Official Draft Public Notice Version **December 17, 2025**
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UTAH DIVISION OF WATER QUALITY

IN THE MATTER OF **St. George Regional Water Reclamation Facility** **175 E. 200 N.** **St. George, UT 84770** **UPDES PERMIT NO. UT0024686**	**PERMIT VARIANCE FOR TECHNOLOGY-BASED PHOSPHORUS EFFLUENT LIMITS**

BACKGROUND

1. St. George Regional Water Reclamation Facility's ("SGRWRF") wastewater treatment plant in St. George, Utah (the "Facility") provides wastewater services within Washington County.

2. SGRWRF's operations at the Facility are undertaken subject to UPDES Discharge Permit No. UT0024384 ("Permit").

3. The Facility is required to achieve technology-based phosphorus effluent limits ("TBPEL") on or before January 1, 2020, unless a variance is granted. *See* UAC R317-1-3.3.

4. SGRWRF submitted a variance request, dated December 14, 2017 to the Utah Division of Water Quality ("DWQ"), seeking a commensurate reduction (the "Variance Request."). The Variance Request is based on the fact that SGRWRF is in the process of projects to remove loading from the receiving waters to meet TBPEL requirements.

5. Utah law provides that DWQ may grant a variance to the TBPEL in the event that the operator demonstrates that a commensurate phosphorus reduction can be achieved in receiving waters using innovative alternative approach. *See* UAC R317-1-3.3.C.1.d.

6. The Director of DWQ has determined that SGRWRF has met its burden to show diligence within the meaning of the UAC R317-1-3.3 and that a variance is appropriate, subject to the limitations and conditions provided herein.

7. The Director issued St. George a TBPEL innovative variance on August 1, 2020 as part of the issuance of UPDES permit number UT0024686.

8. At this time, treated effluent is intended to be discharged to Ivins Reservoir and Graveyard Wash Reservoir. These discharges will be permitted under the renewed UPDES Permit.

AUTHORITY

9. The Director of DWQ has authority to grant a variance as to how the annual mean phosphorus concentration is calculated for the TBPEL pursuant to UAC R317-1-3.3 and the corresponding provisions of the Utah Water Quality Act.

10. The State of Utah administers the Utah Pollution Discharge Elimination System (UPDES) permit program under the Utah Water Quality Act.

FINDINGS

11. The Variance Request included the following submissions, among others:

    a. Request for Variance to the Technology-Based Phosphorus Effluent Limit – St. George Regional Water Reclamation Facility. (December 20, 2017)
    b. St. George Regional Water Reclamation Facility – Expansion Master Plan. Bowen, Collins & Associates (August 2008)
    c. St. George Regional Water Reclamation Facility Pre-Design Report. Bowen Collins & Associates, Inc. (June 2015)
    d. SGWRF Optimization Study (Technical Memorandum No. 1 and No. 2) Bowen, Collins & Associates (November 2015)
    e. Request for Variance to the Technology-Based Phosphorus Effluent Limit – St. George Regional Water Reclamation Facility (May 2025)

12. Based on the foregoing submissions, the Director has determined that SGRWRF has demonstrated that a commensurate phosphorus reduction can be achieved in receiving waters using innovative alternative approach to meet TBPEL, within the meaning of UAC R317-1-3.3.C.1.d.

VARIANCE

13. Discharges to Ivins Reservoir and Graveyard Wash Reservoir are purposely excluded from this Variance.

14. The Director hereby grants SGRWRF a variance as to the compliance alternative to achieve the TBPEL; subject to the following conditions:

a. This variance does not expire. The permittee may terminate the variance by notifying the Division of Water Quality in writing.

b. Pursuant to UAC R317-1-3.3.C.2, this variance is subject to re-evaluation every five years or in the event that there is any substantive change in the facility design or construction plans provided in the Variance Request. SGRWRF must provide timely notice to DWQ of any such substantive changes.

c. Effective August 1, 2025, SGRWRF shall report the calculated TBPEL Reuse Average Annual Discharge Concentration for the annual average concentration for total phosphorus.

    i. SGRWRF shall comply with the effluent limitations for the annual average total phosphorus concentrations based on the calculated TBPEL Reuse Average Annual Discharge Concentration.

    ii. If the Average Annual Direct Irrigation Reuse Flow is less than 1.5 mgd, SGRWRF shall report the Average Annual Discharge Concentration as an annual average of the monthly average discharge concentrations to the Virgin River.

d. Definitions

    i. "Virgin River Monthly Average Mass Loading" in lbs/d means the pounds per day of a pollutant discharged on average during a calendar month, calculated as the average monthly discharge concentration (mg/L) times the average monthly discharge flow rate to the Virgin River (mgd) times 8.34 conversion factor.

    ii. "Monthly Average Virgin River Discharge" in mgd means the average of daily flow to the Virgin River over a calendar month, calculated as the daily discharges to the Virgin River measured during a calendar month divided by the number of daily discharges measured during the month.

    iii. "Annual Average Virgin River Discharge" in mgd means the average of monthly average flows to the Virgin River per day over a calendar year, calculated as the sum of monthly average flows to the Virgin River measured during a calendar year divided by the number of monthly average flows measured during the year.

    iv. "TBPEL Historic Average Annual Direct Irrigation Reuse Flow" in mgd means the annual average direct irrigation reuse flow when the TBPEL variance request was filed. St. George's TBPEL Historic Average Annual Direct Irrigation Reuse Flow is 1.5 mgd.

v. “TBPEL Reuse Average Annual Discharge Concentration” in mg/L means the equivalent concentration if the load discharged to the Virgin River was carried by the Virgin River discharge plus direct irrigation reuse subtracting the historic direct irrigation reuse flows over a calendar year, calculated as the sum of Virgin River monthly mass loadings (lbs/d) divided by 8.34 conversion factor divided by the expression of the annual average Virgin River discharge (mgd) plus the annual average direct irrigation reuse flows (mgd) minus the TBPEL historic annual average direct irrigation reuse flows (mgd).

vi. Equation for TBPEL Reuse Average Annual Discharge Concentration:

$$C_r = \frac{\frac{\sum_n^i \dot{m}_m}{n}}{8.34 * (Q_v + Q_i - Q_h)}$$

C_r = TBPEL Reuse Alternative Average Annual Discharge for facility (mg/L).

C_E = Average Monthly Plant Effluent Total Phosphorus Concentration (mg/L)

$\dot{m}_m = (C_E * Q_v * 8.34)$ = Monthly average mass loading to Virgin River (lbs/d)

n = Number of monthly average plant flows measured during the year

Q_v = Annual Average Flow to Virgin River - discharge rate of effluent to Virgin River (mgd).

Q_i = Annual Average Reuse of Discharge to Direct Irrigation System (mgd)

Q_h = TBPEL Historic Annual Average Direct Irrigation Reuse Flow (mgd). St. George's TBPEL Historic Annual Average Reuse Flow Rate is 1.5 mgd.

_____ Date:_____

John K. Mackey, P.E.
Director
Utah Division of Water Quality

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