UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Division of Water Quality (DWQ)
UPDES Program

UPDES Municipal (POTW) Permit Application

Part I. General Information (40 CFR 122.21(j)(1) and (9))

UPDES Permit No.:

Facility Name: Parowan City

Facility Location: 2800 West 2200 North

City Parowan State UT Zip 84761

Facility Mailing Address: 35 East 100 North, P.O. Box 576

City Parowan State UT Zip 84761

Facility Contact: Cleve Matheson **Title:** City Manager

Phone Number: 435-477-3331 **Email Address:** cleve@parowan.org

Name of Signatory: Preston Griffiths **Title:** Mayor

Is the applicant the facility owner, operator or both? (check only one response.)

☐ Owner ☐ Operator ☒ Both

Indicate below any existing environmental permits. (Check all that apply and type the corresponding permit number for each.)

☐ RCRA (hazardous waste) ☐ UIC (underground injection control) ☐ PSD (air emissions)

☐ Nonattainment program (CAA) ☐ NESHAPs (CAA) ☐ Dredge or fill (CWA Section 404)

☒ Other (specify) Land Disposal UTOP00206

Nature of Business CFR (40 CFR 122.21(f)(8))

Describe the nature of your business

Wastewater treatment for Parowan City and Brian Head Town.

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Part II. Facility Information

Population served?	3,395

Design and Actual Flow Rates

Provide design and actual flow rates in designated spaces.

Design Flow Rate	
474,832	mgd

Annual Average Flow Rates (Actual)					
Five Years Ago		**Four Years Ago**		**Three Years Ago**	
0.33	mgd	0.37	mgd	0.38	mgd
Two Years Ago		**Last Year**		**Current Year**	
0.38	mgd	0.41	mgd	0.38	mgd

Maximum Daily Flow Rates (Actual) The City does not have max daily numbers					
Five Years Ago		**Four Years Ago**		**Three Years Ago**	
	mgd		mgd		mgd
Two Years Ago		**Last Year**		**Current Year**	
	mgd		mgd		mgd

Describe the treatment for each outfall

	Outfall No. 1 (Surface Discharge)	**Outfall No.** 2 (Land App)	**Outfall No.** _____
Highest Level of Treatment (check all that apply per outfall)	■ Primary ■ Equivalent to secondary ☐ Secondary ☐ Advanced ☐ Other (specify) _____	■ Primary ■ Equivalent to secondary ☐ Secondary ☐ Advanced ■ Other (specify) Disinfection	☐ Primary ☐ Equivalent to secondary ☐ Secondary ☐ Advanced ☐ Other (specify) _____
Design Removal Rates by Outfall	minimum of 150 days detention time	minimum of 150 days detention time	
BOD_5	%	%	%
TSS	%	%	%
Phosphorus	☐ Not applicable %	☐ Not applicable %	☐ Not applicable %
Nitrogen	☐ Not applicable %	☐ Not applicable %	☐ Not applicable %
Other (specify)	☐ Not applicable %	☐ Not applicable %	☐ Not applicable %

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Part II. Facility Information *continued*

Does the POTW use chlorine for disinfection, use chlorine elsewhere in the treatment process, or otherwise have reasonable potential to discharge chlorine in its effluent? ■ YES ☐ NO

Describe the type of disinfection used for the effluent for each outfall. If disinfection varies by season, describe below.

Gaseous chlorine is used to disinfect treated effluent that is land applied. It is estimated that disinfection will not be needed when surface discharging due to exceeding 150 days detention, however the City has the ability to chlorine surface discharge effluent if required.

	Outfall No. 1 (surface)	**Outfall No.** 2 (Land App)	**Outfall No.** _____
Disinfection type	None	Chlorine	
Seasons used	Oct-April (Potentially year round)	May-Sept	
Dechlorination used?	■ Not applicable ☐ Yes ☐ No	☐ Not applicable ☐ Yes ■ No	☐ Not applicable ☐ Yes ☐ No

MAP: Attach a USGS topographic map or aerial photo extending one mile beyond the property boundaries of the site, the facility or activity boundaries, any treatment area(s), outfall(s), major drainage patterns, and the receiving surface waters stated above.

■ Map Attached

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Part II. Facility Information *continued*

Are improvements to the facility scheduled?

■ YES If YES, explain below.

☐ NO If NO, Skip to Part III

Briefly list and describe the schedule improvements.

1. Surface Discharge Outfall

2. Land Application Irrigation Pivot

3.

4.

Provide scheduled or actual dates of completion for improvements.

Scheduled or Actual Dates of Completion for Improvements

Scheduled Improvement (from above)	Affected Outfalls (list outfall number)	Begin Construction (MM/DD/YYYY)	End Construction (MM/DD/YYYY)	Begin Discharge (MM/DD/YYYY)	Attainment of Operational Level (MM/DD/YYYY)
1.	1	06/01/2020	06/30/2020	07/01/2020	
2.	2	05/15/2020	05/29/2020	06/01/2020	
3.					
4.					

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Part III. Sampling Information

Provide all parameter sampling data with analytical results, reporting limit and any laboratory flags on an Excel spreadsheet. *An Excel Spreadsheet will be provided upon request.*

Has WET testing been conducted during the last 5 years? ☐ YES ■ NO

Indicate the acute and chronic WET tests (PASS or FAIL) results for the past 5 years. If no WET testing for the quarter, then leave blank (e.g., for semi-annual or annual testing or missed testing events).

Year	Outfall No. ________				Outfall No. ________				Outfall No. ________			
	Acute		Chronic		Acute		Chronic		Acute		Chronic	
	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL
	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL
	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL
	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL
	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL
	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL
	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL
	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL
	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL
	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL
	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL
	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL
	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL
	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL
	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL
	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL
	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL	Qtr 1	☐ PASS ☐ FAIL
	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL	Qtr 2	☐ PASS ☐ FAIL
	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL	Qtr 3	☐ PASS ☐ FAIL
	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL	Qtr 4	☐ PASS ☐ FAIL
Describe any cause(s) of toxicity:												

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Part IV. Compliance Information

Has the facility had an parameter exceedances over the past five years? ☐ YES ☑ NO

If Yes, provide the below information:

Parameter	Exceedance	Month/Year	Cause

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Part IV. Compliance Information ***continued***

Facility monitoring data. See attached data table.

Please provide the past **five years** of all parameters required to be monitored in the UPDES permit. The data can be entered in the section below or an excel spreadsheet. Attached additional sheets if needed.

Month	Year	Parameter	Min	Max	Avg	MDL/RL*

*MDL/RL is the analysis method detection limit or reporting limit located on the laboratory analysis report.

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Part V. Outfalls and Receiving Water(s)

Provide the latitude and longitude to the nearest second for each dewatering outfall. The specified location should be after all treatment and before release to the receiving water. Provide the name of the initial receiving water. If the initial receiving water is unnamed, please also indicate the closed named drainage the receiving water flows into (i.e. unnamed tributary of City Creek). Attach additional sheets if necessary for more outfalls.

Each outfall to a different receiving water segment is subject to additional application fees and annual fees.

Outfall No.	Average daily flow rate	Latitude	Longitude	Receiving Surface Waters (Name)
01	0.474 mgd	37 O 53 ‘ 43 “	112 O 54 ‘ 01 “	Little Salt Lake
02	0.474 mgd	37 O 53 ‘ 36 “	112 O 54 ‘ 05 “	Land Application
	mgd	O ‘ “	O ‘ “	

Do any of the outfalls described above have a season or periodic discharges?

☒ YES ☐ NO

If so, provide the following information for each applicable outfall.

	Outfall No. 1 (Surface)	Outfall No. 2 (Land App)	Outfall No. _____
Number of times per year discharges occurs			
Average duration of each discharge (specify units)			
Average flow of each discharge	0.474 mgd	0.474 mgd	mgd
Months in which discharge occurs	Oct-Apr (potentially year round)	May-Sept	

Part VI. Collection System

Service Area(s)	Population Served	Miles of Pipe
Parowan City	3300	
Brian Head	45	
Total Population Served	3395	**Total Miles of Pipe** 45

USMP Program implemented? ☐ YES ☐ NO

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Part VII. Pretreatment Information

Does the facility have an approved pretreatment program? ☐ YES ■ NO

If YES, skip to next section

If No, complete the below industrial user forms and inspections as needed.

A. Industrial Pretreatment Wastewater Survey

Check any of the following that have occurred in the past five years either at the wastewater treatment plant or in the collection system:

- ☐ Foaming
- ☐ Unusual colors
- ☐ Plugged collection lines caused by grease
- ☐ Plugged collection lines caused by sand
- ☐ Plugged collection lines caused by other debris
- ☐ Discharging of excessive BOD
- ☐ Discharging of excessive suspended solids
- ☐ Smells unusually bad or unusual smells
- ☐ Upsets of the treatment plant due to unknown conditions

Does the facility have any industrial users (IUs) which meet any of the following criteria:

1. **Has a lot of process wastewater (5% of the flow at the waste treatment facility or more than 25,000 gallons per work day.)**
    a. Examples: food processor, dairy, slaughterhouse, industrial laundry.

☐ YES ■ NO

1. **Is subject to federal categorical pretreatment standards**;
    a. Examples: metal plating, cleaning or coating of metals, blueing of metals, aluminum extruding, circuit board manufacturing, tanning animal skins, pesticide formulating or packaging, and pharmaceutical manufacturing or packaging,

☐ YES ■ NO

2. **Is a concern to the POTW.**
    a. Examples: septage hauler, restaurant and food service, car wash, hospital, photo lab, carpet cleaner, commercial laundry.

☐ YES ■ NO

Do any users of the water treatment facility caused any of the following to occur:

☐ YES ■ NO A discharge which creates a fire or explosion hazard in the collection system.
☐ YES ■ NO A discharge which creates toxic gases, vapor or fumes in the collection system.
☐ YES ■ NO A discharge of solids or thick liquids which creates flow obstructions in the collection system.
☐ YES ■ NO An acidic discharge (low pH) which causes corrosive damage to the collection system.
☐ YES ■ NO Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause problems in the collection system or at the waste treatment facility.
■ YES ☐ NO Waste haulers are prohibited from discharging without permission.
☐ YES ■ NO Does the facility believe that illegal dumping is occurring in the jurisdiction?

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Part VII. Pretreatment Information *continued*

Complete and submit a preliminary inspection of each business that is discharging process wastewater to the wastewater treatment plant

B. PRELIMINARY INSPECTION FORM

Inspection Date _____ Inspection Time _____

Name of Business _____ Person Contacted _____

Street Address _____ City _____

Email Address _____ Phone Number _____

Description of Business:

Principal product or service:

Raw Materials used:

Production process is: ☐ Batch ☐ Continuous ☐ Both

If yes, briefly describe seasonal production cycle.

This facility generates the following types of wastes (check all that apply):

1. ☐ Domestic wastes (Restrooms, employee showers, etc.)
2. ☐ Cooling water, non-contact
3. ☐ Boiler/Tower blowdown
4. ☐ Cooling water, contact
5. ☐ Process
6. ☐ Equipment/Facility washdown
7. ☐ Air Pollution Control Unit
8. ☐ Storm water runoff to sewer
9. ☐ Other describe

Wastes are discharged to (check all that apply):

☐ Evaporation
☐ Ground water
☐ Sanitary sewer
☐ Other (describe below)
☐ Storm sewer
☐ Surface water
☐ Waste haulers

Name of waste hauler(s), if used

_____ _____ _____

Is a grease trap installed? ☐ Yes ☐ No
Is it operational? ☐ Yes ☐ No

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Part VII. Pretreatment Information *continued*

B. PRELIMINARY INSPECTION FORM *continued*

Does the business discharge a lot of process wastewater?

- More than 5% of the flow to the waste treatment facility? ☐ Yes ☐ No
- More than 25,000 gallons per work day? ☐ Yes ☐ No

Does the business do any of the following or manufacture any of the following?

- ☐ Adhesives
- ☐ Aluminum Forming
- ☐ Battery Manufacturing
- ☐ Car Wash
- ☐ Carpet Cleaner
- ☐ Copper Forming
- ☐ Dairy
- ☐ Electric & Electronic Components
- ☐ Explosives Manufacturing
- ☐ Food Processor
- ☐ Foundries
- ☐ Hospital
- ☐ Industrial Porcelain Ceramic Manufacturing
- ☐ Inorganic Chemicals Mfg. or Packaging
- ☐ Iron & Steel
- ☐ Laundries
- ☐ Metal Finishing, Coating or Cleaning
- ☐ Mining
- ☐ Nonferrous Metals Manufacturing
- ☐ Organic Chemicals Manufacturing or Packaging
- ☐ Paint & Ink Manufacturing
- ☐ Pesticides Formulating or Packaging
- ☐ Petroleum Refining
- ☐ Pharmaceuticals Manufacturing or Packaging
- ☐ Photo Lab
- ☐ Plastics Manufacturing
- ☐ Restaurant & Food Service
- ☐ Rubber Manufacturing
- ☐ Septage Hauler
- ☐ Slaughter House
- ☐ Soaps & Detergents Manufacturing
- ☐ Steam Electric Generation
- ☐ Tanning Animal Skins
- ☐ Textile Mills

Are any process changes or expansions planned during the next three years? ☐ Yes ☐ No

If yes, attach a separate sheet to this form describing the nature of planned changes or expansions.

_____ _____

Inspector Name Printed | Wastewater Treatment Facility

Any questions regarding the form or assistance with inspecting business please contact

Jennifer Robinson
Pretreatment Coordinator
Division of Water Quality
P. O. Box 144870
Salt Lake City, Utah 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-Mail:jenrobinson@utah.gov

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Part VII. Pretreatment Information *continued*

Either list all businesses below or provide a list of business licenses issued in the facilities service area.

	Name of Business	Jurisdiction	SIC Codes	Total Average Process Flow (gpd)	Total Average Facility Flow (gpd)	Facility Description (dentist, manufacturing [state product], dairy, assisted living facility, etc.)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						

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Part VIII. Bisolids Information

Not Applicable - Lagoon System

Was the Biosolids Annual Report submitted? ☐ YES ■ NO

☐ Attach a Biosolids Management Plan with application

Serve Connections? _____

Provide the total dry metric tons per the latest 365-day period of sewage sludge generated, treated, used and disposed of:

Practice	Dry Metric Tons per 365-day Period
Amount generated at the facility	
Amount treated at the facility	
Amount used (i.e., received from offsite) at the facility	
Amount disposed of at the facility	

Treatment Provided at Your Facility

Identify the treatment process(es) used at your facility to reduce pathogens in sewage sludge

- ☐ Preliminary operations (e.g., sludge grindling and degritting)
- ☐ Stablilization
- ☐ Composting
- ☐ Disinfection
- ☐ Heat drying
- ☐ Methane or biogas capture and recovery
- ☐ Thickening (concentration)
- ☐ Anaerobic digestion
- ☐ Conditioning
- ☐ Dewatering (e.g. centrifugation, sludge drying beds, sludge lagoons)
- ☐ Thermal reduction

Sewage Sludge Disposal Method

Land Application of Bulk Sewage Sludge

Is sewage sludge form your facility applied to the land? ☐ YES ☐ NO If No, Skip to next section

Total dry metric tons per 365-day period of sewage sludge applied to all land sites:

Surface Disposal

Is sewage sludge from your facility placed on a surface disposal site?

☐ YES ☐ NO If No, Skip to next section

Total dry metric tons of sewage sludge from your facility placed on all surface disposal sites per 365-day period: _____

Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?

☐ YES ☐ NO If No, complete the below information

Surface disposal site *you do not operate*

Site name _____

Mailing address _____

City _____ State _____ Zip _____

Contact Name _____ Title _____

Phone Number _____ Email Address _____

UPDES Municipal (POTW) Permit Application

Part VIII. Bisolids Information *continued*

Incineration

Is sewage sludge from your facility fired in a sewage sludge incinerator?
☐ YES ☐ NO If No, Skip to next section

Total dry metric tons of sewage sludge from your facility fired in all sewage sludge incinerators per 365-day period: _____

Do you own or operate all sewage sludge incinerators in which sewage sludge from facility is fired?
☐ YES ☐ NO If No, complete the below information

Incinerator location *you do not operate*

Site name _____

Mailing address _____

City _____ State _____ Zip

Contact Name _____ Title _____

Phone Number _____ Email Address _____

Disposal in a Municipal Solid Waste Landfill

Is sewage sludge from your facility placed on a municipal solid waste landfill?
☐ YES ☐ NO If No, Skip to next section

Total dry metric tons of sewage sludge from your facility placed in this municipal solid waste landfill per 365-day period: _____

Do you own or operate the municipal solid waste landfill in which sewage sludge is disposed?
☐ YES ☐ NO If No, complete the below information

Municipal Solid Waste Landfill *you do not operate*

Site name _____

Mailing address _____

City _____ State _____ Zip _____

Contact Name _____ Title _____

Phone Number _____ Email Address _____

UPDES Municipal (POTW) Permit Application

Part IX. Reuse Information

Is wastewater applied to land?
■ YES ☐ NO If YES, complete the below information.

Land Application Site and Discharge Data

Location	Size	Average Daily Volume Applied	How often
West of Existing Sewer Lagoons	17.7 acres	380,000 gpd	■ Seasonal ☐ Continuous ☐ Intermittent
	acres	gpd	☐ Seasonal ☐ Continuous ☐ Intermittent
	acres	gpd	☐ Seasonal ☐ Continuous ☐ Intermittent

Seasonal land application.

Indicate months of seasonal land application

☐ January	☐ April	■ July	☐ October
☐ February	■ May	■ August	☐ November
☐ March	■ June	■ September	☐ December

Where is the Reuse water distributed

- ☐ Residential irrigation
- ☐ Urban uses
  - ○ Non-residential landscape irrigation
  - ○ Golf course irrigation
  - ○ Toilet flushing
  - ○ Fire protection
- ☐ Irrigation of food crops (direct contact with edible part) – spray irrigation
- ☐ Irrigation of food crops *(Non direct contact with edible part) – no spray irrigation*
- ☐ Irrigation
  - ○ Sod farms
  - ○ Silviculture
  - ○ Limited access highway rights of way
  - ○ Other areas where human access is restrict or unlikely to occur
- ■ Irrigation of animal feed crops other than pasture for milking animals
- ☐ Impoundment of wastewater where direct human contact is not allowed or is unlikely to occur
- ☐ Cooling water
- ☐ Soil compaction or duct control in construction areas
- ☐ Other

☐ **Attached an updated Reuse Project Plan**

An updated Reuse Project Plan is required during every permit renewal.

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review

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, 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 permit 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 Section C and determine the parameters of concern (POC) in Section D. Once the POCs' are agreed upon by DWQ, the alternatives analysis and selection of preferred alternative Section 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 is submitted to DWQ.

What are the designated uses of the receiving water (R317-2-6)?

- ☐ Domestic Water Supply
- ☐ Recreation
- ☐ Aquatic Life
- ☒ Agricultural Water Supply
- ☐ Great Salt Lake

Antidegradation Category 1, 2 or 3 of receiving water (R317-2-3.2, -3.3, and -3.4): _____

_____

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

Effluent flow reviewed: *typically, this should be the maximum daily discharge at the design capacity of the facility. Exceptions should be noted.*

Design flow of 474,832 gpd. Current flows appropriately 380,000.

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 of 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 charges in facility operations.

Section 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 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 B3 of the Form)
- ☐ NO – No Level II ADR is required and there is no need to proceed further with the review questions. Continue to the Certification Statement and Signature page.

B2. 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, and 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 B4 of the Form)
- ☐ NO – No Level II ADR is required and there is no need to proceed further with the review questions. Continue to the Certification Statement and Signature page.

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

B3. 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 form a Lev le II ADR.

☐ YES – Identify the reason used to justify this determination if B4.1 and proceed to Section G. No Level II ADR is required.

☒ NO – A Level II ADR is required (Proceed to Section C)

B3.1 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 perfect 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:	

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

Level II ADR

Section 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 Section G of the form.

Option Report Name: _____

Section 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 the 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.

Obtaining a surface discharge permit will allow the City to continue to accept and treat sewer flows from the residents and local business.

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

The project will allow sewer flows to be properly treated before discharge.

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

None

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

None

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

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

Effluent headwall.

C6. Will the discharge potentially impact a drinking water source, e.g., Class 1C waters? Depending upon the locations of the discharge and its proximity to downstream drinking water diversions, additional treatment or more stringent effluent limits or additional monitoring, beyond that which may otherwise be required to meet minimum technology standards or in stream water quality standards, may be required by the Director in order to adequately protect public health and the environment (R317-2-3.5 d.).

☐ YES
☒ NO

Section 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.	BOD		less than 45 mg/l
2.	TSS		less than 45 mg/l
3.	Total Inorganic Nitrogen		less than 10.0
4.	E.Coli		126 org/ 100 mL
5.	Phosphorus		See Note Below

Note: The City does not have any historical tests of phosphorus to establish a baseline. It is requested that the City be granted a period to obtain baseline phosphorus loads currently being discharged.

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

Pollutants Evaluated that are not Considered Parameters of Concern:

Pollutant	Ambient Concentration	Effluent Concentration	Justification
1. TDS		900 mg/L	Estimated less than surrounding areas.
2.			
3.			
4.			
5.			

Section E. Alternative Analysis Requirements of 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 antigradation review(s).

☐ YES – (Proceed to Section F)
☒ NO or Does Not Apply (Proceed to E2)

E2. Attach as an appendix to this form a report that describes that following factors for all alternative treatment options (see 1) a technical descriptions 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 Evaluation Summary

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 (WLC) and any secondary or categorical effluent limits.

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

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

Alternative	Feasible	Reason Not Feasible/Affordable
Pollutant Trading	☐ YES ■ NO	No other dischargers in area
Water Recycling/Reuse	☐ YES ■ NO	Too costly.
Land Application	■ YES ☐ NO	Doing for portion of year
Connection to Other Facilities	☐ YES ■ NO	Too costly.
Upgrade to Existing Facility	☐ YES ■ NO	Still have discharge issue
Total Containment	☐ YES ■ NO	Not sufficient storage.
Improved O&M of Existing Systems	☐ YES ■ NO	Not applicable.
Seasonal or Controlled Discharge	■ YES ☐ NO	Plan would be seasonal.
New Construction	☐ YES ■ NO	Still have discharge issue.
No Discharge	☐ YES ■ NO	Not sufficient storage.

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

Obtain a surface discharge permit for portion of year and land apply remaining portion.

UPDES Municipal (POTW) Permit Application

Part X. Antidegradation Review *continued*

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.

Section 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.

☐ YES ☒ NO

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

☐ YES ☒ NO

Report Name: _____

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

Division of Water Quality (DWQ)
UPDES Program

UPDES Municipal (POTW) Permit Application

Part XI. Certification Statement and Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with system designed to assure that quailed personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment of knowing violations.

PRESTON B. GRIFFITHS		MAYOR	05.14.2020
PRINT Signatory Authority	**Signature**	**Title**	**Date**

The Division of Water Quality may request addition information.

Important: The UPDES Permit Application will not be considered complete unless you answer every question. If an item does not apply to you, enter "Not Applicable" to show that you considered the question.

The UPDES Permit Application, must be signed as follows:

1) For a corporation, a responsible corporate officer shall sign the NOT, a responsible corporate officer means:
   a. A President, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or
   b. The manager of one or more manufacturing, production, or operating facilities, if
      i. The manager is authorized to make management decisions that govern the operation of the regulated facility, including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental statutes and regulations:
      ii. The manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and
      iii. Authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
2) For a partnership of sole proprietorship, the general partner or the proprietor, respectively; or
3) For a municipality, state or other public agency, either a principal executive officer or ranking elected official shall sign the application; in this subsection, a principal executive officer of any agency means;
   a. The chief executive officer of the agency; or
   b. A senior executive officer having responsibility for the overall operations of a principal geographic unit or division of the agency.

Where to File the UPDES Permit Application form:

Please submit the original form with a signature in ink to the below address. Remember to retrain a copy for your records.

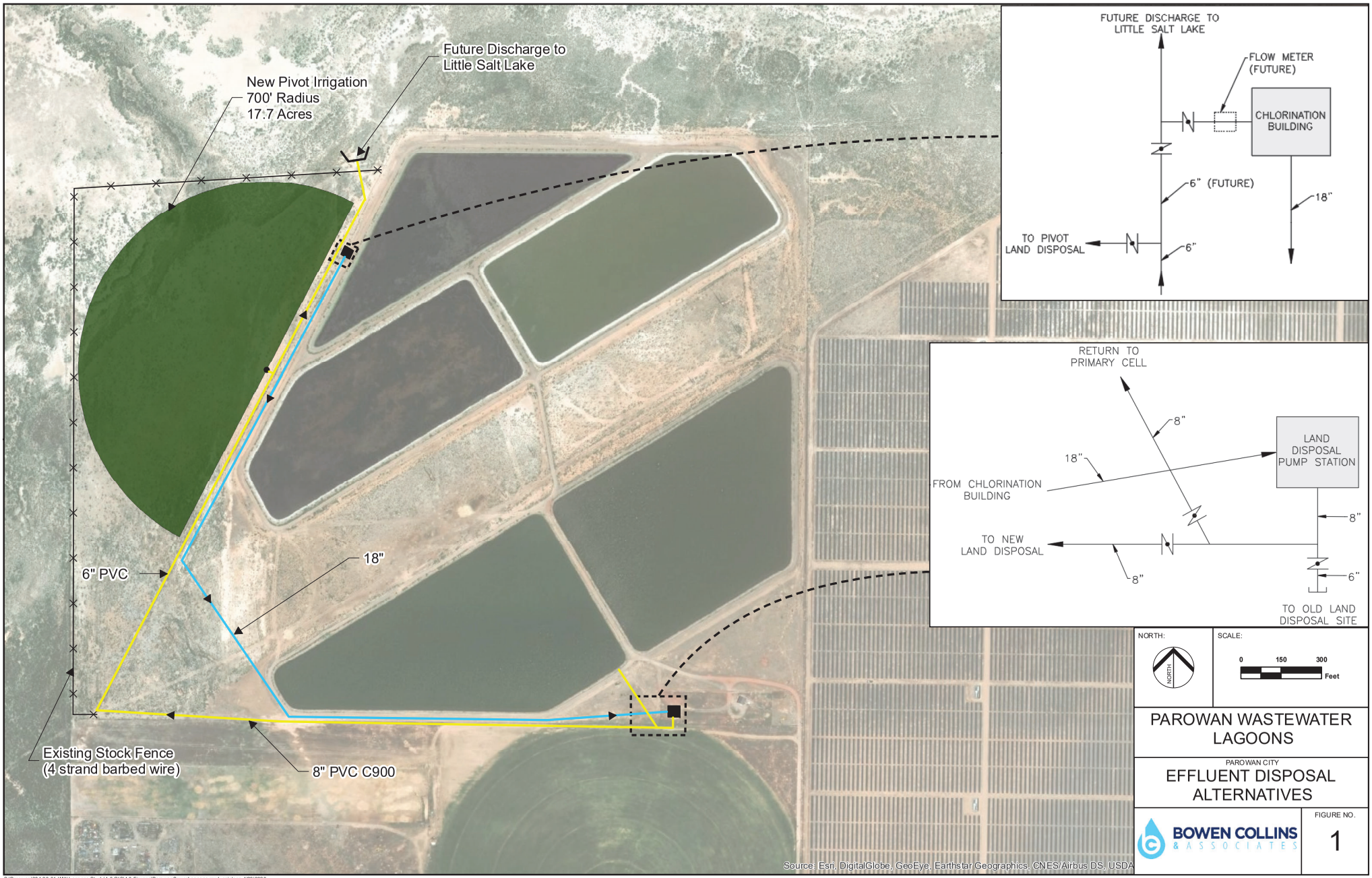
UPDES sent by mail:

Division of Water Quality
195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

OFFICE USE ONLY

Date received: __/__/__ **Received by:** _____ **Document No:** _____

via: ☐ Email ☐ Fax ☐ Webportal ☐ Mail ☐ Hand Delivery



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Parowan City Sewer Lagoon Sample Results

Date	Sample Location	Parameter	Value	Units
1/14/2020	Parowan City Lagoon - Influent	Ammonia as N	20.6	mg/L
1/14/2020	Parowan City Lagoon - Influent	BOD	3200	mg/L
1/14/2020	Parowan City Lagoon - Influent	DA - Nitrite	ND	mg/L
1/14/2020	Parowan City Lagoon - Influent	Nitrate	ND	mg/L
1/14/2020	Parowan City Lagoon - Influent	QHR - Coliform and E. coli	>2400	Org/100 mL
1/14/2020	Parowan City Lagoon - Influent	QHR - Coliform and E. coli	>2400	Org/100 mL
1/14/2020	Parowan City Lagoon - Influent	TDS	1300	mg/L
1/14/2020	Parowan City Lagoon - Influent	Total Inorganic Nitrogen - Calc Only	20.6	mg/L
1/14/2020	Parowan City Lagoon - Influent	TSS	41	mg/L
10/29/2019	Parowan City Lagoon	Ammonia as N	0.2	mg/L
10/29/2019	Parowan City Lagoon	BOD	5	mg/L
10/29/2019	Parowan City Lagoon	DA - Nitrite	ND	mg/L
10/29/2019	Parowan City Lagoon	Nitrate	ND	mg/L
10/29/2019	Parowan City Lagoon	QHR - Coliform and E. coli	214	Org/100 mL
10/29/2019	Parowan City Lagoon	QHR - Coliform and E. coli	1	Org/100 mL
10/29/2019	Parowan City Lagoon	TDS	888	mg/L
10/29/2019	Parowan City Lagoon	Total Inorganic Nitrogen - Calc Only	0.2	mg/L
10/29/2019	Parowan City Lagoon	TSS	13	mg/L
10/3/2019	Parowan City Lagoon	Ammonia as N	ND	mg/L
10/3/2019	Parowan City Lagoon	BOD	ND	mg/L
10/3/2019	Parowan City Lagoon	DA - Nitrite	ND	mg/L
10/3/2019	Parowan City Lagoon	Nitrate	ND	mg/L
10/3/2019	Parowan City Lagoon	QHR - Coliform and E. coli	112	Org/100 mL
10/3/2019	Parowan City Lagoon	QHR - Coliform and E. coli	ND	Org/100 mL
10/3/2019	Parowan City Lagoon	TDS	816	mg/L
10/3/2019	Parowan City Lagoon	Total Inorganic Nitrogen - Calc Only	ND	mg/L
10/3/2019	Parowan City Lagoon	TSS	4	mg/L
8/21/2019	Sewer Pumphouse	Ammonia as N	ND	mg/L
8/21/2019	Sewer Pumphouse	DA - Nitrite	ND	mg/L
8/21/2019	Sewer Pumphouse	Nitrate	ND	mg/L
8/21/2019	Sewer Pumphouse	Total Inorganic Nitrogen - Calc Only	ND	mg/L
7/10/2019	Sewer Pumphouse	Ammonia as N	2.3	mg/L
7/10/2019	Sewer Pumphouse	DA - Nitrite	0.2	mg/L
7/10/2019	Sewer Pumphouse	Nitrate	0.1	mg/L
7/10/2019	Sewer Pumphouse	Total Inorganic Nitrogen - Calc Only	2.6	mg/L
6/13/2019	Sewer Pumphouse	Ammonia as N	0.8	mg/L
6/13/2019	Sewer Pumphouse	DA - Nitrite	0.1	mg/L
6/13/2019	Sewer Pumphouse	Nitrate	ND	mg/L
6/13/2019	Sewer Pumphouse	Total Inorganic Nitrogen - Calc Only	0.9	mg/L
8/29/2018	Lagoon Pump Station	Ammonia as N	0.2	mg/L
8/29/2018	Lagoon Pump Station	DA - Nitrite	ND	mg/L
8/29/2018	Lagoon Pump Station	Nitrate	ND	mg/L
8/29/2018	Lagoon Pump Station	Total Inorganic Nitrogen - Calc Only	0.2	mg/L
7/31/2018	Lagoon Pump Station	Ammonia as N	0.2	mg/L
7/31/2018	Lagoon Pump Station	DA - Nitrite	ND	mg/L
7/31/2018	Lagoon Pump Station	Nitrate	ND	mg/L
7/31/2018	Lagoon Pump Station	Total Inorganic Nitrogen - Calc Only	0.2	mg/L
6/29/2018	Lagoon Pumphouse Station	Ammonia as N	1	mg/L
6/29/2018	Lagoon Pumphouse Station	NO3 + NO2 (DA)	ND	mg/L
6/29/2018	Lagoon Pumphouse Station	Total Inorganic Nitrogen - Calc Only	1	mg/L
5/31/2018	Lagoon Pumphouse	Ammonia as N	2.6	mg/L
5/31/2018	Lagoon Pumphouse	DA - Nitrite	0.2	mg/L
5/31/2018	Lagoon Pumphouse	Nitrate	0.1	mg/L
5/31/2018	Lagoon Pumphouse	Total Inorganic Nitrogen - Calc Only	2.9	mg/L
8/30/2017	Lagoon Pumphouse	Ammonia as N	0.2	mg/L
8/30/2017	Lagoon Pumphouse	DA - Nitrite	ND	mg/L
8/30/2017	Lagoon Pumphouse	Nitrate	ND	mg/L
8/30/2017	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	0.23	mg/L

7/27/2017	Lagoon Pumphouse	Ammonia as N	0.2	mg/L
7/27/2017	Lagoon Pumphouse	DA - Nitrite	ND	mg/L
7/27/2017	Lagoon Pumphouse	Nitrate	ND	mg/L
7/27/2017	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	0.2	mg/L
6/29/2017	Lagoon Pumphouse	Ammonia as N	0.3	mg/L
6/29/2017	Lagoon Pumphouse	DA - Nitrite	ND	mg/L
6/29/2017	Lagoon Pumphouse	Nitrate	ND	mg/L
6/29/2017	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	ND	mg/L
5/25/2017	Lagoon Pumphouse	Ammonia as N	2.9	mg/L
5/25/2017	Lagoon Pumphouse	DA - Nitrite	0.2	mg/L
5/25/2017	Lagoon Pumphouse	Nitrate	0.3	mg/L
5/25/2017	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	3.4	mg/L
9/29/2016	Lagoon Pumphouse	Ammonia as N	0.7	mg/L
9/29/2016	Lagoon Pumphouse	Nitrate	ND	mg/L
9/29/2016	Lagoon Pumphouse	Nitrite	ND	mg/L
9/29/2016	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	0.7	mg/L
8/30/2016	Lagoon Pumphouse	Ammonia as N	0.2	mg/L
8/30/2016	Lagoon Pumphouse	Nitrate	ND	mg/L
8/30/2016	Lagoon Pumphouse	Nitrite	ND	mg/L
8/30/2016	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	0.2	mg/L
8/4/2016	Lagoon Pumphouse	Ammonia as N	2.3	mg/L
8/4/2016	Lagoon Pumphouse	DA - Nitrate	0.4	mg/L
8/4/2016	Lagoon Pumphouse	DA - Nitrite	0.2	mg/L
8/4/2016	Lagoon Pumphouse	Total Inorganic Nitrogen (TIN) AP	2.9	mg/L
9/30/2015	Lagoon Pumphouse	Ammonia as N	ND	mg/L
9/30/2015	Lagoon Pumphouse	Nitrate (IC)	ND	mg/L
9/30/2015	Lagoon Pumphouse	Nitrite	ND	mg/L
9/30/2015	Lagoon Pumphouse	Total Inorganic Nitrogen - Calc Only	ND	mg/L
8/31/2015	Lagoon Pumphouse	Ammonia as N	0.3	mg/L
8/31/2015	Lagoon Pumphouse	Nitrate (IC)	ND	mg/L
8/31/2015	Lagoon Pumphouse	Nitrite	ND	mg/L
8/31/2015	Lagoon Pumphouse	Total Inorganic Nitrogen - Calc Only	0.3	mg/L
7/30/2015	Lagoon Pumphouse	Nitrate (IC)	ND	mg/L
7/30/2015	Lagoon Pumphouse	Nitrite	ND	mg/L
7/30/2015	Lagoon Pumphouse	Total Inorganic Nitrogen - Calc Only	0.4	mg/L
7/30/2015	Lagoon Pumphouse	Ammonia as N	0.4	mg/L

PAROWAN CITY LAGOON EFFLUENT DISPOSAL ALTERNATIVES

BACKGROUND

Parowan City (City) owns and operates a sewer lagoon system that receives and treats municipal wastewater generated within the City and the Town of Brian Head boundaries. The lagoons were constructed and put into service in 2006. The system was designed and intended to be non-discharging, with sewer inflows being offset by evaporation and seepage losses. However, total losses from the lagoons have failed to achieve the combined seepage and evaporation rates that were the basis of design for required volumes. Results of this non-conformance to original engineering assumptions are that effluent must be removed from the lagoons regularly to prevent over-filling.

In 2009, the City applied for and received a permit to land dispose of treated effluent from the lagoons. During the summer months, effluent is chlorinated for disinfection and then conveyed to a local private farmer with adjacent land where it is applied to crops via a center pivot irrigation system for disposal. The water, along with any remaining nutrients, is provided free of charge to the landowner, who is also paid a fee for accepting and disposing of the effluent. However, the fees have become increasingly expensive, and the City is beholden to the landowner's watering schedule because they are reliant upon his land for disposal of the treated effluent. In recent months, the landowner informed the City that he would now only take the treated water if given a long-term agreement with the City at significantly higher costs. The City tried to negotiate with the landowner for a reasonable cost increase, however these negotiations failed and an agreement for future disposal was not reached. Therefore, the City needs to develop a new option for disposing of excess treated effluent.

The purpose of this memorandum is to summarize alternatives that were identified and evaluated.

DISPOSAL ALTERNATIVES

Six alternatives were considered for disposal of treated effluent from the Parowan Sewer Lagoons. These alternatives include:

1. No Action
2. Expand Non- Discharging Lagoons
3. Mechanical Treatment with Type 1 Reuse
4. Land Disposal
5. Surface Discharge
6. Combination of Land Disposal and Surface Discharge

The following briefly describe each of the alternatives evaluated and some the advantages and disadvantages of each.

Alternative 1 - No Action

The existing lagoons were designed for total containment and have exceeded their capacity. The lagoons now require expansion or the ability to discharge. This alternative would "do nothing," and is not viable because existing flows to the lagoons require discharging or other disposal method. Without action, the City would need to significantly reduce existing sewer flow to the lagoons to

prevent overtopping. Significant reduction of sewer flows to the lagoons is not feasible; additionally, reduction or limiting of flow to the lagoons would prevent any future development within the service areas. The following table summarizes the advantages and disadvantages of this alternative.

Table 1
No Action Alternative

Advantages	Disadvantages
Least cost alternative.	No further development permitted in Parowan City or Brian Head Town due to inability to treat flows.
	Public health could be compromised due to insufficient treatment capacity.
	Existing sewer lagoons could overtop due to high flows.
	Long implementation timeline.
	Potential fines and legal action for illegal discharge.

Alternative 2 - Expand Non-Discharging Lagoons

The existing lagoon system contains 55.8 acres of sewer lagoon surface area. It is estimated that an additional 63.0 acres of surface area of non-discharging lagoons would be required to treat and contain the original design flow of 474,800 gpd. It is estimated that the additional lagoons would be constructed similar to the existing lagoons with a maximum water depth of 6.0 ft. The lagoons would have a clay liner and include rip rap protected embankments. The following table summarizes the advantages and disadvantages of this alternative.

Table 2
Expand Non-Discharging Lagoons

Advantages	Disadvantages
Similar performance to existing lagoons.	Large land area required.
Minimal operation costs.	Long implementation time (permitting, design and construction).
	Higher costs ($5.0 M)
	Potential fines and legal action for illegal discharge until facilities are constructed.

Alternative 3 - Mechanical Treatment with Type I Reuse

This alternative would include constructing a new mechanical biological treatment facility with tertiary filtration allowing the effluent to be used within the City pressurized irrigation system. The treatment process would include screening, grit removal, biological treatment, and nutrient removal using an enhanced activated sludge process, secondary clarification, disinfection, solids handling, and

other pertinent facilities. The reuse facilities would require tertiary filtration such as cloth or sand filters, chlorination, pump station, conveyance to City system, and additional storage. The following table summarizes the advantages and disadvantages of this alternative.

Table 3
Mechanical Treatment with Type I Reuse

Advantages	Disadvantages
Beneficial reuse of effluent.	High construction costs ($15.0 M)
Minimal land requirements.	Higher operational costs for power, chemicals, maintenance, personnel, grit, screening and biosolids disposal, etc.
	Long implementation time (permitting, design and construction).
	Potential fines and legal action from State for illegal discharge until facilities are constructed.

Alternative 4 - Land Disposal

This alternative would include developing a site adjacent to the existing lagoon system where the treated effluent could be used for irrigation of feed crops. The first step of this alternative includes installation of a center pivot irrigator, owned and operated by the City. The half-circle pivot would have a 700-ft radius covering approximately 17.7 acres and located on property to the west of the lagoons. The City is currently in the process of obtaining ownership of property from the Bureau of Land Management (BLM) for this purpose.

Consumptive water use for irrigation of crops in the Parowan area is estimated at 4.0 ac-ft per acre per year, allowing approximately 70.8 ac-ft of water to be disposed annually on the proposed site. Flows discharged in this manner will continue to meet or exceed current land disposal requirements including disinfection, fenced site, etc. The current City land disposal discharge permit is believed to provide authorization to continue this disposal method, albeit in a different nearby location. The City will submit an amendment to the existing land application plan identifying and summarizing the recommended changes. The following table summarizes the advantages and disadvantages of this alternative.

Table 4
Land Disposal Alternative

Advantages	Disadvantages
Beneficial reuse of effluent.	Available acreage does not allow discharge for entire year.
Quick implementation process.	
Low Capital Cost ($600,000).	
Low Operation Cost.	
Similar O&M to existing disposal method.	

Alternative 5 - Surface Discharge

This alternative includes applying for and receiving a surface water discharge permit that would allow treated effluent from the lagoons to be discharged onto the adjacent Little Salt Lake dry lakebed. This is considered surface water discharge although the lakebed is dry for extended periods. Operation of the discharging lagoons would be based on a 150-day retention time, eliminating the requirement for disinfection. The existing disinfection system would be used, if needed, to meet E. coli requirements of the surface discharge permit. The retention time at current flows is 271 days, and a 150-day retention time would accommodate an annual average daily flow of 0.688 mgd, 1.8 times higher than current. At an assumed average annual rate of 2.0 percent, this flowrate would accommodate approximately 30 years growth of wastewater flows to the lagoon system.

At an influent BOD5 concentration of 218 mg/l, the lagoon surface loading rate would range from 12.4 to 22.4 lb. BOD5 per acre per day (Utah R317-3-10.3.A.1: 15-35 lb. BOD5 per acre per day). Treated effluent would be discharged to the Little Salt Lake lakebed in lieu of land disposal for the duration of this period and/or until the effluent flows or loads rate exceeded their respective capacities. An outfall structure with control gate, overflow weir, pipeline, and spill apron would be constructed from the lagoon system into the adjacent lakebed. The following table summarizes the advantages and disadvantages of this alternative.

Table 5
Surface Discharge Alternative

Advantages	Disadvantages
Quick implementation process.	No beneficial reuse of effluent.
Low capital cost ($75,000).	UPDES permit required.
Low operation cost.	Phosphorus limitation may be required.
Similar O&M to existing disposal method.	
Provides long term treatment solution.	

Alternative 6 - Combination of Surface Discharge and Land Disposal

This alternative is a combination of land disposal and surface discharge. Initially, approximately 17.7 acres of land would be obtained from the BLM and consequently developed into an agricultural disposal site with effluent applied via a 700 ft. radius half-circle center pivot irrigator as described in the Land Disposal Alternative. This would provide approximately 70.8 ac-ft of disposal capacity annually. The remaining water would be discharged to the Little Salt Lake. The lagoon system would operate at 150 days detention time or more without disinfection prior to discharge. This alternative allows the City to utilize both disposal options. The following table summarizes the advantages and disadvantages of this alternative.

Table 6
Combination of Surface Discharge and Land Disposal

Advantages	Disadvantages
Quick implementation process.	UPDES permit required.
Low Capital Cost ($675,000).	Phosphorus limitation may be required.
Low operation cost.	
Similar O&M to existing disposal method.	
Provides long term treatment solution.	
Allows beneficial reuse of portion of effluent.	

Comparison of Alternatives

Each of the alternatives were scored in five categories ranging from cost to environmental concerns. The following identifies the categories considered and scores for each of the alternatives. Please note that Alternative 1 – Do Nothing, was not considered a viable and/or responsible alternative and was not included for comparison. The categories considered include:

- **Costs:** This includes initial construction costs as well as estimated operational and maintenance costs. Costs for each alternative were estimated from past similar projects within Utah.
- **Capacity:** This includes the alternatives ability to meet current and future flow. It also includes the ability for the facility to be expanded to treat flows outside of the existing service area.
- **Environmental Concerns:** Each alternative was scored based upon the potential impact on the environment.
- **Reliability and Operational Requirements:** Each alternative was scored based upon the reliability of the treated option to meet the discharge requirements and the operational efforts required to meet desired treatment results.
- **Constructability:** This category includes the viability of the alternative of being able to be implemented and constructed within the timeline necessary.

Table 7
Alternative Comparison

Alternative	Cost (Capital and O&M)	Capacity (Existing and Expansion)	Environmental Concerns	Reliability and Operational Requirements	Constructability	Total Score
Expand Non-Discharging Lagoons	2	2	5	5	2	16
Mechanical Treatment w/ Reuse	1	2	4	1	2	10
Land Disposal	4	3	3	4	4	18
Surface Discharge	5	5	2	5	5	22
Land Disposal and Surface Discharge	4.5	4	2	4.5	5	20

Scoring: 5 most favorable to 1 least favorable.

RECOMMENDATION

It is recommended that a combination of land disposal and surface discharge be implemented at the Parowan Lagoon System. Although this was the second highest scored alternative, it is recommended because it allows for the City to beneficially use a portion of the treated effluent. Initially, approximately 17.7 acres of land would be obtained from the BLM and that parcel developed into an agricultural disposal site with effluent applied via a 700 ft. radius half-circle center pivot irrigator. This would provide approximately 70.8 ac-ft of disposal capacity annually. This continued land disposal at agronomic rates would be used as long as needed until a permanent surface water effluent disposal permit to discharge to Little Utah Lake can be obtained. The next step would be to apply for and receive a surface water discharge permit, and the lagoon system would operate at 150 days detention time or more without disinfection prior to discharge. This process could continue for approximately 30 years or until the treatment capacity of the lagoons is exceeded. In the future, shorter detention times and higher loading rates in combination with effluent disinfection may be used to increase capacity.