended Solids. The actual TSS limit of 300 mg/L does not appear at all in the list of Local limits in Article II of Chapter 194-48E(1) of the Town Code. Apparently these errors were introduced when the pretreatment ordinance was filed in Albany. In an effort to keep the citizens and officials of the Town, and potential industrial users of the wastewater treatment plant informed of the correct Local Limits, the Town Code should be corrected immediately.

The recommendations described above offer a possible middle ground that we sincerely hope the Town Board and other involved agencies will work to implement. Additionally, these recommendations can be tailored or adjusted to meet the needs and satisfy the interests of all parties as they see fit.

We would like to thank the Town Board for giving us the opportunity to evaluate this proposal and submit our comments. We appreciate Superintendent Edward Smith's efforts to meet with the commission and answer all of our questions, and his prompt compliance with our request for documents. The expertise and cooperation of Matthew Yonkin, the Senior Project Engineer from Malcolm Pirnie, was also very useful to the completion of this report.

Sincerely,

Salvatore J. LaBruna  
Chairman  
Town of Wallkill  
Conservation Commission

CC: Superintendent Edward Smith, Town of Wallkill Water and Sewer Department  
Lenny Myerson, New York State Department of Environmental Conservation  
R. Tom Knight, Principle Environmental Engineer, Ball Corporation  
Matthew C. Yonkin, Senior Project Engineer, Malcolm Pirnie, Inc.  
Maureen Halahan, President and CEO, Orange County Partnership