City of Woodland

REPORT TO MAYOR AND CITY COUNCIL

AGENDA ITEM

TO: THE HONORABLE MAYOR
AND CITY COUNCIL

DATE: March 3, 2009

SUBJECT: NPDES Permit Update

Report in Brief

On February 5, 2009 the Regional Water Quality Control Board adopted the new National Pollution Discharge Elimination System (NPDES) permit that the Water Pollution Control Facility must comply with for the next 5 years; ending in the year 2014. This report is provided to update the City Council regarding the implications associated with this permit.

Items of importance in the new NPDES Permit are several requirements implementing the following environmental studies; Salinity Minimization Plan, Pond System Biosolids Assessment Study, Selenium and Boron Studies, and Toxic Reduction Evaluation. These studies have an estimated cost of $600,000 dollars.

As part of the new NPDES permit, the City of Woodland is also required to continue with plans to build a Surface Water Treatment Facility by May 2018 and to provide annual status updates to the Regional Board regarding the construction of this facility.

Collectively these new requirements in our NPDES permit will have significant fiscal impacts to the Sewer Enterprise Fund.

Staff recommends that the City Council receive this report and direct the staff to comply with the new National Pollution Discharge Elimination System (NPDES) permit.

Background

This update/briefing is a follow up to previous infrastructure presentations which brought to the City Council's attention the requirements to construct the new Surface Water Treatment Plant.

This report presents the full implications of the new NPDES permit to the City Council in context with the financial obligations that will need to be met as a result of the numerous Environmental

Studies. All of these studies need to be completed in the next 16 months and several of them will need to be repeated throughout the 5-year term of the permit.

With the adoption of this permit, the Surface Water Project now becomes a focal-point requirement that must be met by May 2018. As this new NPDES permit states, failure to make steady progress towards the completion of the Surface Water Treatment Facility can cause the Regional Board to reopen the discharge permit and impose the Basin Plan limits of Electrical Conductivity, which will be 700 µmhos/cm for compliance.

In order for the Treatment Plant effluent to comply with the eventual Basin Plan Electrical Conductivity limit of 700 µmhos/cm, the source of the City's potable water must be changed from the well water that now serves as the primary source of drinking water, to surface water from the Sacramento River, which has a much lower Electrical Conductivity level in the range of 200 µmhos/cm. As stated in past meetings of the City Council and the Infrastructure Committee, the only other viable alternative would be to us reverse osmosis treatment of the wastewater effluent at the treatment plant. (This option would cost around $150 million dollars more than the surface water project alone and ongoing operations and maintenance costs would be significantly higher than the surface water option.) Sacramento River water also allows us to meet similar requirements that relate to our unacceptably high levels of Boron and Selenium that is also caused by our ground water supply.

A key element of this new permit is the Regional Board formally permitted the plant to treat and discharge the full capacity of the newly expanded Water Pollution Control Facility (WPCF). The WPCF was recently expanded from 7.8 million gallons per day, and is now capable of treating up to 10.4 million gallons per day. This new approved capacity will provide for future growth and expanded commercial and industrial opportunities for many years to come. The inclusion of this new capacity allowance in the permit finalizes the Treatment Facility upgrade that has taken over 5 years to complete.

Discussion

The new NPDES permit requires a Salinity Minimization Plan, a Pond System Biosolids Assessment study, Selenium and Boron technical studies, and a Toxic Reduction Evaluation. Each one of these studies will provide information that will be used to update the Pretreatment Local Limits and also be used by the Regional Board to implement future discharge requirements once all the data is collected and submitted during the next permit renewal process.

The Salinity Minimization Plan will entail a series of samples collected from the various locations in the collections system around Woodland, to determine the source and quantity of salt (EC) that flows into the WPCF. It is already known that water softeners are a significant contributor to the salt loading, what needs to be determined is:

1. How much salt is discharged from water softeners?
2. How much salt is discharged by industrial contributions?
3. How much salt is discharged by the business community, such as restaurants?
4. How much salt is contributed by ground water intrusion into the collections system?

The results of the salinity study will be used to set local limits on salt levels that can be discharged into the collections system, which, in turn, will help to prevent the WPCF from exceeding the permit limit of 1835 µmhos/cm of EC. In May 2018 it is expected the Regional Water Quality Control Board will reset the EC limit down to 700 µmhos/cm. When that lower level of EC becomes a permit required limit, the Industrial Pretreatment local limits will need to be revised and quite possibly effecting the use of self regenerating water softeners and other sources that discharge large quantities of salt into the collection system. The salinity study will help outline alternative methods of salt controls for future implementation.

Selenium and Boron will likewise be studied in the same manner as the salt survey, in order to determine the source of these two minerals and, if necessary, to implement an appropriate discharge limit into the Industrial Pretreatment local limits.

Another important requirement of the NPDES permit is to conduct a pond biosolids study. Historically, all solids produced by the microbiological process of the treatment plant have been disposed of in the 19 ponds located onsite at the Water Pollution Control Facility. This study will require the City to do an assessment to determine a better solution to solids disposal, which will potentially need to be accomplished offsite. Part of the pond biosolids study will incorporate the need to look into the future of Woodland's growth plans for wet industry, as these types of industry will put an increased load of organic material on the Water Pollution Control Facility. This will most likely make the future use of the ponds impractical due to the large volume of solids that would result from the increased organic loading generated by industry and subsequently overload the pond system, causing odors to emanate from the ponds and become a nuisance to the nearby residential and business community.

Other factors that will be included in the pond biosolids study will be economic feasibility that will provide several options for pond modifications. These options will incorporate biosolids removal on a regular basis and at the same time offer different costs options. In each plan, it will be important to determine how environmentally feasible each option will be. This is necessary so the City does not simply opt for the cheaper plan, only to find out in the subsequent years that the Regional Board discovers the ponds to be creating an additional source of pollution brought on by unforeseen future environmental regulations. Such a Board finding would force the City to pursue additional modifications, or even abandon ponds for use as a solids stabilization process. The ponds are an essential function in the current facility configuration and their loss would be extremely disrupting to designed plant operations. Alternatives to the current configuration would be very expensive, adding capital costs to the additional expense of operating and maintaining a mechanical dewatering system for solids handling, estimated to be at $500,000 per year.

The Toxic Reduction Evaluation (TRE) is a new test requirement included in the NPDES permit that determines what types of toxic constituence might be discharged from the plant. Since this is a new

test requirement, it is too early to speculate on what types of toxic constituence are contained in the plant effluent, or to what frequency a toxic constituent is actually discharged from the WPCF. The TRE test is a very sensitive and complicated analytical process that must be outsourced to professional labs that specialize in these types of testing parameters. As a result of these complex and highly technical requirements, they are very expensive to do. Staff anticipates the annual expense these tests to be in the range of $140,000 to $560,000 dollars annually.

Sacramento River water will allow the City to meet the sanitary sewer NPDES permit and improves the water supply. This fact is the basis of sharing these costs between the Water and Sewer Enterprise funds.

Fiscal Impact

The fiscal impact of this permit will be felt by City rate payers over the next 9 years. The largest fiscal impact is the participation of the Sewer Enterprise Fund in one half of the construction of the surface water treatment plant. Additionally, the EC, Selenium, Boron, Ammonia, Salinity Minimization plan, Pond Biosolids study, and Local Limits studies required by the NPDES permit will cost approximately $600,000. All of these studies must be completed and submitted to the Regional Water Quality Control Board by July 2010.

The Toxic Reduction Evaluations (TRE) are an unknown cost at this time. These studies will start after July 2009 and once the TRE's are conducted then the type of analysis required will establish the costs. However, it is estimated that the TRE can cost in the range of $140,000 up to 560,000 annually. Depending on the results of the TRE, these tests will be an ongoing requirement of this new NPDES permit.

Below is an itemized breakdown of fiscal impact the new NPDES permit will have towards the sewer enterprise fund over the next 9 years.

- The current Surface Water Treatment Plant and related costs are anticipated to be $250 million dollars. By the year 2018, the NPDES permit establishes an effluent EC limit of 700 µmhos/cm. The only way the WPCF effluent can reasonably meet this limit is by switching the primary potable water source from well water to surface water. City staff is examining to potential use of the sewer fund to contribute towards the construction of the Surface Water Treatment Plant. The current planning/estimate for the sewer participation in the Surface Water Project is approximately 50% or about $100 million dollars. This may change as the actual financial nexus is developed for a defined financial participation by each enterprise fund.
- The new NPDES permit requires several reports and analysis to be submitted by July of 2010. The total anticipated costs of these analysis and reports is estimated to be $600,000.
- The Toxic Reduction Evaluation (TRE) is the big variable, both in terms of costs and analytical results, both items are linked to future cost projections. If the plant effluent TRE does indicate toxicity, then there will be more effluent toxicity testing done to determine the

cause. Staff is projecting the cost to perform the TRE at $1.5 million for the next five years (the duration of this new NPDES permit). If the TRE does not indicate toxicity, then these costs will certainly be reduced. If on the other hand every TRE analysis comes back with a toxic indicator, then it is quite possible the cost to do the TRE exams over the next 5 years could be as high as $2.8 million dollars. The TRE results will be reviewed by the Regional Water Quality Control Board in the year 2013/14, to write the next NPDES permit that will be implemented for the 2014-2019 cycle. These TRE results will most likely be incorporated into new effluent limits on that permit. Then the Regional Water Quality Control Board will decide weather or not to continue the TRE exams into the next permit cycle. As this fiscal impact is quantified, staff will update the Council.

These expenses will be reviewed as part of the overall sewer funding needs study that the City Council directed staff to perform at the January 27, 2009 Council Study Session.

Public Contact

Posting of the City Council agenda.

Council Committee Recommendation

While the Infrastructure Committee has participated in the ongoing updates of the permit process and the requirements for surface water, this information has just recently been developed in association with the Regional Water Quality Control Board's approval of the City's NPDES permit. The information described herein is the first public report of the requirements associated with the finalized permit.

Staff Recommendation

Staff recommends that the City Council receive this report and direct the staff to comply with the new National Pollution Discharge Elimination System (NPDES) discharge permit.

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