

**Union Pacific Railroad
Permanent East Culvert Closure and Bridge Individual Permit – Response to Public 401 Certification Comments 2/26/15**

ID	Reference	Entity	Category	Public Comment Submitted during the Public Comment Period	Response
1	CMO 2015	Compass Minerals	CMMP	Provided below are Compass Minerals Ogden, Incorporated's (CMO) comments regarding the Union Pacific Railroad's (UPRR) Compensatory Mitigation and Monitoring Plan and Antidegradation Review documents posted on the Utah DWQ's clearinghouse on the project in January 2015.	
2	CMO2015	Compass Minerals	CMMP	The initial concept of a 180' bridge contemplated in 2012 was associated to a simple model developed to best match pre-culvert closure water and salinity transfer between the North and South Arms of the Great Salt Lake. Subsequent modelling has revealed that the 180' bridge did not meet that objective to replace arm-to-arm transfers water and salt transfers function that was previously provided by the free-flowing east and west culverts; the 180' design created numerous imbalances, all skewed towards higher transfers of salt and water, and therefore did not meet objectives. UPRR subsequently modified its bridge design to a 150' span to meet original project objectives. Nonetheless, the project has evolved, and taken on a hybrid design of including a 180' bridge, with a 150' opening, that will be realized by filling the bridge opening (narrowing the opening) with rock fill. Under Adaptive Management though, the rock fill may be modified to either increase or decrease the span opening, based on assessment of conditions relative to the overall mitigation objectives. It would appear based on modelling, however, that increasing the opening will create imbalances relative to the objective. To that end, based on current modelling, Compass Minerals would not support future modifications that would increase the width of the opening beyond 150 feet.	<p>Under the mitigation requirements established by the USACE and the CMMP, the purpose of the project is to duplicate the aquatic functions of the culverts, that is, provide water and salt transfer through the causeway with the new bridge and causeway opening similar to would have occurred with the free-flowing culverts in their 2012 vertical position. Under most hydrologic conditions, the model indicated that a 150-foot causeway opening would provide the closest match to the function of the closed culverts (UPRR 2014a and UPRR 2014b). However, if monitoring pursuant to the CMMP's monitoring and reporting program demonstrates that the project is not performing as the model and the project impacts analysis predicted, adaptive management may be required to more closely match conditions represented by the free-flowing culverts.</p> <p>The project's mitigation objective is not to modify the control berms to achieve ideal lake salinity conditions; rather it is to duplicate, as closely as possible, the water and salt transfer as the closed culverts provided and cause less-than-minimal effects on the aquatic resources of the lake.</p>
3	CMO 2015	Compass Minerals	CMMP	CMO has concerns that the proposed rock fill would have a higher hydraulic conductivity than current compacted embankment materials, and therefore, a rock fill used to constrict the opening would have a higher transmissivity than the modelled 150' bridge opening (which would be positioned between in-situ embankment fill). Therefore, it is possible that the effective opening, if the rock fill has a higher transmissivity than in-situ embankment fill, would enable flow volumes higher than modelled volumes of a 150-foot bridge, increasing water and salinity transfers beyond the predicted model. If the rock fill does have a higher transmissivity, the width of the rock fill should be narrowed accordingly to account for this difference so the effective water and salt transfer is that same as the modelled 150 bridge with in-situ embankment fills on either side.	The final design of the control berm is ongoing, however preliminary geotechnical analysis has been conducted and the control berm will be constructed out of the same materials as the causeway, that is the core of the berm will be constructed using the same rock material from the Lakeside quarry. This grade of material will consist of gradations up to 1.5 feet in diameter. The constructed berm will be protected against erosion by the placement of larger stone, using a combination of Lakeside quarry rock B3 and A3 size stone (gradations between 1.5 feet and 2.6 feet in diameter, and 2.6 feet to 3.5 feet in diameter respectively). There is no indication that this material will have a higher hydraulic conductivity than the current causeway materials.
4	CMO 2015	Compass Minerals	CMMP	The proposed period of monitoring of 5 years seems inadequate as changes over the large GSL system may take years to develop, and recognizable, significant trends even longer.	<p>UPRR conducted an analysis that evaluated the lake response to the opening of the existing 300-foot breach in 1984. This analysis is presented in section 3.2.7 of the Resource Evaluation Report (UPRR 2014c).</p> <p>In summary, the 300-foot bridge created an opening in the causeway on August 1, 1984. At that time the South Arm lake surface was about 4,209 feet, with the North Arm about 3.2 feet lower. The salinity difference between the two arms was about 16%. Salinity sampling and analysis data and lake surface data were compared and the data indicates that within about 6 weeks the lake had reached a relative equilibrium, that is the difference in the lake levels stabilized (Figure 3-13). With regard to salinity, South Arm appeared deep brine layer appeared to move toward a more constant salinity within 6 months of the breach opening (Figure 3-15).</p> <p>Current lake conditions do not reflect such a large surface water elevation or salinity difference between the North and South Arms, such that one could expect the lake to reach a relative equilibrium faster after completion of</p>

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					<p>construction than in 1984 and 1985.</p> <p>The model shows that the water and salt transfer through the causeway responds to inflows and outflows and conditions vary seasonally, annually and cyclically. Once the proposed causeway opening is constructed and opened, the lake conditions will reach a relative equilibrium based on lake inflows and outflows and the characteristics of the causeway and its openings relative to lake levels. Along with the natural hydrologic variation the lake will also respond to anthropogenic influences (water diversions from the watershed or from the lake itself, infrastructure and other human influences). It is unreasonable to monitor the lake longer, as more changes in municipal and industrial activities could have a compounding effect on the lake and then performance of the bridge (as compared to the culverts) becomes more complicated. There is no basis to conclude that a longer monitoring period is required. However, we note that the five-year period is five years of success in meeting the project’s mitigation objective and performance standard. Should adaptive management be required to adjust the causeway opening to meet the salinity performance standard, there will be five years of monitoring following that adjustment to demonstrate post-adjustment success in meeting the performance standard.</p>
5	CMO 2015	Compass Minerals	CMMP	Key ions specific to lake mineral extraction operations, including potassium, sodium, magnesium and sulfate should be sampled and monitored during all sampling events.	<p>The ions referred to in the comment together with calcium and chloride are measured in the analytical measurement of total dissolved solids (TDS). UPRR is proposing to sample for TDS and other parameters to calculate North and South Arm salinity. In response to the impacts analysis submitted in support of this project, State DWQ has accepted salinity as a surrogate for water quality, as the water and salt model have been accepted for use in the analytical process evaluating this project and its’ impacts on the Great Salt Lake ecosystem. Similarly, the performance standards for the project are focused on salinity.</p> <p>It would be unreasonable to require UPRR to collect samples and analyze for ions, just for the sake of adding to the general body of knowledge for the Great Salt Lake, with no connection to the project or project effects.</p>
6	CMO 2015	Compass Minerals	CMMP	The as-built causeway Opening Geometry Performance Standard with an error range of 10% may create flow conditions that are significantly above or below objectives. The allowable performance standard error factor should be reduced.	<p>The causeway opening geometry performance standard allows a 10% increase or decrease in overall nominal dimensions and geometry. This range is appropriate given the uncertainty associated with the model results (+/- 15%) and the uncertainty associated with the actual data collected and analyzed by UGS (+/- 5%) for this project. The water and salt balance model, as developed by USGS and modified by UPRR, was accepted by USGS and UDWQ as an appropriate tool to design the mitigation design (UDWQ 2014).</p>
7	CMO 2015	Compass Minerals	CMMP	Prior to issuance of any permit, UPRR should respond to Utah State University modelling efforts that found much different water salinity transfers than what had been modelled by the UPRR team. Responses should be made public and subject to additional comment and inquiry.	<p>UPRR has reviewed the Utah State University modelling effort that was a result of the GSL Technical Team grant. The report “<i>Modeled changes to Great Salt Lake salinity from railroad causeway alteration</i>” (USU 2014). The USU study approached simulating lake conditions differently than UPRR approached the simulations. UPRR’s modeling analysis has been peer reviewed by USGS and UDWQ.</p>

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					<p>To our knowledge the USU Study has not been third party reviewed nor accepted for use on the UPRR project by regulating agencies (UDWQ and USACE). While not inferring the USU Study approach is better or worse, <i>per se</i>, its methodology is than that used in the UPRR model, designed for use in a regulatory setting in consultation with one of the USGS model’s original authors, Kidd Waddell, and prepared in coordination with UDWQ and USGS and was critically review by USGS (UDWQ 2014).</p> <p>Briefly, the USU study documented running the model for historical lake conditions from a 1966 through 2012, a period of 46 years. UPRR model simulated lake conditions from 1987-2012, a period of 26 years. The USU study simulated baseline lake conditions under the “subsided” model, with the culverts closed and breach deepened. The UPRR baseline simulation had the culverts open and free flowing in their 2012 position with the breach deepened at the appropriate times (in 1996 and 2000). The UPRR baseline condition represents the condition that the new causeway opening was designed to replicate—to duplicate the aquatic functions that the causeway provided in response to otherwise varying conditions, such as lake levels, with the culverts in their 2012 vertical position (at the time of closure)..</p>
8	CMO 2015	Compass Minerals	CMMP	Quarterly reports generated by UPPR should be made public.	All documents submitted to the UDWQ and USACE are available for review under the state Government Records Access Management Act and the federal Freedom of Information Act. Further, throughout this permitting process, UDWQ has put UPRR’s monitoring submissions on its website.
9	EPA 2015	EPA	Draft 401	The Environmental Protection Agency Region 8 (EPA) has reviewed the draft Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) for the permanent closure of the East Culvert of the Union Pacific Railroad’s (UPRR) Great Salt Lake Causeway. The scope of this WQC focuses on the permanent fill for the East Culvert and the associated Compensatory Mitigation and Monitoring Plan (CMMP), and provides conditions to be included in the U.S. Army Corps of engineer (USACE)’s pending CWQ Section 404 standard individual permit SPK-2011-00755.	
10	EPA 2015	EPA	Draft 401	<p>The EPA is providing comments on this WQC because the Great Salt Lake is an important ecosystem and so that monitoring and mitigation measures associated with this project are protective of the water quality and existing uses of this ecosystem. Great Salt Lake is an ecological resource of national and international significance, and a major economic driver for multiple industries. The construction of the causeway has already lead to significant ecosystem changes in the Great Salt Lake¹, and the permanent closure of the culverts further contributes to the cumulative loss of hydrologic connectivity. We believe that the special conditions in the WQC will provide additional assurances that the proposed mitigation does not lead to adverse effects to Great Salt Lake water quality and aquatic life uses.</p> <p>1. Gwynn, J.W. (2002) Great Salt Lake, Utah: Chemical and Physical Variations of the Brine and SPRR Causeway, 1966-1996. In: Great Salt Lake: an Overview of Change, edited by J.W. Gwynn, Utah Department of Natural Resources.</p> <p>Loving, BL, Waddell, K.M, and C.W. Miller. (2002) Water and Salt Balance of Great Salt Lake, Utah, and Simulation of water and Salt Movement through the Causeway,1963-98. In: Great Salt Lake: an Overview of Change, edited by J.W. Gwynn, Utah Department of Natural Resources.</p> <p>Jones, E.F., and W.A. Wurtsbaugh. (2014) The Great Salt Lake’s monimolimnion and its importance</p>	

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11	EPA 2015	USEPA	CMMP	In the CMMP, the UPRR proposes to construct a 180-foot-long bridge and an adjacent control berm (150 foot-long opening with and (<i>sic</i>) invert elevation of 4,183 feet). The proposed CMMP includes a five-year monitoring and adaptive management period to determine whether adjustments to the size of the control berm need to be made to maintain existing (November 2012 baseline)cross-flow conditions and associated water quality endpoints.	<p>UPRR wishes to clarify that the mitigation objective is to duplicate, as closely as possible, the water and salt transfer with the project compared to the free-flowing culverts over time. The 1987-2012 water and salt model compares both conditions (free flowing culverts to proposed causeway opening) for the entire 25 time period. The project mitigation objective is not to maintain existing November 2012 lake conditions or any specific point in time lake condition. As discussed further below, the historic and modeled salinity ranges are important elements of the performance standards, and the comparison of ambient data with these ranges in the monitoring and reporting program is a critical step in determining whether the project is meeting its performance standards and the mitigation objective. However, completion of all the monitoring and reporting steps set forth in Section 3.10.3 is necessary to determine whether the project is actually meeting the performance standard. Without these additional steps, the agencies cannot determine the role of the causeway opening in duplicating the functions of the culverts and causing or contributing to a variation of the ambient data outside the established ranges. Maintaining the November 2012 baseline in this case is not to provide the same lake conditions that occurred in November 2012 but to provide the same functions that the culverts would have provided at their 2012 levels—but in the context of the lake’s ever-changing conditions. The monitoring and reporting steps outlined in Section 3.10.3 are in place to make the determination whether the new causeway opening is functioning as the 2012 culverts would have as the lake changes. If it is not functioning as the culverts would have, is causing the lake conditions to vary beyond the established predictions and is adversely affecting aquatic resources, then adaptive management measures would be undertaken.</p> <p>Modifications to the control berm, through adaptive management, would be made to better meet the mitigation objective, duplication of function over time, if the project is shown not to be performing.</p>
12	EPA 2015	USEPA	CMMP	The EPA has actively participated in the review and development of the CMMP, along with the Utah Division of Watery Quality (UDWQ) and USACE, with particular emphasis on appropriate performance standards and approaches to adaptive management. We appreciate the level of coordination among agencies in exploring how to best protect water quality while providing for the applicant’s needs.	
13	EPA 2015	USEPA	401 Certification	The EPA believes that the proposed CMMP would benefit from additional streamlining and flexibility in the initiation of adaptive management measures. As such, we have the following recommendations for the UDWQ to consider when finalizing the WQC special conditions.	<p>UPRR appreciates the input it has received from UDWQ, USACE, EPA and the other agencies. UPRR made extensive revisions to produce the November and January CMMPs to respond to EPA’s earlier comments on performance standards and adaptive management. As revised the adaptive management process is very clear.</p> <p>However, the complexity of the GSL and the tools available to analyze project effects, design the mitigation and report on performance are not conducive to further streamlining or simplification. Because UPRR is charged with mitigating the impacts of closing the culverts by duplicating their over time</p>

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					<p>and differing lake levels. Therefore, the initiation of adaptive management must await a determination of the effect the project is having in relation to what the culverts would have provided, and that analysis and determination cannot be reactionary to a single monitoring event or aquatic resource assessment.</p> <p>UPRR has in the past heard comments from EPA that assert that running the model as proposed in Section 3.10.1.3 creates a “moving” performance standard. However, as reflected above the performance standard is to duplicate the function of the culverts as they existed as of November 2012, over time. However, that is not the 2012 lake conditions but the 2012 position of the culverts, which had sunk over time and, at the time they were closed providing water and salt transfer functions tied to that elevation]Because GSL conditions outside of UPRR’s control, such as lake levels which respond to seasonal, annual and cyclic hydrologic cycles and watershed and in lake water right diversions change constantly and which then influence the water and salt transfer through the causeway which results in North and South Arm salinity concentrations, The mitigation has been designed to best replicate the culvert functions over time and should be measured for success using the same scientific tools. These changing conditions must be taken into account in order to determine whether the project is meeting the performance standard. Reference is made to section 3.5.1 regarding an explanation of baseline.</p>
14	EPA 2015	USEPA		<p>Our main concern is that the CMMP includes several time-consuming steps between salinity performance standard exceedance and the initiation of adaptive management. The steps outlined in the CMMP would take a minimum of 10 months to complete, meaning adaptive management would not occur for at least 16 months after salinity values are first reported to be outside the performance standard. Further, this timeline does not factor in the time it would take for USACE and UDWQ to review and concur with their updated model/impact assessment or adjustment proposal. The proposed bridge design includes a control berm that could be adjusted with relatively minimal effort or disruption to operations; therefore, the CMMP should provide for berm adjustments without undue assessment or delay if the salinity performance standard is not achieved and a rapid response is deemed necessary. We believe that the special condition requiring a 45 day turnaround for water quality monitoring reports (Condition 4e) will help streamline the process and reduce undue delays. We recommend the State also consider a condition that acknowledges the UDWQ Director’s discretion to require adaptive management whenever performance standards are not met or the salinity values are adversely affecting aquatic life uses of the lake, particularly if UDWQ determines that more timely action would be needed to maintain water quality and aquatic life uses of the lake.</p>	<p>To clarify, if one monitoring event indicates the lake salinity is outside of the historic and modeled ranges, it would take 9 months to acquire the remaining 3 quarterly samples which would make up the one-year hydrologic cycle. The proposed plan has UPRR starting the model process and aquatic resource assessment after the second event that results in salinities outside the range, which is 3 months after the first event. In summary 9 months after the first event, UPRR should have one years of data to, if necessary, propose a plan to modify the control berms, if the project has been determined to be causing the variations. This plan would be submitted within 2 months of the last monitoring event, or 11 months after the first monitoring event. Once approval is received, the adaptive management measure would be completed within two months.</p> <p>As described In UPRR’s comments on Proposed Condition 4c, the steps outlined in the CMMP are necessary to determine whether the project is meeting the performance standard and what adaptive management actions may be needed. It would be arbitrary and capricious to require UPRR to take adaptive management actions without first determining whether the causeway opening, as opposed to the many other potential causes, is not duplicating the functions of the culvert and, if not, what adjustments must be made to ensure that it does. Without taking the steps prescribed in the CMMP, such a requirement would be based on speculation rather than the sound analytical approach that UPRR developed with significant input from USACE, UDWQ and the other agencies</p> <p>UPRR acknowledges the District Engineer’s authority and discretion under the mitigation rule. Each action UPRR has taken since agreeing to develop</p>

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					<p>and undertake a significant impacts reevaluation and modeling effort has been based on the recognition that UPRR must design mitigation and a revised CMMP that meets applicable USACE and UDWQ requirements and that each significant action to be taken under the CMMP requires both agencies' review and approval. UPRR will not be taken any significant action independently; rather each such action leading up to adaptive management is subject to the review and approval of the District Engineer and the UDWQ Director. Of course, the agencies must base their decisions upon their authority and the scientific data, and monitoring information and analytical tools developed and approved for use in the project.. UPRR has worked closely with USACE, UDWQ EPA and all other agencies to ensure that the best available information has been used to develop the CMMP and will be gathered to support determinations to be made under the CMMP. As explained in other responses, we are concerned that the decisions made here be based on the analytical approach and the significant body of scientific and modeling information developed with extensive input of the agencies for this project. The unique conditions of the GSL are taken into account in the CMMP and all the reports leading up to it. Requiring the changes EPA proposes would be inconsistent with data and analysis in the record for this project.</p>
15	EPA 2015	USEPA	CMMP	<p>We recognize the need to update and calibrate the salt balance model to determine whether the project contributes to changes in salinity and to inform adaptive management decisions. However, we are concerned that the CMMP is not clear that the intended goals of the salt balance model update do not extend to determining compliance with performance standards. Any updates to the model following exceedance of salinity performance standards would utilize monitoring data values that fall outside of the previously observed and modelled range. Thus it would not be appropriate to use this updated model for determining whether the project was meeting performance standards (i.e., duplicating the water and salt transfer as documented in November 2012). Use of an updated model with broader input data ranges would create a moving target of lake condition. We recommend the CMMP be revised to more clearly describe and limit the purpose of the proposed model update and calibration. Specifically, we recommend the purpose be revised to state that the sole purposes of the model update are to determine what contributed the salinity to be outside the established range (e.g., abnormal precipitation event vs. the berm) and to determine the appropriate berm modifications for adaptive management.</p>	<p>UPRR suggests that it may be more appropriate and better understood, if the use of the 1987-2012 model salinity ranges is clarified. The discussion of the ranges in Section 3.9.2, including Table 3-6 of the CMMP reflect that those target ranges are used to trigger the complete analysis to determine whether the overall performance standard “ duplication of water and salt transfer” is being met. The target ranges provide for a preliminary]comparison of the monitoring results to the historic data and 1987-2012 model predictions, followed by additional analysis as described in Section 3.10.3, if over time, the project results in salinities that exceed historic and 1987-2012 model ranges.</p> <p>Section 3.10.3 of the CMMP (p 39) of the CMMP, states that the”... updated water and salt balance model ...will allow for the analysis to determine if the project is duplicating the function of the culverts” (i.e. the causeway with the opening is conveying water and salt similarly to what the causeway with the free-flowing culverts would have provided). This is the first purpose of the model’s use in this part of the monitoring and reporting, the second would be to determine the appropriate causeway opening modifications for adaptive management. UPRR believes these purposes align with the EPA recommendation.</p> <p>Due to the amount of data analysis required, UPRR and agency resources involved to run and concur with the water and salt balance modeling effort, the CMMP proposes to develop an updated model, only when salinity ranges are not met for a full hydrologic cycle. The historic and 1987-2012 model ranges are appropriate tools to use in the ultimate determination whether the mitigation project is meeting the obligation to duplicate the functions of the culverts, but it would not be appropriate to require adaptive management only on the basis of the comparison of ambient salinity data to these ranges.</p>
16	EPA 2015	USEPA	401 certification	<p>As noted in the CMMP, the compensatory mitigation project must (1) replace the aquatic functions of the east and west culverts (transfer of water and salt) and (2) result in less-than-minimal effects on aquatic resources.</p>	<p>For the reasons discussed in UPRR’s comments on proposed condition 4c, it</p>

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					<p>the results of one or two monitoring events that are outside the range should be characterized as just that—a variation outside the historic and modeled ranges, which triggers the additional analysis needed to determine whether the causeway opening itself is succeeding or failing to meet its performance standard—duplicating the water and salt transfer function of the culverts</p> <p>For all the same reasons, it would not be proper to require UPRR to make adaptive management adjustments before this process is complete. Such actions would be premature, have insufficient scientific support, pose the risk of making conditions worse and impose an unreasonable and unjustified regulatory burden on Union Pacific.</p> <p>Our objections to and concern with this requirement are magnified further by EPA’s advocacy of requiring a completed assessment and triggering adaptive management after two consecutive monitoring are outside the historic range only. Again, meeting the historic range is not a performance standard—duplicating the culverts functions is the standard. Using the historic range as a proper analytical tool for further analysis as described in the CMMP is proper, but imposing regulatory obligations based on the trigger EPA (and the DWQ proposed Condition 4c) would have no justification in the science and would impose an undue and improper regulatory burden on UPRR. Again, this advocacy appears to be based on the incorrect assumption that the historic range is a project performance standard.</p>
17	EPA 2015	USEPA	401 Certification	<p>We acknowledge that development of additional performance standards will be necessary when water surface elevations (WSE) fall below or rose above the WSE identified in the Historic and Modeled ranges in the CMMP. We recommend the State consider a WQC condition that directs the UPRR to coordinate with the UDWQ and resource agencies in developing these performance standards to ensure that proposed performance standards support the ecological resources of the lake. Particularly for low lake levels, extrapolated salinity values may be too high to support aquatic life uses, thus a simple extrapolation of historic/modeled values may not be the appropriate way to develop additional performance standards.</p>	<p>The historic salinity ranges are based on UGS sampling and reporting data for 1966-2011. It is un-prejudiced with regard to if the reported salinity is “good” or “bad”. That judgment is reserved for the aquatic assessment and potential impacts to beneficial uses.</p> <p>The current CMMP proposes that UPRR, in consultation with USACE and UDWQ will develop an extension of the historic data graph to cover the higher or lower WSEs. This process could include the incorporation of additional data that has been collected or consideration for trends. However, the historic South Arm Salinity Range graph illustrates the actual collected and analyzed data (with associated error) and does not include an analysis whether the salinity at any given elevation is non-supportive of aquatic resources.</p>
18	EPA 2015	USEPA	401 Certification	<p>Given the relatively short timeframe covered by the CMMP, a long-term management plan will be critical for ensuring the maintenance and protection of the existing uses of the lake. As such, we appreciate Condition 4b, which requires the development of a Memorandum of Understanding (MOU) for coordinating long-term management of the lake, as well as information on how this MOU could be used to develop a long-term management plan.</p>	<p>UPRR is supportive of the development of the MOU to define the long-term management roles for the mitigation project. Legal, financial and regulatory roles will be identified for maintenance, access and future control berm modifications.</p>
19	WRA 2015	Western Resource Advocates		<p>Thank you for the opportunity to comment on the draft 401 Certification and on the Proposed Compensatory Mitigation and Monitoring Plan (Plan) related to the proposal to permanently close the east culvert of the Union Pacific Railroad (railroad or UPRR) Great Salt Lake causeway. These comments are submitted on behalf of FRIENDS of Great Salt Lake (FRIENDS).</p>	
20	WRA 2015	Western Resource		<p>Initially, FRIENDS would like to thank the Utah Division of Water Quality (DWQ), and you specifically, for the work you’ve put into the 401 Certification process over the past several years. We recognize the many</p>	

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		Advocates		challenges that have presented themselves throughout this process and we appreciate the tenacity that you have shown in addressing those challenges. Much more is known today about the conditions associated with permanently closing the culverts and constructing the bridge than a year ago, and decision makers are therefore in a much better position to correctly design the opening of the bridge structure along with possible adaptive management options. We especially appreciate DWQ's creativity with regard to the control berm concept and we are of the opinion that this feature will provide state and federal agencies with much need options to adaptively manage the bridge opening as Lake conditions fluctuate.	
21	WRA 2015	Western Resource Advocates	401 Cert/CMMP	Having said that, FRIENDS feels that there are few areas where the draft 401 Certification and the Mitigation and Monitoring Plan fall short.	
22	WRA 2015	Western Resource Advocates	CMMP	<p>Five Years is Too Short a Mitigation and Monitoring Period.</p> <p>As FRIENDS has consistently noted, five (5) years is much too short a mitigation and monitoring period to be effective, especially given the varying conditions of Great Salt Lake. With the continuing low Lake levels that exist today, we are left to wonder if what we are seeing is a new normal for the Lake, or if Lake levels will rise substantially in a few years' time. Regardless, because we cannot possibly predict what will happen with Lake levels in the next five years, it is imperative that your 401 Certification require the longest practical mitigation and monitoring period. Due to the unpredictable nature of Lake elevations and the significant implications related to the long-term management of the bridge opening, FRIENDS continues to advocate for a ten (10) year monitoring and mitigation period.</p>	<p>See response to comment 4.</p> <p>The request for 10 years of monitoring has no scientific basis to support it. While it is true the longer term hydrologic cyclic nature of the lake (longer than one year) is unpredictable, historical records show that seasonally and annually the lake rises and falls in a similar trending fashion. Annually, the lake surface will be high in spring and low in fall. Over these seasonal and annual hydrologic cycles, the performance of the causeway with the bridge and new causeway opening in place can be compared to the modeled performance of the causeway with the free-flowing culverts, using the accepted analytical process and the scientific tools available. One of the principal purposes of the monitoring and reporting element of the CMMP is to determine whether the bridge and control berm are functioning as predicted by the USGS Water and Salt Balance modeling effort in terms of replacing the water and salt transfer that the culverts had provided under baseline conditions. The five year monitoring period provides sufficient time to determine whether the mitigation is succeeding at replacing the aquatic functions of the culverts, and the control berm will be available to the State to make future management-related adjustments in the causeway opening.</p>
23	WRA 2015	Western Resource Advocates	CMMP	<p>State Agencies Should Not be Responsible for Long-Term Management of the Control Berm.</p> <p>As outlined in the Proposed Compensatory Mitigation and Monitoring Plan, UPRR is proposing to turn control of long-term monitoring and mitigation measures over to state agencies after the close of the initial monitoring and mitigation period. According to the Plan, as long as the control berms remain unchanged from the original design (or a modified design if analysis conducted within the initial period shows that the original control design is not performing as expected), UPRR will continue to maintain the control berms, along with the bridge, in its normal course of doing business. However, after that initial period, once a decision is made to modify the berms in any way, UPRR is proposing to wash its hands of that modification. As outlined in the Plan, if state and federal agencies determine that a modification to the berms is necessary after the initial period, the railroad will provide access to the berms, but the agencies will be required to provide both the expertise and the funding to make any needed changes. Further, once a change is made, UPRR will no longer maintain the berms, but will instead "notify the responsible party if adverse conditions are found." Plan at 48. This is not a reasonable or practical proposal.</p> <p>Instead, in exchange for providing UPRR with an easement to enact these mitigation measures, the State should require that the railroad be responsible for any long-term modifications or maintenance of both the</p>	<p>As provided in the CMMP, UPRR proposes to prepare, in coordination with state agencies a Memorandum of Understanding for long-term management and maintenance of the control berm and bridge structure as UPRR currently maintains the entire causeway structure.</p> <p>Upon UPRR's completion of the permit obligations, the state can modify the control berms to achieve lake management salinity objectives. The cost to conduct these modifications should not be a burden on UPRR, as the number and nature of the actions is unknown. It is not reasonable to hold UPRR fiscally responsible for meeting long term lake management strategies.</p> <p>Past efforts have been conducted by the State to modify the existing 300-foot bridge. In 1996 and 2000, the State Division of Water Resources designed and constructed modifications that lowered the existing bridge invert, in an effort to provide more north-to-south flow, as the lake levels were falling. These efforts were conducted by the State, in coordination with UPRR, and there is no reason to believe future modifications to either opening in the causeway</p>

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				control berms and the bridge opening that state and federal agencies deem appropriate. While UPRR and the various agencies are parsing this action as mitigation for the closing of the two culverts, the reality is that the existence of the causeway has significantly and permanently altered the ecosystem of the Lake. This, as they say, is the elephant in the room. DWQ should not agree to a plan that shifts the responsibility for long-term management of the control berms away from the railroad and onto the citizens of the State.	could not be conducted using similar protocols. Further, we emphasize that the issue is not so much which entity will manage the berm itself, but which entity has the authority and responsibility to set policy and manage lake conditions in the long term. As acknowledged in the prior comment, the control berm will be an important tool for the State to use in exercising its authority. Consistent with the State's and UPRR's historical practices,
24	WRA 2015	Western Resource Advocates	CMMP	<p>Adaptive Management Decisions Should Not be Limited to DWQ and the U.S. Army Corps of Engineers.</p> <p>Recognizing that because of statutory and regulatory responsibilities UPRR is looking to DWQ and the U.S. Army Corps of Engineers as the lead state and federal agencies in this action, FRIENDS asks that DWQ devise an adaptive management process that includes appropriate state (Division of Forestry, Fires & State Lands, Division of Wildlife Resources, Utah Geological Survey) and federal agencies (Environmental Protection Agency, Fish and Wildlife Service, U.S. Geological Survey), as well as the various stakeholders with interests in the viability of Great Salt Lake. Any decision to modify the control berm structures should be as inclusive as possible and should be based on the best available sound science. We also request that DWQ create and maintain a means of disseminating information to the public related to the ongoing monitoring and mitigation efforts associated with this action.</p>	<p>UPRR proposes to conduct adaptive management when the monitoring and reporting program shows that the project is not meet its mitigation objectives and performance standard. Under the agencies direction for this project, UPRR is required to provide water and salt transfer through the causeway to replace the water and salt transfer function lost due to the closure of the culverts. This is the purpose of the project; the monitoring and reporting program,(Section 3.10.3), and the adaptive management plan (section 3.11.2) described in the plan lay out the accepted analytical process using the best available scientific tools (including use of the USGS water and salt balance model) to determine whether the project is meeting its mitigation objective and performance standards and, if not, what adaptive management steps will be proposed. Each analytical step and the adaptive management determinations will be made in full coordination with and the approval of the regulating agencies. .</p> <p>All documents submitted to the UDWQ and USACE are available for review under the state Government Records Access Management Act and the federal Freedom of Information Act. In addition, UDWQ has posted all significant submissions on its website.</p>
25	WRA 2015	Western Resource Advocates		Again, thank you for the opportunity to comment on this draft 401 Certification and on UPRR's Proposed Compensatory Mitigation and Monitoring Plan. As always, we very much appreciate your willingness to consider our input and to work with us towards improving the water quality of Great Salt Lake.	

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