

Wyoming Pollutant Discharge Elimination System (WYPDES)

Department of Environmental Quality
 Application for Permit to Discharge Wastewater for:

Industrial operations, Form G

Revised June 12, 2013

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 Date Received: **RECEIVED**

DEC 09 2014

**WATER QUALITY DIVISION
 WYOMING**

- ✓ Please print or type. Submission of illegible materials will result in return of the application to the applicant.
- ✓ All items must be completed accurately and in their entirety or the application will be

1. Check the box corresponding to the type of application being applied for:

- New
- Renewal

Major modification Permit number WY0032336 Expiration Date: 10/31/2014

2. General Facility Location: Township(s) 14N Range(s) 73W

3. Facility Street address if applicable: 990 South Highway 287

4. Receiving Waters Lake Leazenby (Class 2AB water)

5. Name of the facility producing the discharge
University of Wyoming Red Buttes Environmental Biology Laboratory

6. Standard Industrial Classification code (SIC Code) NA (Research Lab) and primary industrial category, per Table I, Appendix B (If Applicable): NA

7. Permittee and Consultant (if applicable) Contact Information:

Permittee Contact Name Harold L. Bergman	Consultant Contact Name
Company Name University of Wyoming	Company Name
Mailing Address 1000 E. University Avenue (Dept. 3166)	Mailing Address
City, State, and Zip Code Laramie, Wyoming 82071-3166	City, State, and Zip Code
Telephone Number 307-766-2022	Telephone Number
E-Mail Address Bergman@uwoyo.edu	E-Mail Address
Preference for contact: email	Preference for contact:

8. Status of applicant: Federal State private public Other _____

9. Status of applicant (check more than one): Owner Operator

10. Please include a brief description of the nature of the business conducted at this facility and principal products or services provided by the facility.

The Red Buttes Environmental Biology Laboratory is used by University of Wyoming faculty, staff and students to conduct research on a wide range of aquatic, semi-aquatic and terrestrial organisms. At any given time, depending on research questions and funding, these can include work with aquatic and semi-aquatic organisms that can produce an effluent related to research on breeding and culture (toads, frogs, fish), basic and applied physiology (aquatic invertebrates, fish, ducks), ecology (aquatic invertebrates, fish, ducks), and environmental toxicology (aquatic invertebrates, fish). The services provided by this work include reports and publications to state and federal agencies and others who fund the research, with most of the research also contributing to graduate theses and dissertations.

11. Please describe each type of process, operation or production area that contributes wastewater to the effluent for each outfall and the average flow which each process contributes.

Two different kinds of wastewater are produced during holding and experimental work with aquatic and semi-aquatic organisms: (1) non-toxic wastewater, similar to that of a small fish hatchery, contains some suspended solids from breeding, culture, physiology and ecology research; and (2) toxic wastewater with purposely added inorganic or organic chemical constituents or wastewater effluents that are being tested in environmental toxicology research. Toxic wastewater, processed by the toxic wastewater treatment system, can average about 1,000 to a maximum of 6,000 gallons per day but only when we are conducting those kinds of environmental toxicology research (Note that we have not conducted any environmental toxicology research for the last several years, so our toxic wastewater production has equaled zero during this period, though we may begin conducting environmental toxicology research again at some time in the future). Our current discharge permit is limited to 6,000 gallons per day of treated toxic wastewater.

12. Please include a brief description of the wastewater treatment at the facility, including the ultimate disposal of any solid or liquid wastes other than by discharge.

For the two different wastewater streams, we use two different treatments appropriate for the stream, as follows: (1) non-toxic waste stream from culture and holding of aquatic and semi-aquatic organisms is treated by discharging first to a sequence of three settling/treatment ponds/raceways that also serve as biomonitoring ponds (fish in the ponds are checked daily) prior to discharge into Lake Leazenby; these ponds allow for suspended solid and nutrient removal. And, as a safety factor before discharge to Lake Leazenby, the effluent is diluted at least 50:1 by clean artesian water flow. (2) toxic waste stream from environmental toxicology experiments is treated by pumping the wastewater through sand filters to remove particulates, a series of three activated carbon columns to remove organics, followed by anion and cation ion-exchange columns to remove metals and other inorganic ions. This treated wastewater is then discharged to the same series of three settling/treatment/biomonitoring ponds described above with the same 50:1 dilution with clean artesian water flow prior to discharge to Lake Leazenby, as noted above. For Solid or Liquid Waste other than by discharge, which can include settled sludge from the carbon column backwash, the D.I. column neutralization waste, replaced carbon and ion exchange bedding and other miscellaneous lab chemicals, we dispose of these materials through the University of Wyoming Hazardous Waste Disposal Program in UW's Environmental Health and Safety Department.

13. For new facilities, the expected date of commencement of discharge. N.A.

14. If requesting modification of existing permit, describe modification requests:

No modifications requested

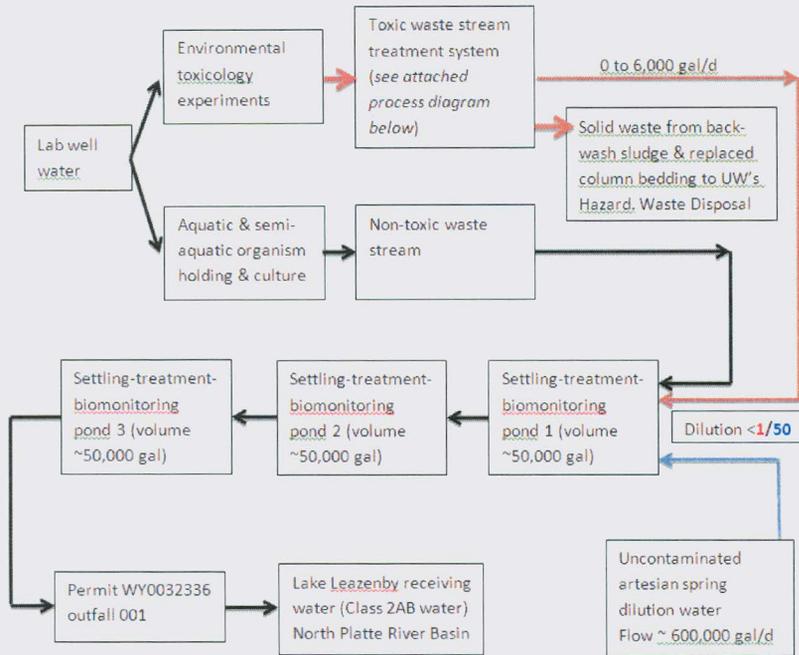
- b. For each change or improvement, provided projected dates, as accurately as possible, for completion of each step listed below:

1. Begin Construction: _____
2. End Construction: _____
3. Begin Discharge: _____
4. Operational Level Attained: _____

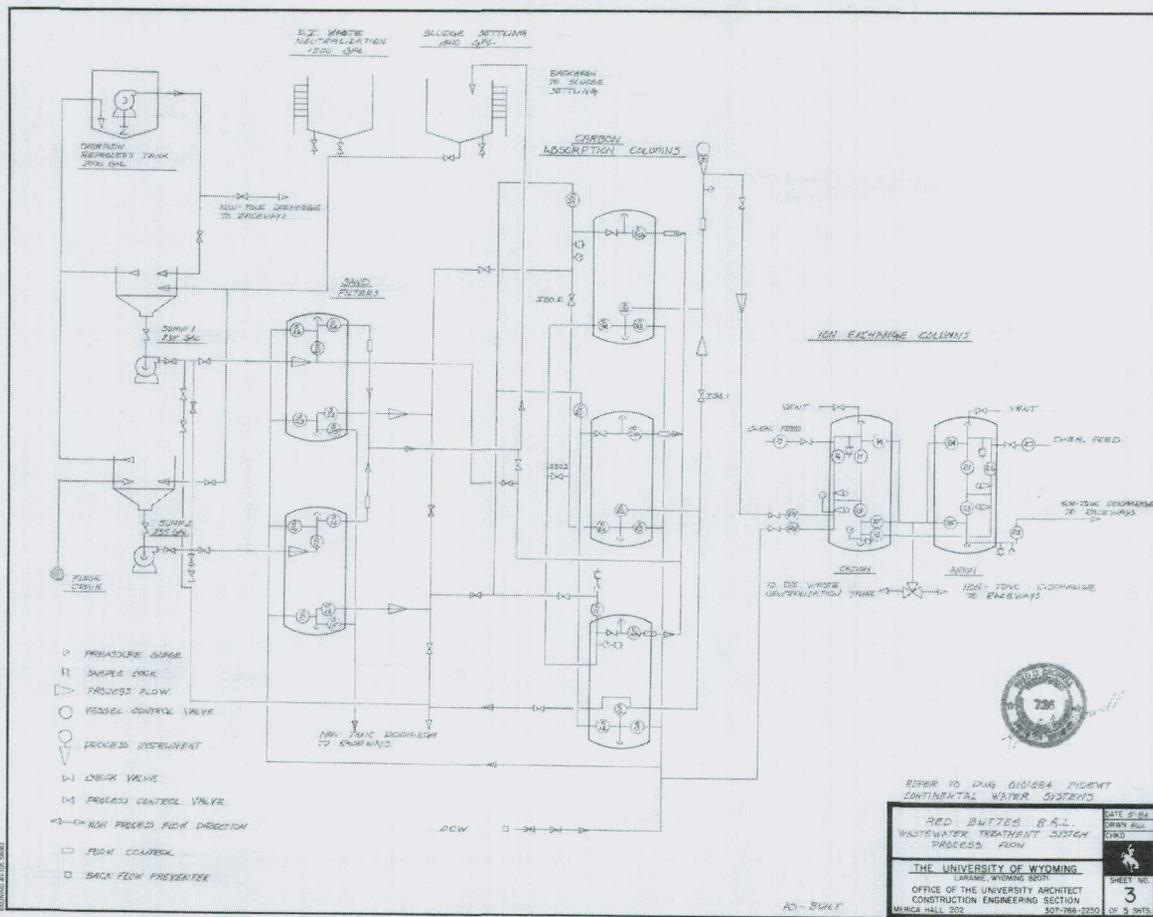
Landowner or lessee's contact information (additional spaces may be added as necessary):

Landowner #1 Name Department of Zoology and Physiology University of Wyoming	Landowner #2 Name
Mailing Address 1000 E. University Avenue (Dept. 3166)	Mailing Address
City, State, and Zip Code Laramie, WY 82071	City, State, and Zip Code

15. Facility Flow Diagram:



Toxic waste stream treatment system:



16. Outfall location: Complete the attached **Appendix A, Table 1.**

17. Outfall Characterization: Complete the attached **Appendix A, Table 2.** See application instructions for details.

a. Will any flocculants (settling agents or chemical additives) be used to treat water prior to discharge?

YES NO

If yes, list here the chemical name, manufacture, and purpose. Include MSDS sheets. _____

18. Please complete **Appendix A, Tables 2 and 3** for each outfall.

19. Complete **Appendix A, Table 4** only if you are required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application.

20. Facility map: Attach a description and a clear, legible, detailed topographic map of the discharging facility that extending one mile beyond the property boundaries of the source. Include the following: **Please see three attached, labeled maps and images (Maps 1, 2 and 3) of the facility including a topographic map of the area.**

- a. A legend
- b. Well locations where fluids from the facility are injected underground
- c. Retention Ponds
- d. Each intake sites
- e. Discharge points (outfalls)
- f. Monitoring and/or compliance points
- g. Hazardous waste treatment, storage, or disposal facilities
- h. Immediate receiving streams
- i. Section, Township, and Range information
- j. Wells, springs, other surface water bodies, drinking water wells, and surface water intake structures listed in public records, or otherwise known to the applicant in the map area.
- f. Location of treatment facilities

21. Describe the control measures that will be implemented to prevent significant damage to or erosion of the receiving water channel at the outfall(s) Outfall flows onto a steel grate and gravel resulting in no noticeable erosion of damage to the receiving water

22. Production:

a. Does an effluent guideline limitation or standard apply to your facility (e.g. metal finishing, fertilizer manufacturing, etc) as stated under Section 306 of the Clean Water Act? (Contact Wyoming DEQ with questions)

YES (complete item 21B below) NO

b. Are the limitations in the applicable effluent guideline express in terms of production or other measure of operation? (In Wyoming, primarily *petroleum refining* and *cheese production*)

YES (complete table below) NO

Affected outfalls	Quantity per day*	Units of Measure	Specify Operation, Product, or Materials

*For new facilities and outfalls, please provide a reasonable measure of expected production. For existing facilities or outfalls, please provide a measure of actual production.

23. If applicable, provide a list of any toxic pollutants which the applicant currently uses or manufactures as an intermediate or final product or byproduct. **NONE at this time, but when environmental toxicology experiments might be done in the future, toxic organic compounds, metals or effluents would be added to experimental exposure waters to determine acute or chronic effects of these toxic chemicals on aquatic organisms. During periods when these kinds of environmental toxicology experiments are being conducted, we would analyze for the specific toxic chemicals in the discharge from the treated toxic wastewater stream and report results in our quarterly Discharge Monitoring Report.**

24. Effluent Characterization

All water quality samples shall be taken as grab samples and analyzed in accordance with 40 CFR Part 136 unless use of another method is required for the pollutant under 40 CFR Subparts N and O.

All applicants must analyze and submit the results for the constituents listed below (see Table 1, Appendix B).

Biochemical Oxygen Demand (BOD5)	Ammonia (as N)
Chemical Oxygen Demand	Temperature
Total Organic Carbon	pH
Total Suspended Solids	

Also see additional cation, anion and other analytes for the Red Buttes Laboratory effluent, artesian dilution water and lab well water performed by Wyoming Analytical Laboratories dated October 2, 2014 (attached).

Primary Industries:

A primary industry is any industry listed under the Primary Industrial Category in Appendix B, Table II.

If you are a primary industry (refer to Appendix B, Table II), samples must be collected for all fractions identified in Appendix B, Table I. For **Appendix B, Tables IIA – III**, mark “X” in the Required Testing column for each fraction related to your industry and provide the sample result. Sample results must be provided for each outfall that has the potential to discharge process wastewater.

For **Appendix B, Table IV**, mark “X” in column “Believed Present” for each pollutant you know or have reason to believe is present. Mark “X” in column “Believed Absent” for each pollutant you believe is absent. If an applicable federal effluent limitations guideline limits the pollutant through permit effluent limitations, the applicant must report quantitative data. For every pollutant discharged which is not so limited in an effluent limitations guideline, the applicant must either report quantitative data **or** briefly describe the reasons the pollutant is expected to be discharged.

For **Appendix B, Table V**, circle the pollutants you know or have reason to believe are present. For every pollutant from Table V expected to be discharged, from each outfall, provide a brief description of the reasons the pollutant is expected to be discharged, and report any quantitative data you may have.

Base your determination of whether a pollutant will be present in your discharge on your knowledge of the facility’s raw materials, maintenance chemicals, intermediate and final products, byproducts, and any analyses of your effluent or of any similar effluent. You may also provide the determination and the estimates based on available in-house or contractor’s engineering reports or any other studies performed on the facilities.

Secondary Industries:

A secondary industry is an industry that is not listed under the primary Industrial Category in Appendix B, Table II.

For **Appendix B, Tables IIA – III**, mark “X” in column “Believed Present” for each pollutant you know or have reason to believe is present. Mark “X” in column “Believed Absent” for each pollutant you believe is absent. If you mark column “Believed Present” for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column “Believed Present” for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column “Believed Present”, you must either submit at least one analysis **or** briefly describe the reasons the pollutant is expected to be discharged.

For **Appendix B, Table IV**, mark “X” in column “Believed Present” for each pollutant you know or have reason to believe is present. Mark “X” in column “Believed Absent” for each pollutant you believe is absent. If an applicable federal effluent limitations guideline limits the pollutant through permit effluent limitations, the applicant must report quantitative data. For every pollutant discharged which is not so limited in an effluent limitations guideline, the applicant must either report quantitative data **or** briefly describe the reasons the pollutant is expected to be discharged.

For **Appendix B, Table V**, circle the pollutants you know or have reason to believe are present. For every pollutant from Table V expected to be discharged, from each outfall, provide a brief description of the reasons the pollutant is expected to be discharged, and report any quantitative data you may have.

Base your determination of whether a pollutant will be present in your discharge on your knowledge of the facility's raw materials, maintenance chemicals, intermediate and final products, byproducts, and any analyses of your effluent or of any similar effluent. You may also provide the determination and the estimates based on available in-house or contractor's engineering reports or any other studies performed on the facilities.

For New Industrial Facilities:

For **Appendix B, Tables IIA – IV**, mark "X" in column "Believed Present" for each pollutant you know or have reason to believe is present. Mark "X" in column "Believed Absent" for each pollutant you believe is absent. For each pollutant marked as "Believed Present" provide an estimated daily maximum concentration in the "Water Sample Results" column.

For **Appendix B, Table V**, circle the pollutants you know or have reason to believe are present (no estimated daily maximum concentrations are required).

Base your determination of whether a pollutant will be present in your discharge on your knowledge of the facility's raw materials, maintenance chemicals, intermediate and final products, byproducts, and any analyses of your effluent or of any similar effluent. You may also provide the determination and the estimates based on available in-house or contractor's engineering reports or any other studies performed on the facilities.

Each applicant must report the existence of any technical evaluation concerning the wastewater treatment that will be utilized, along with the name and location of similar plants, if information is available.

25. Use Appendix B, **Table VI** to list any of the pollutants, for which you are not required to submit a water quality analysis, listed in **Appendix B, Tables II – V** below which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe to be present and report any analytical data in your possession.
26. Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on receiving water in relation to your discharge within the last three years?

XXX YES

NO

If yes, identify the tests and describe their purpose below:

Under our current permit, each quarter for the past 5 years we have had both fathead minnow and Ceriodaphnia toxicity tests performed as a condition of our permit. At no time have the tests measured toxicity and we have passed the tests each quarter. We also use the three settling/treatment ponds described above for biomonitoring in that we hold fish in these ponds and check on their condition daily. We have not noted any fish kills or other indications of toxicity in these ponds.

27. Dioxin testing: Each applicant for existing facilities must report qualitative data, generated using a screening procedure not calibrated with analytical standards for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) if it :
- i. Used or manufactures 2,4,5-trichlorophenoxy acetic acid (2,4,5,-T), 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex, 2,4,5,-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate; 2,4,5-trichlorophenol (TCP); or hexachlorophene (HCP); or
 - ii. Knows or has reason to believe that TCDD is or may be present in an effluent.
 - iii. Applicants for new facilities must report if 2,3,7,8 Tetrachlorodibenzo-P-Dioxin (TCDD) may be discharged if any of the pollutants defined in 31.i above are used or manufactured or if there is reason to believe that TCDD will or may be present in the effluent.
28. For applications for existing facilities, has the facility ever exceeded permit limits or water quality standards?

YES

XXXX NO

If yes,

- a. Which constituents?
- b. Has the exceedance been addressed?
- c. Describe how the exceedance was addressed.
- d. *If the facility has never discharged or has not yet been constructed, please indicate below.*

YES

NO

Report the existence of any technical evaluation concerning the applicant's wastewater treatment, along with the name and location of similar plants.

29. Other information: Any optional information the permittee wishes to have considered:

As explained in the "Statement of Basis" for our current WYPDES permit (WY0032336), because the Red Buttes Environmental Biology Lab is a research facility that is dependent on external research funding, we do not usually know from year to year or month to month what kinds of research we may be doing in the future. Thus DEQ-WQD has agreed in our past permits that a traditional permit with specific effluent limitations and monitoring requirements with specific pollutants would not be practical. Therefore, our past permits have contained numerous special conditions to insure protection of our receiving water. These conditions are listed in our 2009-2014 permit and include such things as limiting our daily discharge of treated toxic waste to 6000 gal/d, 1:50 dilution of treated toxic effluent with uncontaminated artesian water, routing the water through 3 holding/treatment ponds before discharge to Lake Leazenby, checking the health of fish in the ponds daily, etc.

Appendix A, Outfall Characterization

TABLE 1: Outfall Location Information									
Discharge Point (Outfall) #	Quarter/Quarter	Section	Township	Range	Latitude (NAD 83, decimal degrees accurate to a minimum of 5 decimal places) North	Longitude (NAD 83, decimal degrees accurate to a minimum of 5 decimal places) West	Immediate Receiving Stream	Mainstem (closest perennial water)	County
001	<i>NE/NW</i>	<i>21</i>	<i>14N</i>	<i>73W</i>	<i>41.17433333</i>	<i>-105.58436667</i>	<i>Lake Leazenby (Class 2AB water)</i>	<i>Lake Leazenby – the Laramie River – North Platte River Basin</i>	<i>Albany</i>
002									
003									
004									
005									

Appendix A, Narrative Outfall Descriptions

Table 2, Narrative Outfall Descriptions						
<u>Outfall number</u>	Final Treatment Unit	Water Source #1	Water Source #2	Water Source #3	Indicate if outfall discharge is: A. Continuous B. Intermittent C. Seasonal D. No Discharge (indicate one for each outfall)	Treatment (Description or List codes from "Wastewater Treatment Codes", Next Page)
(example) 001	Bottom Ash Settling Pond	Bottom Ash Runoff	Floor Drain Runoff	Metal Cleaning Wastewater	Continuous	1-U, 4-A
001	A sequence of three settling – treatment - biomonitoring ponds – each of ~50,000 gallons in size	Discharge from toxic waste stream treatment system with sand filters, activated carbon columns and anion/cation ion exchange columns	Non-toxic waste stream from aquatic and semi-aquatic organism holding and culture operations	Uncontaminated artesian spring dilution water at flows sufficient to dilute toxic waste stream treatment system at least 50:1	Continuous BUT – Contribution of <u>Toxic waste stream treatment system</u> will often have “ <u>no or intermittent</u> ” contribution to that discharge.	<u>Toxic waste stream:</u> 1-R, 2-A, 2-J, 1-U <u>Non-toxic waste stream:</u> 1-U
002						
003						
004						
005						
006						
007						

Additional spaces/tables may be included as necessary. Use the format provided.

Wastewater Treatment Codes

PHYSICAL TREATMENT PROCESSES

1-A	Ammonia Stripping	1-M	Grit Removal
1-B	Dialysis	1-N	Microstraining
1-C	Diatomaceous Earth Filtration	1-O	Mixing
1-D	Distillation	1-P	Moving Bed Filters
1-E	Electrodialysis	1-Q	Multimedia Filtration
1-F	Evaporation	1-R	Rapid Sand Filtration
1-G	Flocculation	1-S	Reverse Osmosis (<i>Hyperfiltration</i>)
1-H	Flotation	1-T	Screening
1-I	Foam Fractionation	1-U	Sedimentation (<i>Settling</i>)
1-J	Freezing	1-V	Slow Sand Filtration
1-K	Gas-Phase Separation	1-W	Solvent Extraction
1-L	Grinding (<i>Comminutors</i>)	1-X	Sorption

CHEMICAL TREATMENT PROCESSES

2-A	Carbon Adsorption	2-G	Disinfection (<i>Ozone</i>)
2-B	Chemical Oxidation	2-H	Disinfection (<i>Other</i>)
2-C	Chemical Precipitation	2-I	Electrochemical Treatment
2-D	Coagulation	2-J	Ion Exchange
2-E	Dechlorination	2-K	Neutralization
2-F	Disinfection (<i>Chlorine</i>)	2-L	Reduction

BIOLOGICAL TREATMENT PROCESSES

3-A	Activated Sludge	3-E	Pre-Aeration
3-B	Aerated Lagoons	3-F	Spray Irrigation/Land Application
3-C	Anaerobic Treatment	3-G	Stabilization Ponds
3-D	Nitrification-Denitrification	3-H	Trickling Filtration

OTHER PROCESSES

4-A	Discharge to Surface Water	4-C	Reuse/Recycle of Treated Effluent
4-B	Ocean Discharge Through Outfall	4-D	Underground Injection

SLUDGE TREATMENT AND DISPOSAL PROCESSES

5-A	Aerobic Digestion	5-M	Heat Drying
5-B	Anaerobic Digestion	5-N	Heat Treatment
5-C	Belt Filtration	5-O	Incineration
5-D	Centrifugation	5-P	Land Application
5-E	Chemical Conditioning	5-Q	Landfill
5-F	Chlorine Treatment	5-R	Pressure Filtration
5-G	Composting	5-S	Pyrolysis
5-H	Drying Beds	5-T	Sludge Lagoons
5-I	Elutriation	5-U	Vacuum Filtration
5-J	Flotation Thickening	5-V	Vibration
5-K	Freezing	5-W	Wet Oxidation
5-L	Gravity Thickening		

Appendix A, Discharge Rates

Table 3, Discharge Rates					
	For Continuously Discharging outfalls	For Non-Continuous Discharging Outfalls			
Outfall Number #	Average Daily Discharge (MGD)	Number of times per year the discharge is to occur	Anticipated duration of each discharge	Anticipated flow of each discharge (MGD)	Months in which discharge is expected to occur.
001	~600,000 gal/day – mostly uncontaminated artesian dilution water as a consequence of our 50:1 dilution requirement	Unknown at this time – normally once or twice per year depending on scheduled and funded research projects	Unknown at this time – normally weeks to months depending on scheduled and funded research project	Always less than 6000 gal/day as required in WYPDES permit	Unknown at this time – depending on scheduled and funded research projects
002					
003					
004					

Appendix A, Improvements

TABLE 4: Improvements Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

1. Affected outfalls		2. Identification of condition, agreement, etc.	3. Brief description of project	4. Final Compliance Date	
Outfall	Source of discharge			A. Required	B. Projected
001		none			
002					
003					
004					
005					

Appendix B, Table I

Table I: Effluent Characteristics per outfall							
<i>You must provide the results of at least one analysis for every pollutant in this table for each outfall.</i>							
Outfall # <u> 001 </u>	Maximum Daily Value		Maximum 30-day value <i>(if available)</i>		Long term average value <i>(if available)</i>		Number of Analyses
	Mass	Concentration	Mass	Concentration	Mass	Concentration	
Biochemical Oxygen Demand (BOD)		<1.0 mg/L					
Total Suspended Solids (TSS)		0.5 mg/L					
Total Organic Carbon (TOC)		2.7 mg/L					
Chemical Oxygen Demand (COD)		2.26 mg/L					
Ammonia (as N)		0.338 mg/L					
Flow, discharge, MGD	Value	600,000 gal/d	Value		Value		
pH (range) S.U.	Max	8.14	Min	7.85	Max		Not Applicable
Temperature (Winter) °C	Value	5.3	Value		Value		
Temperature (Summer) °C	Value	11.2	Value		Value		

*See Report of Analysis from Wyoming Analytical Laboratories, Inc., for the above outfall effluent characteristics (attached). Also see additional cation, anion and other analytes for the Red Buttes Laboratory outfall effluent, artesian dilution water and lab well water performed by Wyoming Analytical Laboratories dated October 2, 2014 (attached).

Appendix B, Table II

Table II-- Testing Requirements for Toxic Pollutants by PRIMARY INDUSTRIAL CATEGORY		Organic Toxic Pollutants GS/MS Fraction (listed in Table IIA-Table IID)				Other Toxic Pollutants (Listed in Table III)
PRIMARY INDUSTRIAL CATEGORY	Volatile See Table IIA	Acid See Table IIB	Base/Neutral See Table IIC	Pesticides See Table IID	Other Toxic Pollutants (Listed in Table III)	
						(Metals and Cyanide) and Total Phenols
Adhesives and Sealants.....	X	X	X	NR	X	
Aluminum Forming.....	X	X	X	NR	X	
Auto and Other Laundries.....	X	X	X	X	X	
Battery Manufacturing.....	X	NR	X	X	X	
Coal Mining.....	X	X	X	NR	X	
Coil Coating.....	X	X	X	X	X	
Copper Forming.....	X	X	X	NR	X	
Electric and Electronic Components	X	X	X	X	X	
Electroplating.....	X	X	X	NR	X	
Explosives Manufacturing.....	NR	X	X	NR	X	
Foundries.....	X	X	X	NR	X	
Gum and Wood Chemicals.....	X	X	X	X	X	
Inorganic Chemicals Manufacturing	X	X	X	NR	X	
Iron and Steel Manufacturing.....	X	X	X	NR	X	
Leather Tanning and Finishing....	X	X	X	X	X	
Mechanical Products Manufacturing	X	X	X	NR	X	
Nonferrous Metals Manufacturing..	X	X	X	X	X	
Ore Mining.....	X	X	X	X	X	
Organic Chemicals Manufacturing..	X	X	X	X	X	
Paint and Ink Formulation.....	X	X	X	X	X	
Pesticides.....	X	X	X	X	X	
Petroleum Refining.....	X	X	X	X	X	
Pharmaceutical Preparations.....	X	X	X	NR	X	
Photographic Equipment and Supplies.....	X	X	X	X	X	
Plastic and Synthetic Materials Manufacturing.....	X	X	X	X	X	
Plastic Processing.....	X	NR	NR	NR	X	
Porcelain Enameling.....	X	NR	X	X	X	
Printing and Publishing.....	X	X	X	X	X	
Pulp and Paper Mills.....	X	X	X	X	X	
Rubber Processing.....	X	X	X	NR	X	
Soap and Detergent Manufacturing.	X	X	X	NR	X	
Steam Electric Power Plants.....	X	X	X	NR	X	
Textile Mills.....	X	X	X	X	X	
Timber Products Processing.....	X	X	X	X	X	

X = testing is required

NR =testing is not required unless believed to be present.

Appendix B, Table IIA

Table IIA VOLATILE COMPOUNDS (Complete table and include lab reports if applicable)				
Organic Toxic Pollutants				
GS/MS Fraction				
Pollutant	Mark with "X"			Water Sample Result (if required)
	Required Testing	Believed Absent	Believed Present	
1 V acrolein				
2 V acrylonitrile				
3 V benzene				
4V. Bis (<i>Chloromethyl</i>) Ether (542-88-1)				
5 V bromoform				
6 V carbon tetrachloride				
7 V chlorobenzene				
8 V chlorodibromomethane				
9 V chloroethane				
10 V 2-chloroethylvinyl ether				
11 V chloroform				
12 V dichlorobromomethane				
13V. Dichlorodifluoromethane (75-71-8)				
14 V 1,1-dichloroethane				
15 V 1,2-dichloroethane				
16 V 1,1-dichloroethylene				
17 V 1,2-dichloropropane				
18 V 1,3-dichloropropylene				
19 V ethylbenzene				
20 V methyl bromide				
21 V methyl chloride				
22 V methylene chloride				
23 V 1,1,2,2-tetrachloroethane				
24 V tetrachloroethylene				
25 V toluene				
26 V 1,2-trans-dichloroethylene				
27 V 1,1,1-trichloroethane				
28 V 1,1,2-trichloroethane				
29 V trichloroethylene				
30V. Trichlorofluoromethane (75-69-4)				
31 V vinyl chloride				

Appendix B, Table IIB

Table IIB ACID COMPOUNDS (Complete table and include lab reports if applicable)				
Organic Toxic Pollutants				
GS/MS Fraction				
Pollutant	Mark with "X"			Water Quality Results
	Required Testing	Believed Absent	Believed Present	
1A 2-chlorophenol				
2A 2,4-dichlorophenol				
3A 2,4-dimethylphenol				
4A 4,6-dinitro-o-cresol				
5A 2,4-dinitrophenol				
6A 2-nitrophenol				
7A 4-nitrophenol				
8A p-chloro-m-cresol				
9A pentachlorophenol				
10A phenol				
11A 2,4,6-trichlorophenol				

Appendix B, Table IIC

Table IIC-BASE/NEUTRAL COMPOUNDS (Complete table and include lab reports if applicable)				
Organic Toxic Pollutants				
GS/MS Fraction				
Pollutant	Mark with "X"			Water Sample Results(if required)
	Required Testing	Believed Absent	Believed Present	
1 B acenaphthene				
2 B acenaphthylene				
3 B anthracene				
4 B benzidine				
5 B benzo(a)anthracene				
6 B benzo(a)pyrene				
7 B 3,4-benzofluoranthene				
8 B benzo(ghi)perylene				
9 B benzo(k)fluoranthene				
10B. Bis (2-Chloroethoxy) Methane (111-91-1)				
11 B bis(2-chloroethyl)ether				
12 B bis(2-chloroisopropyl)ether				
13 B bis (2-ethylhexyl)phthalate				
14 B 4-bromophenyl phenyl ether				
15 B butylbenzyl phthalate				
16 B 2-chloronaphthalene				
17 B 4-chlorophenyl phenyl ether				
18 B chrysene				
19 B dibenzo(a,h)anthracene				
20 B 1,2-dichlorobenzene				
21 B 1,3-dichlorobenzene				
22 B 1,4-dichlorobenzene				
23 B 3,3'-dichlorobenzidine				
24 B diethyl phthalate				
25 B dimethyl phthalate				
26 B di-n-butyl phthalate				
27 B 2,4-dinitrotoluene				
28 B 2,6-dinitrotoluene				
29 B di-n-octyl phthalate				

Table IIC-BASE/NEUTRAL COMPOUNDS (Complete table and include lab reports if applicable)				
Organic Toxic Pollutants				
GS/MS Fraction				
Pollutant	Mark with "X"			Water Sample Results(if required)
	Required Testing	Believed Absent	Believed Present	
30B. 1,2-Diphenylhydrazine (as Azobenzene)				
31B. Fluoranthene (206)				
32B. Fluorene (86)				
33B. Hexachlorobenzene (118)				
34B. Hexachlorobutadiene (87)				
35B. Hexachlorocyclopentadiene (77)				
36B Hexachloroethane (67)				
37B. Indeno (1,2,3				
38B. Isophorone (78)				
39B. Naphthalene (91)				
40B. Nitrobenzene (98)				
41B. N-Nitrosodimethylamine (62-75-9)				
42B. N-Nitrosodi-N-Propylamine(621-64-7)				
43B. N-Nitrosodiphenylamine(86-30-6)				
44B. Phenanthrene (85-01-8)				

Appendix B, Table IID

Table IID-PESTICIDE COMPOUNDS (Complete table and include lab reports if applicable)				
Pollutant	Mark with "X"			Water Sample Results
	Required Testing	Believed Absent	Believed Present	
1P aldrin				
2P alpha-BHC				
3P beta-BHC				
4P gamma-BHC				
5P delta-BHC				
6P chlordane				
7P 4,4'-DDT				
8P 4,4'-DDE				
9P 4,4'-DDD				
10P dieldrin				
11P alpha-endosulfan				
12P beta-endosulfan				
13P endosulfan sulfate				
14P endrin				
15P endrin aldehyde				
16P heptachlor				
17P heptachlor epoxide				
18P PCB-1242				
19P PCB-1254				
20P PCB-1221				
21P PCB-1232				
22P PCB-1248				
23P PCB-1260				
24P PCB-1016				
25P toxaphene				

Appendix B, Table III

Table III—Metals(Total Recoverable), Cyanide, Total Phenols, and Hardness				
Pollutant	Mark with "X"			Water Sample Results
	Required Testing	Believed Absent	Believed Present	
Antimony, Total Recoverable				
Arsenic, Dissolved				
Beryllium, Total Recoverable				
Cadmium, Dissolved				
Chromium, Dissolved				
Copper, Dissolved				
Cyanide, Dissolved				
Hardness (as CaCO ₃), Total				
Lead, Dissolved				
Mercury, Dissolved				
Nickel, Dissolved				
Phenols, Total Recoverable				
Selenium, Total Recoverable				
Silver, Dissolved				
Thallium, Total Recoverable				
Zinc, Dissolved				

Appendix B, Table IV

TABLE IV: Conventional and Nonconventional Pollutants:			
Pollutant	Mark with "X"		Water Sample Results
	Believed Absent	Believed Present	
Bromide			
Chlorine, Total Residual			
Fecal Coliform			
Fluoride			
Nitrate-Nitrite			
Nitrogen, Total Organic			
Oil and Grease			
Phosphorus			
Radioactivity			
Alpha, Total			
Beta, Total			
Radium, Total Recoverable			
Radium 226, Total Recoverble			
Sulfate			
Sulfide			
Sulfite			
Surfactants			
Aluminum, Dissolved			
Barium, Total Recoverable			
Boron			
Cobalt			
Iron, Dissolved			
Magnesium, Dissolved			
Molybdenum			
Manganese, Dissolved			
Tin			
Titanium			

Appendix B, Table V

TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES		
Circle any constituent(s) below you believe to be present in the discharge		
TABLE V		
TOXIC POLLUTANT		
Asbestos		
HAZARDOUS SUBSTANCES		
Acetaldehyde	Diethyl amine Napthenic acid	Monomethyl amine
Allyl alcohol	Dintrobenzene	Naled
Allyl chloride	Diquat	Nitrotoluene
Amyl acetate	Disulfoton	Parathion
Aniline	Diuron	Phenolsulfonate
Asbestos	Epichlorohydrin	Phosgene
Benzonitrile	Ethion	Propargite
Benzyl chloride	Ethylene diamine	Propylene oxide
Butyl acetate	Ethylene dibromide	Pyrethrins
Butylamine	Formaldehyde	Quinoline
Captan	Furfural	Resorcinol
Carbaryl	Guthion	Strontium
Carbofuran	Dimethyl amine	Strychnine
Carbon disulfide	Isoprene	Styrene
Chlorpyrifos	Isopropanolamine	TDE (Tetrachlorodiphenyl ethane)
Coumaphos	Kelthane	Trichlorofon
Cresol	Kepone	2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
Crotonaldehyde	Malathion	2,4,5-TP [2-(2,4,5-Trichlorophenoxy) propanoic acid]
Cyclohexane	Mercaptodimethur	Triethanolamine
Diazinon	Methoxychlor	Triethylamine
Dicamba	Methyl mercaptan	Trimethylamine
Dichlobenil	Methyl methacrylate	Uranium
Dichlone	Methyl parathion	Vanadium
2,4-D (2,4-Dichlorophenoxyacetic acid)	Mevinphos	Vinyl acetate
2,2-Dichloropropionic acid	Mexacarbate	Xylene
Dichlorvos	Monoethyl amine	Xylenol

Appendix B, Table VI

TABLE VI			
Use the space below to list any of the pollutants in the above tables (II-VI) which you are not required to submit a water quality sample and you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe to be present and report any analytical data in your possession.			
1. Pollutant	2. Source	1. Pollutant	2. Source

Harold Bergman
U.W. Department of Zoology & Physiology
100 University Ave, Dept. 3166
Laramie, WY 82071

Date: November 25, 2014
Request Number: 33580
Date Received: 11/17/14
Matrix: Water

REPORT OF ANALYSIS

Lab Number: P3937

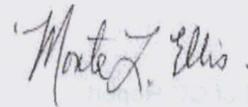
Sample ID: Effluent Outfall 001 WYPDES 0032336 11/17/14 1340

	Result	Units	Method	Date Analyzed	Analyst
Chemical Oxygen Demand	2.26	mg/L	EPA 410.4	11/19/14	HM
Ammonia as N	0.338	mg/L	SM4500-NH3 F	11/20/14	HM
Total Organic Carbon	2.7*	mg/L	415.1	11/20/14	CB
Total Suspended Solids	0.5	mg/L	160.2	11/18/14	DA
pH	7.91	mg/L	150.1	11/18/14	DA

Biochemical Oxygen Demand	< 1.0	mg/L	SM 5210B	Analyst
Start Date/Time	11/19/14 @1134			HM
Analysis Date/Time	11/24/14 @0900			

*Results are the average of 2 runs.

End of Report
MLE/tab



Laboratory Manager



WYOMING ANALYTICAL LABORATORIES, INC.

1660 Harrison St. Wallaramie@wal-lab.com
Laramie, WY 82070

(307) 742-7995
Fax: (307) 721-8956

Donal Skinner
 Department of Zoology
 University of Wyoming
 P.O. Box 3166
 Laramie, WY. 82071

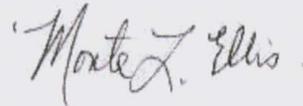
Date: October 2, 2014
 Request Number: 33327
 Date Received: 9-16-14
 Matrix: Water

REPORT OF ANALYSIS

Lab Number	P3153	P3154	P3155			
Sample ID	Effluent	Artesian	Well	Method	Date Analyzed	Analyst
Calcium, mg/L	56.9	52.2	38.4*	6010	9/18/2014	CB
Magnesium, mg/L	18.3	17.1	28.1*	6010	9/18/2014	CB
Sodium, mg/L	8.32	7.33	7.78*	6010	9/18/2014	CB
Potassium, mg/L	1.62	1.63	1.72*	6010	9/18/2014	CB
Cadmium, mg/L	< 0.01*	< 0.01	< 0.01	6010	9/17/2014	CB
Copper, mg/L	< 0.01*	< 0.01	< 0.01	6010	9/17/2014	CB
Lead, mg/L	< 0.01*	< 0.01	< 0.01	6010	9/17/2014	CB
Zinc, mg/L	< 0.01*	< 0.01	< 0.01	6010	9/17/2014	CB
pH, std. units	8.05	7.92	7.68	150.1	9/16/2014	DA
Alkalinity (as CaCO ₃), mg/L	182	172	188	310.1	9/16/2014	DA
Chloride, mg/L	7.1	7.3	3.2*	300.0	9/17/2014	DA
Sulfate, mg/L	15	15	11*	300.0	9/17/2014	DA
Nitrates, mg/L	0.75	0.63	0.45*	300.0	9/17/2014	DA
Fluoride, mg/L	0.64	0.65	0.64*	300.0	9/17/2014	DA
Conductivity, umhos/cm	368	360	354	120.1	9/16/2014	DA
Total Dissolved Solids, mg/L	238	234	230	160.2	9/16/2014	DA
Total Suspended Solids, mg/L	< 1.0	< 1.0	< 1.0	160.2	9/17/2014	DA

*Results are the average of 2 runs.

End of Report
 MLE/tab



Laboratory Manager

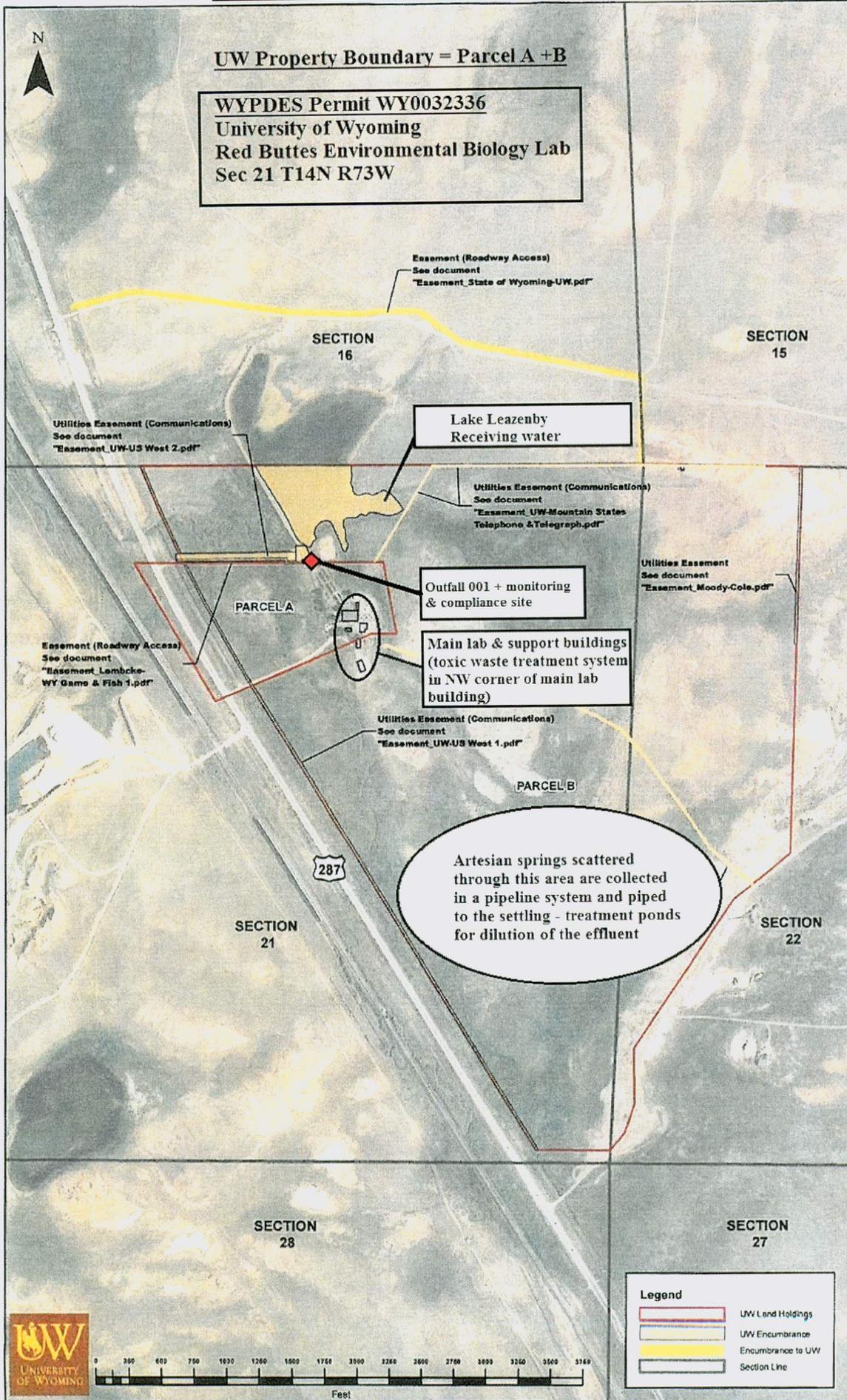


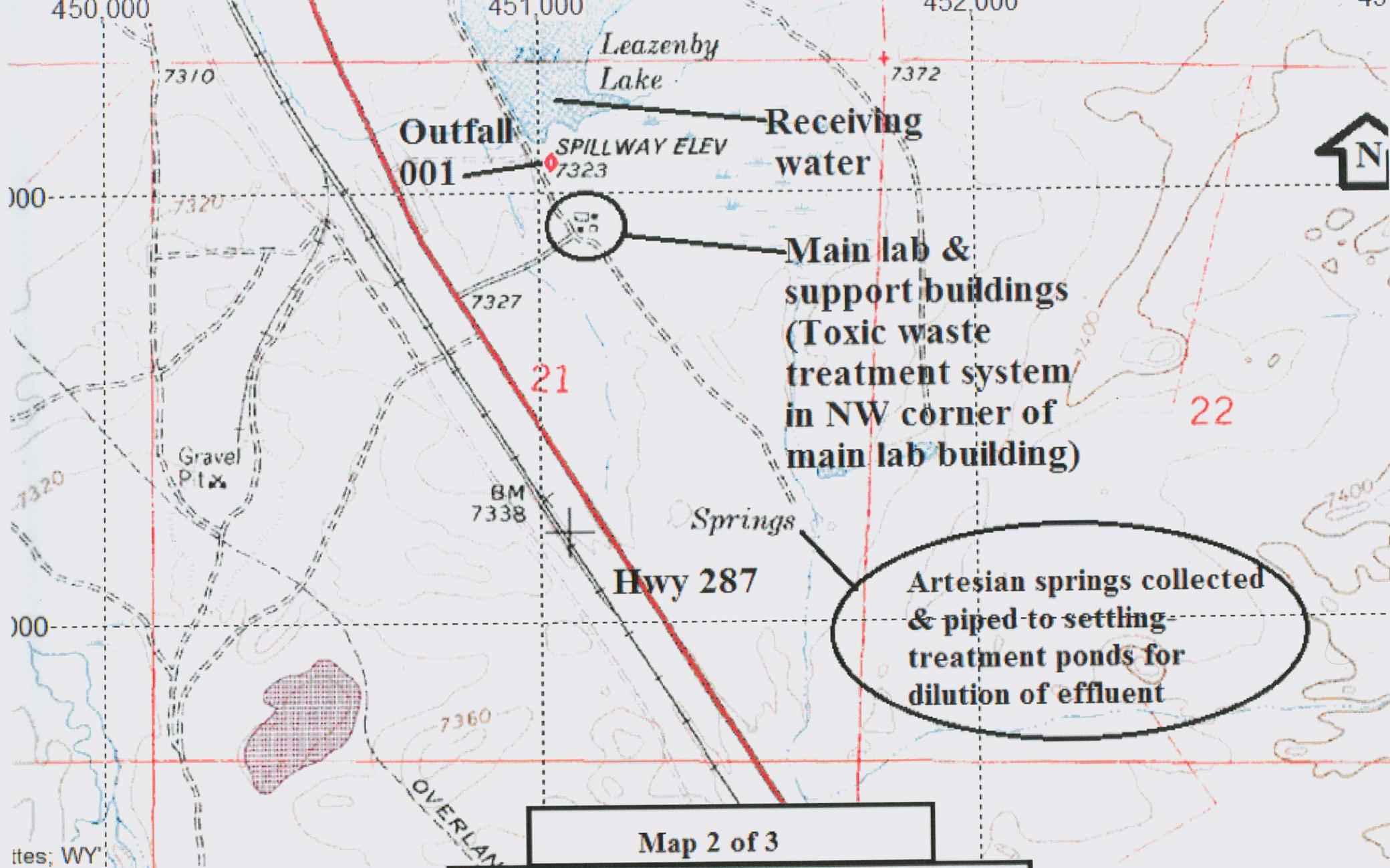
WYOMING ANALYTICAL LABORATORIES, INC.

1660 Harrison St.
 Laramie, WY 82070

Wallaramie@wal-lab.com

(307) 742-7995
 Fax: (307) 721-8956





Map 2 of 3

WYPDES Permit WY0032336
University of Wyoming
Red Buttes Environmental Biology Lab
Sec 21 T14N R73W

Lake Leazenby
Receiving water



Outfall 001 & monitoring
& compliance site

-105 35.062, 49-10-46

3 settling - treatment -
biomonitoring ponds

Lab building - Toxic waste
treatment system in NW
corner of building

Pipeline to
artesian springs -
1/2 mi south

US Hwy
287

Map 3 of 3

WYPDES Permit WY0032336
University of Wyoming
Red Buttes Environmental Biology Lab
Sec 21 T14N R73W

0 25 50 m

Red Buttes Laboratory
Albany County, Wyoming
NAIP 2006 1m True Color Imagery
NAD83 UTM Zone 13

The Department of Zoology and Physiology

UNIVERSITY OF WYOMING

Dr. Harold L. Bergman
Department 3166
1000 East University Avenue
Laramie, WY 82071-3166
Email: bergman@uwyo.edu
Voice: (307) 766-2022
Fax: (307) 766-5625

RECEIVED

December 5, 2014

Mr. Roland Peterson
Water Quality Division
Wyoming Department of Environmental Quality
Herschler Building
122 West 25th Street
Cheyenne, WY 82002

DEC 09 2014

WATER QUALITY DIVISION
WYOMING

Dear Mr. Peterson:

Please find enclosed our application for renewal of the WYPDES permit WY32336 for the University of Wyoming's Red Buttes Environmental Biology Laboratory along with the \$500 check required for renewal applications.

We want to thank you for allowing an administrative extension for this permit that expired on October 31, 2014 and for your patience in assisting us with this permit renewal application. We also sincerely appreciate the WQD's flexibility and willingness in the past to accommodate the special circumstances of our University research operations that limit our ability to predict what kind of effluent treatment we may need in the future because our work depends so much on external project funding. Because of these continuing uncertainties in describing our future needs, we propose continuing the safety provisions of our past permits in a new permit, namely to include: (a) a limit of 6,000 gal/day discharge of treated toxic experimental waste flow, (b) a 50:1 dilution of our treated effluent with clean artesian water flow, and (c) biomonitoring of waste discharge through fish ponds that we inspect daily.

If you have any questions or concerns related to our renewal application, please contact me by email bergman@uwyo.edu or phone (307) 766-2022.

Thank you.

Sincerely,



Harold Bergman
Professor of Zoology and Physiology

Attachments: WYPDES application (Form G) for renewal of WY0032336
University of Wyoming check for \$500 for permit renewal application fee

Copy: Carol Pribyl, Office Manager, Department of Zoology and Physiology



Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.



Matthew H. Mead, Governor

Todd Parfitt, Director

INVOICE

To: University of Wyoming
Department of Zoology and Physiology
Attn: Shawn Sheen
Laramie, WY 82071

Date: October 31, 2014

Application for Renewal of Permit Number: **WY0032336**

Permittee: University of Wyoming, Department of Zoology and Physiology

Facility: Red Buttes Environmental Biology Lab, which is located in NENW Section 21, Township 14N, Range 73W, Albany County, WY.

Effective Date: November 1, 2014 Expiration Date: October 31, 2019

Amount Due Upon Receipt: **\$500.00**

Please remit payment to:

**Wyoming DEQ – Water Quality Division
122 West 25th Street
Herschler Building, 4W
Cheyenne, WY 82002
Attn: Marilyn Siemens**

Thank you.





Marilyn Siemens <marilyn.siemens@wyo.gov>

WYPDES Permit Renewal for WY 0032336, Red Buttes Laboratory

3 messages

Harold Lee Bergman <Bergman@uwyo.edu>

Mon, Nov 17, 2014 at 10:27 AM

To: Marilyn Siemens <Marilyn.Siemens@wyo.gov>

Cc: Roland Peterson <roland.peterson@wyo.gov>, "Shawn K. Sheen" <ShawnS@uwyo.edu>

Dear Ms. Siemens,

We are working with Roland Peterson to get in our paperwork for renewal of our WYPDES effluent discharge permit number WY0032336. For the renewal we are required to include a check for \$500 with the application for renewal. Since the permit is for a University of Wyoming facility, we have to operate under the University's rules for payment of funds. Thus, we need an invoice requesting payment of \$500 before we can have a check cut from the University to DEQ.

Thus, could you please issue an invoice for payment of \$500 from:

Red Buttes Environmental Biology Lab

Department of Zoology and Physiology

University of Wyoming

Attn.: Shawn Sheen

Please let me know if this is possible or if there is other information that you require.

Thank you,

Harold Bergman

Bergman@uwyo.edu

307-766-2022

Marilyn Siemens <marilyn.siemens@wyo.gov>

Mon, Nov 17, 2014 at 10:53 AM

To: Harold Lee Bergman <Bergman@uwyo.edu>

Cc: Roland Peterson <roland.peterson@wyo.gov>

Dear Mr. Bergman,

Because we require payment along with permit applications, we no longer utilize a regular invoice system. However, if I would be happy to provide you with a descriptive invoice, typed in Microsoft Word and printed on Department of Environmental Quality letterhead. I could then e-mail you a .pdf copy of the invoice as well as mailing the hard copy to Mr. Sheen.

Please let me know if this would meet your needs. Thank you.

Marilyn Siemens

Permit Fees Specialist

Wyoming DEQ ~ Water Quality Division
122 West 25th Street
Herschler Building, 4W
Cheyenne, WY 82002

Marilyn Siemens

Permit Fees Specialist

307.777.2592

122 West 25th St.

Herschler Bldg. 4W

Cheyenne, WY 82002

[Quoted text hidden]

Harold Lee Bergman <Bergman@uwyo.edu>
To: Marilyn Siemens <marilyn.siemens@wyo.gov>
Cc: Roland Peterson <roland.peterson@wyo.gov>

Mon, Nov 17, 2014 at 11:02 AM

Dear Marilyn,

Thank you very much, if you could do as you suggest in sending us a descriptive invoice, we could make that work here in the University.

Thanks again!

Harold Bergman

From: Marilyn Siemens [mailto:marilyn.siemens@wyo.gov]

Sent: Monday, November 17, 2014 10:54 AM

To: Harold Lee Bergman

Cc: Roland Peterson

Subject: Re: WYPDES Permit Renewal for WY 0032336, Red Buttes Laboratory

[Quoted text hidden]

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.