

## Lompoc City Council Agenda Item

**City Council Meeting Date:** 16 January 2007

**DATE:** 29 December 2006

**TO:** Gary P. Keefe, City Administrator

**FROM:** Susan Halpin, Wastewater Superintendent  
shalpin@ci.lompoc.ca.us

**SUBJECT:** Wastewater Molybdenum Study Contract Award

---



### **RECOMMENDATION:**

Staff recommends the City Council:

1. Approve award of professional services agreement for a Wastewater Molybdenum Study to Larry Walker Associates for the amount not to exceed \$287,886 to be charged to account number 53500-79786 titled Metal Study – Molybdenum.

### **SUMMARY:**

To potentially save a projected \$5.4M in construction costs from the Lompoc Regional Wastewater Reclamation Plant (LRWRP) Upgrade project and to save an estimated \$0.5M annually in chemical costs for metals removal, the City needs to further investigate and attempt to modify the discharge limit for molybdenum contained in the LRWRP NPDES discharge permit. The current plant cannot meet the discharge limit for molybdenum. The new plant will meet the limit. However, to meet the limit, the metals removal system included in the design of the upgrade project would need to be built and operated. Based on current monitoring data information and historic experience, City staff believes that the City's effluent does not cause or contribute to a violation of the adopted water quality objective for molybdenum and that actually meeting the effluent limit for molybdenum will not improve water quality nor enhance any beneficial uses of the water. The expense to build and operate the facilities to treat this one single constituent may be burdensome and unreasonable. It is believed appropriate for the Regional Board (RB) to provide relief for the City regarding molybdenum because it is an uncontrollable water quality condition in this region.

A critical component in the City's effort to resolve the molybdenum issue with the RB is the proposed Molybdenum Study. The study is being required by the RB so the City can demonstrate to the RB that molybdenum is uncontrollable and that the City's effluent is not a cause of the water quality objective being exceeded. Once the City is able to demonstrate these facts to the RB, the RB will consider modifying the discharge limit for molybdenum. With a modified limit, the City will save the expense of constructing the metals removal facility as part

of the treatment plant upgrade project and will save an additional \$0.5M annually in operations expenses for metals removal.

## **DISCUSSION:**

### Previous Metals Study

On May 21, 2002, Council approved a contract (cost not to exceed \$360,699) for Kennedy/Jenks Consultants (KJ) to identify how the City could respond to the requirements of the then-new NPDES discharge permit and complete the Wastewater Master Plan. The wastewater treatment plant's discharge permit issued by the Central Coast Regional Water Quality Control Board (RB) in 2001 contained revised discharge limits for 10 metals based on the State Water Resources Control Board (SWRCB) adoption and implementation of the California Toxics Rule (CTR) and on the Water Quality Control Plan for the Central Coastal Basin (Basin Plan); the City considered these new limits unachievable at the time. However, the permit did contain interim limits for these 10 constituents while compliance with the final discharge limits (FDL) was due May 18, 2006.

KJ's scope of work in the Metals Study included:

- Investigate possible sources contributing elevated concentrations to the wastewater treatment plant of the metals of concern;
- Identify methods to reduce or eliminate metals identified at their sources;
- Develop operations modifications to current treatment processes at the wastewater treatment plant to facilitate enhanced metals removal efficiencies;
- Evaluate additional treatment options through jar test/bench coagulation/filtrations studies.

The results of the KJ study relating specifically to molybdenum were:

- Molybdenum (Mo) concentrations in groundwater wells were higher than the FDL;
- Mo concentrations in untreated wastewater were higher than the FDL;
- Mo concentrations in the wastewater treatment plant influent and effluent (pass through) were higher than the FDL;
- The source of Mo appears to be predominantly due to its natural presence in groundwater sources;
- Commercial/industrial sources were not likely the primary sources of Mo in the influent to the wastewater treatment plant;

- Recommendation to develop a source investigation to identify the likely source(s) of Mo;
- Plant process modifications did not increase Mo removal by treatment through the existing plant;
- Jar testing indicated Mo could be removed to concentrations less than the FDL with the addition of ferric chloride (FeCl<sub>3</sub>); pH adjustment would be required (e.g. additional treatment with sodium hydroxide);
- The addition of FeCl<sub>3</sub> for the removal of Mo runs the risk of introducing additional metals (namely copper, which is a CTR constituent and for which there is a FDL in the discharge permit) due to typical contamination of commercial-grade FeCl<sub>3</sub>;
- Recommendation the City request a variance from the RB for Mo;
- There is no Federal or State drinking water Maximum Contaminant Level (MCL) for Mo; consequently there are no treatment technologies available for treating potable water.

#### NPDES Permit Renewal

In July 2005, the City began work to renew its wastewater NPDES discharge permit. The City retained consultants Somach, Simmons & Dunn (legal expert) and Larry Walker Associates (LWA) (technical expert) to assist with the permit renewal process. As required, the City submitted the Report of Waste Discharge (ROWD) to the RB in November 2005.

Included with the ROWD was a Reasonable Potential Analysis (RPA) conducted by LWA based on effluent monitoring data from July 1999 to October 2005. Mo was identified in the RPA as a constituent with a reasonable potential to exceed final effluent limits. The City has been reporting to the RB since at least October 2004 the inappropriate application of the Mo final effluent limit in the discharge permit. This was reiterated to the RB in the ROWD.

On April 3, 2006, the RB issued the Tentative Order (TO) for the revised discharge permit for the City's wastewater treatment plant with planned adoption by the RB on July 7, 2006. This issuance started a 30 day public comment period; interested parties could submit comments regarding the TO to the RB through May 12, 2006. The City submitted 18 pages of comments on the TO, including an extensive discussion of the problems with the Mo discharge limit. The City argued the application of the water quality objective from the Basin Plan regarding water used for irrigation and livestock watering was inappropriate as the plant's effluent is in fact not used for that beneficial use; the City indicated in a report dated January 2006 to the RB that it needs to develop a site specific objective (SSO) for Mo or a modification to the Basin Plan; the interim limit for Mo (from the previous discharge permit) needs to be extended into the new permit or alternately a Time Schedule Order (TSO) with an interim limit needs to be issued by the RB.

City staff and our consultants met with RB staff, including Executive Officer Roger Briggs and RB Counsel Lori Okum, on June 6, 2006. The City re-emphasized the inappropriate application

of the Mo limit and that this issue must be addressed. During subsequent conversations with RB staff, it was determined the RB would issue a TSO for Mo which will include an interim limit that will shield the City from mandatory minimum penalties through the duration of the TSO. City and RB staff continued to work through revisions to the TO.

The Order (aka NPDES permit) was adopted by the RB July 7, 2006 and would go into effect September 8, 2006; the previous permit would remain enforceable until the new one becomes effective. The Order included RB staff responses to City's comments on the TO. Specifically regarding Mo, the RB found the application of the irrigation and livestock watering beneficial use designation to the wastewater treatment plant's receiving water appropriate; the application of a limit for Mo is appropriate because of the results of the RPA. However, the RB did state that the adoption of a TSO would be practical as it would allow the City time to develop, and for the RB to adopt, an SSO for Mo. RB staff recommended their Board issue a TSO with an interim limit equal to the current facility performance level for Mo and to require the City to take all necessary actions to obtain an SSO by July 7, 2011. In a recent phone conversation with the RB staff, he indicated the RB is still willing to adopt a TSO for Mo and anticipates doing so in early 2007. However, the RB believes that it would be more appropriate for the City to conduct a study that characterizes the natural background levels of Mo in San Miguelito Creek and the surrounding area so the RB can find it is an uncontrollable water quality condition. If it is an uncontrollable water quality condition, then the RB would be comfortable adopting an effluent limit based on protecting the elevated background conditions and not the basin plan water quality objective which is much lower.

### Proposed Molybdenum Study

In order for the City to demonstrate that Mo is an uncontrollable water quality condition and that the downstream beneficial uses are not impacted, it must conduct a study that includes monitoring of the surface and ground waters to characterize Mo levels in the Lompoc area. The purpose of the proposed Mo study is to gain the information necessary to make that demonstration. The process used to prepare and conduct the study and comply with the provisions of the anticipated TSO is addressed in LWA's proposal. The study will include:

- Develop detailed study/work plans
- Conduct quality monitoring
- Characterization and analysis of monitoring data
- Regulatory assistance

### Regulatory Strategy

The City will pursue relief from the current discharge limit for Mo by characterizing the background conditions of Mo in the Lompoc area to determine if it is an uncontrollable water quality condition. If the City can make this demonstration through its study, the RB will consider adopting a modified Mo effluent limit which protects background conditions. In this case, the Mo limit will most likely be much higher than the current limit which is set equal to the adopted water quality objective in the Basin Plan. In addition, the City's study will evaluate down gradient groundwater wells to determine the levels of Mo at the time the water is actually used

for its intended beneficial use. Through these efforts, the City anticipates its ability to negotiate a modified Mo effluent limit that is more realistic considering the natural background conditions in the area. The City intends to conduct a preliminary review with the RB of the data halfway through the 12-month monitoring program to determine if, in fact, the path identified above is viable. If, at that time, the data indicate that it may not be a viable path, the City will need to reconsider constructing the metals removal system. The timing of the mid-point review coincides with the contractors need for a decision on this issue.

### Funding

Funds available to conduct the Molybdenum Study starting in the current fiscal year. The study will be completed during fiscal year 07/08.

Respectfully submitted,

Susan Halpin, Wastewater Superintendent

### **APPROVED FOR SUBMITTAL TO THE CITY ADMINISTRATOR:**

---

Rodney Ray, Acting Utility Director

### **APPROVED FOR SUBMITTAL TO CITY COUNCIL:**

---

Gary P. Keefe, City Administrator

### Attachments:

1. [Professional Services Agreement](#)
2. [Exhibit A, Larry Walker Associates proposal](#)
3. [Exhibit B, Larry Walker Associates Rate Schedule](#)