

Antidegradation Review Form

Part A: Applicant Information

Facility Name: Garland City Wastewater Treatment Facility

Facility Owner: Garland City Corporation

Facility Location: 1206 South 1050 East, Garland, UT

Form Prepared By: Tyson Knudsen, PE

Outfall Number: 001, 002

Receiving Water: Malad River

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: None
Great Salt Lake: None

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

UPDES Permit Number (if applicable):

Effluent Flow Reviewed: 0.45 MGD (Average Day Design)

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: Preliminary Engineering Report, Garland City, UT, May 6, 2015

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.

City of Garland (Garland) has completed a Preliminary Engineering Report (PER) evaluating the level of service of their existing wastewater collection system and use agreement with the City of Tremonton (Tremonton). Garland entered an interlocal user agreement for wastewater treatment services with Tremonton in 1963. The current agreement was said to expired on June 1, 2015 however the agreement contains provisions for extension while terms of the renewal are drafted. In 2012, Garland began evalations for wastewater treatment alternatives to replace future service with Tremonton. The initial results of the the PER determined that construction of a city owned wastewater facility was more economically viable. The PER was approved by USDA-RD and received \$4.672MM in loan and \$4.01MM in grant funds. The project proceeded and was reviewed by the State of Utah. The State of Utah requested a number of edits to the PER (See comment response letter dated February 11, 2019). Revised Table 10 of the PER now indicates that the most viable economic solution is for Garland to remain with Tremonton. However, Revised Table 10 does not account for the funding terms and the \$4.01MM that has been reserved for the construction of a wastewater facility. Also the NPV calculation does not consider the cash flow scenario and since Garland has repaired their existing wastewater collection system utilizing loan money their current obligation is \$58 per month remaining with Tremonton or \$38-\$40 per month if they are to construct their own treatment facility. Additional social and economical considerations include the following; under a proposed user agreement with Tremonton, Garland remains financially responsible to contribute capital on future projects, Tremonton operates their sewer enterprise fund to remain profitable, and

constructon of a POTW will allow Garland to set and control future operating expenses, user rates, and impact fees. These items alone allow Garland to grow unrestricted, with increased opportunity for local prosperity.

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

The proposed POTW will be a new facility with state of the art treatment technology. The level of treatment is anticipated to meet or exceed current water quality requirements for the existing Tremonton City POTW. The project also includes some collection system improvements to reduce infiltration and inflow through aging infrastructure.

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

The proposed POTW will be sited on a 11-acre parcel, which contains some wetland vegetation that historically has provided limited recreation for sportsmen. Permanent improvements are to be limited in delineated wetlands. Social impacts may include the proximity that POTW to residential dwellings. Concept civil site design and public education has reduced the perception of any social losses.

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

Preserving assimilative capacity with the proposed POTW design will incorporate designing expansion area on site for additional treatment units. This will allow for building additional capacity and advanced treatment technologies for removing pollutants of concern, and for maintaining the assimilative capacity of the receiving stream. With future growth, Garland City will develop new pretreatment ordinances that will protect the assimilative capacity.

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

Outfall structures and gravity intercepting pipeline from the collection system will be suspended over the river using a steel casing .

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	Ammonia		0.5
2	Total Phosphorus		1.0
3	Nitrate		10.0
4	BOD		10
5	TSS		15

Pollutants Evaluated that are not Considered Parameters of Concern:

Pollutant	Ambient Concentration	Effluent Concentration	Justification

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 Preliminary Engineering Report (not included with Level II ADR) previously included with the Notice of Intent correspondence submitted to the Utah Division of Water Quality on December 29, 2015. Additional copies available upon request. See also Response to Comments on ADR date February 11, 2019 to Svetlana Kopytkovskiy

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	
Water Recycling/Reuse	No	Tertiary treatment, High capital cost
Land Application	Yes	High capital cost
Connection to Other Facilities	Yes	High monthly user rate
Upgrade to Existing Facility	Not Applicable	
Total Containment	No	High capital cost, limited treatment
Improved O&M of Existing Systems	Not Applicable	
Seasonal or Controlled Discharge	No	High capital cost
New Construction	Yes	
No Discharge	No	High capital cost

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

The Preliminary Engineering Report makes recommendation for a common-wall activated sludge process that utilizes enhanced nutrient removal. The PER recommended the SEQUOX process from AeroMod. The SEQUOX process is very simple and initially proved most economical for construction. Since Garland funding is federal, it requires compliance with open and fair procurement practices so Garland advertised and solicited proposals from large equipment manufactures in the spring of 2018. The specifications in the request for proposal indicated site sizing constraints, process type, effluent objectives, and parameters for comparable evaluation. Garland received a proposal from a comparable process however the proposal lacked sufficient detail as outlined in the RFP. Garland worked with the manufacture for an additional 2 weeks requesting and gathered additional information. However, in the end the proposal remained incomplete and was rejected. Garland remains committed that the SEQUOX process is the preferred process. Historic performance from similarly sized facility indicate that the SEQUOX process can meet or exceed Tremonton City's existing water quality parameters and proposed nutrient parameters for phosphorus and nitrogen. Land disposal had a very similar life cycle cost as a result of net crop revenue and low operating expense. However when evaluated alongside non-economic factors, land disposal was ranked in last place. Land disposal has the potential for zero discharge but opens the City to potential litigation over downstream water rights and has a higher potential to adversely affect groundwater.

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

Yes

No

If no, what were less degrading feasible alternative(s)? **Land Disposal**

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.

See Attachment A, includes the alternatives considered and selection sections, and associated tables from the Preliminary Engineering Report. Appendices referenced in Attachment A are located in the full Preliminary Engineering Report previously included with the Notice of Intent correspondence submitted to the Utah Division of Water Quality on December 29, 2015. Additional copies available upon request.

The Land Disposal alternative was a very close contendor with regards to the life cycle costs but when evaluated for the potential of odors, permitting, and community acceptance the option was ranked the lowest. Additionally, removing treated wastewater from the Malad River could expose Garland to costly litigation from downstream water users and their's a high risk that Land Disposal will result in an advserse direct discharge given the vast expanses of drain tile in Box Elder County.

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:

