



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF WATER QUALITY
Walter L. Baker, P.E.
Director

MAR 02 2015

Mark McCune, P.E.
Director, Structure Design
Union Pacific Railroad
1400 Douglas Street, Stop 0910
Omaha, Nebraska
68179-0910

Subject: Approval 401 Water Quality Certification with Conditions.
Water Quality Certification No.: SPK 2011-00755 March 2, 2015.
USACE 404 Permit No.: SPK 2011-0755 (to be determined in 2015).

Applicant: Union Pacific Railroad (UPRR).

Project: "Permanent East Culvert Closure and Bridge Construction, Great Salt Lake Railroad Causeway" Utah Water Quality 401 Certification Application dated January 7, 2014 which is also known as the USACE Clean Water Act Section 404 permit entitled "Permanent East Culvert Closure and Bridge Construction, Union Pacific Causeway, Great Salt Lake Utah."

Purpose: To duplicate, as closely as possible, the aquatic function (water and salt transfer) lost due to the closure of the East and West Culverts by constructing a new causeway opening. The new causeway opening will be a bridge that is 180 feet long and an earthen control berm at elevation 4,183 feet that creates an opening 150 feet long.

Location: The East Culvert was located at UPRR Mile Post 750.53, latitude 41.221 N. and longitude 112.561 W., Box Elder County, Utah. The West Culvert was located at UPRR Mile Post 744.94, latitude 41.223 N. and longitude 112.668 W., Box Elder County, Utah. The new causeway opening will be located at UPRR Mile Post 739.78, latitude 41.221 N. and 112.766 W., Box Elder County, Utah. The locations of the bridge opening, East Culvert, and West Culvert locations can be viewed on USGS Quadrangles: Lakeside, Carrington Island NE, and Carrington NW, respectively.

Watercourse: Great Salt Lake, Box Elder County, Utah.

Public Comment Period: 01/21/2015 – 2/20/2015.

Dear Mr. McCune:

Pursuant to Section 401 of the Federal Water Pollution Control Act, commonly known as the Clean Water Act (CWA), the Utah Department of Environmental Quality, Division of Water Quality (DWQ) certifies that the Union Pacific Railroad (UPRR) has provided reasonable assurances that any discharge associated with the permanent closure of the East Culvert of the Great Salt Lake Causeway will not violate surface water quality standards, or cause additional degradation in surface waters not presently meeting water quality standards. All conditions from the 401 Water Quality Certification SPK 2011-00755

dated December 16, 2013 are incorporated by reference and are enforceable under this Certification. In accordance with Section 401(a)(1) of the CWA [33 U.S.C. Sec. 1341(a)(1)], DWQ hereby issues this Water Quality Certification provided the conditions outlined below are met and included in the U.S. Army Corps of Engineers (USACE) 404 standard individual permit SPK-2011-00755 (to be determined in 2015) if issued to the Union Pacific Railroad.

The affected portions of Great Salt Lake have the following beneficial uses Utah Administrative Code (UAC R317-2-6):

Class 5A - Gilbert Bay: Protected for frequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain, and

Class 5B - Gunnison Bay: Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

As documented in Utah's *Draft 2014 Integrated Report*, Great Salt Lake was assessed as Category 3. Category 3 means that insufficient data and information are available to determine whether the uses are supported by the water quality. With the exception of a single numeric criterion for selenium for Gilbert Bay, no other numeric water quality criteria are available for Gilbert and Gunnison Bays. Gilbert and Gunnison Bays continue to be protected by Utah's Narrative Standards (UAC R317-2-7.2) and antidegradation policy (UAC R317-2-3).

The USACE is requested to include all of the conditions of this 401 Water Quality Certification (Certification) in the USACE 404 Individual Permit SPK-2011-00755 (to be determined in 2015) and issued to the Union Pacific Railroad (UPRR).

Approval is hereby given to permanently close the East Culvert of the UPRR Causeway in the Great Salt Lake under the following conditions.

1. The installation of the Bridge and Control Berm will be completed as outlined in Section 3.7.1 and Appendix A of the January 2015 Proposed Compensatory Mitigation and Monitoring Plan (CMMP) by December 31, 2016, unless the action is prevented or delayed by a force majeure or by a delay in approval by DWQ or USACE. In the event that the bridge and control berm construction is delayed beyond Dec 31, 2016 due to UPRR's failure, the Director may take appropriate action to ensure completion.
2. UPRR shall allow the Director, or authorized representatives, upon the presentation of credentials and other documents as may be required by law, and in compliance with all UPRR and legal safety requirements to:
 - A. enter upon the UPRR Causeway where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the Certification;
 - B. have access to and copy, at reasonable times, any records that must be kept under the conditions of this Certification;
 - C. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operation regulated or required under this Certification;
 - D. sample or monitor at reasonable times, for the purpose of assuring Certification compliance or as otherwise authorized by the Utah Water Quality Act, any substances or parameters at any location; and
 - E. conduct activities contemplated in the CMMP, as negotiated in the Long-Term Memorandum of Understanding (MOU) (see condition 3.E. below);
 - F. inspections during the bridge implementation phase will be at Director's discretion in coordination with UPRR.
3. UPRR must adhere to all elements defined in the CMMP, unless otherwise approved by the Director, including these clarifications and modifications:

- A. Fulfill the Water Quality (Salinity and Salt Balance) Performance Standard as described in January 2015 CMMP, Section 3.9.2, Table 3-7 and defined by the ranges shown in the table below.

South Arm Water Surface Elevation Range (feet above mean sea level))	Salinity Performance Standard Range (Percent Salinity)
4,193 up to 4,195	11.9 – 26.3
4,195 up to 4,197	9.9 – 25.0
4,197 up to 4,199	8.8 – 22.7
4,199 up to 4,201	7.6 – 20.5
4,201 up to 4,203	6.7– 18.5
4,203 up to 4,205	6.3 – 16.5
4,205 up to 4,207	6.2 – 14.7
4,207 up to 4,209	6.3 – 13.1
4,209 up to 4,211	6.7 – 11.5

1. If the Great Salt Lake water surface elevation falls below or above the historic elevation range used to develop the Performance Standards (South Arm Water Surface Elevation <4,193 or >4,211) for two consecutive quarters or after 1 quarter when the salinity from the previous quarter was outside of the Salinity Performance Standard Ranges, UPRR shall update and extend the 2012 UPRR/USGS Model after second consecutive quarter using the same methodology used to derive the original Salinity Performance Standard Ranges (salinity ranges) in order to calculate a salinity range at the new elevation within 90 days of the determination. In addition, UPRR may submit alternative methodology(s) to determine the appropriate salinity range such as extrapolation of the Salinity Performance Standard Ranges if the Director concurs.

- B. Compliance with the Salinity Performance Standard Ranges described in Condition 3.A. will be documented through quarterly data and annual reports required by Condition 3.G. In addition, the following steps shall be followed to ensure that if the Salinity Performance Standard Ranges are not being met, adaptive management will be implemented to resolve the deviations:

1. When ambient monitoring results for salinity are outside the Performance Standard Ranges for 4 consecutive quarters, UPRR will complete the process as described in the January 2015 CMMP, Section 3.10. 3. UPRR will then submit to DWQ a proposed remediation plan to meet the Salinity Performance Standard Ranges within 2 months of the 4th consecutive quarter results, unless UPRR demonstrates and the Director concurs that Condition 3.B.1.a. applies, or if Condition 3.B.1.a. does not apply but Condition 3.B.1.b. does apply. UPRR will implement adaptive management within 2 months of receiving the Director’s approval of the remediation plan. The provision to hold a public notice and comment period on any remediation plans to implement adaptive management (as described in the January 2015 CMMP, Section 3.12.2) will be at the Director’s discretion.

a. The deviations from the Salinity Performance Standard Ranges are not project caused and the bridge replicates the function of the free-flowing culverts. This determination will be based on a comparison of quarterly salinity values from the observations and from a model simulation that replaces the bridge with the free-flowing culverts utilizing the updated 2012 UPRR/USGS Model. The difference in salinity between the bridge and the free-flowing culverts will be calculated for each quarter and averaged. An average difference in salinities of no more than 2% absolute

difference or 10% relative difference, whichever is less, will be considered to support the determination that the observed deviations of salinity from the Salinity Performance Standard Ranges are not project-caused.

b. The beneficial uses are and will be protected under the new salinity regime.

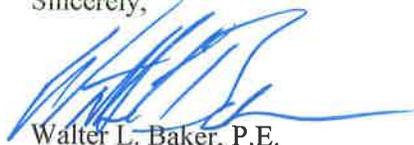
- C. The 2012 UPRR/USGS Model (Model) update required in Condition 3. B. shall follow the January 2015 CMMP, Section 3.10.3 including the following additional tasks:
1. Verify the equations used in the Model to simulate bi-directional water and salt transfer through the openings in the causeway utilizing available monitoring data, if appropriate and feasible, or conduct sensitivity analysis;
 2. Review methods and results from latest GSL modeling efforts, including Division of Forestry, Fire, State Lands (FFSL) Great Salt Lake (GSL) Integrated Water Resources Model, and incorporate improvements into the Model if consistent and appropriate within the regulatory framework;
 3. Report the results of 2012UPRR/USGS Model update to DWQ no later than 2 months from the fourth quarter water quality monitoring report.
- D. UPRR will conduct the required monitoring until the results demonstrate that the Salinity Performance Standard Ranges are being met and trends indicate they will continue to be met into the future. UPRR may request cessation of monitoring and adaptive management by submitting a Completion Report that includes no less than 5 years of monitoring results after the most recent causeway modification affecting water and salt transfer. If after 60 days of public notice the director concurs that the Salinity Performance Standard Ranges are met, the Director will approve cessation of monitoring and adaptive management. The Completion Report will document the results of the monitoring during the agreed permit monitoring period after the bridge and berm completion and describe any long-term changes in flow and salt transfer associated with the project in relation to lake salinity and the beneficial uses of the Great Salt Lake, mitigation objectives, anti-degradation policy, numeric criteria and narrative standards. If the Completion Report is not approved, the Director will provide UPRR with a detailed description of the deficiencies and UPRR will submit a revised report addressing these deficiencies within 60 days of receiving notification, unless an alternative time period is approved by the Director. UPRR, and DWQ shall meet and consider which aspects of the monitoring and adaptive management program should continue and any other additional terms required for the Completion Report.
- E. A Long-Term Management Memorandum of Understanding (MOU) will be drafted that defines the DWQ's, UPRR's and the Utah Department of Natural Resource's legal, financial and regulatory role relating to the modifications of and access to the control berm and causeway opening after the UPRR monitoring period ends. The relevant parties and their roles must be defined and the MOU signed prior to the Director granting cessation of the monitoring period and the relinquishing of adaptive management responsibility as defined in the January 2015 CMMP, Section 3.10.2 and Condition 3d. The proposed MOU must be public noticed for a minimum of 30 days.
- F. Determination of compliance with the Causeway Opening Geometry Performance Standards 1, 2 and 4 of the January 2015 CMMP will be made semi-annually for the first two years after bridge completion and then annually until cessation of monitoring is granted by the Director. Triggers for adaptive management will be based on the semi-annual and annual measurement results with the targets noted in the section entitled *Causeway Opening Geometry Performance Standards* of the January 2015 CMMP, Section 3.9.1, Table 3-5.

- G. Quarterly water quality data monitoring reports to document compliance with the Performance Standards referenced in January 2015 CMMP, Section 3.9.2, Table 3-7 will be submitted to the DWQ within 45 days of a sampling event or as otherwise approved by the Director. The annual report shall be submitted by February 1 of each year following the reporting period. All annual reports will be approved by the Director in writing. If the annual report is not approved, the Director will provide UPRR with a detailed description of the deficiencies and UPRR will submit a revised report addressing these deficiencies within 60 days of receiving notification, unless an alternative time period is approved by the Director.
 - H. The January 2015 CMMP must be updated with the conditions outlined in this 401 Water Quality Certification and submitted to the Director for approval. UPRR will complete this update to the Director no more than 30 days from the issuance of the related USACE 404 Permit No.: SPK 2011-0755. If the revised CMMP is not approved, the Director will provide UPRR with a detailed description of the deficiencies and UPRR will submit a revised CMMP addressing these deficiencies within 60 days of receiving notification, unless an alternative time period is approved by the Director.
 - I. Submittal of a revised Quality Assurance Project Plan (QAPP) and Sampling and Analysis Plan (SAP) will be within 120 days of receiving the Director's approval of the Final CMMP. The QAPP must meet all EPA Requirements for Quality Assurance Project Plans (EPA/240/B-001/003).
4. During construction of the bridge and earthen berms, Best Management Practices (BMPs) are required to minimize the erosion-sediment load to adjacent waters during project construction activities. Sediment retention efforts will be put in place at all drainage areas along the construction corridor to minimize movement of sediment into the water courses. Failure to implement appropriate BMPs may result in a Notice of Violation of the Utah Water Quality Act.
 5. Utah Code Annotated 19-5-114 requires that any spill or discharge of oil or other substances which may cause pollution to the waters of the State, including wetlands, must be immediately reported to the Utah DEQ Spill Hotline at (801) 536-4123, a 24-hour phone number. UPRR agrees to fully remediate any spill or discharge in accordance with all applicable regulations.
 6. UPRR shall not use any fill material which may leach organic chemicals (e.g., discarded asphalt) or nutrients (e.g., phosphate rock) into Great Salt Lake.
 - o The applicant shall obtain the following permits from DWQ prior to the construction phase of the project: Dewatering activities, if necessary during the construction, may require coverage under the UPDES General Permit for Construction Dewatering, Permit No. UTG070000. A fact sheet describing the permit application procedures are located on our web site at: <https://secure.utah.gov/stormwater/main.html>. The permit requires water quality monitoring every two weeks to ensure that the pumped water is meeting permit effluent limitations, unless the water is managed on the construction site.
 - o Construction activities that disturb one acre or more are required to obtain coverage under the Utah Pollutant Discharge Elimination System (UPDES) Storm Water General Permit for Construction Activities, Permit No. UTR300000. The permit requires the development of a storm water pollution prevention plan (SWPPP) to be implemented and updated from the commencement of any soil disturbing activities at the site until final stabilization of the project. A fact sheet describing the permit application procedures are located on our web site at: <https://secure.utah.gov/stormwater/main.html>.
 7. UPRR must acquire all necessary easements, access authorizations and permits to ensure they are able to build the bridge. Meeting this requirement will fulfill the easement requirement stated in condition #4 of 401 Water Quality Certification SPK 2011-00755 dated December 16, 2013.

Page 6

Please contact Mr. Bill Damery at (801) 536-4354, wdamery@utah.gov with any questions you may have concerning this 401 Water Quality Certification with Conditions.

Sincerely,



Walter L. Baker, P.E.
Director.

WLB:WD:mc

cc: Kathleen Anderson, USACE.
Julia McCarthy, USEPA.

File: SPK 2011-00755 March 2, 2015.