PACIFIC STATES
CAST IRON PIPE COMPANY
DIVISION OF McWANE, INC
P.O. BOX 1219, PROVO, UTAH 84603
TELEPHONE (AREA CODE 801) 373-6910
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PSCIPCO

September 9, 2013

Daniel Griffin
Division of Water Quality
Utah Department of Environmental Quality
P.O. Box 144870
Salt Lake City, Utah 84114-4870

Re: **Pacific States Cast Iron Pipe Company Antidegradation Review**

Dear Mr. Griffin:

Enclosed you will find the requested revised Antidegradation Review Form and associated Report for the proposed addition of cooling tower effluent to the Million Gallon Reservoir for subsequent discharge at permitted outfall Discharge 001 (UPDES Permit UT0000612). As noted during previous correspondence, this project is still under development. Additional details regarding the cooling tower operation and characterization of the effluent from the system will be provided as it becomes available. Contact David Georgeson (801-623-4212, david.georgeson@pscipco.om) if you have any questions or comments regarding this project and/or the proposed modifications to our permit.

Respectfully,

Kent Brown

Kent Brown
Vice President/General Manager

Level II Antidegradation Review Report

1 Introduction

This report provides information related to the potential modification of the Utah Pollutant Discharge Elimination System (UPDES) permit issued to Pacific States Cast Iron Pipe Company (PSCIPCO) to accommodate typical waste streams from a cooling tower such as blow down, tank overflow, and system draining for maintenance activities. The existing casting machines at PSCIPCO use non-contact cooling water that is discharged after a single pass through the system to the Ironton Canal at UPDES permitted outfall 001 Discharge. In the coming months, PSCIPCO will be replacing two of its casting machines with a single new casting machine. The new casting machine will use a closed loop cooling water system in conjunction with a cooling tower, with effluent from the system commingled with the remaining non-contact cooling water effluent.

The requested permit modification requires the completion of a Level II Antidegradation Review (ADR) as the addition of cooling tower effluent will not be a temporary or limited action and may potentially modify the characteristics of the existing permitted waste water discharge for the facility. This report contains a general overview of the project as well as the information required in Part C (Statement of Environmental, Social, or Economic Development) and Part E (Alternatives Analysis) of a Level II ADR.

2 Project Overview

Pacific States is in the process of replacing two existing casting machines with one high-efficiency, state-of-the art casting machine. The new casting machine will lower the labor costs associated with casting and will provide better control of pipe quality. Foundation work for this machine was completed in the summer of 2013 with installation of the new machine expected sometime that fall. It is anticipated that the new casting machine will be equipped with a closed-loop, non-contact cooling water system that will maintain the water temperature using a cooling tower (see attached figure). The new cooling tower will be installed in a vacated concrete secondary containment area directly north of the casting area and adjacent to the Ironton Canal (see attached figure).

There are preliminary plans to replace the remaining five existing casting machines with two to three new casting machines at some future date. The timeline for the complete replacement of the existing casting machines is not clear at this point, but there is a tentative schedule to install a second machine in 2015. It is anticipated that subsequent installations will also be equipped with a similar closed-loop, non-contact cooling water system. Additional cells would then be added to the proposed cooling tower to accommodate the additional flow.

3 Statement of Environmental, Social, or Economic Development

The following section describes the social and economic impacts from the proposed permit modification as required by Part C of the ADR.

C1. Describe the social and economic benefits that would be realized through the proposed project, including the number and nature of jobs created and anticipated tax revenues.

Pacific States intends to replace two existing casting machines with a single high-efficiency, state-of-the-art casting machine which will have double the production rate of an existing unit. The installation of a new casting machine will reduce the number of operators from 10 (to operate two existing machines) to 5 (to operate a single new machine) for an approximate labor savings of $250,000 per year. The new casting machine will provide better control of pipe quality and will ensure the long-term viability of Pacific States, preserving the existing work force. The new casting machine will also be capable of casting "thin wall" pipe, which opens up new marketing opportunities for PSCIPCO.

C2. Describe any environmental benefits to be realized through implementation of the proposed project.

The proposed project will likely decrease the thermal loading of the cooling water discharged to the Ironton Canal at permitted outfall 001 Discharge, as described previously. The cooling water for the existing casting machines will remain at a constant flow rate, but will cool half the number of casting machines. Therefore, the temperature of the water from 001 Discharge is anticipated to decrease. However, due to a number of variables, this decrease cannot be quantified prior to implementation of the modification. Total stream flow will likely remain similar to pre-project levels.

The new casting machine will provide better control of pipe quality, thus the amount of off specification product is expected to decrease. If less product is scrapped due to quality issues, less raw materials and resources will be required to produce the same amount of finished product. This will result in a net decrease in environmental impact considering raw materials, natural resources, air emissions, and energy generation/usage. The new casting machine is subject to air permitting action and was permitted under R307-401-12, Reduction in Air Contaminants.

C3. Describe any social and economic losses that may result from the project, including impacts to recreation or commercial development.

PSCIPCO currently discharges non-contact cooling water to the Ironton Canal, which drains to Utah Lake by way of Provo Bay. The communities potentially affected by the permitted discharge, as it exists today, include recreational and commercial users of downstream bodies of water. The proposed addition of cooling tower effluent to PSCIPCO's existing non-contact cooling water discharge will not significantly change the flow from permitted outfall 001 Discharge. However, it may potentially result in a marginal increase in pH, total dissolved solids (TDS) and total residual chlorine (TRC). It is anticipated that this marginal increase in pH, TDS and TRC concentration, if any is realized, will have little or no social or economic cost, including any impacts to recreation or commercial development, on downstream water bodies.

C4. Summarize any supporting information from the affected communities on preserving assimilative capacity to support future growth and development.

No such information exists.

C5. Please describe any structures or equipment associated with the project that will be placed within or adjacent to the receiving water.

As shown in the attached figure, the proposed cooling tower will be located adjacent to the Ironton Canal within a concrete secondary containment unit.

4 Alternatives Analysis

The following section discusses the feasibility of less-degrading alternatives to the proposed project, as required by Part E2 and E3 of the ADR.

E2. Describe the following factors for all alternative treatment options 1) a technical description of the treatment process, including construction costs and continued operation and maintenance expenses, 2) the mass and concentration of discharge constituents, and 3) a description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants.

Alternative treatment options for non-contact casting machine cooling water prior to discharge to the Ironton Canal include;

- Retention
- Cooling tower

4.1 Retention

Non-contact cooling water from the existing casting machines is currently discharged to the Million Gallon Reservoir (MGR) after a single pass through the system. Cooling water is retained in the MGR allowing for solids removal and temperature adjustment. A similar approach could be taken for management of cooling water from the new casting machine. The sections below provided additional detail for this treatment option.

1) Technical description of the treatment process, including construction costs and continued operation and maintenance expenses.

Cooling water from the existing casting machines is collected into a single pipe in the casting area for discharge to the MGR. Cooling water from the new casting machine could be similarly collected within the casting area. Construction costs for this tie-in to the existing system are roughly estimated at $500,000. The cost of continued operation and maintenance of this tie-in is expected to be minimal.

2) Mass and concentration of discharge constituents.

The mass and concentration of discharge constituents in this treatment option would not likely differ significantly from the existing mass and concentration of discharge constituents. Below are the characteristics of parameters monitored at outfall 001 Discharge in 2012 for UPDES permit compliance purposes.

Table 1. 001 Discharge 2012 Monitored Data

Parameter	Minimum	Average	Maximum
Flow (MGD)	-	1.708	2.384
Temperature (°C)	-	25.4	33.4
Thermal (MBTU)	-	134.8	345.6
pH	7.8	7.9	8.2
Total Suspended Solids (mg/L)	-	4.2	5.4

3) Description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants.

The proposed treatment option requires little, if any, recurring operation and maintenance activities. The MGR will need to be dredged at some future date as solids accumulate over time. Increases in discharged pollutants as a result of this maintenance activity cannot be quantified at this point.

4.2 Cooling Tower

This proposed treatment option involves the use of a closed-loop, non-contact cooling water system that will maintain the water temperature using a cooling tower. The sections below provided additional detail for this treatment option.

1) Technical description of the treatment process, including construction costs and continued operation and maintenance expenses.

Treatment of the cooling water from the new casting machine using a cooling tower will reduce the volume of water used by the system. Typical effluent from the cooling tower will consist primarily of blow down to maintain system chemistry as well as occasional discharges of cooling water for maintenance activities or in the event of a tank overflow. It is proposed that effluent from the cooling tower system be diverted to the existing MGR where it will commingle with the permitted non-contact cooling water from the remaining casting machines and the cupola. The combined effluent will ultimately be discharged to the Ironton Canal at outfall 001 Discharge, as shown in the attached water balance for the pump water system. The construction and installation of a closed loop system controlled by a cooling tower is roughly estimated at $646,000.

Ongoing operational activities include monitoring the system for correct chemical balance and treatment, as necessary. Ongoing maintenance activities, as recommended by the vendor, are shown in the following table. The recommended service intervals shown below are for typical installations. Different environmental conditions may dictate more frequent servicing. The cost of ongoing operation and maintenance activities is roughly estimated at $2,500 per month.

Table 2. Cooling Tower Recommended Service Interval

Service Type	Start-Up	Monthly	Quarterly	Annually	Shutdown
Inspect and clean as necessary:					
Inspect general condition of the tower and check unit for unusual noise or vibration[1]	X	X			
Inspect cold and hot water basins/spray nozzles	X		X		
Drain basins and piping			X		X
Inspect air inlet louvers	X	X			
Check and adjust water level in basins	X	X			
Check operation of make-up valve	X	X			
Check and adjust bleed rate	X	X			
Inspect tower finish				X	
Mechanical equipment system:					
Check belt condition	X	X			
Adjust belt tension[2]	X		X		
Lubricate fan shaft bearings	X		X		X
Lubricate motor base adjusting screw	X		X		X
Check drive alignment				X	
Check motor voltage and current	X		X		X
Clean fan motor exterior	X		X		
Check fan motor for proper rotation	X				
Check general condition of the fan			X		
Check fan for uniform pitch			X		
Check fan for rotation without obstruction	X		X		

1. When operating in ambient temperatures below freezing, the cooling tower should be inspected more frequently.
2. Tension on new belts must be readjusted after the first 24 hours of operation and quarterly, thereafter.

2) Mass and concentration of discharge constituents.

Two of the older cast machines will be removed during the installation of the new cast machine. However, the pump that supplies cooling water to the remaining four older casting machines is not variable. Therefore, the return water from the remaining older casting machines will continue to discharge approximately 1,520 gpm to the MGR. Assuming all other conditions remain the same, it is anticipated that the addition of the cooling tower blow down will increase the flow rate from outfall 001 Discharge by 30 gpm to an average of 1,600 gpm.

The quality of water being discharged to the Ironton Canal will also change under this treatment option. Under normal operating conditions (i.e., continuous blow down), water to the cooling tower must be chemically conditioned to maintain proper operating conditions, as listed below. A material safety data sheet (MSDS) for each chemical is provided along with this report.

- Scale buildup treatment (most likely ISI 511 or ISI 586, both containing sodium hydroxide and sodium organophosphates)
- Biocide treatment (most likely 0.3 ppm dose rate of 12.5% sodium hypochlorite)
- Passivator treatment (most likely hexametaphosphate)
- pH treatment (most likely sulfuric acid).

Table 3. Estimated Commingled Waste Stream Characteristics

	001 Discharge Pre-Project	Cooling Tower Blow Down	001 Discharge Post-Project
Flow (gpm)	1,190[1]	30	1,220
pH	7.9[1]	8.5	7.9
Temperature (C)	25[1]	65	< 25[4]
Total Suspended Solids (mg/L)	4.2[1]	0	4.1
Total Dissolved Solids (mg/L)	549[2]	1,500	572
Total Residual Chlorine (ppm)	0[2,3]	0.2[4]	0.006[5]

1. Average of 2012 UPDES compliance monitoring data.
2. Average of data collected in 2010 and 2011.
3. Completed in-house using informal non-EPA approved analytical test methods (Hach titration kit).
4. The temperature of the return cooling water from the casting machines will remain at a constant flow rate, but will cool a reduced number of casting machines. Temperature is anticipated to decrease, but is not quantifiable prior to project completion.
5. Worst case concentration, assuming zero decay. Actual concentration will be based upon operating conditions.

The values shown in the table above are based on a conservative mass balance of the system, assuming no POC is consumed, retained or reacted during treatment in the MGR (i.e., dilution only). The simplified equation used to estimate the characteristics of the commingled waste stream is provided below.

$$X_F = \frac{(X_{CT}Q_{CT}) + (X_D Q_D)}{(Q_F)}$$

Where:

X_{CT} – POC concentration in cooling tower blow down
Q_{CT} – Flow of cooling tower blow down
X_D – POC concentration in 001 Discharge
Q_D – Flow of 001 Discharge
X_F – POC concentration in commingled waste stream
Q_F – Flow of commingled waste stream

As shown in Table 3, the MGR will serve as a treatment unit for the cooling tower effluent by providing additional residence time for the water to cool and for the TRC to be consumed prior to discharge at outfall 001 Discharge. Cooling tower effluent addition to the MGR will likely result in a decrease in the temperature of the water being discharged to the Ironton Canal. This decrease in temperature may allow for additional recirculation within the facility prior to ultimate discharge. However, the change in

temperature as well as the flow rate cannot be quantified until the system is operational. Although the pH of the water may increase slightly, it is not anticipated to be above the existing permit limit of 9.0.

3) Description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants.

The vendor recommends that the cooling tower system be emptied prior to long shutdowns as well as quarterly for a visual inspection of the system. The effluent drained from the cooling tower system will be drained to the MGR. At such times, it is likely that the remainder of the facility will also be down; therefore, effluent from the remaining casting machines and cupola would not likely be discharged to the MGR during a purge of the cooling tower system. The following table shows the anticipated characteristics of the water in the MGR assuming that the two effluents are completely mixed and the facility is not operating.

Table 4. Estimated Temporary Increases in Discharged Pollutants Due to Maintenance Activities

	Million Gallon Reservoir[1]	Cooling Tower Hot Tank	Cooling Tower Cold Tank	Combined Effluent
Volume (gal)	2,195,000	17,500	17,500	2,230,000
pH	7.9	8.5	8.5	7.9
Temperature (C)	< 25[2]	65	40	< 25[3]
Total Suspended Solids (mg/L)	4.1	0	0	4.0
Total Dissolved Solids (mg/L)	572	1,500	1,500	587
Total Residual Chlorine[4] (ppm)	0.006	0.2	0.2	0.009

1. Anticipated characteristics under continuous blow down.
2. The temperature of the return cooling water from the casting machines will remain at a constant flow rate, but will cool half the number of casting machines. Temperature is anticipated to decrease, but is not quantifiable at this point in the project.
3. During shutdown of the facility, the water level in the MGR typically drops well below the discharge weir. It is not anticipated that the purge of the cooling tower system will result in an immediate discharge from the MGR at outfall 001 Discharge. As such, effluent will likely decrease in temperature to ambient conditions over time.
4. Worst case concentration assuming no chlorine is consumed during retention. Actual concentration will be based upon operating conditions.

E3. Describe the proposed method and cost of the baseline treatment alternative. The baseline treatment alternative is the minimum treatment required to meet water quality based effluent limits (WQBEL) as determined by the preliminary or final wasteload analysis (WLA) and any secondary or categorical effluent limits.

1) Temperature

The WQBELs for temperature established in a draft WLA provided to PSCIPCO on April 2, 2013 are provided below.

Table 5. Temperature Water Quality Based Effluent Limits

Season	WQBEL	2012 Average Flow (MGD)	Corresponding Temperature Limit (°C)
Spring	$T_{el} = 103.43Q_e^{-0.228}$	1.84	32.2
Summer	$T_{el} = 109.56Q_e^{-0.229}$	1.58	37.0
Fall	$T_{el} = 112.46Q_e^{-0.291}$	1.24	41.0
Winter	$T_{el} = 99.18Q_e^{-0.336}$	1.96	26.2

Q_e – Effluent Flow (MGD)
T_{el} – Effluent Limit (°F)

The temperature of the cooling tower blow down is estimated at 65 °C at a flow rate of 30 gpm. This waste stream will be combined with the existing cooling water waste stream from the cupola and casting machines in the MGR. The MGR will serve as a treatment unit for the cooling tower blow down by providing additional residence time for the water to cool prior to discharge at outfall 001 Discharge.

As mentioned previously, the return cooling water from the casting machines will remain at a constant flow rate, but will cool two-thirds the number of casting machines. As such, the temperature of the water from 001 Discharge is anticipated to decrease even with the addition of the cooling tower blow down. The anticipated decrease in temperature is subject to a number of variables and is not likely to be quantifiable until the project is complete and a standard operating procedure has been established.

Although the cooling tower blow down will be discharged to the MGR at a higher temperature than the existing flows, volumetrically it will not contribute significantly to the commingled waste stream. A conservative simple mass balance of the system results in a temperature at the outfall of 26.0 °C (see Table 3). This calculation assumes no heat is lost to the atmosphere during treatment in the MGR and that additional cooling is not realized by the decrease from six to four casting machines. This is below the WQBEL for temperature in all four seasons established in the draft WLA. No treatment, outside of retention in the MGR is required to meet the WQBEL for temperature.

2) pH

During normal operation, the pH of the cooling tower blow down is anticipated to be no more than 8.5 at a flow rate of 30 gpm. This waste stream will be combined with the existing cooling water waste stream from the cupola and casting machines in the MGR. A conservative simple mass balance of the system, assuming no pH buffering occurs during treatment in the MGR, results in a pH of 7.9 at the outfall (see Table 3). A WQBEL was not established for pH in the draft WLA provided to PSCIPCO on April 2, 2013. However, this slight increase in pH is well below the limit of 9.0 established in the current UPDES permit for the facility.

3) Total Suspended Solids

The effluent target for TSS established in a draft WLA provided to PSCIPCO on April 2, 2013 is 90 mg/L. The concentration of TSS in the cooling tower blow down is estimated at 0 mg/L at a flow rate of 30 gpm. This waste stream will be combined with the existing cooling water waste stream from the cupola and casting machines in the MGR. A conservative simple mass balance of the system results in a TSS

concentration of 4.1 mg/L at the outfall (see Table 3). This is a slight decrease in concentration compared to the waste stream as it exists today. This concentration is also well below the effluent target for TSS established in the draft WLA. No treatment, outside of retention in the MGR is required to meet the effluent target for TSS.

4) Total Residual Chlorine

The WQBELs for TRC established in a draft WLA provided to PSCIPCO on April 2, 2013 are provided below.

Table 6. Total Residual Chlorine Water Quality Based Effluent Limits

Season	Period	Concentration	Load
Summer	4 Day Avg. - Chronic	0.026 mg/L	0.77 lbs/day
	1 Hour Avg. – Acute	0.047 mg/L	1.37 lbs/day
Fall	4 Day Avg. - Chronic	0.031 mg/L	0.89 lbs/day
	1 Hour Avg. – Acute	0.054 mg/L	1.58 lbs/day
Winter	4 Day Avg. - Chronic	0.030 mg/L	0.89 lbs/day
	1 Hour Avg. – Acute	0.054 mg/L	1.58 lbs/day
Spring	4 Day Avg. - Chronic	0.026 mg/L	0.00 lbs/day
	1 Hour Avg. – Acute	0.045 mg/L	0.00 lbs/day

The concentration of chlorine in the cooling tower blow down is estimated at 0.2 mg/L at a flow rate of 30 gpm. This waste stream will be combined with the existing cooling water waste stream from the cupola and casting machines in the MGR. The MGR will serve as a treatment unit for the cooling tower blow down by providing additional residence time for the TRC to be consumed prior to discharge at outfall 001 Discharge. A conservative simple mass balance of the system, assuming no chlorine is consumed during treatment in the MGR, results in a chlorine concentration of 0.006 mg/L at the outfall (see Table 3). This is well below the WQBEL for TRC established in the draft WLA. No treatment, outside of retention in the MGR is required to meet the WQBEL for TRC.

ANTIDEGRADATION REVIEW FORM
UTAH DIVISION OF WATER QUALITY

Instructions

The objective of antidegradation rules and policies is to protect existing high quality waters and set forth a process for determining where and how much degradation is allowable for socially and/or economically important reasons. In accordance with Utah Administrative Code (UAC R317-2-3), an antidegradation review (ADR) is a permit requirement for any project that will increase the level of pollutants in waters of the state. The rule outlines requirements for both Level I and Level II ADRs, as well as public comment procedures. This review form is intended to assist the applicant and Division of Water Quality (DWQ) staff in complying with the rule but is not a substitute for the complete rule in R317-2-3.5. Additional details can be found in the *Utah Antidegradation Implementation Guidance* and relevant sections of the guidance are cited in this review form.

ADRs should be among the first steps of an application for a UPDES permit because the review helps establish treatment expectations. The level of effort and amount of information required for the ADR depends on the nature of the project and the characteristics of the receiving water. To avoid unnecessary delays in permit issuance, the Division of Water Quality (DWQ) recommends that the process be initiated at least one year prior to the date a final approved permit is required.

DWQ will determine if the project will impair beneficial uses (Level I ADR) using information provided by the applicant and whether a Level II ADR is required. The applicant is responsible for conducting the Level II ADR. For the permit to be approved, the Level II ADR must document that all feasible measures have been undertaken to minimize pollution for socially, environmentally or economically beneficial projects resulting in an increase in pollution to waters of the state.

For permits requiring a Level II ADR, this antidegradation form must be completed and approved by DWQ before any UPDES permit can be issued. Typically, the ADR form is completed in an iterative manner in consultation with DWQ. The applicant should first complete the statement of social, environmental and economic importance (SEEI) in Part C and determine the parameters of concern (POC) in Part D. Once the POCs are agreed upon by DWQ, the alternatives analysis and selection of preferred alternative in Part E can be conducted based on minimizing degradation resulting from discharge of the POCs. Once the applicant and DWQ agree upon the preferred alternative, the review is considered complete, and the form must be signed, dated, and submitted to DWQ.

For additional clarification on the antidegradation review process and procedures, please contact Nicholas von Stackelberg (801-536-4374) or Jeff Ostermiller (801-536-4370).

Antidegradation Review Form

Part A: Applicant Information

Facility Name: Pacific States Cast Iron Pipe Company

Facility Owner: McWane, Inc

Facility Location: 2550 South Industrial Parkway, Provo, UT

Form Prepared By: Holly Guerrero

Outfall Number: 001 Discharge

Receiving Water: Ironton Canal

What Are the Designated Uses of the Receiving Water (R317-2-6)?
Domestic Water Supply: None
Recreation: 2B - Secondary Contact
Aquatic Life: 3C - Nongame Fish
Agricultural Water Supply: 4
Great Salt Lake: None

Category of Receiving Water (R317-2-3.2, -3.3, and -3.4): Category 3

UPDES Permit Number (if applicable): UT0000612

Effluent Flow Reviewed: 3.5 MGD
Typically, this should be the maximum daily discharge at the design capacity of the facility. Exceptions should be noted.

What is the application for? (check all that apply)

☐ A UPDES permit for a new facility, project, or outfall.

☐ A UPDES permit renewal with an expansion or modification of an existing wastewater treatment works.

☒ A UPDES permit renewal requiring limits for a pollutant not covered by the previous permit and/or an increase to existing permit limits.

☐ A UPDES permit renewal with no changes in facility operations.

Part B. Is a Level II ADR required?

This section of the form is intended to help applicants determine if a Level II ADR is required for specific permitted activities. In addition, the Executive Secretary may require a Level II ADR for an activity with the potential for major impact on the quality of waters of the state (R317-2-3.5a.1).

B1. The receiving water or downstream water is a Class 1C drinking water source.

☐ **Yes** A Level II ADR is required (Proceed to Part C of the Form)

☒ **No** (Proceed to Part B2 of the Form)

B2. The UPDES permit is new or is being renewed and the proposed effluent concentration and loading limits are higher than the concentration and loading limits in the previous permit and any previous antidegradation review(s).

☒ **Yes** (Proceed to Part B3 of the Form)

☐ **No** No Level II ADR is required and there is no need to proceed further with review questions.

B3. Will any pollutants use assimilative capacity of the receiving water, i.e. do the pollutant concentrations in the effluent exceed those in the receiving waters at critical conditions? For most pollutants, effluent concentrations that are higher than the ambient concentrations require an antidegradation review? For a few pollutants such as dissolved oxygen, an antidegradation review is required if the effluent concentrations are less than the ambient concentrations in the receiving water. (Section 3.3.3 of Implementation Guidance)

☒ **Yes** (Proceed to Part B4 of the Form)

☐ **No** No Level II ADR is required and there is no need to proceed further with review questions.

B4. Are water quality impacts of the proposed project temporary and limited (Section 3.3.4 of Implementation Guidance)? Proposed projects that will have temporary and limited effects on water quality can be exempted from a Level II ADR.

☐ **Yes** Identify the reasons used to justify this determination in Part B4.1 and proceed to Part G. No Level II ADR is required.

☒ **No** A Level II ADR is required (Proceed to Part C)

B4.1 Complete this question only if the applicant is requesting a Level II review exclusion for temporary and limited projects (see R317-2-3.5(b)(3) and R317-2-3.5(b)(4)). For projects requesting a temporary and limited exclusion please indicate the factor(s) used to justify this determination (check all that apply and provide details as appropriate) (Section 3.3.4 of Implementation Guidance):

☐ Water quality impacts will be temporary and related exclusively to sediment or turbidity and fish spawning will not be impaired.

Factors to be considered in determining whether water quality impacts will be temporary and limited:

a) The length of time during which water quality will be lowered:
b) The percent change in ambient concentrations of pollutants:
c) Pollutants affected:
d) Likelihood for long-term water quality benefits:
e) Potential for any residual long-term influences on existing uses:
f) Impairment of fish spawning, survival and development of aquatic fauna excluding fish removal efforts:

Additional justification, as needed:

Level II ADR

Part C, D, E, and F of the form constitute the Level II ADR Review. The applicant must provide as much detail as necessary for DWQ to perform the antidegradation review. Questions are provided for the convenience of applicants; however, for more complex permits it may be more effective to provide the required information in a separate report. Applicants that prefer a separate report should record the report name here and proceed to Part G of the form.

Optional Report Name: -*see attached*-

Part C. Is the degradation from the project socially and economically necessary to accommodate important social or economic development in the area in which the waters are located?

The applicant must provide as much detail as necessary for DWQ to concur that the project is socially and economically necessary when answering the questions in this section. More information is available in Section 6.2 of the Implementation Guidance.

C1. Describe the social and economic benefits that would be realized through the proposed project, including the number and nature of jobs created and anticipated tax revenues.

-see attached-

C2. Describe any environmental benefits to be realized through implementation of the proposed project.

-see attached-

C3. Describe any social and economic losses that may result from the project, including impacts to recreation or commercial development.

-see attached-

C4. Summarize any supporting information from the affected communities on preserving assimilative capacity to support future growth and development.

-see attached-

C5. Please describe any structures or equipment associated with the project that will be placed within or adjacent to the receiving water.

-see attached-

Part D. Identify and rank (from increasing to decreasing potential threat to designated uses) the parameters of concern. *Parameters of concern are parameters in the effluent at concentrations greater than ambient concentrations in the receiving water. The applicant is responsible for identifying parameter concentrations in the effluent and DWQ will provide parameter concentrations for the receiving water. More information is available in Section 3.3.3 of the Implementation Guidance.*

Parameters of Concern:

Rank	Pollutant	Ambient Concentration	Effluent Concentration
1	Temperature	15.5 C	< 25 C
2	pH	7.7	7.9
3	Total Suspended Solids	< 4.0 mg/L	4.1 mg/L
4	Total Residual Chlorine	0 ppm	< 0.006 ppm
5			

Pollutants Evaluated that are not Considered Parameters of Concern:

Pollutant	Ambient Concentration	Effluent Concentration	Justification
Total Dissolved Solids	990 mg/L (average of four quarterly measurements upstream of the facility collected by facility employees) 740 mg/L (documented in WLA for UPDES permit)	572 mg/L	Proposed effluent concentration is less than ambient concentration for the receiving water
Sodium Hydroxide, Sulfuric Acid			These POCs are pH altering and are collectively addressed under pH
Dipotassium Phosphate, Sodium Organophosphates			Phosphorus is not a POC for purposes of this ADR, as it is being addressed through the Utah Lake TMDL

Part E. Alternative Analysis Requirements of a Level II Antidegradation Review.

Level II ADRs require the applicant to determine whether there are feasible less-degrading alternatives to the proposed project. More information is available in Section 5.5 and 5.6 of the Implementation Guidance.

E1. The UPDES permit is being renewed without any changes to flow or concentrations. Alternative treatment and discharge options including changes to operations and maintenance were considered and compared to the current processes. No economically feasible treatment or discharge alternatives were identified that were not previously considered for any previous antidegradation review(s).

☐ **Yes** (Proceed to Part F)

☒ **No or Does Not Apply** (Proceed to E2)

E2. Attach as an appendix to this form a report that describes the following factors for all alternative treatment options (see 1) a technical description of the treatment process, including construction costs and continued operation and maintenance expenses, 2) the mass and concentration of discharge constituents, and 3) a description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants. Most of this information is typically available from a Facility Plan, if available.

Report Name: *-see attached-*

E3. Describe the proposed method and cost of the baseline treatment alternative. The baseline treatment alternative is the minimum treatment required to meet water quality based effluent limits (WQBEL) as determined by the preliminary or final wasteload analysis (WLA) and any secondary or categorical effluent limits.

E4. Were any of the following alternatives feasible and affordable?

Alternative	Feasible	Reason Not Feasible/Affordable
Pollutant Trading	Not Applicable	TRC is anticipated to be well below WQBEL
Water Recycling/Reuse	No	Waste stream would require significant TDS treatment to be reused in process
Land Application	No	Volume is too great and flow is not seasonal
Connection to Other Facilities	No	No other facilies within reasonable range
Upgrade to Existing Facility	No	Cooling tower is an upgrade to the existing single-pass system. There is no other upgrade.
Total Containment	No	Volume is too great
Improved O&M of Existing Systems	No	O&M of the existing system would not decrease volume below that expected from the new cooling tower
Seasonal or Controlled Discharge	No	Cooling tower flow will not be seasonal
New Construction	No	Cooling tower is an upgrade to the existing single-pass system. There is no other upgrade.
No Discharge	No	Cooling tower must have blowdown to maintain system

E5. From the applicant's perspective, what is the preferred treatment option?

Installation of a cooling tower with TRC treatment by increased residence time in the Million Gallon Reservoir is the best and prefered treatment option.

E6. Is the preferred option also the least polluting feasible alternative?

☒ **Yes**

☐ **No**

If no, what were less degrading feasible alternative(s)? ☐

If no, provide a summary of the justification for not selecting the least polluting feasible alternative and if appropriate, provide a more detailed justification as an attachment.

☐

Part F. Optional Information

F1. Does the applicant want to conduct optional public review(s) in addition to the mandatory public review? Level II ADRs are public noticed for a thirty day comment period. More information is available in Section 3.7.1 of the Implementation Guidance.

☒ **No**

☐ **Yes**

F2. Does the project include an optional mitigation plan to compensate for the proposed water quality degradation?

☒ **No**

☐ **Yes**

Report Name: ☐

Part G. Certification of Antidegradation Review

G1. Applicant Certification

The form should be signed by the same responsible person who signed the accompanying permit application or certification.

Based on my inquiry of the person(s) who manage the system or those persons directly responsible for gathering the information, the information in this form and associated documents is, to the best of my knowledge and belief, true, accurate, and complete.

Print Name: Kent Brown

Signature: Kent Brown

Date: 9/10/13

G2. DWQ Approval

To the best of my knowledge, the ADR was conducted in accordance with the rules and regulations outlined in UAC R-317-2-3.

Water Quality Management Section

Print Name: NICHOLAS VON STACKELBERG

Signature:

Date: 10/18/13