Spokane County
Public Works Department
Spokane County, Washington

February 21, 2018

Washington State Department of Ecology
Eastern Regional Office
Attn.: Water Quality -Permit Coordinator
4601 N. Monroe, Suite 202
Spokane, WA 99205

Re: Administrative Order No. 9073 – 2017 Newman Lake "State of the Lake" Report

Enclosed is the Annual "State of the Lake" Report information in compliance with the Aquatic Plant and Algae Management General NPDES Permit No. WAG994123 and subsequent Administrative Order No. 9073 for operation of the Newman Lake Alum Injection System as follows:

1. The *2017 Annual Report on Implementation of the Comprehensive Plan of Development for Stormwater Control in the Newman Lake Watershed,* which provides a summary of source control efforts in the Newman Lake watershed in 2016;

2. Discharge Monitoring Reports (DMR's) for 2017;

3. The 2017 Newman Lake water quality data collected by Washington State University (WSU) including water quality parameters and nutrients (electronic files only).

Two hard copies are included.

If you have any questions, please call me at (509) 477-7175.

Respectfully,

RK

Randall Kirk, PE
Environmental Programs Engineer

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2017 ANNUAL REPORT
IMPLEMENTATION OF THE NEWMAN LAKE WATERSHED
COMPREHENSIVE PLAN OF DEVELOPMENT
FOR STORMWATER CONTROL

A. PURPOSE

This document outlines the efforts of the Newman Lake Flood Control Zone District (District), and the Newman Lake Community in implementing ***The Comprehensive Plan of Development for Stormwater Control in the Newman Lake Watershed (Comprehensive Plan)***. This report covers efforts during the 2017 calendar year.

B. BACKGROUND

The District continues its involvement at working to improve the water quality of Newman Lake. In the mid 1980's, residents requested the assistance of the District to take action. The District began requests of Department of Ecology (Ecology) for Phase I and Phase II Lake Restoration funding. Lake Restoration funds were used for a whole lake surface alum treatment in 1989, and to install the Hypolimnetic Oxygenation System in 1991. These funds also initiated watershed source control efforts. District Benefit Assessments provided the 25% matching contribution for this work. The Newman Lake Watershed Committee (NLWC) was formed, and prepared ***The Lake Book,*** as a way of educating watershed residents on how they can prevent excess nutrients from entering the lake. A Watershed Plan was prepared, which outlined actions to reduce nutrient loading. Failing septic systems were identified and repaired; grazing areas were fenced off from the Lake and inlet streams.

After 1995, as the effects of the initial alum treatment to control internal nutrient loading began to dissipate, the District, at the request of residents, began installation of an Alum Injection System. This method was a more efficient and cost effective way of providing alum treatments for the lake. This system was installed solely with District funds at a cost of about $57,000. The Comprehensive Plan was prepared by the District, at a cost of $18,500, by contract with WSU as part of the project planning.

In spring of 1997, the Newman Lake Watershed Committee (NLWC) was reformed. The Comprehensive Plan (Plan) has been integrated into the ***District Policy and Procedures Manual***, and incorporated its implementation into the District goals and budget. It should be noted that funding for most of these efforts comes entirely from District Benefit Assessments. Currently, about 764 lakefront and near-lakefront homeowners (many of whom are seasonal residents) bear most of the funding burden for this continuing work. The 2017 District budget for Water Quality improvement efforts was $196,626, and is currently estimated at $188,743 for 2018.

C. COMPREHENSIVE PLAN RECOMMENDATIONS:

The Comprehensive Plan states that long-term goals for watershed management are needed to improve poor water quality conditions in storm water runoff. This is the major cause of increased external phosphorous loading into the Lake. In-lake management efforts, (i.e. the aeration and alum

injection systems) are only an interim solution, and are necessary to help control the internal recycling of phosphorus. A watershed wide comprehensive approach to storm water management is needed beyond that provided by the Washington Forest Practices and Shoreline Management Regulations. The Plan emphasizes the importance of community education efforts, implementation of Best Management Practices, restoration of riparian areas, wetlands, and flood plains along major lake inlets, as well as continued monitoring. To implement, priority should be given to the Thompson Creek, Temple Creek, and Mountain View drainages, as the largest contributors to total external phosphorus loading. These recommendations have been organized into an "Implementation Plan Outline".

D. RECENT DISTRICT AND COMMUNITY ACTIVITIES

1. IMPROVE IMPLEMENTATION AND ENFORCEMENT OF EXISTING LAND USE ORDINANCES

a. Complaints / Potential Violations: The District did not receive information regarding any potential violations for 2017. Complaints regarding heavy algae within the water column started in July, and continued into November 2017. Four lake samples were taken over the course of two months; none registered at toxic levels.

b. Forest Practice Applications (FPAs) and Timber Harvest Proposals: All FPAs received within the Lake Watershed boundaries are forwarded to District staff for review by the Washington State Department of Natural Resources (DNR). Copies of proposed FPAs/Timber Harvests, with the potential to impact water quality are sent to members of the Newman Lake Watershed Committee, as well as to the District Advisory Committee for their information and review. If the proposed actions have the potential to impact lake water quality, a letter is sent to those applicants letting them know the importance of complying with the Thompson Creek prescriptions, and requesting their support of our efforts to improve lake water quality. There were NO (zero) FPA notifications received for 2017.

c. Other Land Use Permit Applications or Actions: District and County staff reviewed and commented on proposed actions for impact to the Newman Lake watershed, including six (6) Floodplain Development Permits for 2017. Two of those permits were for residential retaining wall repairs. Two permits were for additions/remodels, and two permits were issued for new construction.

f. Permit Review Summary Tables: Attached are tables, sorted by date, showing a list of Building Permit reviews, investigations, and violations. Also attached are maps showing approximate locations of these various activities.

2. COMMUNITY EDUCATION

a. Watershed Newsletter: The District has been circulating an annual Newsletter since 1998. The Newman Lake Watershed Committee in cooperation with the NLPOA, and the District, began publication of the newsletter to educate Newman Lake residents about Lake water quality issues, and to provide important community information. Articles for

2017 included information on the following: Yearly Events Calendar, Community Activities, Milfoil Plan updates, Flood Control, Benefit Assessment, Local Legends/Wildlife siting's, and a summary of the Regional Lakes Conference presentations. A copy of the 2017 District Newsletter is attached with this report.

b. NLFCZD Website: The website for the NLFCZD continues to provide information to District residents. Content includes information regarding Assessments, the Budget, Lake Water Quality, Watershed Monitoring, Milfoil Control Activities, District Policy and Procedures, and continually updated community information. This website is a vital tool for community outreach and education and continues to evolve to better serve the public.

- Educational banners continued to be used for the second year in 2017. One banner is to educate regarding the presence of Eurasian Milfoil in Newman Lake, along with District contact information; and the second banner reminds boaters to **"Share the Lake, Control Your Wake"**. Examples of these two educational banners were included in the 2016 State of the Lake Report.

3. IMPLEMENTATION OF BEST MANAGEMENT PRACTICES (BMP'S) AND RESTORATION PROJECTS

a. Newman Lake Total Maximum Daily Load: Ecology issued a Total Phosphorus TMDL for Newman Lake in 2009. The Lake continues to be on the 303(d) list for phosphorous. The District, along with the Newman Lake Watershed Committee, and Property Owners Association, continue their review of TMDL Activity strategies for reducing external loading sources. These TMDL Activities will be valuable assets to continued lake restoration methods, and should prove to be helpful tools in which to foster community involvement.

b. Shoreline Restoration: The District has continued a cooperative effort with the Spokane Conservation District in providing information about known shoreline areas experiencing serious erosion issues, that would make good shoreline stabilization projects. The Spokane Conservation District hired an engineering consultant in 2014 to put together a plan of options for each of the two properties being considered for shoreline stabilization projects. A final plan for the ***Newman Lake Shoreline Stabilization*** was sent to Flood Control District staff, WDFW, and other permitting agencies for their review, and permits were issued in 2017 for the two shoreline stabilization projects. The Spokane Conservation District completed the two shoreline stabilization projects in the summer of 2017.

c. Honeymoon Bay: Road, stormwater, and septic improvement investigations began in 2015 after a heavy spring runoff sent sediment and contaminated runoff into Newman Lake. A Summary of Options for Stormwater, Paving, and Septic Improvements was compiled, and a community meeting was held on October 1, 2015. Stormwater Improvements needed within Honeymoon Bay will likely consist of installing a large culvert to convey a non-fish stream under the roadway as it flows to the lake, and provide stormwater control and treatment facilities for the roads. The benefits of improvements would include the following: Prevent flooding of drain fields and septic systems, improve

Lake Water Quality by reducing erosion/drain field contamination into the Lake, improve access during spring flooding, and improve property values.

The Conservation District has been successful in receiving some funds to conduct the Septic Feasibility Study portion of the project in 2018. The next step is to develop a plan and hire a qualified consultant to do the study.

4. ALUM INJECTION SYSTEM AND OXYGENATION SYSTEM OPERATION

a. Oxygenation System: To continue the historical success of improving water quality within Newman Lake, both oxygen generators must continue running at maximum capacity. In spring of 2016, one new Air Sep unit was installed along with new piping at a cost to the District of $70,882.30. The older, second Air Sep unit continues to run as in the past.

b. Alum Injection System: The alum injection system continued to operate as normal during the 2017 season, in accordance with the General Permit, along with close attention to water quality monitoring to maximize benefits. In 2017, alum was injected into the lake during the months of April, May, and September. The monthly signed Discharge Monitoring Reports are included with this report.

5. WATER QUALITY MONITORING

a. Lake Monitoring: The District continues its contract with WSU School of the Environment, to provide annual comprehensive water quality monitoring of Newman Lake. This monitoring includes extensive biological monitoring, above the minimum required under the NPDES permit. WSU's Dr. Barry Moore, reports that phosphorus totals, illustrated by the "volume-weighted total phosphorus (VWTP) trends". VWTP is calculated for each date as the sum of the products of total phosphorus (TP) at each depth times the volume for the corresponding stratum. The resulting daily, weighted concentrations for all seasonal sampling events are then averaged to provide a measure of the mass of phosphorus available to support algae growth for the summer growing season. The long-term target VWTP concentration is 20 ug/L or less. VWTP for 2017 was 31 ug/L, slightly reduced from 2016. (Moore, 2017).

Since students are heavily involved in this work, it is also a valuable educational benefit. District budget for Lake monitoring by WSU in 2017 was $34,750.

See the WSU Water Quality Monitoring report for more specifics on operation and monitoring results for 2017.