DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

Division of Environmental Health
PLAN REVIEW APPROVAL

Plans and specifications on chemical feed: Wellhouse Nos. 3 and 4, Cleveland, Le Sueur County, Plan No. 210621, PWSID 1400001

OWNERSHIP: Cleveland City Council, c/o Mr. Dan Evans, City Clerk, Cleveland City Hall, 205 Fourth Street, Box 309, Cleveland, Minnesota 56017

SUBMITTER(S): City of Cleveland, c/o Mr. Jared Holland, 205 Fourth Street, PO Box 309, Cleveland, Minnesota 56017

Date Received: July 7, 2021, April 30, 2021

Date Reviewed: July 7, 2021

APPROVAL: Based on the information provided to the Minnesota Department of Health (MDH) for review, this project is approved, contingent upon the project meeting all of the requirements listed below. Construction must be according to the plans and specifications provided to MDH.

LIMITED SCOPE: This review is limited to the project design's effect on the safety and sanitary quality of the drinking water and assumes the data on which the design is based are correct. Examination is based on MDH rules and applicable standards. This report applies to this project only, and not to any additional parts of the water system. The project designer is responsible for the project's features and equipment effectiveness.

ALTERATIONS: MDH must approve any changes that deviate from the approved plans before any changes are made. Otherwise, the construction will be considered installed without proper approval.

INSPECTIONS: It is the responsibility of the owner or owner's agent to contact MDH for any inspections that are listed in the requirements of this report. **The project owner must retain the plans at the project location.**

This project consists of the installation of phosphate, liquid chlorine and clearitas 101 chemical feed systems at Wellhouse Nos. 3 and 4.

The specific chemicals will be LPC AM (for corrosion and scale control), Azone 15 (disinfection), and Clearitas 101 (biofilm control).

The proposed initial doseage will be 15 mg/L of LPC AM, 2 mg/L of Azone 15, and 0.25 mg/L of Clearitas.

Requirement(s):

1. We request that the project owner or owner's agent contact the MDH district engineer Amy Lynch, at 507-344-2713, to notify them of any preconstruction meetings and to schedule the final inspection.

2. When the polyphosphates are used for iron and manganese sequestration, the injection point for the phosphates should be as far upstream as practical from the chlorine injection point. It is recommended to move the chlorine injection point further downstream.

3. Stock phosphate solution must be kept covered and disinfected by carrying approximately 10 mg/L free chlorine residual.

4. The chemical feed pumps must operate at no lower than 20 percent of the maximum feed rate unless the pump is equipped with two independent adjustment mechanisms in which case the pump must operate at no lower than 10 percent of the maximum rate.

5. The chemical storage tanks must be provided with secondary containment in volume greater than or equal to the primary containment tank. The secondary containment may not be shared between different chemicals.

6. The chemical tanks must be vented to the outside atmosphere with an insect screen on the vent termination.

7. The storage tanks must be clearly labeled.

8. The chemical feed pumps must be mounted in a location that is easily accessible for maintenance and repair. Verify that there is room for the operator to easily get behind the storage tanks to access the chemical feed pumps.

9. There must be siphon and air relief provided on each chemical feed system such as a four-function valve.

10. The chemical injection points must be in the lower half of the pipe and easily accessible.

11. Prior to starting the Clearitas chemical feed, the system must collect the samples listed in Table No. 1 attached to this letter. Provide sample results to Amy.Lynch@state.mn.us and David.Weum@state.mn.us upon receipt.

12. It is recommended to flush the water distribution system upon starting a Clearitas chemical feed.

The approval is valid for two years from the date of this letter. If project construction has not begun within the two-year period, plans and specifications must be resubmitted to MDH for approval before any construction takes place. While the project has been contingently approved, changed conditions or additional information may result in additional requirements.

If you have any questions regarding information contained in this report, please contact me at 651-201-4684 or david.weum@state.mn.us.

Approved:

David Weum, P.E.
Public Health Engineer
Section of Drinking Water Protection
P.O. Box 64975
St. Paul, Minnesota 55164-0975

DW:bcl
cc: Mr. Jared Holland, City of Cleveland
Amy Lynch, MDH, Mankato

Table No. 1

Clearitas New Chemical Feed Sampling Requirements						
			Sampling Schedule			
		Before Feeding Clearitas	After Clearitas Addition			
Analytes	Sample Location		1 day	2 weeks	4 weeks	6 weeks
Arsenic	Maximum Residence Time	x		x	x	x
Iron	Maximum Residence Time	x		x	x	x
Manganese	Maximum Residence Time	x		x	x	x
Chlorate	First sample point after chemical injection		x		x	
Chlorite	First sample point after chemical injection		x		x	

* The Minnesota Department of Health (MDH) is required to evaluate proposed new treatments or treatment changes to avoid the unintended consequence that may result from the change, therefore, if deemed necessary, MDH will adjust water system's compliance monitoring schedule and sample kits for additional monitoring to occur sooner. Examples of compliance schedules that could be modified are disinfection by-products and lead and copper.

No additional samples beyond the first post Clearitas feed sample will be required if the sample result is less than ½ of the corresponding MCL, SMCL, or HRL and does not increase more than 10% of the value of the pre-Clearitas feed sample result. Once data is received and reviewed, it will be determined if additional monitoring is required.