Dry Creek WRF
8911 Campstool Rd
Cheyenne WY, 82007

Attn: Water Program
Regional Biosolids Program P-W-P
USEPA Region VIII
1595 Wynkoop St.
Denver, Colorado 80202-1199

Attn. Bob Brobst

BIOSOLIDS FILE
BY: _____ DATE: 1/30/14
PERMIT WY0065002
LAND APP SITE _____

General Facility Information

BIOSOLIDS ANNUAL 2013 STAMENT

On behalf of the Cheyenne Board of Public Utilities, I, Chester Barkell, have prepared the Annual Biosolids Report for 2013 to the best of my knowledge, truth, and belief. The provided information is from the Cheyenne Board of Public Utilities (Dry Creek Water Reclamation Facility), Cheyenne Board of Public Utilities (Dry Creek Water Reclamation Facility Laboratory), Cheyenne Board of Public Utilities (Crow Creek Water Reclamation Facility), Test America Laboratories Denver, CO) from year 2013 daily records, and daily sheets, also from years past.

Chester Barkell Date: 1-23-2014 Time: 2:36 [] AM [] PM

Signature: Chester Barkell
Biosolids Program Coordinator

GENERAL

FACITITY

INFORMATION

2013

USA EPA Region 8
BIOSOLIDS ANNUAL REPORT
Data Entry Sheets

SECTION I – BIOSOLIDS REPORT

By Authority of 40 CFR Part 503, this form is to be used by generators and distributors to report biosolids applied to the land (beneficially used) which are subject to 40 CFR Part 503.

REPORTS ARE DUE February 19, 2014

Please note: All Treatment Works Treating Domestic Sewage (TWTDS) are required to complete and return this form.
*** If your wastewater treatment system did not use/dispose of biosolids in calendar year 2013 (e.g., lagoon system), you are still required to submit a partial 2013 annual biosolids report (i.e. this page of the report form).**
**** If you hauled liquid biosolids to another facility, list the amount hauled and the haulers name.**

REQUIRED INFORMATION - TO BE COMPLETED BY GENERATOR OR DISTRIBUTOR. (Please type or print.)

FACILITY NAME			NPDES and/or State Permit Number
Dry Creek WRF			WYG-650002
FACILITY ADDRESS			TELEPHONE NO.
8911 Camp STOOL Rd.			307-635-3163
CITY	STATE	ZIP	CONTACT PERSON
Cheyenne	WY	82007	Chet Barkell

DURING FISCAL YEAR 2013 (**1/1/2013 - 12/31/2013**), THE GENERATOR/DISTRIBUATOR NAMED ABOVE LAND APPLIED

1,448.46 DRY METRIC TONS OF BIOSOLIDS

280 DRY METRIC TONS OF BIOSOLIDS TO LANDS WITHIN THE STATE

1,256.23 TOTAL DRY METRIC TONS OF BIOSOLIDS GENERATED

_____ TOTAL DRY METRIC TONS **LANDFILLED**

_____ TOTAL DRY METRIC TONS **INCINERATED**

_____ TOTAL DRY METRIC TONS **TRANSPORTED OUT OF STATE**

_____ TOTAL GALLONS TRANSPORTED TO ANOTHER WASTEWATER TREATMENT FACILITY

_____ RECEIVING FACILITY NAME

_____ HAULERS NAME

To convert the English system (short tons) to metric tons, use the following equation: DRY METRIC TONS = DRY SHORT TONS x .907

I certify that the information as provided on this form is true.

Chet Barkell — Signature of Authorized Representative

1-21-2014 — Date

REQUIRED INFORMATION.

MAILING NAME			
MAILING ADDRESS			
MAILING CITY	STATE	ZIP	CONTACT PERSON and EMAIL ADDRESS

IF YOU HAVE ANY QUESTIONS ABOUT COMPLETING THIS FORM, PLEASE CONTACT THE BIOSOLIDS STAFF PERSON

USA EPA Region 8
BIOSOLIDS ANNUAL REPORT

SECTION II – GENERAL FACILITY INFORMATION

These forms may be used by generators and distributors to report biosolids applied to the land which are subject to 40 CFR Part 503.

1. Annual Reporting Year January1, to December 31,	2. Biosolids Permit Number WYG-650002
3. Generator Name Cheyenne BOPU	4. Facility Name (if Different) Dry Creek WRF
5. Latitude (nearest 15 seconds) N 41°-07.566' / Longitude W 104°-42.615'	6. Plant Type Class I
7. Permit Issued (Date) 10-19-2007	8. Permit Expires (Date) 10-19-2012 (EPA) Extendend
9. Current Actual Flow Rate (MGD) 5.41	10. Industrial Pretreatment? (check one) ☒ YES ☐ NO
11. Facility sends biosolids out of state? (Y/N) ☐ YES ☒ NO	
12. Facility Physical Address	
Street: 8911 Campstool Rd.	City: Cheyenne
County: Laramie / Zip Code: 82007	Phone (include area code): 307-635-3163
13. Facility Mailing Address (if different)	
Street:	City:
County: / Zip Code:	Phone (include area code):
14. Name of Responsible Official:	15. Title of Responsible Official:
16. Facility Contact Person Information	
Name of Contact: Chet Barkell	Title: Biosolids Program Coordinator
E-Mail Address:	Phone: 307-635-3163 / Fax: 307-635-6833
17. Contract Applier(s)/Hauler(s) Information	
Name of Contractor	
Phone:	Contact:
Name of Contractor:	
Phone:	Contact:

****Please place all attachments at the end of the report packet as appendices <u>not</u> after each section**

USA EPA Region 8
BIOSOLIDS ANNUAL REPORT

SECTION III – FINAL USE/DISPOSAL PRACTICES (reporting year 2013)

Permit Number (WYG) - 650002

1. Land Application (total)	280 dmt		
Bulk Biosolids:	_____ dmt	Derived Materials:	_____ dmt
Agricultural Land (pasture)	280 dmt	Agricultural Land	_____ dmt
Range Land	_____ dmt	Range Land	_____ dmt
Forest	_____ dmt	Forest	_____ dmt
Public Contact Site	_____ dmt	Public Contact Site	_____ dmt
Reclamation Site	_____ dmt	Reclamation Site	_____ dmt
Sold or Given Away	_____ dmt	Sold or Given Away	_____ dmt
Lawn or Garden	_____ dmt	Lawn or Garden	_____ dmt
2. Surface Disposal (Total)	_____ dmt	3. Landfill (Total)	_____ dmt
With Liner and LCS	_____ dmt	Landfill Disposal	_____ dmt
Without Liner and LCS	_____ dmt	Landfill Cover	_____ dmt
4. Incineration	_____ dmt	Landfill Name	
5. Transported to Another Facility	_____ dmt	6. Received From Another Facility	_____ dmt
Name		Name	
Address		Address	
NPDES #		NPDES #	
Phone		Phone	
7. Other	_____ dmt	8. Stored	_____ dmt

9. Certifications: **(*Please Attach All Required Certification Statements)**

Pathogen Certification? (select one)	☒ YES	☐ NO	☐ NOT APPLICABLE
Vector/Attraction Certification? (select one)	☒ YES	☐ NO	☐ NOT APPLICABLE
Management Practice Certification? (select one)	☒ YES	☐ NO	☐ NOT APPLICABLE
CPLR Certification? (select one)	☐ YES	☐ NO	☐ NOT APPLICABLE
- CPLR Site Restrictions Certification? (select one)	☐ YES	☐ NO	☐ NOT APPLICABLE

**dmt = Dry Metric Tons
**CPLR: Cumulative Pollutant Loading Rate – when pollutants exceed Table 3 concentrations (mg/kg)

If you have any questions about the preparation of this form, contact EPA biosolids program staff person.

USA EPA Region 8
BIOSOLIDS ANNUAL REPORT

SECTION IV – LAND APPLICATION SITE INFORMATION (reporting year **2013**)

Permit Number (WYG)-650002

SITE 7 - INFORMATION		
Site Name Brant Miller Ranch	County Laramie	Indian Country ☐ YES ☒ NO
Owner Brant miller		
Operator NA		
Applier Cheyenne Bopu		
Latitude N41°-06.262'	Longitude W 104°-28.822'	Reached 90% CPLR App. Rate? ☐ YES ☒ NO
Township 13N	Range 64W	Section 7
Acres 320	Acres Used 22.4	Crop Pasture
Application Rate (tons/acre) 6.43	Notification (select one) ☒ YES ☐ NO	Cumulative Load Required (select one) ☐ YES ☒ NO
Recommended N for Crop (lbs/acre)	Plant Available N (PAN) (lbs/dry ton)	

SITE 12 - INFORMATION		
Site Name Brant Miller Ranch	County Laramie	Indian Country ☐ YES ☒ NO
Owner Brant miller		
Operator NA		
Applier Cheyenne Bopu		
Latitude N41°-06.300'	Longitude W104°-29.253'	Reached 90% CPLR App. Rate? ☐ YES ☒ NO
Township 13N	Range 64W	Section 12
Acres 35	Acres Used 9.05	Crop Pasture
Application Rate (tons/acre) 6.43	Notification (select one) ☒ YES ☐ NO	Cumulative Load Required (select one) ☐ YES ☒ NO
Recommended N for Crop (lbs/acre)	Plant Available N (PAN) (lbs/dry ton)	

SITE ____ - INFORMATION		
Site Name	County	Indian Country ☐ YES ☐ NO
Owner		
Operator		
Applier		
Latitude	Longitude	Reached 90% CPLR App. Rate? ☐ YES ☐ NO
Township	Range	Section
Acres	Acres Used	Crop
Application Rate (tons/acre)	Notification (select one) ☐ YES ☐ NO	Cumulative Load Required (select one) ☐ YES ☐ NO
Recommended N for Crop (lbs/acre)	Plant Available N (PAN) (lbs/dry ton)	

****Attach additional copies of this sheet as necessary, or you may attach your contractor's Land Application Reports.**

If you have any questions about the preparation of this form, contact EPA biosolids program staff person.

BIOSOLIDS TREATMENT PROVIDED

THICKENING:
1. Gravity ☐
2. DAF ☐
3. Centrifuge ☐
4. Rotary Drum Thickeners ☒

STABILIZATION:
5. Aerobic Dig. ☐
6. Anaerobic Dig. ☒
7. Heat Treat. ☐
8. Wet Oxidation ☐
9. Chemical (Lime) Stab. ☐
10. Composting ☐
11. Biosolids Lagoons ☐
12. _____ ☐

CONDITIONING:
13. Chemical Cond. ☐
14. _____ ☐

DEWATERING:
15. Vacuum Filter ☐
16. Pressure Filter ☐
17. Belt Filter ☐
18. Drying Bed ☒
19. Drying Lagoon ☐
20. Heat Drying ☐
21. Cenrifuge ☒
22. _____ ☐

OTHER:
23. Wastewater Lagoon ☐
24. Mixing of Biosolids ☐
25. Oxidation Ditch ☐
26. Incineration ☐
27. Septage ☐
28. _____ ☐

USA EPA Region 8
BIOSOLIDS ANNUAL REPORT

SECTION V – MONITORING DATA SUMMARY (reporting year **2013**)
Permit Number ( )

Parameter	Minimum Monthly Concentration	Average Monthly Concentration	Maximum Monthly Concentration	Units	# of Analyses	Average Method Detection Limit	Test Method	Sample Type
Inorganics								
Total Solids	57.5	78.6	91.7	%	6	0.2	SM 2540G	☑ Grab ☐ Composite
Volatile Solids	33.1	37.45	42.5	%	6	1.0	SM 2540E	☑ Grab ☐ Composite
Total Arsenic	2.5	3.35	6.2	mg/kg	6	0.85	EPA 6010B	☑ Grab ☐ Composite
Total Cadmium	1.0	1.6	2.7	mg/kg	6	0.51	EPA 6010B	☑ Grab ☐ Composite
Total Copper	225	552	782	mg/kg	6	0.7	EPA 6010B	☑ Grab ☐ Composite
Total Lead	15.4	36.35	58.8	mg/kg	6	1.03	EPA 6010B	☑ Grab ☐ Composite
Total Mercury	.76	1.44	2.7	mg/kg	6	0.0676	7471A	☑ Grab ☐ Composite
Total Molybdenum	2.6	5.85	2.6	mg/kg	6	0.51	EPA 6010B	☑ Grab ☐ Composite
Total Nickel	5.1	8.75	14.5	mg/kg	6	0.51	EPA 6010B	☑ Grab ☐ Composite
Total Selenium	5.0	10.6	13.9	mg/kg	6	0.35	EPA 6010B	☑ Grab ☐ Composite
Total Zinc	209	478.8	653	mg/kg	6	0.51	EPA 6010B	☑ Grab ☐ Composite
Nutrients								
Total Kjeldahl Nitrogen	4,500	7,600	12,000	mg/kg	6	275	351.2	☑ Grab ☐ Composite
Ammonium Nitrogen	690	4,765	12,000	mg/kg	6	150.6	350.1	☑ Grab ☐ Composite
Total Phosphorus	13,000	17,333	23,000	mg/kg	6	15.05	6010B	☑ Grab ☐ Composite
Total Potassium	1,800	2,017	23,000	mg/kg	6	50.7	6010B	☑ Grab ☐ Composite

****Include copies of the actual analytical laboratory data sheets as an attachment at the end of the packet. Include any additional monitoring results not listed above.** All sampling shall be representative of the biosolids applied to land during the reporting period and in accordance with 40 CFR Part 503 Frequency of Monitoring – Land Application. All analysis should be provided on a dry weight basis.

If you have any questions about the preparation of this form, contact EPA biosolids program staff person.

SECTION VI – PATHOGEN AND VECTOR ATTRACTION REDUCTION (reporting year 2013)

Permit Number ( )

1. **Pathogen Reduction**
   Class A

- ☐ Class A – Alternative 1 (+ elevated temp for specified time)
- ☐ Class A – Alternative 2 (+ pH adjust for specified time/temp)
- ☐ Class A – Alternative 3 (+ virus and helminth criteria)
- ☐ Class A – Alternative 4 (+ other virus and helminth criteria)
- ☐ Class A – Alternative 5 (indicate which PFRP)
  - ☐ (a) composting
  - ☐ (b) heat drying
  - ☐ (c) heat treatment
  - ☐ (d) thermophillic aerobic digestion
  - ☐ (e) beta ray irradiation
  - ☐ (f) gamma ray irradiation
  - ☐ (g) pasteurization
- ☐ Class A – Alternative 6 (attach PFRP equivalent documentation)

2. **Pathogen Reduction**
   Class B

- ☐ Class B – Alternative 1 (geometric mean of 7 samples)
- ☐ Class B – Alternative 2 (indicate which PSRP)
  - ☐ (a) aerobic digestion
  - ☐ (b) air drying
  - ☐ (c) anaerobic digestion
  - ☐ (d) composting
  - ☐ (e) lime stabilization (pH at 25' C or equivalent)
- ☐ Class B – Alternative 3 (attach PSRP equivalent documentation)

3. **Vector Attraction Reduction**
   Method Used:

- ☒ Option 1 (minimum 38 percent reduction in volatile solids)
- ☐ Option 2 (Anaerobic process, with bench-scale demonstration)
- ☐ Option 3 (Aerobic Process, with bench-scale demonstration)
- ☐ Option 4 (Specific Oxygen Uptake Rate (SOUR), aerobically digested)
- ☐ Option 5 (Aerobic Process plus raised temperature)
- ☐ Option 6 (Raise pH to 12 and retain at 11.5)
- ☐ Option 7 (75% solids with no unstabilized solids)
- ☐ Option 8 (90% solids with unstabilized solids)
- ☐ Option 9 (Injection below land surface with significant soil coverage)
- ☐ Option 10 (Covering active sewage sludge unit daily)

****Attach all Pathogen Reduction and Vector Attraction Reduction documentation to demonstrate compliance at the end of the packet**

ou have any questions regarding the preparation of this form, contact the EPA biosolids program staff person.

SECTION VII – SIGNATURE PAGE

Facility Name	Biosolids Permit Number
Dry Creek WRF	WY G-650002

CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system of those persons directly responsible for gathering the information, the information 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 for knowing violations."

Name and Official Title: Phillip Clark Compliance Supervisor

Signature: Phil Clark

Telephone Number: 307-635-3163

Date Signed: 1-23-14

Name and Official Title: James Hughes, Manager, Water Reclamation Div.

Signature: James Hughes

Date Signed: 1-23-14

Upon request you may be required to submit additional information necessary to access biosolids use or disposal practices at your facility or to identify appropriate permitting requirements.

PLEASE RETURN COMPLETED FORMS TO:

Bob Brobst
Attn: Water Program
Regional Biosolids Program, P-W-WW
USEPA Region VIII,
1595 Wynkoop St.
Denver, Colorado 80202-1199

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

Requirements: 503

REQUIREMENTS

FOR BIOSOLIDS

DUE ON FEBUARY 19, 2014

FROM FACILITIES IN

REGION VIII

(40 CFR 503)

EPA REGION VIII

BIOSOLIDS MANAGEMENT PROGRAM

Date: January 1 , 2013

To: All Major and Significant Minor Facilities in Wyoming

SUBJECT: 2013 BIOSOLIDS ANNUAL REPORT*DUE ON OR BEFORE FEBRUARY 19, 2014*****

Dear Facility Manager:

The 40 CFR 503 regulations require and your EPA Biosolids Permit you to submit a biosolids annual report to EPA Region 8 on or before **February 19, 2014** detailing your biosolids information for **calendar year 2013**. ***If your wastewater treatment system did not use/dispose of biosolids and you did not dispose of biosolids in calendar year 2013 (e.g., lagoon system), you are still required to submit a partial 2013 annual biosolids report(i.e. the first page).*** If you are a lagoon system and you removed biosolids from a lagoon in 2013, you must complete a biosolids annual report. Mechanical treatment facilities are required to submit an annual biosolids report whether or not biosolids were used/disposed of during calendar year 2013.

Facilities that use/dispose of biosolids or facilities that removed biosolids in calendar year 2013 shall provide the following information in their 2013 Annual Biosolids Report:

- Biosolids produced or removed from the facility during calendar year 2013 in **dry metric tons.**
- Biosolids used/disposed of or land applied in 2013 in **dry metric tons.**
- Biosolids stored at the facility in 2013 in **dry metric tons.**
- Type of use/disposal practice(s).
- Analytical results of each pollutant required for your use/disposal practice. Look at the results. Do they make sense?
- A description of how the pathogen reduction requirements were met, **including certification statements.**
- A description of how the vector attraction reduction requirements were met, **including certification statements.**
- Descriptions of how the management practices were met, **including any certification requirements.**
- A description of how the land application site restrictions were met (if necessary), **including any certification requirements.**
- A list of each land application site and the annual whole biosolids application rate (in metric tons/hectare) applied to each site.
- Results of any additional monitoring completed on the biosolids completed during 2013.
- The location (street address, latitude and longitude, or section, township and range) of each site where biosolids were land applied and the number of hectares applied to at each site.
- The dates the biosolids were applied to each site.
- The cumulative amount of each pollutant in the biosolids applied to each site and the amount of biosolids applied to each site, if your biosolids were land applied and the pollutant concentrations exceeded Table 3 levels located in 40 CFR 503 (b) (3).

- Please review the General Facility Information and update the information as necessary.
- If a contract hauler was used, list the name and address.
- Any other information required from you in your biosolids-only NPDES permit (if you were issued one).

Feel free to use the enclosed data sheets. These sheets contain the details needed by Region 8 to assess compliance of you facility with 40 CFR 503 and your Biosolids Permit. Feel free to call Bob Brobst at 303-312-6129 with questions you may have.

Please send originals to:

EPA Region 8

Attn: Water Program
Regional Biosolids Program, P-W-P
USEPA Region VIII,
1595 Wynkoop St.
Denver, Colorado 80202-1199

E-Mail to: brobst.bob@epa.gov

Thank you in advance for your timely report!

Sincerely,

Robert Brobst, P.E., Biosolids Coordinator,
EPA Region 8

Dry Creek WRF

INFORMATION FOR

DRY CREEK WRF

ANNUAL BIOSOLIDS

REPORTS
2013

PERMIT No. WYG - 650002
IDENTIFICATION No. WYSL - 22934

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave, Cheyenne, WY 82003 (307) 637-6460
Dry Creek Water Reclamation Facility, 8911 Campstool Rd. (307)635-3163
Cheyenne, WY 82007 Facsimile (307) 635-6833

January 21, 2014

EPA Region 8

Attn: Water Program
Regional Biosolids Program P-W-P
USEPA Region VIII
1595 Wynkoop Street
Denver, CO 80202-1119

DEQ/Water Quality
122 W. 25th Street
Herscehel Building 4Th Floor West
Cheyenne, WY 82002

RE: Biosolids 2014 Annual Report for Dry Creek WRF: Permit No. WYG-650002: Identification No. WYSL-22934.

The following 2014 date is for Dry Creek WRF; Cheyenne Board of Public Utilities, 8911 Campstool Rd., Cheyenne, WY 82007.

1. Biosolids produced during 2013 was 1,448.40 Metric Tons.

2. Biosolids use/disposed of land applied in 2013 were 280.

3. Biossolids stored in 2013 was 12,256.23.

4. The type of use /disposed of practice in 2013 was land surface application of Class B Biosolids on the Brant Miller Ranch. All land application was applied at the rate is equal or less to than agronomic rate for the site or sites.

5. See Attachment: 1, 8B, and 13 for 2013 analytical data.

6. A description of how the pathogen requirements were met is outlined in Attachment: 4 Pathogen Reduction, including a certification statement.

7. A description of how the vector attraction was met is outlined in Attachment: 5 Vector Attraction Reduction, including certification statement.

8. A description of how management practices were met is outlined in Attachment: 6 Management Practices, including certification statement.

9. A description of sites was met in Attachment 3: Land Owner Agreement, and Attachment: 7 Site Restriction, including certification statement. Also inspections on site or sites before land application.

10. Annual whole Biosolids application rate information is contained in Attachment: 2 Biosolids Tracking Program.

11. Monitoring Biosolids for core samples and new sites see Attachment: 8B. Sludge recording heat exchanger average monthly see, Attachment: 9 Dry Creek WRF Sludge Temperature Heat Exchanger. Analytical volatile solids % and total solids % 12 times a year, see Attachment: 10. Dry Sludge Rows Temperature for Zones A, C, D, and E, see Attachment: 11. Dry sludge Rows Temperature. Fecal 6 times a year, see Attachment: 13 Dry Creek WRF Total Solids, Volatile Solids % and Fecal MPN/gm 6 times a year. Zones A, B, C, D, and E for Class B Biosolids being land applied.

12. The location latitude, longitude, township, and range of each site on which Biosolids has been applied, and the number of hectares applied in each site is in Attachment: 2 Dates of Biosoldis tracking Program.

13. See Attachment: 2 A Dates of Biosolids applied in the year 2013.

14. No cumulative amount of Biosolids was applied in year 2013.

15. No changes and updates where added for General information for Dry Creek WRF.

16. No contract hauler for 2013.

17. No other information required on our Biosolids NPDES permit in the year 2013.

ATTACHMENTS FOR 2013

ttachment: 1 Analytical Reports (6 Chemical)

Attachment: 2 Biosolids Tracking Program

Attachment: 2 A Dates of Biosolids Application

Attachment: 3 Landowner Agreement

Attachment: 4 Pathogen Reductions

Attachment: 5 Vector Attraction Reductions

Attachment: 6 Management Practices

Attachment: 7 Site Restrictions

Attachment: 8B Core Samples New Sites for Biosolids Land Application.

Attachment: 9 Dry Creek WRF Temperature Heat Exchanger

Attachment: 10 Laboratory Analytical Volatile Solids % and Total Solids %

ttachment: 11 Dry Creek WRF Dry Sludge Rows Temperature

Attachment: 13 Dry Creek WRF Total Solids %, Volatile Solids % and Fecal MPN/gm

Division Manager WRF: Jim Hughes

Compliance Supervisor: Phil Clark

Prepared By: Chet Barkell Biosolids Program Coordinator

	Dry Creek WRF	Semi Dry	Semi Dry	Semi Dry	Semi Dry	Drying	
	Load Semi Dry	US Tons	Me Tons	Cu/Yards	LBS	Bed	
2013	Sludge	Sludge	Sludge	Sludge	Sludge	#	
Month							
January	61	457.5	414.8	915	915,000	3 &4	
February	60	450	408	900	900,000	4	
Mach	66	495	448.8	990	990,000	4&1	
April	50	375	340	750	750,000	1	
May	44	330	299.2	660	660,000	1&2	
June	76	570	516.8	1140	1,140,000	2&4	
July	44	330	299.2	660	660,000	4&1	
August	45	337.5	306	675	675,000	1&3	
September	81	607.5	550.8	1215	1,215,000	3&4	
October	60	450	408	900	900,000	4&2	
November	44	330	299.2	660	660,000	2&1	
December	40	300	272	600	600,000	1	
Total	**671**	**5032.5**	**4562.8**	**10065**	**10,065,000**		
Date	Dry Loads	Dry Tons	Dry Me Tons	Dry Cu/Yards	Dry LBS	Drying Bed #	Zone Area
2/1/2013	32	240	217.6	480	480,000	1	A
5/15/2013	14	105	95.2	210	210,000	2	A
5/15/2013	26	195	176.8	390	390,000	3	A
6/7/2013	28	210	190.4	420	420,000	2	A
6/19/2013	16	120	108.8	240	195,000	1	A
6/19/2013	17	127.5	115.6	255	255,000	1	B
6/28/2013	28	210	190.4	420	420,000	3	B
8/23/2013	26	195	176.8	390	240,000	4	B
11/8/2013	26	195	176.8	390	390,000	1	B
Total	**213**	**1,597.50**	**1,448.40**	**3,195.00**	**3,000,000**		

PRIMARY CLARIFIERS AND DRUM THICKENERS' SLUDGE PUMPED TO DIGESTER AT THE DRY CREEK WATER RECLAMATION FACILITY IN 2013						
					Inf. Flow	Sludge Monthly
MONTH	GALLONS	DMT	%SOLIDS	LBS	Monthly Average	Aver.Temperature
Jan	889,500	125.51	3.73	276,707.44	5.08	93
Feb	772,200	109.55	3.75	241,505.55	5.4	95
Mar	998,400	136.73	3.62	301,424.95	5.28	94.5
Apr	1,180,500	185.78	4.16	409,567.39	5.66	94.6
May	1,450,500	319.91	5.83	705,265.01	6.07	94
Jun	1,616,700	204.89	3.35	451,689.81	5.68	94.8
Jul	1,153,500	148.80	3.41	328,048.48	5.66	98.8
Aug	1,064,100	156.19	3.88	344,334.25	5.15	98
Sep	1,145,550	127.87	3.8	281,900.34	5.96	97.3
Oct	1,182,900	171.84	3.84	378,830.82	5.65	93.3
Nov	1,064,100	173.10	4.3	381,607.54	4.74	96.9
Dec	1,206,600	209.51	4.59	461,893.72	4.59	95.3
Total	**13,724,550**	**2069.66**		**4,562,775.30**	**5.41**	**95.5**

CROW CREEK WATER RECLAMATION FACILITY, PRIMARY AND SECONDARY SLUDGE FROM CLARIFIERS ARE BEING PUMPED TO DRY CREEK WATER RECLAMATION FACILITY TO BE FURTHER PROCESSED. THE SLUDGE IS DISCHARGED IN THE INTERCEPTOR LINE TO DRY CREEK WATER RECLAMATION FACILITY.

THE TOTAL SOLIDS FROM CROW CREEK WATER RECLAMATION ARE CALCULATED AS AN ESTIMATE OF A CONSERVATIVE .2 PERCENT OF SOLIDS.

					Inf. Flow
MONTH	GALLONS	DMT	%SOLIDS	LBS	Monthly Average
Jan	31,993,716	242.06	0.2	276,707.44	2.91
Feb	25,957,937	196.40	0.2	432,978.39	2.87
Mar	29,007,046	219.47	0.2	483,837.53	2.81
Apr	31,408,249	237.63	0.2	523,889.59	2.95
May	28,370,438	214.65	0.2	473,218.91	3.25
Jun	24,454,222	185.02	0.2	407,896.42	3.09
Jul	15,103,233	114.27	0.2	251,921.93	3.08
Aug	8,887,304	67.24	0.2	148,240.23	3.05
Sep	10,841,595	82.03	0.2	180,837.80	3.35
Oct	17,203,199	130.16	0.2	245,849.44	3.66
Nov	14,739,175	111.52	0.2	245,849.44	3.42
Dec	15,273,966	115.56	0.2	254,769.75	3.36
Total	**253,240,080**	**1,916.01**		**4,224,044.53**	
Dry Creek	**13,724,550**	**2,069.66**		**4,562,755.30**	
Final Total	**266,964,630**	**3,985.67**		8,786,799.83	

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

Crow creek WRF

INFORMATION FOR

CROW CREEK WRF

BIOSOLIDS ANNUAL

REPORT

2013

PERMIT No. WY-SL-2281

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave, Cheyenne, WY 82003 (307) 637-6460
Dry Creek Water Reclamation Facility, 8911 Campstool Rd. (307)635-3163
Cheyenne, WY 82007 Facsimile (307) 635-6833

January 21, 2014

EPA Region 8

Attn: Water Program
Regional Biosolids Program P-W-P
USEPA Region VIII
1595 Wynookp Street
Denver, CO 80202-1199

DEQ/water Quality
122 W. 25Th Street
Herschel Building 4Th Floor West
Cheyenne, Wyoming 82002

E: Biosolids Annual Crow Creek Report Permit No. WYSL-2281

Biosolids produced in 2013 for Crow Creek WRF was Zero.

Crow Creek WRF sludge volume flow is diverted to Dry Creek WRF interceptor line for further treatment and process control.
Crow Creek total gallons in 2013 were 253,240,080 gallons.

Check the attached sheet.

Division Manager WRF: Jim Hughes

Compliance Supervisor: Phil Clark

Prepared By: Chet Barkell: Biosolids Program Coordinator.

PRIMARY CLARIFIERS AND DRUM THICKENERS' SLUDGE PUMPED TO DIGESTER AT THE DRY CREEK WATER RECLAMATION FACILITY IN 2013						
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Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
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Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

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Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

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Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ATTACHMENT: 1

ANALYTICAL REPORTS

(6 CHEMICAL)

2013

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12-10-13
Date Received: 12-10-13
Sample Location: Raw Sludge

Sampled By: CB
Date Reported: 12-19-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	ND	%-dry		0.013	SM 4500NH_3^+ D	12-11-13 / kl
NON-METALS						
Total Solids	4.6	%		0.2	SM 2540 G	12-11-13 / mw
Total Vol. Solids	87.7	%		1.0	SM 2540 E	12-11-13/ mw
METALS – TOTAL						
Ag, Silver	4.3	mg/kg		0.6	EPA 6010B	12-17-13 / kl
As, Arsenic	2.8	mg/kg		1.1	EPA 6010B	12-17/13 / kl
Cadmium, Cd	1.1	mg/kg		0.6	EPA 6010B	12-17-13 / kl
Chromium, Cr	9.0	mg/kg		0.6	EPA 6010B	12-17-13 / kl
Copper, Cu	382	mg/kg		1.1	EPA 6010B	12-17-13 / kl
Molybdenum, Mo	4.9	mg/kg		0.6	EPA 6010B	12-17/13 / kl
Nickel, Ni	6.8	mg/kg		0.6	EPA 6010B	12-17-13 / kl
Lead, Pb	18.3	mg/kg		1.1	EPA 6010B	12-17/13 / kl
Selenium, Se	9.8	mg/kg		0.3	EPA 6010B	12-17-13 / kl
Zinc, Zn	434	mg/kg		0.6	EPA 6010B	12-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

12/19/13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12-10-13
Date Received: 12-10-13
Sample Location: Primary Digester Sludge

Sampled By: CB
Date Reported: 12-19-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	5.2	%-dry		0.025	SM 4500NH_3^+ D	12-11-13 / kl
NON-METALS						
Total Solids	2.4	%		0.2	SM 2540 G	12-11-13 / mw
Total Vol. Solids	70.2	%		1.0	SM 2540 E	12-11-13/ mw
METALS – TOTAL						
Ag, Silver	7.1	mg/kg		0.6	EPA 6010B	12-17-13 / kl
As, Arsenic	6.1	mg/kg		1.1	EPA 6010B	12-17/13 / kl
Cadmium, Cd	2.0	mg/kg		0.6	EPA 6010B	12-17-13 / kl
Chromium, Cr	16.0	mg/kg		0.6	EPA 6010B	12-17-13 / kl
Copper, Cu	755	mg/kg		1.1	EPA 6010B	12-17-13 / kl
Molybdenum, Mo	9.1	mg/kg		0.6	EPA 6010B	12-17/13 / kl
Nickel, Ni	13.6	mg/kg		0.6	EPA 6010B	12-17-13 / kl
Lead, Pb	30.0	mg/kg		1.1	EPA 6010B	12-17/13 / kl
Selenium, Se	18.3	mg/kg		0.3	EPA 6010B	12-17-13 / kl
Zinc, Zn	662	mg/kg		0.6	EPA 6010B	12-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

12-19-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12-10-13
Date Received: 12-10-13
Sample Location: Secondary Digester Sludge

Sampled By: CB
Date Reported: 12-19-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	6.5	%-dry		0.02	SM 4500NH_3^+ D	12-11-13 / kl
NON-METALS						
Total Solids	2.0	%		0.2	SM 2540 G	12-11-13 / mw
Total Vol. Solids	64.3	%		1.0	SM 2540 E	12-11-13/ mw
METALS – TOTAL						
Ag, Silver	7.8	mg/kg		0.5	EPA 6010B	12-17-13 / kl
As, Arsenic	7.1	mg/kg		1.1	EPA 6010B	12-17/13 / kl
Cadmium, Cd	2.5	mg/kg		0.5	EPA 6010B	12-17-13 / kl
Chromium, Cr	18.9	mg/kg		0.5	EPA 6010B	12-17-13 / kl
Copper, Cu	902	mg/kg		1.1	EPA 6010B	12-17-13 / kl
Molybdenum, Mo	10.1	mg/kg		0.5	EPA 6010B	12-17/13 / kl
Nickel, Ni	17.5	mg/kg		0.5	EPA 6010B	12-17-13 / kl
Lead, Pb	45.8	mg/kg		1.1	EPA 6010B	12-17/13 / kl
Selenium, Se	21.8	mg/kg		0.3	EPA 6010B	12-17-13 / kl
Zinc, Zn	779	mg/kg		0.5	EPA 6010B	12-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

12-19-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 12-10-13
Date Received: 12-10-13
Sample Location: Dry Sludge

Sampled By: CB
Date Reported: 12-19-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.1	%-dry		0.0006	SM 4500NH_3^+ D	12-11-13 / kl
NON-METALS						
Total Solids	73.9	%		0.2	SM 2540 G	12-11-13 / mw
Total Vol. Solids	33.1	%		1.0	SM 2540 E	12-11-13/ mw
METALS – TOTAL						
Ag, Silver	11.8	mg/kg		0.5	EPA 6010B	12-17-13 / kl
As, Arsenic	4.1	mg/kg		1.0	EPA 6010B	12-17/13 / kl
Cadmium, Cd	2.5	mg/kg		0.5	EPA 6010B	12-17-13 / kl
Chromium, Cr	17.5	mg/kg		0.5	EPA 6010B	12-17-13 / kl
Copper, Cu	635	mg/kg		1.0	EPA 6010B	12-17-13 / kl
Molybdenum, Mo	7.1	mg/kg		0.5	EPA 6010B	12-17/13 / kl
Nickel, Ni	11.6	mg/kg		0.5	EPA 6010B	12-17-13 / kl
Lead, Pb	42.3	mg/kg		1.0	EPA 6010B	12-17/13 / kl
Selenium, Se	13.9	mg/kg		0.3	EPA 6010B	12-17-13 / kl
Zinc, Zn	544	mg/kg		0.5	EPA 6010B	12-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

12.19.13
Date:

Dry Creek WRF Laboratory
For: Metals

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 12-10-13 **] Time:** 1:35 **] [] AM [] PM**

Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected

[] Sampling location documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1, 2, 3, 4and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody recorded

Date: 12-10-13] Time: 1:35] [] AM [] PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/ quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 12-10-13] Time: 1:35] [] AM [] PM

Sample Containers
From:(Cheyenne BOPU) Dry Creek WRF
To: Dry Creek WRF Laboratory

No. 1 Primary Raw Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 2 Primary Digester Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 3 Secondary Digester Containers:
1 Plastic Container 1000 Mg/L

No. 4 Dry Sludge Container:
1 Plastic Container 1000 Mg/L

5. Cooling – Refrigeration

6. Chain of Custody Record

Date: 12-10-13 **] Time:** 1:35 **] [] AM [] PM**

List of Analysis Required
For Biosolids (Class A or B) Program

Required analysis for wastewater # 1.Raw Sludge #2.Primary Digested Sludge, #3.Secondary Digested Sludge and #4.Dry Sludge:

Analyses		Units
Major Ions		
Ammonia as N	=	% Dry
Non - Metals		
Total Solids	=	%
Total Vol. Solids	=	%
Metals - Total		
Arsenic, Ag	=	Mg/kg
Cadmium, Cd	=	Mg/kg
Chromium, Cr	=	Mg/kg
Copper, Cu	=	Mg/kg
Lead, Pb	=	Mg/kg
Molybdenum, Mo	=	Mg/kg
Nickel, Ni	=	Mg/kg
Selenium, Se	=	Mg/kg
Silver, Ag	=	Mg/kg
Zinc, Zn	=	Mg/kg

All analysis on dry weight basis:

All laboratories must have quality control /quality assurance on all analysis program and data sheet. Digestion method included on metals.

Monitoring six times per year, February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 12-10-13 **] Time:** 1:35 **] [] AM [] PM**

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd,.

City: Cheyenne] **Sate:** Wy] **Zip Code:** 82007.

Samples Colleted by: Chet Barbur.[**Date/Time:** 12-10-13/1:35 pm

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRF.

Address: 8911 Camp Stool Rd.

City: Cheyenne] **State:** Wy] **Zip Code:** 82007.

Name of Analyst: Kent Loader.

This Certification is signed by: _____.

Date: 1-7-14] **Time:** 1] [] AM [X] PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: Dry Creek WRF Contact Name: Chet Bartlett Sampler's Name (if other than Contact):

Report Required For: [illegible] Zone E F. #4 Dry Sludge

SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: Metals	Nutrients	TS	VS				How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1 #1 Raw Sludge	12-10 B	1:00 pm	1 plastic bottle	✓	✓	✓	✓				NA	G		Yes
2 #2 Primary Dry	✓	✓	✓	✓	✓	✓	✓				✓	✓		✓
3 #3 Secondary Dry	✓	✓	✓	✓	✓	✓	✓				✓	✓		✓
4 #4 Dry Sludge	✓	✓	✓	✓	✓	✓	✓				✓	✓		
5														
6														
7														

Custody Record MUST be Signed	Relinquished by: Chet Bartlett	Date/Time: 12-10 B 1:25 pm	Received by: [illegible]	Date/Time: [illegible]
	Sample Disposal: Return to client: Lab disposal:			Log# 771

ID # WYG-22434 Permit # WYG-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10-15-13
Date Received: 10-15-13
Sample Location: Raw Sludge

Sampled By: CB
Date Reported: 10-24-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	ND	%-dry		0.026	SM 4500NH_3^+ D	10-16-13 / mw
NON-METALS						
Total Solids	3.8	%		0.2	SM 2540 G	10-21-13 / mw
Total Vol. Solids	82.5	%		1.0	SM 2540 E	10-21-13/ mw
METALS – TOTAL						
Ag, Silver	4.3	mg/kg		0.6	EPA 6010B	10-17-13 / kl
As, Arsenic	2.5	mg/kg		1.2	EPA 6010B	10-17/13 / kl
Cadmium, Cd	1.3	mg/kg		0.6	EPA 6010B	10-17-13 / kl
Chromium, Cr	9.1	mg/kg		0.6	EPA 6010B	10-17-13 / kl
Copper, Cu	324	mg/kg		1.2	EPA 6010B	10-17-13 / kl
Molybdenum, Mo	4.0	mg/kg		0.6	EPA 6010B	10-17/13 / kl
Nickel, Ni	6.9	mg/kg		0.6	EPA 6010B	10-17-13 / kl
Lead, Pb	23.5	mg/kg		1.2	EPA 6010B	10-17/13 / kl
Selenium, Se	8.6	mg/kg		0.4	EPA 6010B	10-17-13 / kl
Zinc, Zn	393	mg/kg		0.6	EPA 6010B	10-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

10·24·13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10-15-13
Date Received: 10-15-13
Sample Location: Primary Dig Sludge

Sampled By: CB
Date Reported: 10-24-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	3.0	%-dry		0.040	SM 4500NH_3^+ D	10-16-13 / mw
NON-METALS						
Total Solids	2.5	%		0.2	SM 2540 G	10-21-13 / mw
Total Vol. Solids	65.2	%		1.0	SM 2540 E	10-21-13/ mw
METALS – TOTAL						
Ag, Silver	4.0	mg/kg		0.6	EPA 6010B	10-17-13 / kl
As, Arsenic	3.4	mg/kg		1.2	EPA 6010B	10-17/13 / kl
Cadmium, Cd	1.4	mg/kg		0.6	EPA 6010B	10-17-13 / kl
Chromium, Cr	10.0	mg/kg		0.6	EPA 6010B	10-17-13 / kl
Copper, Cu	406	mg/kg		1.2	EPA 6010B	10-17-13 / kl
Molybdenum, Mo	5.2	mg/kg		0.6	EPA 6010B	10-17/13 / kl
Nickel, Ni	8.2	mg/kg		0.6	EPA 6010B	10-17-13 / kl
Lead, Pb	20.1	mg/kg		1.2	EPA 6010B	10-17/13 / kl
Selenium, Se	13.2	mg/kg		0.4	EPA 6010B	10-17-13 / kl
Zinc, Zn	399	mg/kg		0.6	EPA 6010B	10-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

10-24-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10-15-13
Date Received: 10-15-13
Sample Location: Secondary Dig Sludge

Sampled By: CB
Date Reported: 10-24-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	3.3	%-dry		0.040	SM 4500NH_3^+ D	10-16-13 / mw
NON-METALS						
Total Solids	2.2	%		0.2	SM 2540 G	10-21-13 / mw
Total Vol. Solids	62.4	%		1.0	SM 2540 E	10-21-13/ mw
METALS – TOTAL						
Ag, Silver	6.6	mg/kg		0.5	EPA 6010B	10-17-13 / kl
As, Arsenic	5.7	mg/kg		1.0	EPA 6010B	10-17/13 / kl
Cadmium, Cd	2.7	mg/kg		0.5	EPA 6010B	10-17-13 / kl
Chromium, Cr	18.5	mg/kg		0.5	EPA 6010B	10-17-13 / kl
Copper, Cu	811	mg/kg		1.0	EPA 6010B	10-17-13 / kl
Molybdenum, Mo	9.9	mg/kg		0.5	EPA 6010B	10-17/13 / kl
Nickel, Ni	17.2	mg/kg		0.5	EPA 6010B	10-17-13 / kl
Lead, Pb	32.9	mg/kg		1.0	EPA 6010B	10-17/13 / kl
Selenium, Se	24.8	mg/kg		0.3	EPA 6010B	10-17-13 / kl
Zinc, Zn	714	mg/kg		0.5	EPA 6010B	10-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

10·24·13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 10-15-13
Date Received: 10-15-13
Sample Location: Dry Sludge

Sampled By: CB
Date Reported: 10-24-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.04	%-dry		0.040	SM 4500NH_3^+ D	10-16-13 / mw
NON-METALS						
Total Solids	57.5	%		0.2	SM 2540 G	10-21-13 / mw
Total Vol. Solids	37.1	%		1.0	SM 2540 E	10-21-13/ mw
METALS – TOTAL						
Ag, Silver	13.5	mg/kg		0.5	EPA 6010B	10-17-13 / kl
As, Arsenic	3.4	mg/kg		1.1	EPA 6010B	10-17/13 / kl
Cadmium, Cd	2.7	mg/kg		0.5	EPA 6010B	10-17-13 / kl
Chromium, Cr	18.5	mg/kg		0.5	EPA 6010B	10-17-13 / kl
Copper, Cu	782	mg/kg		1.1	EPA 6010B	10-17-13 / kl
Molybdenum, Mo	8.4	mg/kg		0.5	EPA 6010B	10-17/13 / kl
Nickel, Ni	14.5	mg/kg		0.5	EPA 6010B	10-17-13 / kl
Lead, Pb	44.2	mg/kg		1.1	EPA 6010B	10-17/13 / kl
Selenium, Se	13.2	mg/kg		0.3	EPA 6010B	10-17-13 / kl
Zinc, Zn	653	mg/kg		0.5	EPA 6010B	10-17-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed
ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

10·24·13
Date:

Dry Creek WRF Laboratory
For: Metals

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 10-15-13 **] Time:** 1:20 **] [] AM [] PM**

Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected

[] Sampling location documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1, 2, 3, 4and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody recorded

Date: 10-15-13] Time: 1:20pm] [] AM [] PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/ quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 10-15-13] Time: 1:20] [] AM [] PM

Sample Containers
From:(Cheyenne BOPU) Dry Creek WRF
To: Dry Creek WRF Laboratory

No. 1 Primary Raw Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 2 Primary Digester Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 3 Secondary Digester Containers:
1 Plastic Container 1000 Mg/L

No. 4 Dry Sludge Container:
1 Plastic Container 1000 Mg/L

5. Cooling – Refrigeration

6. Chain of Custody Record

Date: 10-15-13 **] Time:** 1:20 **] [] AM [] PM**

List of Analysis Required
For Biosolids (Class A or B) Program

Required analysis for wastewater # 1.Raw Sludge #2.Primary Digested Sludge, #3.Secondary Digested Sludge and #4.Dry Sludge:

Analyses		Units
Major Ions		
Ammonia as N	=	% Dry
Non - Metals		
Total Solids	=	%
Total Vol. Solids	=	%
Metals - Total		
Arsenic, Ag	=	Mg/kg
Cadmium, Cd	=	Mg/kg
Chromium, Cr	=	Mg/kg
Copper, Cu	=	Mg/kg
Lead, Pb	=	Mg/kg
Molybdenum, Mo	=	Mg/kg
Nickel, Ni	=	Mg/kg
Selenium, Se	=	Mg/kg
Silver, Ag	=	Mg/kg
Zinc, Zn	=	Mg/kg

All analysis on dry weight basis:

All laboratories must have quality control /quality assurance on all analysis program and data sheet. Digestion method included on metals.

Monitoring six times per year, February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 10-15-13 **] Time:** 1:20 **] [] AM [] PM**

Project Name: Brosolids.

Location: Dry Creek WRP.

Address: 8911 Campstool Rd.

City: Cheyenne] **Sate:** WY] **Zip Code:** 82007.

Samples Colleted by: Chet Baden .[**Date/Time:** 10-15-13/ 1:20pm

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRP.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007.

Name of Analyst: Kent Lo[illegible].

This Certification is signed by: [illegible].

Date: 10.29.13] **Time:** 8] [X] **AM** [] **PM**

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: CB Dry Creek Contact Name: Chet Burbell Sampler's Name (if other than Contact):

Report Required For: Biosolids

SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: Metals	Nutrients	TS	VS	How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1 #1 Raw Sludge	10-13-13	1:00PM	1 Plastic Bottle	↓	↓	↓	↓	NA	G		
2 #2 Primary Dig	↓	↓	↓	↓	↓	↓	↓	↓	↓		
3 #3 Secondary Dig	↓	↓	↓	↓	↓	↓	↓	↓	↓		
4 #4 Dry Sludge	↓	↓	↓	↓	↓	↓	↓	↓	↓		
5											
6											
7											

Custody Record MUST be Signed	Relinquished by:	Date/Time:	Received by:	Date/Time:
	Chet Burbell	10-15-13 1:20PM		

Sample Disposal: Return to client: Lab disposal: Log# 750

ID # WYSL-22934 Permit # WYG-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08-20-13
Date Received: 08-20-13
Sample Location: Raw Sludge

Sampled By: CB
Date Reported: 08-27-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	ND	%-dry		0.024	SM 4500NH_3^+ D	08-21-13 / mw
NON-METALS						
Total Solids	3.6	%		0.2	SM 2540 G	08-20-13 / mw
Total Vol. Solids	80.0	%		1.0	SM 2540 E	08-20-13/ mw
METALS – TOTAL						
Ag, Silver	3.3	mg/kg		0.6	EPA 6010B	08-23-13 / kl
As, Arsenic	2.6	mg/kg		1.1	EPA 6010B	08-23/13 / kl
Cadmium, Cd	1.4	mg/kg		0.6	EPA 6010B	08-23-13 / kl
Chromium, Cr	10.0	mg/kg		0.6	EPA 6010B	08-23-13 / kl
Copper, Cu	451	mg/kg		1.1	EPA 6010B	08-23-13 / kl
Molybdenum, Mo	5.9	mg/kg		0.6	EPA 6010B	08-23/13 / kl
Nickel, Ni	8.0	mg/kg		0.6	EPA 6010B	08-23-13 / kl
Lead, Pb	23.6	mg/kg		1.1	EPA 6010B	08-23-13 / kl
Selenium, Se	14.1	mg/kg		0.3	EPA 6010B	08-23-13 / kl
Zinc, Zn	499	mg/kg		0.6	EPA 6010B	08-23/13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-27-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08-20-13
Date Received: 08-20-13
Sample Location: Primary Dig Sludge

Sampled By: CB
Date Reported: 08-27-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	3.5	%-dry		0.039	SM 4500NH_3^+ D	08-21-13 / mw
NON-METALS						
Total Solids	2.5	%		0.2	SM 2540 G	08-20-13 / mw
Total Vol. Solids	80.7	%		1.0	SM 2540 E	08-20-13/ mw
METALS – TOTAL						
Ag, Silver	3.4	mg/kg		0.6	EPA 6010B	08-23-13 / kl
As, Arsenic	3.6	mg/kg		1.2	EPA 6010B	08-23/13 / kl
Cadmium, Cd	1.3	mg/kg		0.6	EPA 6010B	08-23-13 / kl
Chromium, Cr	9.9	mg/kg		0.6	EPA 6010B	08-23-13 / kl
Copper, Cu	664	mg/kg		1.2	EPA 6010B	08-23-13 / kl
Molybdenum, Mo	5.9	mg/kg		0.6	EPA 6010B	08-23/13 / kl
Nickel, Ni	9.2	mg/kg		0.6	EPA 6010B	08-23-13 / kl
Lead, Pb	25.2	mg/kg		1.2	EPA 6010B	08-23-13 / kl
Selenium, Se	17.0	mg/kg		0.4	EPA 6010B	08-23-13 / kl
Zinc, Zn	466	mg/kg		0.6	EPA 6010B	08-23/13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-27-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08-20-13
Date Received: 08-20-13
Sample Location: Secondary Dig Sludge

Sampled By: CB
Date Reported: 08-27-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	4.7	%-dry		0.09	SM 4500NH_3^+ D	08-21-13 / mw
NON-METALS						
Total Solids	3.0	%		0.2	SM 2540 G	08-20-13 / mw
Total Vol. Solids	69.4	%		1.0	SM 2540 E	08-20-13/ mw
METALS – TOTAL						
Ag, Silver	6.5	mg/kg		0.5	EPA 6010B	08-23-13 / kl
As, Arsenic	4.8	mg/kg		0.9	EPA 6010B	08-23/13 / kl
Cadmium, Cd	2.1	mg/kg		0.5	EPA 6010B	08-23-13 / kl
Chromium, Cr	16.2	mg/kg		0.5	EPA 6010B	08-23-13 / kl
Copper, Cu	823	mg/kg		0.9	EPA 6010B	08-23-13 / kl
Molybdenum, Mo	8.9	mg/kg		0.5	EPA 6010B	08-23/13 / kl
Nickel, Ni	14.4	mg/kg		0.5	EPA 6010B	08-23-13 / kl
Lead, Pb	28.2	mg/kg		0.9	EPA 6010B	08-23-13 / kl
Selenium, Se	28.5	mg/kg		0.3	EPA 6010B	08-23-13 / kl
Zinc, Zn	698	mg/kg		0.5	EPA 6010B	08-23/13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8.27.13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 08-20-13
Date Received: 08-20-13
Sample Location: Dry Sludge

Sampled By: CB
Date Reported: 08-27-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	14.7	%-dry		0.0005	SM 4500NH_3^+ D	08-21-13 / mw
NON-METALS						
Total Solids	83.1	%		0.2	SM 2540 G	08-20-13 / mw
Total Vol. Solids	42.7	%		1.0	SM 2540 E	08-20-13/ mw
METALS – TOTAL						
Ag, Silver	6.9	mg/kg		0.5	EPA 6010B	08-23-13 / kl
As, Arsenic	2.5	mg/kg		0.9	EPA 6010B	08-23/13 / kl
Cadmium, Cd	1.4	mg/kg		0.5	EPA 6010B	08-23-13 / kl
Chromium, Cr	10.2	mg/kg		0.5	EPA 6010B	08-23-13 / kl
Copper, Cu	366	mg/kg		0.9	EPA 6010B	08-23-13 / kl
Molybdenum, Mo	4.3	mg/kg		0.5	EPA 6010B	08-23/13 / kl
Nickel, Ni	7.2	mg/kg		0.5	EPA 6010B	08-23-13 / kl
Lead, Pb	24.9	mg/kg		0.9	EPA 6010B	08-23-13 / kl
Selenium, Se	8.6	mg/kg		0.3	EPA 6010B	08-23-13 / kl
Zinc, Zn	347	mg/kg		0.5	EPA 6010B	08-23/13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-27-13
Date:

Dry Creek WRF Laboratory
For: Metals

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 8-20-13 **] Time:** 10:15 **] [] AM [] PM**

Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected

[] Sampling location documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1, 2, 3, 4and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody recorded

Date: 8-20-13] Time: 10:15] [] AM [] PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/ quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 8-20-13] Time: 10:15] [] AM [] PM

Sample Containers
From:(Cheyenne BOPU) Dry Creek WRF
To: Dry Creek WRF Laboratory

No. 1 Primary Raw Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 2 Primary Digester Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 3 Secondary Digester Containers:
1 Plastic Container 1000 Mg/L

No. 4 Dry Sludge Container:
1 Plastic Container 1000 Mg/L

5. Cooling – Refrigeration

6. Chain of Custody Record

Date: 8-20-13 **] Time:** 10:15 **] [] AM [] PM**

List of Analysis Required
For Biosolids (Class A or B) Program

Required analysis for wastewater # 1.Raw Sludge #2.Primary Digested Sludge, #3.Secondary Digested Sludge and #4.Dry Sludge:

Analyses		Units
Major Ions		
Ammonia as N	=	% Dry
Non - Metals		
Total Solids	=	%
Total Vol. Solids	=	%
Metals - Total		
Arsenic, Ag	=	Mg/kg
Cadmium, Cd	=	Mg/kg
Chromium, Cr	=	Mg/kg
Copper, Cu	=	Mg/kg
Lead, Pb	=	Mg/kg
Molybdenum, Mo	=	Mg/kg
Nickel, Ni	=	Mg/kg
Selenium, Se	=	Mg/kg
Silver, Ag	=	Mg/kg
Zinc, Zn	=	Mg/kg

All analysis on dry weight basis:

All laboratories must have quality control /quality assurance on all analysis program and data sheet. Digestion method included on metals.

Monitoring six times per year, February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 8-20-13 **] Time:** 10:15 **] [] AM [] PM**

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **Sate:** WY] **Zip Code:** 82007.

Samples Colleted by: Chet Barbell. **[Date/Time:** 8-20-13/10:15 Am

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007.

Name of Analyst: Kent Lo[illegible].

This Certification is signed by: [illegible].

Date: 10-29-13] **Time:** 8] [] AM [] PM

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: Dry Creek WRF Contact Name: Chet Barbee Sampler's Name (if other than Contact):

Report Required For: Bisolids (#4 Dry Sludge Zone DE)

SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: metals	Nutrients	TS	VS				How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1 #1 Raw Sludge	8-20-13	9:45 AM	1 Plastic Bottle	✓	✓	✓	✓				N/A	Grab		Yes
2 #2 Primary Dig	↓	↓	↓	↓	↓	↓	↓				↓	↓		↓
3 #3 Secondary Dig	↓	↓	↓	↓	↓	↓	↓				↓	↓		↓
4 #4 Dry Sludge	✓	✓	✓	✓	✓	✓	✓				✓	↓		↓
5												✓		↓
6														
7														

Custody Record MUST be Signed	Relinquished by: Chet Barbee	Date/Time: 8-20-13 10:15 AM	Received by: Mike [illegible]	Date/Time: 8/20/13 10:00
	Sample Disposal: Return to client: ____ Lab disposal: ____			Log# № 740

ID # WYSL-22934 Permit # WYG-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06-17-13
Date Received: 06-17-13
Sample Location: Raw Sludge

Sampled By: CB
Date Reported: 08-07-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	ND	%-dry		0.024	SM 4500NH_3^+ D	06-19-13 / kl
NON-METALS						
Total Solids	3.8	%		0.2	SM 2540 G	06-20-13 / mw
Total Vol. Solids	84.4	%		1.0	SM 2540 E	06-20-13/ mw
METALS – TOTAL						
Ag, Silver	4.5	mg/kg		0.6	EPA 6010B	08-06-13 / kl
As, Arsenic	3.0	mg/kg		1.1	EPA 6010B	08-06/13 / kl
Cadmium, Cd	1.5	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Chromium, Cr	11.3	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Copper, Cu	509	mg/kg		1.1	EPA 6010B	08-06-13 / kl
Molybdenum, Mo	6.0	mg/kg		0.6	EPA 6010B	08-06/13 / kl
Nickel, Ni	9.5	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Lead, Pb	50.6	mg/kg		1.1	EPA 6010B	08-06-13 / kl
Selenium, Se	20.1	mg/kg		0.3	EPA 6010B	08-06-13 / kl
Zinc, Zn	540	mg/kg		0.6	EPA 6010B	08-06-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-7-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06-17-13
Date Received: 06-17-13
Sample Location: Primary Dig Sludge

Sampled By: CB
Date Reported: 08-07-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	3.6	%-dry		0.039	SM 4500NH_3^+ D	06-19-13 / kl
NON-METALS						
Total Solids	2.2	%		0.2	SM 2540 G	06-20-13 / mw
Total Vol. Solids	72.9	%		1.0	SM 2540 E	06-20-13/ mw
METALS – TOTAL						
Ag, Silver	7.6	mg/kg		0.6	EPA 6010B	08-06-13 / kl
As, Arsenic	5.5	mg/kg		1.1	EPA 6010B	08-06/13 / kl
Cadmium, Cd	2.4	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Chromium, Cr	18.0	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Copper, Cu	907	mg/kg		1.1	EPA 6010B	08-06-13 / kl
Molybdenum, Mo	9.6	mg/kg		0.6	EPA 6010B	08-06/13 / kl
Nickel, Ni	16.1	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Lead, Pb	30.7	mg/kg		1.1	EPA 6010B	08-06-13 / kl
Selenium, Se	32.6	mg/kg		0.3	EPA 6010B	08-06-13 / kl
Zinc, Zn	746	mg/kg		0.6	EPA 6010B	08-06-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-7-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06-17-13
Date Received: 06-17-13
Sample Location: Secondary Dig Sludge

Sampled By: CB
Date Reported: 08-07-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	5.2	%-dry		0.090	SM 4500NH_3^+ D	06-19-13 / kl
NON-METALS						
Total Solids	2.0	%		0.2	SM 2540 G	06-20-13 / mw
Total Vol. Solids	69.7	%		1.0	SM 2540 E	06-20-13/ mw
METALS – TOTAL						
Ag, Silver	8.4	mg/kg		0.6	EPA 6010B	08-06-13 / kl
As, Arsenic	5.6	mg/kg		1.2	EPA 6010B	08-06/13 / kl
Cadmium, Cd	2.8	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Chromium, Cr	19.1	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Copper, Cu	986	mg/kg		1.2	EPA 6010B	08-06-13 / kl
Molybdenum, Mo	10.3	mg/kg		0.6	EPA 6010B	08-06/13 / kl
Nickel, Ni	17.6	mg/kg		0.6	EPA 6010B	08-06-13 / kl
Lead, Pb	34.2	mg/kg		1.2	EPA 6010B	08-06-13 / kl
Selenium, Se	36.2	mg/kg		0.3	EPA 6010B	08-06-13 / kl
Zinc, Zn	787	mg/kg		0.6	EPA 6010B	08-06-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed
ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-7-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 06-17-13
Date Received: 06-17-13
Sample Location: Dry Sludge

Sampled By: CB
Date Reported: 08-07-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.2	%-dry		0.0005	SM 4500NH_3^+ D	06-19-13 / kl
NON-METALS						
Total Solids	91.7	%		0.2	SM 2540 G	06-20-13 / mw
Total Vol. Solids	31.2	%		1.0	SM 2540 E	06-20-13/ mw
METALS – TOTAL						
Ag, Silver	12.3	mg/kg		0.5	EPA 6010B	08-06-13 / kl
As, Arsenic	3.9	mg/kg		1.1	EPA 6010B	08-06/13 / kl
Cadmium, Cd	2.6	mg/kg		0.5	EPA 6010B	08-06-13 / kl
Chromium, Cr	17.1	mg/kg		0.5	EPA 6010B	08-06-13 / kl
Copper, Cu	732	mg/kg		1.1	EPA 6010B	08-06-13 / kl
Molybdenum, Mo	7.1	mg/kg		0.5	EPA 6010B	08-06/13 / kl
Nickel, Ni	12.9	mg/kg		0.5	EPA 6010B	08-06-13 / kl
Lead, Pb	58.8	mg/kg		1.1	EPA 6010B	08-06-13 / kl
Selenium, Se	13.1	mg/kg		0.3	EPA 6010B	08-06-13 / kl
Zinc, Zn	634	mg/kg		0.5	EPA 6010B	08-06-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

8-7-13
Date:

Dry Creek WRF Laboratory
For: Metals

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 6-17-13 **] Time:** 11:30 **] [] AM [] PM**

Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected

[] Sampling location documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1, 2, 3, 4and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody recorded

Date: 6-17-13] Time: 11:30] [] AM [] PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/ quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 6-17-13] Time: 11:30] [] AM [] PM

Sample Containers
From:(Cheyenne BOPU) Dry Creek WRF
To: Dry Creek WRF Laboratory

No. 1 Primary Raw Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 2 Primary Digester Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 3 Secondary Digester Containers:
1 Plastic Container 1000 Mg/L

No. 4 Dry Sludge Container:
1 Plastic Container 1000 Mg/L

5. Cooling – Refrigeration

6. Chain of Custody Record

Date: 6-17-13 **] Time:** 11:30 **] [] AM [] PM**

List of Analysis Required
For Biosolids (Class A or B) Program

Required analysis for wastewater # 1.Raw Sludge #2.Primary Digested Sludge, #3.Secondary Digested Sludge and #4.Dry Sludge:

Analyses		Units
Major Ions		
Ammonia as N	=	% Dry
Non - Metals		
Total Solids	=	%
Total Vol. Solids	=	%
Metals - Total		
Arsenic, Ag	=	Mg/kg
Cadmium, Cd	=	Mg/kg
Chromium, Cr	=	Mg/kg
Copper, Cu	=	Mg/kg
Lead, Pb	=	Mg/kg
Molybdenum, Mo	=	Mg/kg
Nickel, Ni	=	Mg/kg
Selenium, Se	=	Mg/kg
Silver, Ag	=	Mg/kg
Zinc, Zn	=	Mg/kg

All analysis on dry weight basis:

All laboratories must have quality control /quality assurance on all analysis program and data sheet. Digestion method included on metals.

Monitoring six times per year, February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 6-17-13 **] Time:** 11:30 **] [] AM [] PM**

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **Sate:** WY] **Zip Code:** 82007.

Samples Colleted by: Chet Barbell .[**Date/Time:** 6-17-13/11:30 Am

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007.

Name of Analyst: Kent Lader.

This Certification is signed by: [signature].

Date: 10.29.13] **Time:** 8] [X] **AM** [] **PM**

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: Dry Creek WRF Contact Name: Chet Barkell Sampler's Name (if other than Contact):

Report Required For: Biosolids Zone E Dry Sludge

SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: Metals	Nutrients	TS	VS				How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1 #1 Raw Sludge	6-17-13	11:00 AM	1 plastic bottle	↓	↓	↓	↓				NA	Grab		
2 #2 Primary Dig	↓	↓	↓	↓	↓	↓	↓				↓	↓		
3 #3 Secondary Dig	↓	↓	↓	↓	↓	↓	↓				↓	↓		
4 #4 Dry Sludge	↓	↓	↓	↓	↓	↓	↓				↓	↓		
5														
6														
7														

Custody Record MUST be Signed	Relinquished by:	Date/Time:	Received by:	Date/Time:
	Chet Barkell	6-17-13 11:30 AM	[signature]	6/17/13 11:30

Sample Disposal: Return to client: Lab disposal: Log# 718

ID # WYS1 - 22934 Permit # WYG-C00002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04-22-13
Date Received: 04-22-13
Sample Location: Raw Sludge

Sampled By: CB
Date Reported: 05-03-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.4	%-dry		0.382	SM 4500NH_3^+ D	04-24-13 / kl
NON-METALS						
Total Solids	4.8	%		0.2	SM 2540 G	04-22-13 / mw
Total Vol. Solids	86.8	%		1.0	SM 2540 E	04-22-13/ mw
METALS – TOTAL						
Ag, Silver	3.1	mg/kg		0.6	EPA 6010B	04-25-13 / kl
As, Arsenic	ND	mg/kg		1.1	EPA 6010B	04-25/13 / kl
Cadmium, Cd	1.8	mg/kg		0.6	EPA 6010B	04-25-13 / kl
Chromium, Cr	6.6	mg/kg		0.6	EPA 6010B	04-25-13 / kl
Copper, Cu	253	mg/kg		1.1	EPA 6010B	04-25-13 / kl
Molybdenum, Mo	4.3	mg/kg		0.6	EPA 6010B	04-25/13 / kl
Nickel, Ni	5.9	mg/kg		0.6	EPA 6010B	04-25-13 / kl
Lead, Pb	12.8	mg/kg		1.1	EPA 6010B	04-25/13 / kl
Selenium, Se	11.1	mg/kg		0.3	EPA 6010B	04-25-13 / kl
Zinc, Zn	262	mg/kg		0.6	EPA 6010B	04-25-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

5-3-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04-22-13
Date Received: 04-22-13
Sample Location: Primary Digester Sludge

Sampled By: CB
Date Reported: 05-03-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	4.6	%-dry		0.021	SM 4500NH_3^+ D	04-24-13 / kl
NON-METALS						
Total Solids	2.2	%		0.2	SM 2540 G	04-22-13 / mw
Total Vol. Solids	75.0	%		1.0	SM 2540 E	04-22-13/ mw
METALS – TOTAL						
Ag, Silver	4.7	mg/kg		0.5	EPA 6010B	04-25-13 / kl
As, Arsenic	ND	mg/kg		1.1	EPA 6010B	04-25/13 / kl
Cadmium, Cd	1.4	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Chromium, Cr	11.2	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Copper, Cu	539	mg/kg		1.1	EPA 6010B	04-25-13 / kl
Molybdenum, Mo	6.5	mg/kg		0.5	EPA 6010B	04-25/13 / kl
Nickel, Ni	9.6	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Lead, Pb	20.5	mg/kg		1.1	EPA 6010B	04-25/13 / kl
Selenium, Se	24.6	mg/kg		0.3	EPA 6010B	04-25-13 / kl
Zinc, Zn	430	mg/kg		0.5	EPA 6010B	04-25-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

5-3-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04-22-13
Date Received: 04-22-13
Sample Location: Secondary Digester Sludge

Sampled By: CB
Date Reported: 05-03-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	5.6	%-dry		0.040	SM 4500NH_3^+ D	04-24-13 / kl
NON-METALS						
Total Solids	2.0	%		0.2	SM 2540 G	04-22-13 / mw
Total Vol. Solids	72.0	%		1.0	SM 2540 E	04-22-13/ mw
METALS – TOTAL						
Ag, Silver	3.2	mg/kg		0.5	EPA 6010B	04-25-13 / kl
As, Arsenic	ND	mg/kg		0.9	EPA 6010B	04-25/13 / kl
Cadmium, Cd	0.9	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Chromium, Cr	7.1	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Copper, Cu	330	mg/kg		0.9	EPA 6010B	04-25-13 / kl
Molybdenum, Mo	4.1	mg/kg		0.5	EPA 6010B	04-25/13 / kl
Nickel, Ni	8.5	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Lead, Pb	15.0	mg/kg		0.9	EPA 6010B	04-25/13 / kl
Selenium, Se	14.8	mg/kg		0.3	EPA 6010B	04-25-13 / kl
Zinc, Zn	279	mg/kg		0.5	EPA 6010B	04-25-13 / kl

Report Definitions:

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Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

5-3-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 04-22-13
Date Received: 04-22-13
Sample Location: Dry Sludge

Sampled By: CB
Date Reported: 05-03-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.3	%-dry		0.001	SM 4500NH_3^+ D	04-24-13 / kl
NON-METALS						
Total Solids	83.1	%		0.2	SM 2540 G	04-22-13 / mw
Total Vol. Solids	41.1	%		1.0	SM 2540 E	04-22-13/ mw
METALS – TOTAL						
Ag, Silver	4.4	mg/kg		0.5	EPA 6010B	04-25-13 / kl
As, Arsenic	ND	mg/kg		1.0	EPA 6010B	04-25/13 / kl
Cadmium, Cd	1.0	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Chromium, Cr	7.0	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Copper, Cu	225	mg/kg		1.0	EPA 6010B	04-25-13 / kl
Molybdenum, Mo	2.6	mg/kg		0.5	EPA 6010B	04-25/13 / kl
Nickel, Ni	5.1	mg/kg		0.5	EPA 6010B	04-25-13 / kl
Lead, Pb	15.4	mg/kg		1.0	EPA 6010B	04-25/13 / kl
Selenium, Se	5.0	mg/kg		0.3	EPA 6010B	04-25-13 / kl
Zinc, Zn	209	mg/kg		0.5	EPA 6010B	04-25-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

5-3-13
Date:

Dry Creek WRF Laboratory
For: Metals

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 4-22-13 **] Time:** 1:30 **] [] AM [] PM**

Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected

[] Sampling location documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1, 2, 3, 4and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody recorded

Date: 4-22-13] Time: 1430] [] AM [] PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/ quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 4-22-13] Time: 1130] [] AM [] PM

Sample Containers
From:(Cheyenne BOPU) Dry Creek WRF
To: Dry Creek WRF Laboratory

No. 1 Primary Raw Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 2 Primary Digester Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 3 Secondary Digester Containers:
1 Plastic Container 1000 Mg/L

No. 4 Dry Sludge Container:
1 Plastic Container 1000 Mg/L

5. Cooling – Refrigeration

6. Chain of Custody Record

Date: 4-22-13 **] Time:** 1:30 **] [] AM [] PM**

List of Analysis Required
For Biosolids (Class A or B) Program

Required analysis for wastewater # 1.Raw Sludge #2.Primary Digested Sludge, #3.Secondary Digested Sludge and #4.Dry Sludge:

Analyses		Units
Major Ions		
Ammonia as N	=	% Dry
Non - Metals		
Total Solids	=	%
Total Vol. Solids	=	%
Metals - Total		
Arsenic, Ag	=	Mg/kg
Cadmium, Cd	=	Mg/kg
Chromium, Cr	=	Mg/kg
Copper, Cu	=	Mg/kg
Lead, Pb	=	Mg/kg
Molybdenum, Mo	=	Mg/kg
Nickel, Ni	=	Mg/kg
Selenium, Se	=	Mg/kg
Silver, Ag	=	Mg/kg
Zinc, Zn	=	Mg/kg

All analysis on dry weight basis:

All laboratories must have quality control /quality assurance on all analysis program and data sheet. Digestion method included on metals.

Monitoring six times per year, February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 4-22-13 **] Time:** 1130 **] [] AM [] PM**

Project Name: BioSolids.

Location: Dry Creek WRF.

Address: 8911 Camp Stool Rd.

City: Cheyenne] **Sate:** Wyo] **Zip Code:** 82007.

Samples Colleted by: Chet Barkell. **[Date/Time:** 4-22-13/1:30pm

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Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** Wy] **Zip Code:** 82007.

Name of Analyst: [illegible].

This Certification is signed by: [signature].

Date: 6-28-13] **Time:** 0800] [X] **AM [] PM**

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: Dry Creek WRF Contact Name: Chet Barbell Sampler's Name (if other than Contact):

Report Required For:
Biosolids
Zone E Dry sludge #4

	SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: Metals	Nutrients	TS	VS				How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1	#1 Raw Sludge	4-22-13	1:40pm	1 plastic Bottle								NA	Grab		Yes
2	#2 primary Dry														
3	#3 Secondary Dry														
4	#4 Dry Sludge			1 plastic Bag Dry Sludge											
5															
6															
7															

Custody Record MUST be Signed	Relinquished by:	Date/Time:	Received by:	Date/Time:
	Chet Barbell	4-22-13 1:30pm	[signature]	4 23 13

Sample Disposal: Return to client: Lab disposal: Log# 593

ID # WVSL-22934 Permit # WVG-6 [illegible]

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02-12-13
Date Received: 02-12-13
Sample Location: Raw Sludge

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.2	%-dry		0.017	SM 4500NH_3^+ D	02-13-13 / mw
NON-METALS						
Total Solids	3.2	%		0.2	SM 2540 G	02-12-13 / mw
Total Vol. Solids	87.6	%		1.0	SM 2540 E	02-12-13/ mw
METALS – TOTAL						
Ag, Silver	4.8	mg/kg		0.5	EPA 6010B	04-05-13 / kl
As, Arsenic	2.9	mg/kg		1.0	EPA 6010B	04-05/13 / kl
Cadmium, Cd	1.1	mg/kg		0.5	EPA 6010B	04-05-13 / kl
Chromium, Cr	7.1	mg/kg		0.5	EPA 6010B	04-05-13 / kl
Copper, Cu	344	mg/kg		1.0	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	4.0	mg/kg		0.5	EPA 6010B	04-05/13 / kl
Nickel, Ni	7.1	mg/kg		0.5	EPA 6010B	04-05-13 / kl
Lead, Pb	21.0	mg/kg		1.0	EPA 6010B	04-05/13 / kl
Selenium, Se	9.5	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Zinc, Zn	332	mg/kg		0.5	EPA 6010B	04-05-13 / kl

Report Definitions:

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Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4.09.13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02-12-13
Date Received: 02-12-13
Sample Location: Primary Dig Sludge

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	3.5	%-dry		0.017	SM 4500NH_3^+ D	02-13-13 / mw
NON-METALS						
Total Solids	2.0	%		0.2	SM 2540 G	02-12-13 / mw
Total Vol. Solids	73.9	%		1.0	SM 2540 E	02-12-13/ mw
METALS – TOTAL						
Ag, Silver	7.0	mg/kg		0.6	EPA 6010B	04-05-13 / kl
As, Arsenic	5.4	mg/kg		1.3	EPA 6010B	04-05/13 / kl
Cadmium, Cd	1.9	mg/kg		0.6	EPA 6010B	04-05-13 / kl
Chromium, Cr	15.7	mg/kg		0.6	EPA 6010B	04-05-13 / kl
Copper, Cu	762	mg/kg		1.3	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	7.7	mg/kg		0.6	EPA 6010B	04-05/13 / kl
Nickel, Ni	12.4	mg/kg		0.6	EPA 6010B	04-05-13 / kl
Lead, Pb	30.2	mg/kg		1.3	EPA 6010B	04-05/13 / kl
Selenium, Se	26.8	mg/kg		0.4	EPA 6010B	04-05-13 / kl
Zinc, Zn	590	mg/kg		0.6	EPA 6010B	04-05-13 / kl

Report Definitions:

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Kent Loader, Laboratory Supervisor

4-9-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02-12-13
Date Received: 02-12-13
Sample Location: Secondary Dig Sludge

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	3.3	%-dry		0.017	SM 4500NH_3^+ D	02-13-13 / mw
NON-METALS						
Total Solids	1.8	%		0.2	SM 2540 G	02-12-13 / mw
Total Vol. Solids	70.1	%		1.0	SM 2540 E	02-12-13/ mw
METALS – TOTAL						
Ag, Silver	8.4	mg/kg		0.5	EPA 6010B	04-05-13 / kl
As, Arsenic	6.2	mg/kg		1.0	EPA 6010B	04-05/13 / kl
Cadmium, Cd	2.1	mg/kg		0.5	EPA 6010B	04-05-13 / kl
Chromium, Cr	17.7	mg/kg		0.5	EPA 6010B	04-05-13 / kl
Copper, Cu	840	mg/kg		1.0	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	8.8	mg/kg		0.5	EPA 6010B	04-05/13 / kl
Nickel, Ni	14.3	mg/kg		0.5	EPA 6010B	04-05-13 / kl
Lead, Pb	28.0	mg/kg		1.0	EPA 6010B	04-05/13 / kl
Selenium, Se	31.5	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Zinc, Zn	705	mg/kg		0.5	EPA 6010B	04-05-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4-9-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 02-12-13
Date Received: 02-12-13
Sample Location: Dry Sludge

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
MAJOR IONS						
Ammonia as N	0.1	%-dry		0.001	SM 4500NH_3^+ D	02-13-13 / mw
NON-METALS						
Total Solids	82.8	%		0.2	SM 2540 G	02-12-13 / mw
Total Vol. Solids	39.5	%		1.0	SM 2540 E	02-12-13/ mw
METALS – TOTAL						
Ag, Silver	10.3	mg/kg		0.6	EPA 6010B	04-05-13 / kl
As, Arsenic	4.8	mg/kg		1.1	EPA 6010B	04-05/13 / kl
Cadmium, Cd	2.0	mg/kg		0.6	EPA 6010B	04-05-13 / kl
Chromium, Cr	15.5	mg/kg		0.6	EPA 6010B	04-05-13 / kl
Copper, Cu	578	mg/kg		1.1	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	5.6	mg/kg		0.6	EPA 6010B	04-05/13 / kl
Nickel, Ni	11.2	mg/kg		0.6	EPA 6010B	04-05-13 / kl
Lead, Pb	32.5	mg/kg		1.1	EPA 6010B	04-05/13 / kl
Selenium, Se	10.3	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Zinc, Zn	486	mg/kg		0.6	EPA 6010B	04-05-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4-9-13
Date:

Dry Creek WRF Laboratory
For: Metals

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 2-12-13 **] Time:** 1040 **] [] AM [] PM**

Sampling Records
(Cheyenne BOPU) Dry Creek WRF Laboratory

[] Dates and time of samples collected

[] Sampling location documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1, 2, 3, 4and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operates at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody recorded

Date: 2-12-13] Time: 0140] [] AM [] PM

Analytical Records
From: (Cheyenne BOPU) Dry Creek WRF
To: (Cheyenne BOPU) Dry Creek WRF Laboratory

[] Date and time of samples analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] All analyses are reported on dry weight basis

[] Dry Creek WRF Laboratory
8911 Campstool Rd.
Cheyenne, WY 82007
Ph: 307-635-3163
Fax: 307-635-6833

[] Analytical quality assurance/ quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 2-12-13] Time: 10:40] [] AM [] PM

Sample Containers
From:(Cheyenne BOPU) Dry Creek WRF
To: Dry Creek WRF Laboratory

No. 1 Primary Raw Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 2 Primary Digester Sludge Containers:
1 Plastic Container 1000 Mg/L

No. 3 Secondary Digester Containers:
1 Plastic Container 1000 Mg/L

No. 4 Dry Sludge Container:
1 Plastic Container 1000 Mg/L

5. Cooling – Refrigeration

6. Chain of Custody Record

Date: 2-12-13 **] Time:** 10:40 **] [] AM [] PM**

List of Analysis Required
For Biosolids (Class A or B) Program

Required analysis for wastewater # 1.Raw Sludge #2.Primary Digested Sludge, #3.Secondary Digested Sludge and #4.Dry Sludge:

Analyses		Units
Major Ions		
Ammonia as N	=	% Dry
Non - Metals		
Total Solids	=	%
Total Vol. Solids	=	%
Metals - Total		
Arsenic, Ag	=	Mg/kg
Cadmium, Cd	=	Mg/kg
Chromium, Cr	=	Mg/kg
Copper, Cu	=	Mg/kg
Lead, Pb	=	Mg/kg
Molybdenum, Mo	=	Mg/kg
Nickel, Ni	=	Mg/kg
Selenium, Se	=	Mg/kg
Silver, Ag	=	Mg/kg
Zinc, Zn	=	Mg/kg

All analysis on dry weight basis:

All laboratories must have quality control /quality assurance on all analysis program and data sheet. Digestion method included on metals.

Monitoring six times per year, February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 2-12-13 **] Time:** 10:46 **] [] AM [] PM**

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **Sate:** Wy] **Zip Code:** 82007.

Samples Colleted by: Chet Barbur [**Date/Time:** 2-12-13-/10:40 AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** Wy] **Zip Code:** 82007.

Name of Analyst: [illegible].

This Certification is signed by: [signature].

Date: 6-28-13] **Time:** 0800] [X] **AM** [] **PM**

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: Dry Creek WRF Contact Name: Chet Bardell Sampler's Name (if other than Contact):

Report Required For:
Biosolids
#1 Dry Sludge From Zone E

	SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: Metals	Nutrients	TS	VS				How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1	#1 Raw Sludge	2-12-13	10:00 AM	1 plastic bottle	x	x	x	x				WA	Grab		
2	#2 Primary Dig				x	x	x	x							
3	#3 Secondary Dig				x	x	x	x							
4	#4 Dry Sludge				x	x	x	x							
5															
6															
7															

Custody Record MUST be Signed	Relinquished by:	Date/Time:	Received by:	Date/Time:
	Chet Bardell	2-12-13 10:40 AM	[signature]	2-12-13 10:52 AM

Sample Disposal: Return to client: Lab disposal: Log# 672

ID # WYSL-22930 Permit # WYG-650002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-50177-1
Client Project/Site: Biosolids Dry Creek WRF

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Chet Barkell

Authorized for release by:
1/10/2014 10:40:15 AM

DiLea Griego, Project Manager I
(303)736-0173
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-50177-1

3

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: Cheyenne Board of Public Utilities
Project: Biosolids Dry Creek WRF
Report Number: 280-50177-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 12/11/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.7 C.

TOTAL METALS - METHOD 6010B/7471A
Sample #4 DRY SLUDGE (280-50177-4)[5X] required dilution prior to analysis for Phosphorus due to elevated concentration levels. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-50177-4)[10X] required dilution prior to analysis for Mercury due to elevated concentration levels. The reporting limits have been adjusted accordingly.

No other difficulties were encountered.

GENERAL CHEMISTRY
Sample #3 SECONDARY DIGESTER (280-50177-3)[2X] required dilution prior to analysis for Ammonia. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-50177-4)[20X] required dilution prior to analysis for Nitrate Nitrite as N. The reporting limits have been adjusted accordingly.

Samples #1 RAW SLUDGE (280-50177-1)[4X], #2 PRIMARY DIGESTER (280-50177-2)[10X] and #4 DRY SLUDGE (280-50177-4)[20X] required dilution prior to analysis for TKN. The reporting limits have been adjusted accordingly.

Reanalysis of the following samples were performed outside of the analytical holding time due to QC failure for TKN: #1 RAW SLUDGE (280-50177-1), #2 PRIMARY DIGESTER (280-50177-2), #3 SECONDARY DIGESTER (280-50177-3), #4 DRY SLUDGE (280-50177-4). Because the TKN is part of the Total Nitrogen calculation, the data is also flagged "H".

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 490-133824 were performed on #1 RAW SLUDGE (280-50177-1) and exhibited recoveries outside control limits for TKN. The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-206693 were performed on #1 RAW SLUDGE (280-50177-1) and exhibited recoveries outside control limits for Nitrate Nitrite as N. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

Due to the high concentration of ammonia, the matrix spike / matrix spike duplicate (MS/MSD) associated with ammonia preparation bath 280-130912 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Job ID: 280-50177-1 (Continued)

3

Laboratory: TestAmerica Denver (Continued)

Due to non-homogeneity, the percent moisture sample duplicate analysis data associated with analysis batch 280-204979 exhibited RPD data outside the QC control limits.

No other difficulties were encountered.

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F	Duplicate RPD exceeds the control limit
H	Sample was prepped or analyzed beyond the specified holding time
F	MS/MSD Recovery and/or RPD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

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Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-50177-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	7500		7000	38	mg/Kg	1	☼	6010B	Total/NA
Potassium	2000	J	7000	960	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.32	J	0.38	0.12	mg/Kg	1	☼	7471A	Total/NA
Ammonia	2600		240	120	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	59000	H	2500	1300	mg/Kg	4	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Nitrogen, Organic	56000	H	7.5	7.5	mg/Kg	1	☼	Nitrogen,Org	Total/NA
pH adj. to 25 deg C	5.03		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-50177-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	29000		13000	71	mg/Kg	1	☼	6010B	Total/NA
Potassium	9700	J	13000	1800	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.97		0.81	0.26	mg/Kg	1	☼	7471A	Total/NA
Ammonia	24000		450	230	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	100000	H	11000	6000	mg/Kg	10	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Nitrogen, Organic	76000	H	14	14	mg/Kg	1	☼	Nitrogen,Org	Total/NA
pH adj. to 25 deg C	7.71		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #3 SECONDARY DIGESTER — Lab Sample ID: 280-50177-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	30000		15000	80	mg/Kg	1	☼	6010B	Total/NA
Potassium	11000	J	15000	2000	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.80	J	1.0	0.33	mg/Kg	1	☼	7471A	Total/NA
Ammonia	62000		1100	560	mg/Kg	2	☼	350.1	Total/NA
Nitrogen, Kjeldahl	46000	H	1400	750	mg/Kg	1	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.76		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #4 DRY SLUDGE — Lab Sample ID: 280-50177-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	16000		2000	11	mg/Kg	5	☼	6010B	Total/NA
Potassium	1800		390	54	mg/Kg	1	☼	6010B	Total/NA
Mercury	2.7		0.23	0.076	mg/Kg	10	☼	7471A	Total/NA
Ammonia	690		13	6.7	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	12000	H	670	350	mg/Kg	20	☼	351.2	Total/NA
Nitrate Nitrite as N	2100		27	9.6	mg/Kg	20	☼	353.2	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
Nitrogen, Organic	11000	H	0.40	0.40	mg/Kg	1	☼	Nitrogen,Org	Total/NA
pH adj. to 25 deg C	5.00		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
350.1	Nitrogen, Ammonia	MCAWW	TAL NSH
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL NSH
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
Nitrogen,Org	Nitrogen, Organic	EPA	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-50177-1	#1 RAW SLUDGE	Solid	12/10/13 13:00	12/11/13 10:00
280-50177-2	#2 PRIMARY DIGESTER	Solid	12/10/13 13:00	12/11/13 10:00
280-50177-3	#3 SECONDARY DIGESTER	Solid	12/10/13 13:00	12/11/13 10:00
280-50177-4	#4 DRY SLUDGE	Solid	12/10/13 13:00	12/11/13 10:00

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Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Method: 6010B - Metals (ICP)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-50177-1**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 4.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	7500		7000	38	mg/Kg	☼	12/13/13 07:30	12/13/13 21:38	1
Potassium	2000	J	7000	960	mg/Kg	☼	12/13/13 07:30	12/13/13 21:38	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-50177-2**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	29000		13000	71	mg/Kg	☼	12/13/13 07:30	12/13/13 21:56	1
Potassium	9700	J	13000	1800	mg/Kg	☼	12/13/13 07:30	12/13/13 21:56	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-50177-3**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	30000		15000	80	mg/Kg	☼	12/13/13 07:30	12/13/13 21:58	1
Potassium	11000	J	15000	2000	mg/Kg	☼	12/13/13 07:30	12/13/13 21:58	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-50177-4**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 74.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	16000		2000	11	mg/Kg	☼	12/13/13 07:30	12/16/13 15:17	5
Potassium	1800		390	54	mg/Kg	☼	12/13/13 07:30	12/13/13 22:00	1

Method: 7471A - Mercury (CVAA)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-50177-1**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 4.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.32	J	0.38	0.12	mg/Kg	☼	12/16/13 09:30	12/16/13 11:48	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-50177-2**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.97		0.81	0.26	mg/Kg	☼	12/16/13 09:30	12/16/13 11:55	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-50177-3**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.80	J	1.0	0.33	mg/Kg	☼	12/16/13 09:30	12/16/13 11:57	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-50177-4**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 74.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.7		0.23	0.076	mg/Kg	☼	12/16/13 09:30	12/16/13 12:51	10

General Chemistry

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-50177-1**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 4.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	2600		240	120	mg/Kg	☼	12/21/13 16:00	12/23/13 14:16	1
Nitrogen, Kjeldahl	59000	H	2500	1300	mg/Kg	☼	01/07/14 15:07	01/08/14 10:30	4

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	96		0.10	0.10	%			12/12/13 10:06	1
Nitrogen, Organic	56000	H	7.5	7.5	mg/Kg	☼		01/09/14 12:26	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-50177-2**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	24000		450	230	mg/Kg	☼	12/21/13 16:00	12/23/13 14:16	1
Nitrogen, Kjeldahl	100000	H	11000	6000	mg/Kg	☼	01/07/14 15:07	01/08/14 10:30	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			12/12/13 10:06	1
Nitrogen, Organic	76000	H	14	14	mg/Kg	☼		01/09/14 12:26	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-50177-3**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	62000		1100	560	mg/Kg	☼	12/21/13 16:00	12/24/13 13:17	2
Nitrogen, Kjeldahl	46000	H	1400	750	mg/Kg	☼	01/07/14 15:07	01/08/14 10:30	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			12/12/13 10:06	1
Nitrogen, Organic	ND	H	17	17	mg/Kg	☼		01/09/14 12:26	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-50177-4**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 74.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	690		13	6.7	mg/Kg	☼	12/21/13 16:00	12/23/13 14:16	1
Nitrogen, Kjeldahl	12000	H	670	350	mg/Kg	☼	01/07/14 15:07	01/08/14 10:30	20

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	26		0.10	0.10	%			12/12/13 10:06	1
Nitrogen, Organic	11000	H	0.40	0.40	mg/Kg	☼		01/09/14 12:26	1

General Chemistry - Soluble

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-50177-1**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 4.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		25	9.0	mg/Kg	☼		12/24/13 15:46	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.03		0.100	0.100	SU			12/18/13 13:39	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

General Chemistry - Soluble

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-50177-2**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		46	16	mg/Kg	☼		12/24/13 15:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.71		0.100	0.100	SU			12/18/13 13:39	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-50177-3**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		58	21	mg/Kg	☼		12/24/13 16:04	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.76		0.100	0.100	SU			12/18/13 13:39	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-50177-4**
Date Collected: 12/10/13 13:00 — **Matrix: Solid**
Date Received: 12/11/13 10:00 — **Percent Solids: 74.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2100		27	9.6	mg/Kg	☼		12/24/13 16:41	20

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.00		0.100	0.100	SU			12/18/13 13:39	1

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-205022/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205382 — **Prep Batch: 205022**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		300	1.6	mg/Kg		12/13/13 07:30	12/13/13 21:31	1
Potassium	ND		300	41	mg/Kg		12/13/13 07:30	12/13/13 21:31	1

Lab Sample ID: LCS 280-205022/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205382 — **Prep Batch: 205022**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	909		mg/Kg		91	80 - 112
Potassium	5000	4520		mg/Kg		90	89 - 110

Lab Sample ID: LCSD 280-205022/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205382 — **Prep Batch: 205022**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	1000	907		mg/Kg		91	80 - 112	0	20
Potassium	5000	4570		mg/Kg		91	89 - 110	1	20

Lab Sample ID: 280-50177-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205382 — **Prep Batch: 205022**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	7500		22800	27700		mg/Kg	☼	89	75 - 125
Potassium	2000	J	114000	107000		mg/Kg	☼	92	56 - 172

Lab Sample ID: 280-50177-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205382 — **Prep Batch: 205022**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	7500		24300	29100		mg/Kg	☼	89	75 - 125	5	20
Potassium	2000	J	122000	112000		mg/Kg	☼	91	56 - 172	5	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-205342/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205450 — **Prep Batch: 205342**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		12/16/13 09:30	12/16/13 11:20	1

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Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 280-205342/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205450 — **Prep Batch: 205342**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.401		mg/Kg		96	87 - 111

Lab Sample ID: LCSD 280-205342/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205450 — **Prep Batch: 205342**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.417	0.391		mg/Kg		94	87 - 111	2	20

Lab Sample ID: 280-50171-A-1-G MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205450 — **Prep Batch: 205342**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.019	J	0.410	0.383		mg/Kg	☼	89	87 - 111

Lab Sample ID: 280-50171-A-1-H MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205450 — **Prep Batch: 205342**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.019	J	0.467	0.439		mg/Kg	☼	90	87 - 111	14	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 490-130912/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 131387 — **Prep Batch: 130912**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.20	0.10	mg/Kg		12/21/13 16:00	12/23/13 14:16	1

Lab Sample ID: LCS 490-130912/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 131387 — **Prep Batch: 130912**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	5.00	4.29		mg/Kg		86	80 - 120

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 490-133693/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 133824 — **Prep Batch: 133693**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		25	13	mg/Kg		01/07/14 15:07	01/08/14 10:30	1

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: LCS 490-133693/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 133824 — **Prep Batch: 133693**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	250	262		mg/Kg		105	80 - 120

Lab Sample ID: 280-50177-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 133824 — **Prep Batch: 133693**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	59000	H	6270	52500	4	mg/Kg	☼	-100	65 - 123

Lab Sample ID: 280-50177-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 133824 — **Prep Batch: 133693**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	59000	H	6270	85300	4	mg/Kg	☼	424	65 - 123	48	50

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MRL 280-206693/18 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 206693

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.100	0.100		mg/L		100	50 - 150

Lab Sample ID: MB 280-206571/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 206693

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		1.0	0.36	mg/Kg			12/24/13 15:13	1

Lab Sample ID: LCS 280-206571/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 206693

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	50.0	49.4		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 280-206571/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 206693

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	50.0	48.5		mg/Kg		97	90 - 110	2	10

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: 280-50177-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 206693

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	ND		1000	868	F	mg/Kg	☼	87	90 - 110

Lab Sample ID: 280-50177-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 206693

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	ND		1000	858	F	mg/Kg	☼	86	90 - 110	1	10

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Method: 9045C - pH

Lab Sample ID: LCS 280-205764/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205764

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103

Lab Sample ID: LCSD 280-205764/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 205764

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.000		SU		100	97 - 103	0	5

Lab Sample ID: 280-50041-A-5-D DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 205764

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	8.78		8.760		SU		0.2	5

Method: Moisture - Percent Moisture

Lab Sample ID: 280-50171-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 204979

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	6.1		8.3	F	%		30	20

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Metals

Prep Batch: 205022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-50177-1 MS	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-50177-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	3050B	
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	3050B	
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	3050B	
LCS 280-205022/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 280-205022/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	
MB 280-205022/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 205342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50171-A-1-G MS	Matrix Spike	Total/NA	Solid	7471A	
280-50171-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	
LCS 280-205342/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 280-205342/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
MB 280-205342/1-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 205382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	6010B	205022
280-50177-1 MS	#1 RAW SLUDGE	Total/NA	Solid	6010B	205022
280-50177-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	6010B	205022
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	6010B	205022
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	6010B	205022
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	205022
LCS 280-205022/2-A	Lab Control Sample	Total/NA	Solid	6010B	205022
LCSD 280-205022/3-A	Lab Control Sample Dup	Total/NA	Solid	6010B	205022
MB 280-205022/1-A	Method Blank	Total/NA	Solid	6010B	205022

Analysis Batch: 205450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50171-A-1-G MS	Matrix Spike	Total/NA	Solid	7471A	205342
280-50171-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	205342
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	205342
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	205342
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	205342
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	205342
LCS 280-205342/2-A	Lab Control Sample	Total/NA	Solid	7471A	205342
LCSD 280-205342/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	205342
MB 280-205342/1-A	Method Blank	Total/NA	Solid	7471A	205342

Analysis Batch: 205504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	205022

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

General Chemistry

Prep Batch: 130912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
LCS 490-130912/2-A	Lab Control Sample	Total/NA	Solid	Distill/Ammonia	
MB 490-130912/1-A	Method Blank	Total/NA	Solid	Distill/Ammonia	

Analysis Batch: 131387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	350.1	130912
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	350.1	130912
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	130912
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	350.1	130912
LCS 490-130912/2-A	Lab Control Sample	Total/NA	Solid	350.1	130912
MB 490-130912/1-A	Method Blank	Total/NA	Solid	350.1	130912

Prep Batch: 133693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	
280-50177-1 MS	#1 RAW SLUDGE	Total/NA	Solid	351.2	
280-50177-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	351.2	
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	
LCS 490-133693/2-A	Lab Control Sample	Total/NA	Solid	351.2	
MB 490-133693/1-A	Method Blank	Total/NA	Solid	351.2	

Analysis Batch: 133824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	133693
280-50177-1 MS	#1 RAW SLUDGE	Total/NA	Solid	351.2	133693
280-50177-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	351.2	133693
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	133693
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	133693
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	133693
LCS 490-133693/2-A	Lab Control Sample	Total/NA	Solid	351.2	133693
MB 490-133693/1-A	Method Blank	Total/NA	Solid	351.2	133693

Analysis Batch: 134085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	Nitrogen,Org	
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	Nitrogen,Org	

Analysis Batch: 204979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50171-A-1 DU	Duplicate	Total/NA	Solid	Moisture	
280-50177-1	#1 RAW SLUDGE	Total/NA	Solid	Moisture	
280-50177-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Moisture	
280-50177-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Moisture	

General Chemistry (Continued)

Analysis Batch: 204979 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-4	#4 DRY SLUDGE	Total/NA	Solid	Moisture	

Leach Batch: 205734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50041-A-5-D DU	Duplicate	Soluble	Solid	DI Leach	
280-50177-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-50177-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-50177-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-50177-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 205764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50041-A-5-D DU	Duplicate	Soluble	Solid	9045C	205734
280-50177-1	#1 RAW SLUDGE	Soluble	Solid	9045C	205734
280-50177-2	#2 PRIMARY DIGESTER	Soluble	Solid	9045C	205734
280-50177-3	#3 SECONDARY DIGESTER	Soluble	Solid	9045C	205734
280-50177-4	#4 DRY SLUDGE	Soluble	Solid	9045C	205734
LCS 280-205764/4	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-205764/5	Lab Control Sample Dup	Total/NA	Solid	9045C	

Leach Batch: 206571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-50177-1 MS	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-50177-1 MSD	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-50177-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-50177-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-50177-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
LCS 280-206571/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-206571/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 280-206571/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 206693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-50177-1	#1 RAW SLUDGE	Soluble	Solid	353.2	206571
280-50177-1 MS	#1 RAW SLUDGE	Soluble	Solid	353.2	206571
280-50177-1 MSD	#1 RAW SLUDGE	Soluble	Solid	353.2	206571
280-50177-2	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	206571
280-50177-3	#3 SECONDARY DIGESTER	Soluble	Solid	353.2	206571
280-50177-4	#4 DRY SLUDGE	Soluble	Solid	353.2	206571
LCS 280-206571/2-A	Lab Control Sample	Soluble	Solid	353.2	206571
LCSD 280-206571/3-A	Lab Control Sample Dup	Soluble	Solid	353.2	206571
MB 280-206571/1-A	Method Blank	Soluble	Solid	353.2	206571
MRL 280-206693/18	Lab Control Sample	Total/NA	Solid	353.2	

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Client Sample ID: #1 RAW SLUDGE

Lab Sample ID: 280-50177-1
Date Collected: 12/10/13 13:00
Matrix: Solid
Date Received: 12/11/13 10:00
Percent Solids: 4.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.07 g	100 mL	205022	12/13/13 07:30	WAW	TAL DEN
Total/NA	Analysis	6010B		1	1.07 g	100 mL	205382	12/13/13 21:38	JKH	TAL DEN
Total/NA	Prep	7471A			.68 g	50 mL	205342	12/16/13 09:30	CRR	TAL DEN
Total/NA	Analysis	7471A		1	.68 g	50 mL	205450	12/16/13 11:48	CRR	TAL DEN
Total/NA	Analysis	Moisture		1			204979	12/12/13 10:06	JLH	TAL DEN
Soluble	Leach	DI Leach			40.03 g	40 mL	205734	12/18/13 11:30	MRB	TAL DEN
Soluble	Analysis	9045C		1			205764	12/18/13 13:39	MRB	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	206571	12/24/13 12:35	DVA	TAL DEN
Soluble	Analysis	353.2		1			206693	12/24/13 15:46	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.03 g	50 mL	130912	12/21/13 16:00	SJF	TAL NSH
Total/NA	Analysis	350.1		1	1.03 g	50 mL	131387	12/23/13 14:16	SAB	TAL NSH
Total/NA	Prep	351.2			0.2 g	20 mL	133693	01/07/14 15:07	REM	TAL NSH
Total/NA	Analysis	351.2		4	0.2 g	20 mL	133824	01/08/14 10:30	JAB	TAL NSH
Total/NA	Analysis	Nitrogen,Org		1			134085	01/09/14 12:26	SOG	TAL NSH

Client Sample ID: #2 PRIMARY DIGESTER

Lab Sample ID: 280-50177-2
Date Collected: 12/10/13 13:00
Matrix: Solid
Date Received: 12/11/13 10:00
Percent Solids: 2.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.05 g	100 mL	205022	12/13/13 07:30	WAW	TAL DEN
Total/NA	Analysis	6010B		1	1.05 g	100 mL	205382	12/13/13 21:56	JKH	TAL DEN
Total/NA	Prep	7471A			.58 g	50 mL	205342	12/16/13 09:30	CRR	TAL DEN
Total/NA	Analysis	7471A		1	.58 g	50 mL	205450	12/16/13 11:55	CRR	TAL DEN
Total/NA	Analysis	Moisture		1			204979	12/12/13 10:06	JLH	TAL DEN
Soluble	Leach	DI Leach			40.32 g	40 mL	205734	12/18/13 11:30	MRB	TAL DEN
Soluble	Analysis	9045C		1			205764	12/18/13 13:39	MRB	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	206571	12/24/13 12:35	DVA	TAL DEN
Soluble	Analysis	353.2		1			206693	12/24/13 15:50	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.01 g	50 mL	130912	12/21/13 16:00	SJF	TAL NSH
Total/NA	Analysis	350.1		1	1.01 g	50 mL	131387	12/23/13 14:16	SAB	TAL NSH
Total/NA	Prep	351.2			0.2 g	20 mL	133693	01/07/14 15:07	REM	TAL NSH
Total/NA	Analysis	351.2		10	0.2 g	20 mL	133824	01/08/14 10:30	JAB	TAL NSH
Total/NA	Analysis	Nitrogen,Org		1			134085	01/09/14 12:26	SOG	TAL NSH

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-50177-3
Date Collected: 12/10/13 13:00
Matrix: Solid
Date Received: 12/11/13 10:00
Percent Solids: 1.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.16 g	100 mL	205022	12/13/13 07:30	WAW	TAL DEN
Total/NA	Analysis	6010B		1	1.16 g	100 mL	205382	12/13/13 21:58	JKH	TAL DEN
Total/NA	Prep	7471A			.58 g	50 mL	205342	12/16/13 09:30	CRR	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-50177-1

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-50177-3

Date Collected: 12/10/13 13:00
Date Received: 12/11/13 10:00

Matrix: Solid
Percent Solids: 1.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471A		1	.58 g	50 mL	205450	12/16/13 11:57	CRR	TAL DEN
Total/NA	Analysis	Moisture		1			204979	12/12/13 10:06	JLH	TAL DEN
Soluble	Leach	DI Leach			40.07 g	40 mL	205734	12/18/13 11:30	MRB	TAL DEN
Soluble	Analysis	9045C		1			205764	12/18/13 13:39	MRB	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	206571	12/24/13 12:35	DVA	TAL DEN
Soluble	Analysis	353.2		1			206693	12/24/13 16:04	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.02 g	50 mL	130912	12/21/13 16:00	SJF	TAL NSH
Total/NA	Analysis	350.1		2	1.02 g	50 mL	131387	12/24/13 13:17	SAB	TAL NSH
Total/NA	Prep	351.2			0.2 g	20 mL	133693	01/07/14 15:07	REM	TAL NSH
Total/NA	Analysis	351.2		1	0.2 g	20 mL	133824	01/08/14 10:30	JAB	TAL NSH
Total/NA	Analysis	Nitrogen,Org		1			134085	01/09/14 12:26	SOG	TAL NSH

Client Sample ID: #4 DRY SLUDGE

Lab Sample ID: 280-50177-4

Date Collected: 12/10/13 13:00
Date Received: 12/11/13 10:00

Matrix: Solid
Percent Solids: 74.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.03 g	100 mL	205022	12/13/13 07:30	WAW	TAL DEN
Total/NA	Analysis	6010B		1	1.03 g	100 mL	205382	12/13/13 22:00	JKH	TAL DEN
Total/NA	Prep	7471A			.59 g	50 mL	205342	12/16/13 09:30	CRR	TAL DEN
Total/NA	Analysis	7471A		10	.59 g	50 mL	205450	12/16/13 12:51	CRR	TAL DEN
Total/NA	Analysis	6010B		5	1.03 g	100 mL	205504	12/16/13 15:17	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			204979	12/12/13 10:06	JLH	TAL DEN
Soluble	Leach	DI Leach			40.69 g	40 mL	205734	12/18/13 11:30	MRB	TAL DEN
Soluble	Analysis	9045C		1			205764	12/18/13 13:39	MRB	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	206571	12/24/13 12:35	DVA	TAL DEN
Soluble	Analysis	353.2		20			206693	12/24/13 16:41	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.00 g	50 mL	130912	12/21/13 16:00	SJF	TAL NSH
Total/NA	Analysis	350.1		1	1.00 g	50 mL	131387	12/23/13 14:16	SAB	TAL NSH
Total/NA	Prep	351.2			0.2 g	20 mL	133693	01/07/14 15:07	REM	TAL NSH
Total/NA	Analysis	351.2		20	0.2 g	20 mL	133824	01/08/14 10:30	JAB	TAL NSH
Total/NA	Analysis	Nitrogen,Org		1			134085	01/09/14 12:26	SOG	TAL NSH

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Sampling Records
From: Cheyenne BOPU) Dry Creek WRF; To Test America.

[] Dates and time of samples collected

[] Sampling locations documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operators at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids of dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody record

Date: 12-10-13] Time: 1:35] [] AM [] PM

Page 2

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories date and time of sample analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] Analyses and calculation results properly documented or verifiable

[] All analyses are reported on dry weight basis

[] Contract Laboratory:
Test America Laboratory, Inc.
Shipping: 4955 Yarrow Street
Arvada, CO 80002.
Dilea Griego
Project Manager
Direct ph #: 303-736-0173
DiLea.Griego@testamericanic.com
Quote # 28005066
Billing: Test America Denver
4955 Yarrow Street
Arvada, CO 80002
Ph: 303-736-0100
Fax: 303-431-7171
Joy Chang
Project Manager
4955 Yarrow Street
Arvada, CO 80002
Cel: 623-209-9961
Joy.Chang@testamericanic.com

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 12-10-13]Time: 1:35] [] AM [] PM

Page 3

Sample Containers
From (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories

No. 1 Raw Sludge Containers:
4 Glass Container 16 oz.

No. 2 Primary Digester Sludge Containers
2 Glass Container 8 oz.

No. 3 Secondary Digester Containers:
2 Glass Container 8 oz.

No. 4 Dry Sludge Containers
2 Glass Container 8 oz.

5. Cooling with 2 gallon plastic bags for ice.

6. Chain of Custody Record and Labels that stick onto the jars.

7. 1 Cooler (21 inches long) X (14 inches wide) X (11 to 12 inches high.

Date: 12-10-13 **] Time:** 1:35 **] [] AM [] PM**

Page 4

List of Analysis Required for
Biosolids (Class A or B Program

The following listed analysis is required for wastewater # 1. Raw Sludge:

Analysis	=	Units
Agronomic Properties		
Ammonia as N, KCL Extract	=	% Dry
Nitrogen, Organic	=	Cal.
Total Kjeldahl Nitrogen	=	% Dry
Phosphorus as P	=	%Dry
Physical Properties		
Corrosivity- pH	=	Units
Moisture	=	%
Metals		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance on all (QA/QC program and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Date: 12-10-13 **] Time:** 1:35 **] [] AM [] PM**

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List of Analysis Required for
Biosolids (Class A or B) Program

The following listed analyses are required for #2. Primary Digester Sludge, # 3. Secondary Digester Sludge and; # 4. Dry Sludge:

Agronomic Properties		Units
Ammonia as N, KCL Extract	=	% Dry
Nitrogen Organic	=	Cal.
Total kjedahl Nitrogen	=	% Dry
Phosphorus as P	=	% Dry
Physical Properties		
Corrsivity - pH	=	Units
Moisture	=	%
Metals - Total		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry
*Polychlorinated	Biphenyls	(PCB's)
Aroclor - 1016	To be tested 2017	Mg/kg
Aroclar - 1221	To be tested 2017	Mg/kg
Aroclar - 1232	To be tested 2017	Mg/kg
Aroclar - 1242	To be tested 2017	Mg/kg
Aroclar - 1248	To be tested 2017	Mg/kg
Aroclar - 1254	To be tested 2017	Mg/kg
Aroclar - 1260	To be tested 2017	Mg/kg

***PCB's for dry sludge need to be tested in the year 2017.**

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance (QA/QC) program on all analysis and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Zone: Dry Sludge Zone E.

Date: 12-10-13 **]Time:** 1:35 **] [] AM [] PM**

Page 6

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007

Samples Collected by: Chet Barkell [**Date/Time:** 12-10-13/ 1:35pm

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories, Inc.

Address: 4955 Yarrow St.

City: Arvada] **State:** CO] **Zip Code:** 80002]

~~**Name of Analyst:**~~ Project Manager - DiLea Griego.

This Certification is signed by: DiLea Griego.

Date: 1/10/14]**Time:** 10:36] [X]AM []PM

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Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-50177-1

Login Number: 50177
List Number: 1
Creator: Dedio, Michael T

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-50177-1

Login Number: 50177
List Number: 1
Creator: Ford, Easton

List Source: TestAmerica Nashville
List Creation: 12/19/13 11:14 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Denver
4955 Yarrow Street

Arvada, CO 80002
phone 303.736 0100 fax 303.

280-50177 Chain of Custody

27 JK
2R4
12-11-13

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Chet Barkell	Same	12/10/2013
Dry Creek WRF	307-637-0865. Fax. 307-635-6833	Lab Contact:	FedEx or UPS
8911 Campstool RD	Analysis Turnaround Time		
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____		
307-637-0865	TAT if different from Below _____		
307-635-68833	☐ 2 weeks		
Biosolids	☐ 1 week		
Dry Creek WRF	☐ 2 days		
	☐ 1 day		

COC No: _____ of _____ COCs

Job No.

SDG No.

ID # WYSL-22934/Permit # WYG-650002

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Ammonia	Nitrogen Organic	Total Kjeldahl Nitrogen	Phosphorous as P	Ph	Mercury	Potassium	Nitrate & Nitrite
#1 Raw sludge	12/10/13	1:00 PM	Liquid	Sludge			X	X	X	X	X	X	X	X
# 2 Primary Digester	12/10/13	1:00 PM	Liquid	Sludge			X	X	X	X	X	X	X	X
# 3 Secondary Digester	12/10/13	1:00 PM	Liquid	Sludge			X	X	X	X	X	X	X	X
# 4 Dry sludge	12/10/13	1:00 PM	Dry	Sludge			X	X	X	X	X	X	X	X

Zone E

Test Nitrogen organic on dry Sludge

all the time

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Attn. Project Manager. Dilea Griego

Relinquished by: Chet Barkell Chet Barkell	Company: BOPU	Date/Time:12-10-2013/ 1:35pm	Received by:	Company. TAO	Date/Time: 12/11/13 1000
Relinquished by:	Company:	Date/Time	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company	Date/Time.

1/10/2014

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-47978-1
Client Project/Site: Biosolids Dry Creek WRF
Revision: 1

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Chet Barkell

Authorized for release by:
11/7/2013 9:15:50 AM

DiLea Griego, Project Manager I
(303)736-0173
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-47978-1

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Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: Cheyenne Board of Public Utilities
Project: Biosolids Dry Creek WRF
Report Number: 280-47978-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 10/16/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 5.9 C.

TOTAL METALS - METHOD 6010B/7471A
Sample #4 DRY SLUDGE (280-47978-4)[10X] required dilution prior to analysis for Phosphorus due to elevated levels. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-47978-4)[5X] required dilution prior to analysis for Mercury due to elevated levels. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-196930 were performed on a sample from another job and the MS exhibited recoveries outside control limits for Mercury. The MS/MSD also exhibited RPD values outside control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

GENERAL CHEMISTRY
Samples #1 RAW SLUDGE (280-47978-1)[20X], #2 PRIMARY DIGESTER (280-47978-2)[20X] and #4 DRY SLUDGE (280-47978-4)[20X] required dilution prior to analysis for Ammonia due to elevated levels. The reporting limits have been adjusted accordingly.

Samples #1 RAW SLUDGE (280-47978-1)[2X], #2 PRIMARY DIGESTER (280-47978-2)[5X], #3 SECONDRY DIGESTER (280-47978-3)[5X] and #4 DRY SLUDGE (280-47978-4)[10X] required dilution prior to analysis for TKN due to elevated levels. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-47978-4)[50X] required dilution prior to analysis for Nitrate Nitrite as N due to elevated levels. The reporting limits have been adjusted accordingly.

Nitrogen, Kjeldahl was detected in method blank MB 280-197422/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-197727 were performed on #1 RAW SLUDGE (280-47978-1) and exhibited recoveries and RPD values outside control limits for Ammonia. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-198432 were performed on #4 DRY

Job ID: 280-47978-1 (Continued)

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Laboratory: TestAmerica Denver (Continued)

SLUDGE (280-47978-4) and exhibited recoveries outside control limits for a TKN. The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-197495 were performed on #4 DRY SLUDGE (280-47978-4) and exhibited recoveries outside control limits for Nitrate Nitrite as N. The presence of the '4' qualifier in the data indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

REVISION

Per client request, the answer to "Is the Field Sampler's name present on CoC" was changed to "True".

Qualifiers

Metals

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F	MS/MSD Recovery and/or RPD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

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Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-47978-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	9300		7200	39	mg/Kg	1	☼	6010B	Total/NA
Potassium	2800	J	7200	990	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.7		0.42	0.14	mg/Kg	1	☼	7471A	Total/NA
Ammonia	32000		14000	6000	mg/Kg	20	☼	350.1	Total/NA
Nitrogen, Kjeldahl	23000	B	3600	870	mg/Kg	2	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.43		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-47978-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	29000		12000	62	mg/Kg	1	☼	6010B	Total/NA
Potassium	8500	J	12000	1600	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.7		0.72	0.23	mg/Kg	1	☼	7471A	Total/NA
Ammonia	94000		20000	8400	mg/Kg	20	☼	350.1	Total/NA
Nitrogen, Kjeldahl	87000	B	11000	2600	mg/Kg	5	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.81		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #3 SECONDRY DIGESTER — Lab Sample ID: 280-47978-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	29000		12000	66	mg/Kg	1	☼	6010B	Total/NA
Potassium	8000	J	12000	1700	mg/Kg	1	☼	6010B	Total/NA
Mercury	3.7		0.67	0.22	mg/Kg	1	☼	7471A	Total/NA
Ammonia	2700		1100	460	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	89000	B	13000	3100	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	86000		220	93	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.86		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #4 DRY SLUDGE — Lab Sample ID: 280-47978-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	13000		4000	22	mg/Kg	10	☼	6010B	Total/NA
Potassium	1900		400	55	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.5		0.11	0.035	mg/Kg	5	☼	7471A	Total/NA
Ammonia	800		730	300	mg/Kg	20	☼	350.1	Total/NA
Nitrogen, Kjeldahl	7700	B	840	200	mg/Kg	10	☼	351.2	Total/NA
Nitrogen, Organic	6900		7.2	3.0	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Nitrate Nitrite as N	2700		72	26	mg/Kg	50	☼	353.2	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	4.96		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
350.1	Nitrogen, Ammonia	MCAWW	TAL DEN
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
Nitrogen,Org	Nitrogen, Organic	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-47978-1	#1 RAW SLUDGE	Solid	10/15/13 13:00	10/16/13 09:30
280-47978-2	#2 PRIMARY DIGESTER	Solid	10/15/13 13:00	10/16/13 09:30
280-47978-3	#3 SECONDRY DIGESTER	Solid	10/15/13 13:00	10/16/13 09:30
280-47978-4	#4 DRY SLUDGE	Solid	10/15/13 13:00	10/16/13 09:30

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Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Method: 6010B - Metals (ICP)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-47978-1**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 3.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	9300		7200	39	mg/Kg	☼	10/18/13 07:45	10/18/13 16:24	1
Potassium	2800	J	7200	990	mg/Kg	☼	10/18/13 07:45	10/18/13 16:24	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-47978-2**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	29000		12000	62	mg/Kg	☼	10/18/13 07:45	10/18/13 16:26	1
Potassium	8500	J	12000	1600	mg/Kg	☼	10/18/13 07:45	10/18/13 16:26	1

Client Sample ID: #3 SECONDRY DIGESTER — **Lab Sample ID: 280-47978-3**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	29000		12000	66	mg/Kg	☼	10/18/13 07:45	10/18/13 16:28	1
Potassium	8000	J	12000	1700	mg/Kg	☼	10/18/13 07:45	10/18/13 16:28	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-47978-4**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 69.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	13000		4000	22	mg/Kg	☼	10/18/13 07:45	10/21/13 16:37	10
Potassium	1900		400	55	mg/Kg	☼	10/18/13 07:45	10/18/13 16:31	1

Method: 7471A - Mercury (CVAA)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-47978-1**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 3.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.7		0.42	0.14	mg/Kg	☼	10/18/13 09:00	10/18/13 20:05	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-47978-2**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.7		0.72	0.23	mg/Kg	☼	10/18/13 09:00	10/18/13 20:07	1

Client Sample ID: #3 SECONDRY DIGESTER — **Lab Sample ID: 280-47978-3**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.7		0.67	0.22	mg/Kg	☼	10/18/13 09:00	10/18/13 20:09	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-47978-4**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 69.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.5		0.11	0.035	mg/Kg	☼	10/18/13 09:00	10/18/13 20:36	5

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

General Chemistry

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-47978-1**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 3.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	32000		14000	6000	mg/Kg	☼	10/19/13 13:06	10/25/13 00:09	20
Nitrogen, Kjeldahl	23000	B	3600	870	mg/Kg	☼	10/23/13 14:17	10/29/13 11:54	2
Nitrogen, Organic	ND		140	60	mg/Kg	☼		10/30/13 10:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	97		0.10	0.10	%			10/18/13 12:52	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-47978-2**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	94000		20000	8400	mg/Kg	☼	10/19/13 13:06	10/25/13 00:15	20
Nitrogen, Kjeldahl	87000	B	11000	2600	mg/Kg	☼	10/23/13 14:17	10/29/13 11:55	5
Nitrogen, Organic	ND		200	84	mg/Kg	☼		10/30/13 10:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			10/18/13 12:52	1

Client Sample ID: #3 SECONDRY DIGESTER — **Lab Sample ID: 280-47978-3**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	2700		1100	460	mg/Kg	☼	10/19/13 13:06	10/25/13 00:13	1
Nitrogen, Kjeldahl	89000	B	13000	3100	mg/Kg	☼	10/23/13 14:17	10/29/13 11:59	5
Nitrogen, Organic	86000		220	93	mg/Kg	☼		10/30/13 10:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			10/18/13 12:52	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-47978-4**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 69.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	800		730	300	mg/Kg	☼	10/19/13 13:06	10/25/13 00:16	20
Nitrogen, Kjeldahl	7700	B	840	200	mg/Kg	☼	10/23/13 14:17	10/29/13 11:50	10
Nitrogen, Organic	6900		7.2	3.0	mg/Kg	☼		10/30/13 10:26	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	31		0.10	0.10	%			10/18/13 12:52	1

General Chemistry - Soluble

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-47978-1**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 3.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		28	10	mg/Kg	☼		10/23/13 20:02	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.43		0.100	0.100	SU			10/17/13 13:37	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

General Chemistry - Soluble

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-47978-2**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		40	14	mg/Kg	☼		10/23/13 20:05	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.81		0.100	0.100	SU			10/17/13 13:37	1

Client Sample ID: #3 SECONDRY DIGESTER — **Lab Sample ID: 280-47978-3**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		45	16	mg/Kg	☼		10/23/13 20:03	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.86		0.100	0.100	SU			10/17/13 13:37	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-47978-4**
Date Collected: 10/15/13 13:00 — **Matrix: Solid**
Date Received: 10/16/13 09:30 — **Percent Solids: 69.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2700		72	26	mg/Kg	☼		10/23/13 20:38	50

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	4.96		0.100	0.100	SU			10/17/13 13:37	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-196415/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196909 — **Prep Batch: 196415**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		300	1.6	mg/Kg		10/18/13 07:45	10/18/13 15:53	1
Potassium	ND		300	41	mg/Kg		10/18/13 07:45	10/18/13 15:53	1

Lab Sample ID: LCS 280-196415/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196909 — **Prep Batch: 196415**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	1060		mg/Kg		106	80 - 112
Potassium	5000	5080		mg/Kg		102	89 - 110

Lab Sample ID: 280-47954-A-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196909 — **Prep Batch: 196415**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	620		1210	1640		mg/Kg	☼	84	75 - 125
Potassium	1300		6050	6750		mg/Kg	☼	90	56 - 172

Lab Sample ID: 280-47954-A-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196909 — **Prep Batch: 196415**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	620		1180	1650		mg/Kg	☼	87	75 - 125	0	20
Potassium	1300		5890	6710		mg/Kg	☼	92	56 - 172	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-196421/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196930 — **Prep Batch: 196421**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		10/18/13 09:00	10/18/13 19:42	1

Lab Sample ID: LCS 280-196421/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196930 — **Prep Batch: 196421**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.401		mg/Kg		96	87 - 111

Lab Sample ID: 280-47851-A-2-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196930 — **Prep Batch: 196421**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.030		0.579	0.843	F	mg/Kg	☼	140	87 - 111

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-47851-A-2-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196930 — **Prep Batch: 196421**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.030		0.579	0.588	F	mg/Kg	☼	96	87 - 111	36	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-196801/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197727 — **Prep Batch: 196801**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		5.0	2.1	mg/Kg		10/19/13 13:06	10/25/13 00:04	1

Lab Sample ID: LCS 280-196801/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197727 — **Prep Batch: 196801**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	96.6	94.1		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 280-196801/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197727 — **Prep Batch: 196801**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	99.7	99.6		mg/Kg		100	90 - 110	6	10

Lab Sample ID: 280-47978-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197727 — **Prep Batch: 196801**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	32000		14300	18400	F	mg/Kg	☼	-97	90 - 110

Lab Sample ID: 280-47978-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197727 — **Prep Batch: 196801**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	32000		14300	16500	F	mg/Kg	☼	-110	90 - 110	11	10

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-197422/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 198432 — **Prep Batch: 197422**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	15.5	J	50	12	mg/Kg		10/23/13 14:17	10/29/13 11:31	1

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: LCS 280-197422/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 198432 — **Prep Batch: 197422**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	300	314		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 280-197422/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 198432 — **Prep Batch: 197422**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	300	316		mg/Kg		105	90 - 110	1	30

Lab Sample ID: 280-47978-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 198432 — **Prep Batch: 197422**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	7700	B	236	7720	4	mg/Kg	☼	1	90 - 110

Lab Sample ID: 280-47978-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 198432 — **Prep Batch: 197422**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	7700	B	242	7930	4	mg/Kg	☼	85	90 - 110	3	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MRL 280-197495/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 197495

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.100	0.0860	J	mg/L		86	50 - 150

Lab Sample ID: MB 280-197288/3-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 197495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		1.0	0.36	mg/Kg			10/23/13 19:53	1

Lab Sample ID: LCS 280-197288/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 197495

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	49.5	52.2		mg/Kg		106	90 - 110

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCSD 280-197288/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 197495

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	49.5	51.7		mg/Kg		104	90 - 110	1	10

Lab Sample ID: 280-47978-B-4-G MS — **Client Sample ID: 280-47978-B-4-G MS**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 197495

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	3600		56.8	2690	4	mg/Kg	☼	-1572	90 - 110

Lab Sample ID: 280-47978-B-4-H MSD — **Client Sample ID: 280-47978-B-4-H MSD**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 197495

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	3600		56.8	2640	4	mg/Kg	☼	-1670	90 - 110	2	10

Method: 9045C - pH

Lab Sample ID: LCS 280-196471/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196471

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.020		SU		100	97 - 103

Lab Sample ID: LCSD 280-196471/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196471

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103	0	5

Lab Sample ID: 280-47927-A-1-B DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 196471

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	6.17		6.130		SU		0.7	5

Method: Moisture - Percent Moisture

Lab Sample ID: 280-47927-A-5 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 196669

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	1.9		1.6		%		18	20

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Method: Nitrogen,Org - Nitrogen, Organic

Lab Sample ID: MB 280-198473/1
Matrix: Solid
Analysis Batch: 198473

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Organic	ND		5.0	2.1	mg/Kg			10/30/13 10:26	1

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QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Metals

Prep Batch: 196415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47954-A-1-B MS	Matrix Spike	Total/NA	Solid	3050B	
280-47954-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	3050B	
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	3050B	
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	3050B	
LCS 280-196415/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 280-196415/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 196421

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47851-A-2-H MS	Matrix Spike	Total/NA	Solid	7471A	
280-47851-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	7471A	
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	
LCS 280-196421/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 280-196421/1-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 196909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47954-A-1-B MS	Matrix Spike	Total/NA	Solid	6010B	196415
280-47954-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	196415
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	6010B	196415
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	6010B	196415
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	6010B	196415
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	196415
LCS 280-196415/2-A	Lab Control Sample	Total/NA	Solid	6010B	196415
MB 280-196415/1-A	Method Blank	Total/NA	Solid	6010B	196415

Analysis Batch: 196930

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47851-A-2-H MS	Matrix Spike	Total/NA	Solid	7471A	196421
280-47851-A-2-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	196421
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	196421
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	196421
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	7471A	196421
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	196421
LCS 280-196421/2-A	Lab Control Sample	Total/NA	Solid	7471A	196421
MB 280-196421/1-A	Method Blank	Total/NA	Solid	7471A	196421

Analysis Batch: 197122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	196415

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

General Chemistry

Leach Batch: 196442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47927-A-1-B DU	Duplicate	Soluble	Solid	DI Leach	
280-47978-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-47978-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-47978-3	#3 SECONDRY DIGESTER	Soluble	Solid	DI Leach	
280-47978-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 196471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47927-A-1-B DU	Duplicate	Soluble	Solid	9045C	196442
280-47978-1	#1 RAW SLUDGE	Soluble	Solid	9045C	196442
280-47978-2	#2 PRIMARY DIGESTER	Soluble	Solid	9045C	196442
280-47978-3	#3 SECONDRY DIGESTER	Soluble	Solid	9045C	196442
280-47978-4	#4 DRY SLUDGE	Soluble	Solid	9045C	196442
LCS 280-196471/4	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-196471/5	Lab Control Sample Dup	Total/NA	Solid	9045C	

Analysis Batch: 196669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47927-A-5 DU	Duplicate	Total/NA	Solid	Moisture	
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	Moisture	
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Moisture	
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	Moisture	
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	Moisture	

Prep Batch: 196801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-47978-1 MS	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-47978-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
LCS 280-196801/2-A	Lab Control Sample	Total/NA	Solid	Distill/Ammonia	
LCSD 280-196801/3-A	Lab Control Sample Dup	Total/NA	Solid	Distill/Ammonia	
MB 280-196801/1-A	Method Blank	Total/NA	Solid	Distill/Ammonia	

Leach Batch: 197288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-47978-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-47978-3	#3 SECONDRY DIGESTER	Soluble	Solid	DI Leach	
280-47978-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
280-47978-B-4-G MS	280-47978-B-4-G MS	Soluble	Solid	DI Leach	
280-47978-B-4-H MSD	280-47978-B-4-H MSD	Soluble	Solid	DI Leach	
LCS 280-197288/1-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-197288/2-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 280-197288/3-A	Method Blank	Soluble	Solid	DI Leach	

Prep Batch: 197422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	

General Chemistry (Continued)

Prep Batch: 197422 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	351.2	
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-47978-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-47978-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	
LCS 280-197422/2-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 280-197422/3-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
MB 280-197422/1-A	Method Blank	Total/NA	Solid	351.2	

Analysis Batch: 197495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Soluble	Solid	353.2	197288
280-47978-2	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	197288
280-47978-3	#3 SECONDRY DIGESTER	Soluble	Solid	353.2	197288
280-47978-4	#4 DRY SLUDGE	Soluble	Solid	353.2	197288
280-47978-B-4-G MS	280-47978-B-4-G MS	Soluble	Solid	353.2	197288
280-47978-B-4-H MSD	280-47978-B-4-H MSD	Soluble	Solid	353.2	197288
LCS 280-197288/1-A	Lab Control Sample	Soluble	Solid	353.2	197288
LCSD 280-197288/2-A	Lab Control Sample Dup	Soluble	Solid	353.2	197288
MB 280-197288/3-A	Method Blank	Soluble	Solid	353.2	197288
MRL 280-197495/18 MRL	Lab Control Sample	Total/NA	Solid	353.2	

Analysis Batch: 197727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	350.1	196801
280-47978-1 MS	#1 RAW SLUDGE	Total/NA	Solid	350.1	196801
280-47978-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	350.1	196801
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	350.1	196801
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	350.1	196801
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	350.1	196801
LCS 280-196801/2-A	Lab Control Sample	Total/NA	Solid	350.1	196801
LCSD 280-196801/3-A	Lab Control Sample Dup	Total/NA	Solid	350.1	196801
MB 280-196801/1-A	Method Blank	Total/NA	Solid	350.1	196801

Analysis Batch: 198432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	197422
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	197422
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	351.2	197422
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	197422
280-47978-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	197422
280-47978-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	197422
LCS 280-197422/2-A	Lab Control Sample	Total/NA	Solid	351.2	197422
LCSD 280-197422/3-A	Lab Control Sample Dup	Total/NA	Solid	351.2	197422
MB 280-197422/1-A	Method Blank	Total/NA	Solid	351.2	197422

Analysis Batch: 198473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-1	#1 RAW SLUDGE	Total/NA	Solid	Nitrogen,Org	
280-47978-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-47978-3	#3 SECONDRY DIGESTER	Total/NA	Solid	Nitrogen,Org	

General Chemistry (Continued)

Analysis Batch: 198473 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-47978-4	#4 DRY SLUDGE	Total/NA	Solid	Nitrogen,Org	
MB 280-198473/1	Method Blank	Total/NA	Solid	Nitrogen,Org	

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Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Client Sample ID: #1 RAW SLUDGE

Lab Sample ID: 280-47978-1
Date Collected: 10/15/13 13:00
Matrix: Solid
Date Received: 10/16/13 09:30
Percent Solids: 3.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.20 g	100 mL	196415	10/18/13 07:45	JAM	TAL DEN
Total/NA	Analysis	6010B		1	1.20 g	100 mL	196909	10/18/13 16:24	SJS	TAL DEN
Total/NA	Prep	7471A			.71 g	50 mL	196421	10/18/13 09:00	CRR	TAL DEN
Total/NA	Analysis	7471A		1	.71 g	50 mL	196930	10/18/13 20:05	JM	TAL DEN
Soluble	Leach	DI Leach			40.27 g	40 mL	196442	10/17/13 12:18	SUR	TAL DEN
Soluble	Analysis	9045C		1			196471	10/17/13 13:37	SUR	TAL DEN
Total/NA	Analysis	Moisture		1			196669	10/18/13 12:52	JM	TAL DEN
Soluble	Leach	DI Leach			10.3 g	100 mL	197288	10/22/13 19:46	DVA	TAL DEN
Soluble	Analysis	353.2		1			197495	10/23/13 20:02	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.00 g	200.0 mL	196801	10/19/13 13:06	DVA	TAL DEN
Total/NA	Analysis	350.1		20	2.00 g	200.0 mL	197727	10/25/13 00:09	DVA	TAL DEN
Total/NA	Prep	351.2			0.40 g	25 mL	197422	10/23/13 14:17	SMG	TAL DEN
Total/NA	Analysis	351.2		2	0.40 g	25 mL	198432	10/29/13 11:54	SMG	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			198473	10/30/13 10:26	RKS	TAL DEN

Client Sample ID: #2 PRIMARY DIGESTER

Lab Sample ID: 280-47978-2
Date Collected: 10/15/13 13:00
Matrix: Solid
Date Received: 10/16/13 09:30
Percent Solids: 2.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.05 g	100 mL	196415	10/18/13 07:45	JAM	TAL DEN
Total/NA	Analysis	6010B		1	1.05 g	100 mL	196909	10/18/13 16:26	SJS	TAL DEN
Total/NA	Prep	7471A			.57 g	50 mL	196421	10/18/13 09:00	CRR	TAL DEN
Total/NA	Analysis	7471A		1	.57 g	50 mL	196930	10/18/13 20:07	JM	TAL DEN
Soluble	Leach	DI Leach			40.19 g	40 mL	196442	10/17/13 12:18	SUR	TAL DEN
Soluble	Analysis	9045C		1			196471	10/17/13 13:37	SUR	TAL DEN
Total/NA	Analysis	Moisture		1			196669	10/18/13 12:52	JM	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	197288	10/22/13 19:46	DVA	TAL DEN
Soluble	Analysis	353.2		1			197495	10/23/13 20:05	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.00 g	200.0 mL	196801	10/19/13 13:06	DVA	TAL DEN
Total/NA	Analysis	350.1		20	2.00 g	200.0 mL	197727	10/25/13 00:15	DVA	TAL DEN
Total/NA	Prep	351.2			0.47 g	25 mL	197422	10/23/13 14:17	SMG	TAL DEN
Total/NA	Analysis	351.2		5	0.47 g	25 mL	198432	10/29/13 11:55	SMG	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			198473	10/30/13 10:26	RKS	TAL DEN

Client Sample ID: #3 SECONDRY DIGESTER

Lab Sample ID: 280-47978-3
Date Collected: 10/15/13 13:00
Matrix: Solid
Date Received: 10/16/13 09:30
Percent Solids: 2.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.10 g	100 mL	196415	10/18/13 07:45	JAM	TAL DEN
Total/NA	Analysis	6010B		1	1.10 g	100 mL	196909	10/18/13 16:28	SJS	TAL DEN
Total/NA	Prep	7471A			.68 g	50 mL	196421	10/18/13 09:00	CRR	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids Dry Creek WRF

TestAmerica Job ID: 280-47978-1

Client Sample ID: #3 SECONDRY DIGESTER

Lab Sample ID: 280-47978-3

Date Collected: 10/15/13 13:00
Matrix: Solid
Date Received: 10/16/13 09:30
Percent Solids: 2.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471A		1	.68 g	50 mL	196930	10/18/13 20:09	JM	TAL DEN
Soluble	Leach	DI Leach			40.13 g	40 mL	196442	10/17/13 12:18	SUR	TAL DEN
Soluble	Analysis	9045C		1			196471	10/17/13 13:37	SUR	TAL DEN
Total/NA	Analysis	Moisture		1			196669	10/18/13 12:52	JM	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	197288	10/22/13 19:46	DVA	TAL DEN
Soluble	Analysis	353.2		1			197495	10/23/13 20:03	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.01 g	200.0 mL	196801	10/19/13 13:06	DVA	TAL DEN
Total/NA	Analysis	350.1		1	2.01 g	200.0 mL	197727	10/25/13 00:13	DVA	TAL DEN
Total/NA	Prep	351.2			0.43 g	25 mL	197422	10/23/13 14:17	SMG	TAL DEN
Total/NA	Analysis	351.2		5	0.43 g	25 mL	198432	10/29/13 11:59	SMG	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			198473	10/30/13 10:26	RKS	TAL DEN

Client Sample ID: #4 DRY SLUDGE

Lab Sample ID: 280-47978-4

Date Collected: 10/15/13 13:00
Matrix: Solid
Date Received: 10/16/13 09:30
Percent Solids: 69.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.08 g	100 mL	196415	10/18/13 07:45	JAM	TAL DEN
Total/NA	Analysis	6010B		1	1.08 g	100 mL	196909	10/18/13 16:31	SJS	TAL DEN
Total/NA	Prep	7471A			.68 g	50 mL	196421	10/18/13 09:00	CRR	TAL DEN
Total/NA	Analysis	7471A		5	.68 g	50 mL	196930	10/18/13 20:36	JM	TAL DEN
Total/NA	Analysis	6010B		10	1.08 g	100 mL	197122	10/21/13 16:37	SJS	TAL DEN
Soluble	Leach	DI Leach			39.96 g	40 mL	196442	10/17/13 12:18	SUR	TAL DEN
Soluble	Analysis	9045C		1			196471	10/17/13 13:37	SUR	TAL DEN
Total/NA	Analysis	Moisture		1			196669	10/18/13 12:52	JM	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100 mL	197288	10/22/13 19:46	DVA	TAL DEN
Soluble	Analysis	353.2		50			197495	10/23/13 20:38	DVA	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.99 g	200.0 mL	196801	10/19/13 13:06	DVA	TAL DEN
Total/NA	Analysis	350.1		20	1.99 g	200.0 mL	197727	10/25/13 00:16	DVA	TAL DEN
Total/NA	Prep	351.2			0.43 g	25 mL	197422	10/23/13 14:17	SMG	TAL DEN
Total/NA	Analysis	351.2		10	0.43 g	25 mL	198432	10/29/13 11:50	SMG	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			198473	10/30/13 10:26	RKS	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-47978-1

Login Number: 47978
List Number: 1
Creator: Dedio, Michael T

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Test America Denver

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 10-15-13 **] Time:** 1:30 **] [] AM [] PM**

Page 1

Sampling Records
From: Cheyenne BOPU) Dry Creek WRF; To Test America.

[] Dates and time of samples collected

[] Sampling locations documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction
2. Vector attraction reduction operators at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids of dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody record

Date: 10-15-13] Time: 1:30] [] AM [] PM

Page 2

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories date and time of sample analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] Analyses and calculation results properly documented or verifiable

[] All analyses are reported on dry weight basis

[] Contract Laboratory:
Test America Laboratory, Inc.
Shipping: 4955 Yarrow Street
Arvada, CO 80002.
Dilea Griego
Project Manager
Direct ph #: 303-736-0173
DiLea.Griego@testamericanic.com
Quote # 28005066
Billing: Test America Denver
4955 Yarrow Street
Arvada, CO 80002
Ph: 303-736-0100
Fax: 303-431-7171
Joy Chang
Project Manager
4955 Yarrow Street
Arvada, CO 80002
Cel: 623-209-9961
Joy.Chang@testamericanic.com

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 10-15-13 Time: 1:30 [] AM [] PM

Page 3

Sample Containers
From (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories

No. 1 Raw Sludge Containers:
4 Glass Container 16 oz.

No. 2 Primary Digester Sludge Containers
2 Glass Container 8 oz.

No. 3 Secondary Digester Containers:
2 Glass Container 8 oz.

No. 4 Dry Sludge Containers
2 Glass Container 8 oz.

5. Cooling with 2 gallon plastic bags for ice.

6. Chain of Custody Record and Labels that stick onto the jars.

7. 1 Cooler (21 inches long) X (14 inches wide) X (11 to 12 inches high.

Date: 10-15-13 **] Time:** 1130 **] [] AM [] PM**

Page 4

List of Analysis Required for
Biosolids (Class A or B Program

The following listed analysis is required for wastewater # 1. Raw Sludge:

Analysis	=	Units
Agronomic Properties		
Ammonia as N, KCL Extract	=	% Dry
Nitrogen, Organic	=	Cal.
Total Kjeldahl Nitrogen	=	% Dry
Phosphorus as P	=	%Dry
Physical Properties		
Corrosivity- pH	=	Units
Moisture	=	%
Metals		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance on all (QA/QC program and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Date: 10-15-13 **] Time:** 1:30 **] [] AM [] PM**

Page 5

List of Analysis Required for
Biosolids (Class A or B) Program

The following listed analyses are required for #2. Primary Digester Sludge, # 3. Secondary Digester Sludge and; # 4. Dry Sludge:

Agronomic Properties		Units
Ammonia as N, KCL Extract	=	% Dry
Nitrogen Organic	=	Cal.
Total kjedahl Nitrogen	=	% Dry
Phosphorus as P	=	% Dry
Physical Properties		
Corrsivity - pH	=	Units
Moisture	=	%
Metals - Total		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry
*Polychlorinated	Biphenyls	(PCB's)
Aroclor - 1016	To be tested 2017	Mg/kg
Aroclar - 1221	To be tested 2017	Mg/kg
Aroclar - 1232	To be tested 2017	Mg/kg
Aroclar - 1242	To be tested 2017	Mg/kg
Aroclar - 1248	To be tested 2017	Mg/kg
Aroclar - 1254	To be tested 2017	Mg/kg
Aroclar - 1260	To be tested 2017	Mg/kg

***PCB's for dry sludge need to be tested in the year 2017.**

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance (QA/QC) program on all analysis and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 10-15-13 **]Time:** 1:30 **] [] AM [] PM**

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Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Camp STool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007.

Samples Collected by: Chet Barbell. **[Date/Time:** 10-15-13/1:30 pm

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories, Inc.

Address: 4955 Yarrow St.

City: ~~Deno~~ Arvada] **State:** CO] **Zip Code:** 80002]

~~**Name of Analyst:**~~ Project Manager - Di Len Griego.

This Certification is signed by: Di Len Griego.

Date: 11/6/13]**Time:** 11:55] [X]AM []PM

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Denver
4955 Yarrow Street

Arvada, CO 80002
phone 303 736 0100 fax 303 43

280-47978 Chain of Custody

9 Apr 1R3
10/16

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client		Same	10/15/2013	COC No:
Dry Creek WRF	307-637-0865. Fax. 307-635-6833	Lab Contact:	FedEx or UPS	_____ of _____ COCs
8911 Campstool RD	Analysis Turnaround Time			Job No.
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____			
307-637-0865	TAT if different from Below _____			
307-635-68833	☐ 2 weeks			SDG No.
Biosolids	☐ 1 week			
Dry Creek WRF	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Ammonia	Nitrogen Organic	Total Kjeldahl Nitrogen	Phosphorous as P	Pb	Mercury	Potassium	Nitrate & Nitrite	ID # WYSL-22934/Permit # WYG-650002
#1 Raw sludge	10/15/13	1:00 PM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 2 Primary Digester	10/15/13	1:00 PM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 3 Secondary Digester	10/15/13	1:00 PM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 4 Dry sludge	10/15/13	1:00 PM	Dry	Sludge			X	X	X	X	X	X	X	X	Zone E
															Test Nitrogen organic on dry Sludge
															all the time

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Attn. Project Manager. Dilea Griego

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Chet Barkell Chet Barkell	BOPU	10-15-2013/ 1:30 pm	TGA	TA-Denver	10/16/13 9:30
Relinquished by:	Company.	Date/Time	Received by:	Company:	Date/Time:
Relinquished by:	Company	Date/Time	Received by:	Company:	Date/Time:

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-45777-1
Client Project/Site: Biosolids - Dry Creek WRF

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Natalie Dunn

Authorized for release by:
9/5/2013 10:30:51 AM

DiLea Griego, Project Manager I
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-45777-1

3

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: Cheyenne Board of Public Utilities
Project: Biosolids - Dry Creek WRF
Report Number: 280-45777-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 08/21/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 4.5 C.

TOTAL METALS - METHOD 6010B/7471A
Sample #4 DRY SLUDGE (280-45777-4)[5X] required dilution prior to analysis to bring the concentration of Phosphorus within the calibration range. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-45777-4)[5X] required dilution prior to analysis for Mercury. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-188829 were performed on a sample from another job and the MS exhibited recoveries outside control limits for Mercury. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-189433 were performed on a sample from another job and exhibited recoveries and RPD values outside control limits for Mercury. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

GENERAL CHEMISTRY
Sample #3 SECONDARY DIGESTER (280-45777-3)[20X] required dilution prior to analysis for Ammonia. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-45777-4)[100X] required dilution prior to analysis for Nitrate-Nitrite as N. The reporting limits have been adjusted accordingly.

Samples #1 RAW SLUDGE (280-45777-1)[5X], #2 PRIMARY DIGESTER (280-45777-2)[5X], #3 SECONDARY DIGESTER (280-45777-3) [5X] and #4 DRY SLUDGE (280-45777-4)[10X] required dilution prior to analysis for TKN. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-189636 were performed on #3 SECONDARY DIGESTER (280-45777-3) and exhibited recoveries outside control limits for Ammonia. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-189497 were performed on #4 DRY SLUDGE (280-45777-4) and exhibited recoveries and RPD values outside control limits for TKN. The presence of the '4' qualifier in the

Job ID: 280-45777-1 (Continued)

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Laboratory: TestAmerica Denver (Continued)

report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

Qualifiers

Metals

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
F	MS/MSD Recovery and/or RPD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

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Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-45777-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	12000		8400	45	mg/Kg	1	☼	6010B	Total/NA
Potassium	2400	J	8400	1100	mg/Kg	1	☼	6010B	Total/NA
Mercury	2.5		0.44	0.14	mg/Kg	1	☼	7471A	Total/NA
Ammonia	4800		760	310	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	42000		9600	2300	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	37000		150	64	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	4.92		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-45777-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	33000		13000	69	mg/Kg	1	☼	6010B	Total/NA
Potassium	8900	J	13000	1700	mg/Kg	1	☼	6010B	Total/NA
Mercury	3.0		0.75	0.24	mg/Kg	1	☼	7471A	Total/NA
Ammonia	43000		1100	470	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	74000		13000	3100	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	31000		220	93	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.71		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #3 SECONDARY DIGESTER — Lab Sample ID: 280-45777-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	25000		10000	56	mg/Kg	1	☼	6010B	Total/NA
Potassium	4700	J	10000	1400	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.6		0.58	0.19	mg/Kg	1	☼	7471A	Total/NA
Ammonia	41000		18000	7600	mg/Kg	20	☼	350.1	Total/NA
Nitrogen, Kjeldahl	66000		11000	2600	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	25000		190	77	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.74		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #4 DRY SLUDGE — Lab Sample ID: 280-45777-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	21000		2200	12	mg/Kg	5	☼	6010B	Total/NA
Potassium	2100		450	61	mg/Kg	1	☼	6010B	Total/NA
Mercury	2.1		0.13	0.042	mg/Kg	5	☼	7471A	Total/NA
Ammonia	5300		41	17	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	4500		1000	250	mg/Kg	10	☼	351.2	Total/NA
Nitrate Nitrite as N	2800		1600	48	mg/Kg	100	☼	353.2	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.53		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

Method	Method Description	Protocol	Laboratory
6010B	6010B – Metals (ICP) – Aqueous Matrix	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
350.1	Nitrogen, Ammonia	MCAWW	TAL DEN
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
Nitrogen,Org	Nitrogen, Organic	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-45777-1	#1 RAW SLUDGE	Solid	08/20/13 09:45	08/21/13 17:27
280-45777-2	#2 PRIMARY DIGESTER	Solid	08/20/13 09:45	08/21/13 17:27
280-45777-3	#3 SECONDARY DIGESTER	Solid	08/20/13 09:45	08/21/13 17:27
280-45777-4	#4 DRY SLUDGE	Solid	08/20/13 09:45	08/21/13 17:27

Method: 6010B - 6010B – Metals (ICP) – Aqueous Matrix

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-45777-1**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 3.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	12000		8400	45	mg/Kg	☼	08/26/13 12:00	08/26/13 22:39	1
Potassium	2400	J	8400	1100	mg/Kg	☼	08/26/13 12:00	08/26/13 22:39	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-45777-2**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	33000		13000	69	mg/Kg	☼	08/26/13 12:00	08/26/13 22:42	1
Potassium	8900	J	13000	1700	mg/Kg	☼	08/26/13 12:00	08/26/13 22:42	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-45777-3**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	25000		10000	56	mg/Kg	☼	08/26/13 12:00	08/26/13 22:44	1
Potassium	4700	J	10000	1400	mg/Kg	☼	08/26/13 12:00	08/26/13 22:44	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-45777-4**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 60.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	21000		2200	12	mg/Kg	☼	08/26/13 12:00	08/27/13 09:04	5
Potassium	2100		450	61	mg/Kg	☼	08/26/13 12:00	08/26/13 22:46	1

Method: 7471A - Mercury (CVAA)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-45777-1**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 3.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.5		0.44	0.14	mg/Kg	☼	08/23/13 12:30	08/23/13 16:52	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-45777-2**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.0		0.75	0.24	mg/Kg	☼	08/23/13 12:30	08/23/13 16:54	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-45777-3**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.6		0.58	0.19	mg/Kg	☼	08/23/13 12:30	08/23/13 16:57	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-45777-4**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 60.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.1		0.13	0.042	mg/Kg	☼	08/28/13 12:30	08/28/13 17:27	5

General Chemistry

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-45777-1**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 3.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	4800		760	310	mg/Kg	☼	08/29/13 09:34	08/30/13 12:39	1
Nitrogen, Kjeldahl	42000		9600	2300	mg/Kg	☼	08/28/13 20:52	08/29/13 20:04	5
Nitrogen, Organic	37000		150	64	mg/Kg	☼		08/31/13 09:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	97		0.10	0.10	%			08/22/13 10:58	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-45777-2**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	43000		1100	470	mg/Kg	☼	08/29/13 09:34	08/30/13 17:12	1
Nitrogen, Kjeldahl	74000		13000	3100	mg/Kg	☼	08/28/13 20:52	08/29/13 20:05	5
Nitrogen, Organic	31000		220	93	mg/Kg	☼		08/31/13 09:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			08/22/13 10:58	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-45777-3**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	41000		18000	7600	mg/Kg	☼	08/29/13 09:34	08/30/13 12:57	20
Nitrogen, Kjeldahl	66000		11000	2600	mg/Kg	☼	08/28/13 20:52	08/29/13 20:09	5
Nitrogen, Organic	25000		190	77	mg/Kg	☼		08/31/13 09:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	97		0.10	0.10	%			08/22/13 10:58	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-45777-4**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 60.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	5300		41	17	mg/Kg	☼	08/29/13 09:34	08/30/13 17:14	1
Nitrogen, Kjeldahl	4500		1000	250	mg/Kg	☼	08/28/13 20:52	08/29/13 19:59	10
Nitrogen, Organic	ND		8.2	3.4	mg/Kg	☼		08/31/13 09:34	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	39		0.10	0.10	%			08/22/13 10:58	1

General Chemistry - Soluble

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-45777-1**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 3.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		310	9.2	mg/Kg	☼		08/29/13 13:32	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	4.92		0.100	0.100	SU			08/27/13 12:22	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

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General Chemistry - Soluble

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-45777-2**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.2**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		430	13	mg/Kg	☼		08/29/13 13:33	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.71		0.100	0.100	SU			08/27/13 12:22	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-45777-3**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		360	11	mg/Kg	☼		08/29/13 13:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.74		0.100	0.100	SU			08/27/13 12:22	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-45777-4**
Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 60.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2800		1600	48	mg/Kg	☼		08/29/13 13:39	100

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.53		0.100	0.100	SU			08/27/13 12:22	1

Method: 6010B - 6010B – Metals (ICP) – Aqueous Matrix

Lab Sample ID: MB 280-188652/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188981 — **Prep Batch: 188652**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		300	1.6	mg/Kg		08/26/13 12:00	08/26/13 22:12	1
Potassium	ND		300	41	mg/Kg		08/26/13 12:00	08/26/13 22:12	1

Lab Sample ID: LCS 280-188652/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188981 — **Prep Batch: 188652**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	1010		mg/Kg		101	80 - 112
Potassium	5000	4750		mg/Kg		95	89 - 110

Lab Sample ID: 280-45760-A-2-F MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188981 — **Prep Batch: 188652**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	120	J	1060	998		mg/Kg	☼	83	75 - 125
Potassium	2000		5280	7440		mg/Kg	☼	104	56 - 172

Lab Sample ID: 280-45760-A-2-G MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188981 — **Prep Batch: 188652**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	120	J	1020	958		mg/Kg	☼	82	75 - 125	4	20
Potassium	2000		5090	7210		mg/Kg	☼	103	56 - 172	3	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-188546/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188829 — **Prep Batch: 188546**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		08/23/13 12:30	08/23/13 16:22	1

Lab Sample ID: LCS 280-188546/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188829 — **Prep Batch: 188546**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.403		mg/Kg		97	87 - 111

Lab Sample ID: 280-45753-A-1-H MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188829 — **Prep Batch: 188546**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.027	J	0.792	0.685	F	mg/Kg	☼	83	87 - 111

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-45753-A-1-I MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188829 — **Prep Batch: 188546**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.027	J	0.778	0.775		mg/Kg	☼	96	87 - 111	12	20

Lab Sample ID: MB 280-189199/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189433 — **Prep Batch: 189199**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		08/28/13 12:30	08/28/13 16:42	1

Lab Sample ID: LCS 280-189199/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189433 — **Prep Batch: 189199**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.378		mg/Kg		91	87 - 111

Lab Sample ID: LCSD 280-189199/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189433 — **Prep Batch: 189199**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.417	0.428		mg/Kg		103	87 - 111	12	20

Lab Sample ID: 280-45912-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189433 — **Prep Batch: 189199**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.583	0.483	F	mg/Kg	☼	83	87 - 111

Lab Sample ID: 280-45912-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189433 — **Prep Batch: 189199**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.524	0.283	F	mg/Kg	☼	54	87 - 111	52	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-189374/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189636 — **Prep Batch: 189374**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		5.0	2.1	mg/Kg		08/29/13 09:34	08/30/13 12:21	1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 280-189374/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189636 — **Prep Batch: 189374**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	99.6	102		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 280-189374/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189636 — **Prep Batch: 189374**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	100	103		mg/Kg		102	90 - 110	1	10

Lab Sample ID: 280-45777-3 MS — **Client Sample ID: #3 SECONDARY DIGESTER**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189636 — **Prep Batch: 189374**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	41000		18800	57200	F	mg/Kg	☼	86	90 - 110

Lab Sample ID: 280-45777-3 MSD — **Client Sample ID: #3 SECONDARY DIGESTER**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189636 — **Prep Batch: 189374**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	41000		18600	57400	F	mg/Kg	☼	88	90 - 110	0	10

Lab Sample ID: MRL 280-189636/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189636

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.100	0.108		mg/L		108	

Lab Sample ID: MRL 280-189651/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189651

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.100	0.124		mg/L		124	

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-189314/3-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189497 — **Prep Batch: 189314**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		50	12	mg/Kg		08/28/13 20:52	08/29/13 19:55	1

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: LCS 280-189314/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189497 — **Prep Batch: 189314**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	300	308		mg/Kg		103	90 - 110

Lab Sample ID: LCSD 280-189314/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189497 — **Prep Batch: 189314**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	300	309		mg/Kg		103	90 - 110	0	30

Lab Sample ID: 280-45777-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189497 — **Prep Batch: 189314**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	4500		274	3780	4	mg/Kg	☼	-269	90 - 110

Lab Sample ID: 280-45777-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189497 — **Prep Batch: 189314**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	4500		242	6350	4 F	mg/Kg	☼	758	90 - 110	51	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MRL 280-189453/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189453

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.100	0.0708	J	mg/L		71	50 - 150

Lab Sample ID: MB 280-189408/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 189453

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		10	0.30	mg/Kg			08/29/13 13:18	1

Lab Sample ID: LCS 280-189408/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 189453

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	50.1	55.3		mg/Kg		110	90 - 110

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCSD 280-189408/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 189453

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N			49.0	53.0		mg/Kg		108	90 - 110	4	10

Lab Sample ID: 280-45777-2 MS — **Client Sample ID: #2 PRIMARY DIGESTER**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 189453

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	ND		1790	1830		mg/Kg	☼	102	90 - 110		

Lab Sample ID: 280-45777-2 MSD — **Client Sample ID: #2 PRIMARY DIGESTER**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 189453

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	ND		1790	1830		mg/Kg	☼	102	90 - 110	0	10

Method: 9045C - pH

Lab Sample ID: LCS 280-189034/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189034

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
pH adj. to 25 deg C			7.00	7.010		SU		100	97 - 103		

Lab Sample ID: LCSD 280-189034/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 189034

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C			7.00	7.010		SU		100	97 - 103	0	5

Lab Sample ID: 280-45760-A-1-G DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 189034

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH adj. to 25 deg C	8.08			8.060		SU				1	5

Method: Moisture - Percent Moisture

Lab Sample ID: 280-45779-A-6 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 188336

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	21			21		%				1	20

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

Method: Nitrogen,Org - Nitrogen, Organic

Lab Sample ID: MB 280-189672/5
Matrix: Solid
Analysis Batch: 189672

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Organic	ND		5.0	2.1	mg/Kg			08/31/13 09:36	1

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QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

Metals

Prep Batch: 188546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45753-A-1-H MS	Matrix Spike	Total/NA	Solid	7471A	
280-45753-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	
LCS 280-188546/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 280-188546/1-A	Method Blank	Total/NA	Solid	7471A	

Prep Batch: 188652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45760-A-2-F MS	Matrix Spike	Total/NA	Solid	3050B	
280-45760-A-2-G MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	3050B	
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	3050B	
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	3050B	
LCS 280-188652/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 280-188652/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 188829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45753-A-1-H MS	Matrix Spike	Total/NA	Solid	7471A	188546
280-45753-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	188546
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	188546
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	188546
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	188546
LCS 280-188546/2-A	Lab Control Sample	Total/NA	Solid	7471A	188546
MB 280-188546/1-A	Method Blank	Total/NA	Solid	7471A	188546

Analysis Batch: 188981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45760-A-2-F MS	Matrix Spike	Total/NA	Solid	6010B	188652
280-45760-A-2-G MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	188652
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	6010B	188652
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	6010B	188652
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	6010B	188652
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	188652
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	188652
LCS 280-188652/2-A	Lab Control Sample	Total/NA	Solid	6010B	188652
MB 280-188652/1-A	Method Blank	Total/NA	Solid	6010B	188652

Prep Batch: 189199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	
280-45912-A-1-E MS	Matrix Spike	Total/NA	Solid	7471A	
280-45912-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
LCS 280-189199/2-A	Lab Control Sample	Total/NA	Solid	7471A	
LCSD 280-189199/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	
MB 280-189199/1-A	Method Blank	Total/NA	Solid	7471A	

Metals (Continued)

Analysis Batch: 189433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	189199
280-45912-A-1-E MS	Matrix Spike	Total/NA	Solid	7471A	189199
280-45912-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	189199
LCS 280-189199/2-A	Lab Control Sample	Total/NA	Solid	7471A	189199
LCSD 280-189199/3-A	Lab Control Sample Dup	Total/NA	Solid	7471A	189199
MB 280-189199/1-A	Method Blank	Total/NA	Solid	7471A	189199

General Chemistry

Analysis Batch: 188336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	Moisture	
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Moisture	
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Moisture	
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	Moisture	
280-45779-A-6 DU	Duplicate	Total/NA	Solid	Moisture	

Leach Batch: 188970

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45760-A-1-G DU	Duplicate	Soluble	Solid	DI Leach	
280-45777-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-45777-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-45777-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-45777-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 189034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45760-A-1-G DU	Duplicate	Soluble	Solid	9045C	188970
280-45777-1	#1 RAW SLUDGE	Soluble	Solid	9045C	188970
280-45777-2	#2 PRIMARY DIGESTER	Soluble	Solid	9045C	188970
280-45777-3	#3 SECONDARY DIGESTER	Soluble	Solid	9045C	188970
280-45777-4	#4 DRY SLUDGE	Soluble	Solid	9045C	188970
LCS 280-189034/4	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-189034/5	Lab Control Sample Dup	Total/NA	Solid	9045C	

Prep Batch: 189314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-45777-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-45777-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	
LCS 280-189314/1-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 280-189314/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
MB 280-189314/3-A	Method Blank	Total/NA	Solid	351.2	

Prep Batch: 189374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	

General Chemistry (Continued)

Prep Batch: 189374 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-45777-3 MS	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-45777-3 MSD	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
LCS 280-189374/2-A	Lab Control Sample	Total/NA	Solid	Distill/Ammonia	
LCSD 280-189374/3-A	Lab Control Sample Dup	Total/NA	Solid	Distill/Ammonia	
MB 280-189374/1-A	Method Blank	Total/NA	Solid	Distill/Ammonia	

Leach Batch: 189408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-45777-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-45777-2 MS	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-45777-2 MSD	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-45777-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-45777-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
LCS 280-189408/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-189408/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 280-189408/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 189453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Soluble	Solid	353.2	189408
280-45777-2	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	189408
280-45777-2 MS	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	189408
280-45777-2 MSD	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	189408
280-45777-3	#3 SECONDARY DIGESTER	Soluble	Solid	353.2	189408
280-45777-4	#4 DRY SLUDGE	Soluble	Solid	353.2	189408
LCS 280-189408/2-A	Lab Control Sample	Soluble	Solid	353.2	189408
LCSD 280-189408/3-A	Lab Control Sample Dup	Soluble	Solid	353.2	189408
MB 280-189408/1-A	Method Blank	Soluble	Solid	353.2	189408
MRL 280-189453/18 MRL	Lab Control Sample	Total/NA	Solid	353.2	

Analysis Batch: 189497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	189314
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	189314
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	189314
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	189314
280-45777-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	189314
280-45777-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	189314
LCS 280-189314/1-A	Lab Control Sample	Total/NA	Solid	351.2	189314
LCSD 280-189314/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	189314
MB 280-189314/3-A	Method Blank	Total/NA	Solid	351.2	189314

Analysis Batch: 189636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	350.1	189374
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	189374
280-45777-3 MS	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	189374

General Chemistry (Continued)

Analysis Batch: 189636 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-3 MSD	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	189374
LCS 280-189374/2-A	Lab Control Sample	Total/NA	Solid	350.1	189374
LCSD 280-189374/3-A	Lab Control Sample Dup	Total/NA	Solid	350.1	189374
MB 280-189374/1-A	Method Blank	Total/NA	Solid	350.1	189374
MRL 280-189636/18 MRL	Lab Control Sample	Total/NA	Solid	350.1	

Analysis Batch: 189651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	350.1	189374
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	350.1	189374
MRL 280-189651/18 MRL	Lab Control Sample	Total/NA	Solid	350.1	

Analysis Batch: 189672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-45777-1	#1 RAW SLUDGE	Total/NA	Solid	Nitrogen,Org	
280-45777-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-45777-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-45777-4	#4 DRY SLUDGE	Total/NA	Solid	Nitrogen,Org	
MB 280-189672/5	Method Blank	Total/NA	Solid	Nitrogen,Org	

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-45777-1

Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 3.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			.71 g	50 mL	188546	08/23/13 12:30	JM	TAL DEN
Total/NA	Analysis	7471A		1			188829	08/23/13 16:52	JM	TAL DEN
Total/NA	Prep	3050B			1.10 g	100 mL	188652	08/26/13 12:00	CRR	TAL DEN
Total/NA	Analysis	6010B		1			188981	08/26/13 22:39	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			188336	08/22/13 10:58	IBM	TAL DEN
Soluble	Leach	DI Leach			40.1 g	40 mL	188970	08/27/13 09:00	AFH	TAL DEN
Soluble	Analysis	9045C		1			189034	08/27/13 12:22	AFH	TAL DEN
Soluble	Leach	DI Leach			10.1 g	100 mL	189408	08/29/13 11:12	DVA	TAL DEN
Soluble	Analysis	353.2		1			189453	08/29/13 13:32	DVA	TAL DEN
Total/NA	Prep	351.2			0.40 mL	25 mL	189314	08/28/13 20:52	MW1	TAL DEN
Total/NA	Analysis	351.2		5			189497	08/29/13 20:04	MW1	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.03 g	200 mL	189374	08/29/13 09:34	SMG	TAL DEN
Total/NA	Analysis	350.1		1			189636	08/30/13 12:39	DVA	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			189672	08/31/13 09:34	KEK	TAL DEN

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-45777-2

Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			.61 g	50 mL	188546	08/23/13 12:30	JM	TAL DEN
Total/NA	Analysis	7471A		1			188829	08/23/13 16:54	JM	TAL DEN
Total/NA	Prep	3050B			1.05 g	100 mL	188652	08/26/13 12:00	CRR	TAL DEN
Total/NA	Analysis	6010B		1			188981	08/26/13 22:42	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			188336	08/22/13 10:58	IBM	TAL DEN
Soluble	Leach	DI Leach			40.5 g	40 mL	188970	08/27/13 09:00	AFH	TAL DEN
Soluble	Analysis	9045C		1			189034	08/27/13 12:22	AFH	TAL DEN
Soluble	Leach	DI Leach			10.3 g	100 mL	189408	08/29/13 11:12	DVA	TAL DEN
Soluble	Analysis	353.2		1			189453	08/29/13 13:33	DVA	TAL DEN
Total/NA	Prep	351.2			0.43 mL	25 mL	189314	08/28/13 20:52	MW1	TAL DEN
Total/NA	Analysis	351.2		5			189497	08/29/13 20:05	MW1	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.99 g	200 mL	189374	08/29/13 09:34	SMG	TAL DEN
Total/NA	Analysis	350.1		1			189651	08/30/13 17:12	DVA	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			189672	08/31/13 09:34	KEK	TAL DEN

Client Sample ID: #3 SECONDARY DIGESTER — Lab Sample ID: 280-45777-3

Date Collected: 08/20/13 09:45 — **Matrix: Solid**
Date Received: 08/21/13 17:27 — **Percent Solids: 2.7**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			.66 g	50 mL	188546	08/23/13 12:30	JM	TAL DEN
Total/NA	Analysis	7471A		1			188829	08/23/13 16:57	JM	TAL DEN
Total/NA	Prep	3050B			1.07 g	100 mL	188652	08/26/13 12:00	CRR	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-45777-1

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-45777-3
Date Collected: 08/20/13 09:45
Matrix: Solid
Date Received: 08/21/13 17:27
Percent Solids: 2.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010B		1			188981	08/26/13 22:44	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			188336	08/22/13 10:58	IBM	TAL DEN
Soluble	Leach	DI Leach			40.4 g	40 mL	188970	08/27/13 09:00	AFH	TAL DEN
Soluble	Analysis	9045C		1			189034	08/27/13 12:22	AFH	TAL DEN
Soluble	Leach	DI Leach			10.4 g	100 mL	189408	08/29/13 11:12	DVA	TAL DEN
Soluble	Analysis	353.2		1			189453	08/29/13 13:38	DVA	TAL DEN
Total/NA	Prep	351.2			0.43 mL	25 mL	189314	08/28/13 20:52	MW1	TAL DEN
Total/NA	Analysis	351.2		5			189497	08/29/13 20:09	MW1	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.04 g	200 mL	189374	08/29/13 09:34	SMG	TAL DEN
Total/NA	Analysis	350.1		20			189636	08/30/13 12:57	DVA	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			189672	08/31/13 09:34	KEK	TAL DEN

Client Sample ID: #4 DRY SLUDGE

Lab Sample ID: 280-45777-4
Date Collected: 08/20/13 09:45
Matrix: Solid
Date Received: 08/21/13 17:27
Percent Solids: 60.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010B		1			188981	08/26/13 22:46	JKH	TAL DEN
Total/NA	Prep	3050B			1.10 g	100 mL	188652	08/26/13 12:00	CRR	TAL DEN
Total/NA	Analysis	6010B		5			188981	08/27/13 09:04	JKH	TAL DEN
Total/NA	Prep	7471A			.65 g	50 mL	189199	08/28/13 12:30	JM	TAL DEN
Total/NA	Analysis	7471A		5			189433	08/28/13 17:27	JM	TAL DEN
Total/NA	Analysis	Moisture		1			188336	08/22/13 10:58	IBM	TAL DEN
Soluble	Leach	DI Leach			40.0 g	40 mL	188970	08/27/13 09:00	AFH	TAL DEN
Soluble	Analysis	9045C		1			189034	08/27/13 12:22	AFH	TAL DEN
Soluble	Leach	DI Leach			10.3 g	100 mL	189408	08/29/13 11:12	DVA	TAL DEN
Soluble	Analysis	353.2		100			189453	08/29/13 13:39	DVA	TAL DEN
Total/NA	Prep	351.2			0.40 mL	25 mL	189314	08/28/13 20:52	MW1	TAL DEN
Total/NA	Analysis	351.2		10			189497	08/29/13 19:59	MW1	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.03 g	200 mL	189374	08/29/13 09:34	SMG	TAL DEN
Total/NA	Analysis	350.1		1			189651	08/30/13 17:14	DVA	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			189672	08/31/13 09:34	KEK	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Test America Denver

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 8-20-13 **] Time:** 10:15 **] [] AM [] PM**

Page 1

Sampling Records
From: Cheyenne BOPU) Dry Creek WRF; To Test America.

[] Dates and time of samples collected

[] Sampling locations documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction
2. Vector attraction reduction operators at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids of dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody record

Date: 8-20-13] Time: 10:15] [] AM []PM

Page 2

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories date and time of sample analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] Analyses and calculation results properly documented or verifiable

[] All analyses are reported on dry weight basis

[] Contract Laboratory:
Test America Laboratory, Inc.
Shipping: 4955 Yarrow Street
Arvada, CO 80002.
Dilea Griego
Project Manager
Direct ph #: 303-736-0173
DiLea.Griego@testamericanic.com
Quote # 28005066
Billing: Test America Denver
4955 Yarrow Street
Arvada, CO 80002
Ph: 303-736-0100
Fax: 303-431-7171
Joy Chang
Project Manager
4955 Yarrow Street
Arvada, CO 80002
Cel: 623-209-9961
Joy.Chang@testamericanic.com

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 8-20-13]Time: 10:15] [] AM [] PM

Page 3

Sample Containers
From (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories

No. 1 Raw Sludge Containers:
4 Glass Container 16 oz.

No. 2 Primary Digester Sludge Containers
2 Glass Container 8 oz.

No. 3 Secondary Digester Containers:
2 Glass Container 8 oz.

No. 4 Dry Sludge Containers
2 Glass Container 8 oz.

5. Cooling with 2 gallon plastic bags for ice.

6. Chain of Custody Record and Labels that stick onto the jars.

7. 1 Cooler (21 inches long) X (14 inches wide) X (11 to 12 inches high.

Date: 8-20-13 **] Time:** 10:15 **] [] AM [] PM**

Page 4

List of Analysis Required for
Biosolids (Class A or B Program

The following listed analysis is required for wastewater # 1. Raw Sludge:

Analysis	=	Units
Agronomic Properties		
Ammonia as N, KCL Extract	=	% Dry
Nitrogen, Organic	=	Cal.
Total Kjeldahl Nitrogen	=	% Dry
Phosphorus as P	=	%Dry
Physical Properties		
Corrosivity- pH	=	Units
Moisture	=	%
Metals		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance on all (QA/QC program and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Date: 8-20-13 **] Time:** 10:15 **] [] AM [] PM**

Page 5

List of Analysis Required for
Biosolids (Class A or B) Program

The following listed analyses are required for #2. Primary Digester Sludge, # 3. Secondary Digester Sludge and; # 4. Dry Sludge:

Agronomic Properties		Units
Ammonia as N, KCL Extract	=	% Dry
Nitrogen Organic	=	Cal.
Total kjedahl Nitrogen	=	% Dry
Phosphorus as P	=	% Dry
Physical Properties		
Corrsivity - pH	=	Units
Moisture	=	%
Metals - Total		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry
*Polychlorinated	Biphenyls	(PCB's)
Aroclor - 1016	To be tested 2017	Mg/kg
Aroclar - 1221	To be tested 2017	Mg/kg
Aroclar - 1232	To be tested 2017	Mg/kg
Aroclar - 1242	To be tested 2017	Mg/kg
Aroclar - 1248	To be tested 2017	Mg/kg
Aroclar - 1254	To be tested 2017	Mg/kg
Aroclar - 1260	To be tested 2017	Mg/kg

***PCB's for dry sludge need to be tested in the year 2017.**

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance (QA/QC) program on all analysis and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 8-20-13 **Time:** 10:15 [] AM [] PM

Page 6

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] State: WY] Zip Code: 82007

Samples Collected by: Chet Barbell. [Date/Time: 8-20-13/10:15AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories Inc.

Address: 4955 Yarrow St.

City: Arvada] State: CO] Zip Code: 80002]

~~Name of Analyst:~~ Project Manager - DiLea Griego.

This Certification is signed by: DiLea Griego.

Date: 9/5/13]Time: 10:24] [] AM [] PM

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Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-45777-1

Login Number: 45777
List Number: 1
Creator: Roman, Alex F

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

4.5 Sa
ZR 8-21-13

280-45777 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

	Chet Barkell	Same	8/20/2013 COC No:
Dry Creek WRF	307-637-0865. Fax. 307-635-6833	Lab Contact:	FedEx or UPS ____ of ____ COCs
8911 Campstool RD	Analysis Turnaround Time		Job No.
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____		
307-637-0868	TAT if different from Below _____		
307-635-68833	☐ 2 weeks		SDG No.
Biosolids	☐ 1 week		
Dry Creek WRF	☐ 2 days		
	☐ 1 day		

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Ammonia	Nitrogen Organic	Total Kjeldahl Nitrogen	Phosphorous as P	Pb	Mercury	Potassium	Nitrate & Nitrite	ID # WYSL-22934/Permit # WYG-650002
#1 Raw sludge	8/20/13	9:45 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 2 Primary Digester	8/20/13	9:45 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 3 Secondary Digester	8/20/13	9:45 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 4 Dry sludge	8/20/13	9:45 AM	Dry	Sludge			X	X	X	X	X	X	X	X	Zone E
															Test Nitrogen organic on dry Sludge
															all the time

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Attn. Project Manager. Dilea Griego

Relinquished by: Chet Barkell Chet Barkell	Company: BOPU	Date/Time:8-20-2013/ 10:15 am	Received by:	Company:	Date/Time: 8/21/13 1000
Relinquished by	Company	Date/Time.	Received by	Company:	Date/Time:
Relinquished by	Company:	Date/Time	Received by:	Company:	Date/Time:

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/1 (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-43506-1
Client Project/Site: Biosolids - Dry Creek WRF

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Chet Barkell

Authorized for release by:
7/1/2013 5:21:32 PM

DiLea Griego, Project Manager I
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-43506-1

3

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: Cheyenne Board of Public Utilities
Project: Biosolids - Dry Creek WRF
Report Number: 280-43506-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 06/18/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.3° C.

TOTAL METALS - METHOD 6010B/7471A
Sample #4 DRY SLUDGE (280-43506-4)[5X] required a dilution prior to analysis to bring the concentration of Phosphorus within calibration range. The reporting limits have been adjusted accordingly.

Phosphorus was detected in method blank MB 280-179541/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-180205 were performed on a sample from another job and exhibited recoveries outside control limits for Mercury. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

GENERAL CHEMISTRY
Samples #3 SECONDARY DIGESTER (280-43506-3)[5X] and #4 DRY SLUDGE (280-43506-4)[20X] required a dilution prior to analysis for Ammonia. The reporting limits have been adjusted accordingly.

Samples #1 RAW SLUDGE (280-43506-1)[5X], #2 PRIMARY DIGESTER (280-43506-2)[5X], #3 SECONDARY DIGESTER (280-43506-3) [5X] and #4 DRY SLUDGE (280-43506-4)[10X] required a dilution prior to analysis for TKN. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-180660 were performed on #4 DRY SLUDGE (280-43506-4) and exhibited recoveries outside control limits for Nitrogen, Kjeldahl. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

Qualifiers

Metals

Qualifier	Qualifier Description
F	MS or MSD exceeds the control limits
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

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Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-43506-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	13000	B	8100	44	mg/Kg	1	☼	6010B	Total/NA
Potassium	2700	J	8100	1100	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.43	J	0.52	0.17	mg/Kg	1	☼	7471A	Total/NA
Ammonia	5400		710	300	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	67000		8000	1900	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	62000		150	61	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.10		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-43506-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	23000	B	15000	79	mg/Kg	1	☼	6010B	Total/NA
Potassium	6700	J	15000	2000	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.4		0.80	0.26	mg/Kg	1	☼	7471A	Total/NA
Ammonia	49000		1200	510	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	77000		16000	3700	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	28000		250	100	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.60		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #3 SECONDARY DIGESTER — Lab Sample ID: 280-43506-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	18000	B	13000	72	mg/Kg	1	☼	6010B	Total/NA
Potassium	5700	J	13000	1800	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.85	J	0.92	0.30	mg/Kg	1	☼	7471A	Total/NA
Ammonia	54000		6400	2600	mg/Kg	5	☼	350.1	Total/NA
Nitrogen, Kjeldahl	76000		17000	4100	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	22000		250	100	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.74		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #4 DRY SLUDGE — Lab Sample ID: 280-43506-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	13000	B	1500	8.3	mg/Kg	5	☼	6010B	Total/NA
Potassium	1800		310	42	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.76		0.020	0.0066	mg/Kg	1	☼	7471A	Total/NA
Ammonia	5900		530	220	mg/Kg	20	☼	350.1	Total/NA
Nitrogen, Kjeldahl	4600		690	170	mg/Kg	10	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.88		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
350.1	Nitrogen, Ammonia	MCAWW	TAL DEN
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
Nitrogen,Org	Nitrogen, Organic	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-43506-1	#1 RAW SLUDGE	Solid	06/17/13 11:00	06/18/13 09:45
280-43506-2	#2 PRIMARY DIGESTER	Solid	06/17/13 11:00	06/18/13 09:45
280-43506-3	#3 SECONDARY DIGESTER	Solid	06/17/13 11:00	06/18/13 09:45
280-43506-4	#4 DRY SLUDGE	Solid	06/17/13 11:00	06/18/13 09:45

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Method: 6010B - Metals (ICP)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-43506-1**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 3.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	13000	B	8100	44	mg/Kg	☼	06/20/13 13:00	06/20/13 20:16	1
Potassium	2700	J	8100	1100	mg/Kg	☼	06/20/13 13:00	06/20/13 20:16	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-43506-2**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 2.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	23000	B	15000	79	mg/Kg	☼	06/20/13 13:00	06/20/13 20:25	1
Potassium	6700	J	15000	2000	mg/Kg	☼	06/20/13 13:00	06/20/13 20:25	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-43506-3**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 2.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	18000	B	13000	72	mg/Kg	☼	06/20/13 13:00	06/20/13 20:27	1
Potassium	5700	J	13000	1800	mg/Kg	☼	06/20/13 13:00	06/20/13 20:27	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-43506-4**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 92.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	13000	B	1500	8.3	mg/Kg	☼	06/20/13 13:00	06/21/13 13:24	5
Potassium	1800		310	42	mg/Kg	☼	06/20/13 13:00	06/20/13 20:30	1

Method: 7471A - Mercury (CVAA)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-43506-1**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 3.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.43	J	0.52	0.17	mg/Kg	☼	06/21/13 12:20	06/21/13 16:27	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-43506-2**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 2.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.4		0.80	0.26	mg/Kg	☼	06/21/13 12:20	06/21/13 16:30	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-43506-3**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 2.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.85	J	0.92	0.30	mg/Kg	☼	06/21/13 12:20	06/21/13 16:32	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-43506-4**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 92.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.76		0.020	0.0066	mg/Kg	☼	06/21/13 12:20	06/21/13 16:34	1

General Chemistry

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-43506-1**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 3.4**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	5400		710	300	mg/Kg	☼	06/25/13 08:17	06/27/13 10:23	1
Nitrogen, Kjeldahl	67000		8000	1900	mg/Kg	☼	06/22/13 16:36	06/26/13 22:29	5
Nitrogen, Organic	62000		150	61	mg/Kg	☼		06/28/13 09:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	97		0.10	0.10	%			06/19/13 14:22	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-43506-2**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 2.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	49000		1200	510	mg/Kg	☼	06/25/13 08:17	06/27/13 10:25	1
Nitrogen, Kjeldahl	77000		16000	3700	mg/Kg	☼	06/22/13 16:36	06/26/13 22:30	5
Nitrogen, Organic	28000		250	100	mg/Kg	☼		06/28/13 09:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			06/19/13 14:22	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-43506-3**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 2.0**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	54000		6400	2600	mg/Kg	☼	06/25/13 08:17	06/27/13 11:55	5
Nitrogen, Kjeldahl	76000		17000	4100	mg/Kg	☼	06/22/13 16:36	06/26/13 22:35	5
Nitrogen, Organic	22000		250	100	mg/Kg	☼		06/28/13 09:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			06/19/13 14:22	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-43506-4**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45 — **Percent Solids: 92.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	5900		530	220	mg/Kg	☼	06/25/13 08:17	06/27/13 12:21	20
Nitrogen, Kjeldahl	4600		690	170	mg/Kg	☼	06/22/13 16:36	06/26/13 22:36	10
Nitrogen, Organic	ND		5.4	2.2	mg/Kg	☼		06/28/13 09:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.3		0.10	0.10	%			06/19/13 14:22	1

General Chemistry - Soluble

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-43506-1**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.10		0.100	0.100	SU			06/22/13 13:54	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-43506-2**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.60		0.100	0.100	SU			06/22/13 13:54	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

General Chemistry - Soluble

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-43506-3**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.74		0.100	0.100	SU			06/22/13 13:54	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-43506-4**
Date Collected: 06/17/13 11:00 — **Matrix: Solid**
Date Received: 06/18/13 09:45

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.88		0.100	0.100	SU			06/22/13 13:54	1

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Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-179541/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 179845 — **Prep Batch: 179541**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	7.80	J	300	1.6	mg/Kg		06/20/13 13:00	06/20/13 20:12	1
Potassium	ND		300	41	mg/Kg		06/20/13 13:00	06/20/13 20:12	1

Lab Sample ID: LCS 280-179541/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 179845 — **Prep Batch: 179541**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	1060		mg/Kg		106	80 - 112
Potassium	5000	5070		mg/Kg		101	89 - 110

Lab Sample ID: 280-43506-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 179845 — **Prep Batch: 179541**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	13000	B	27400	40000		mg/Kg	☼	100	75 - 125
Potassium	2700	J	137000	138000		mg/Kg	☼	99	56 - 172

Lab Sample ID: 280-43506-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 179845 — **Prep Batch: 179541**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	13000	B	27100	39500		mg/Kg	☼	99	75 - 125	1	20
Potassium	2700	J	136000	137000		mg/Kg	☼	99	56 - 172	0	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-179902/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180205 — **Prep Batch: 179902**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		06/21/13 12:20	06/21/13 16:04	1

Lab Sample ID: LCS 280-179902/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180205 — **Prep Batch: 179902**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.368		mg/Kg		88	87 - 111

Lab Sample ID: 280-43453-A-2-K MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180205 — **Prep Batch: 179902**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.027		0.479	0.416	F	mg/Kg	☼	81	87 - 111

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-43453-A-2-L MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180205 — **Prep Batch: 179902**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.027		0.471	0.429	F	mg/Kg	☼	85	87 - 111	3	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-180314/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		5.0	2.1	mg/Kg		06/25/13 08:17	06/27/13 09:35	1

Lab Sample ID: LCS 280-180314/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	99.9	97.6		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 280-180314/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	99.5	92.9		mg/Kg		93	90 - 110	5	10

Lab Sample ID: 320-3049-A-4-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	30		115	144		mg/Kg	☼	99	90 - 110

Lab Sample ID: 320-3049-A-4-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	30		114	144		mg/Kg	☼	99	90 - 110	0	10

Lab Sample ID: 320-3049-B-15-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	45		119	169		mg/Kg	☼	104	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 320-3049-B-15-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781 — **Prep Batch: 180314**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	45		119	157		mg/Kg	☼	94	90 - 110	7	10

Lab Sample ID: MRL 280-180781/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180781

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.100	0.137		mg/L		137	

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-180091/3-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180660 — **Prep Batch: 180091**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		50	12	mg/Kg		06/22/13 16:36	06/26/13 22:28	1

Lab Sample ID: LCS 280-180091/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180660 — **Prep Batch: 180091**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	300	304		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 280-180091/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180660 — **Prep Batch: 180091**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	300	304		mg/Kg		101	90 - 110	0	30

Lab Sample ID: 280-43506-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180660 — **Prep Batch: 180091**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	4600		193	7290	4 E	mg/Kg	☼	1391	90 - 110

Lab Sample ID: 280-43506-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180660 — **Prep Batch: 180091**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	4600		188	7320	4 E	mg/Kg	☼	1439	90 - 110	0	30

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Method: 9045C - pH

Lab Sample ID: LCS 280-180084/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103

Lab Sample ID: LCSD 280-180084/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103	0	5

Lab Sample ID: 280-43446-B-1-J DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 180084

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	7.33		7.340		SU		0.1	5

Method: Moisture - Percent Moisture

Lab Sample ID: 280-43511-A-1 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 179537

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	15		15		%		3	20

Method: Nitrogen,Org - Nitrogen, Organic

Lab Sample ID: MB 280-180893/1 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 180893

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Organic	ND		5.0	2.1	mg/Kg			06/28/13 09:35	1

9

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Metals

Prep Batch: 179541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-43506-1 MS	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-43506-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	3050B	
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	3050B	
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	3050B	
LCS 280-179541/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 280-179541/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 179845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	6010B	179541
280-43506-1 MS	#1 RAW SLUDGE	Total/NA	Solid	6010B	179541
280-43506-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	6010B	179541
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	6010B	179541
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	6010B	179541
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	179541
LCS 280-179541/2-A	Lab Control Sample	Total/NA	Solid	6010B	179541
MB 280-179541/1-A	Method Blank	Total/NA	Solid	6010B	179541

Prep Batch: 179902

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43453-A-2-K MS	Matrix Spike	Total/NA	Solid	7471A	
280-43453-A-2-L MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	
LCS 280-179902/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 280-179902/1-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 180191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	179541

Analysis Batch: 180205

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43453-A-2-K MS	Matrix Spike	Total/NA	Solid	7471A	179902
280-43453-A-2-L MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	179902
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	179902
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	179902
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	179902
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	179902
LCS 280-179902/2-A	Lab Control Sample	Total/NA	Solid	7471A	179902
MB 280-179902/1-A	Method Blank	Total/NA	Solid	7471A	179902

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

General Chemistry

Analysis Batch: 179537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	Moisture	
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Moisture	
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Moisture	
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	Moisture	
280-43511-A-1 DU	Duplicate	Total/NA	Solid	Moisture	

Leach Batch: 180018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43446-B-1-J DU	Duplicate	Soluble	Solid	DI Leach	
280-43506-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-43506-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-43506-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-43506-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 180084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43446-B-1-J DU	Duplicate	Soluble	Solid	9045C	180018
280-43506-1	#1 RAW SLUDGE	Soluble	Solid	9045C	180018
280-43506-2	#2 PRIMARY DIGESTER	Soluble	Solid	9045C	180018
280-43506-3	#3 SECONDARY DIGESTER	Soluble	Solid	9045C	180018
280-43506-4	#4 DRY SLUDGE	Soluble	Solid	9045C	180018
LCS 280-180084/4	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-180084/5	Lab Control Sample Dup	Total/NA	Solid	9045C	

Prep Batch: 180091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-43506-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-43506-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	
LCS 280-180091/1-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 280-180091/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
MB 280-180091/3-A	Method Blank	Total/NA	Solid	351.2	

Prep Batch: 180314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
320-3049-A-4-C MS	Matrix Spike	Total/NA	Solid	Distill/Ammonia	
320-3049-A-4-D MSD	Matrix Spike Duplicate	Total/NA	Solid	Distill/Ammonia	
320-3049-B-15-B MS	Matrix Spike	Total/NA	Solid	Distill/Ammonia	
320-3049-B-15-C MSD	Matrix Spike Duplicate	Total/NA	Solid	Distill/Ammonia	
LCS 280-180314/2-A	Lab Control Sample	Total/NA	Solid	Distill/Ammonia	
LCSD 280-180314/3-A	Lab Control Sample Dup	Total/NA	Solid	Distill/Ammonia	
MB 280-180314/1-A	Method Blank	Total/NA	Solid	Distill/Ammonia	

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

General Chemistry (Continued)

Analysis Batch: 180660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	180091
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	180091
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	180091
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	180091
280-43506-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	180091
280-43506-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	180091
LCS 280-180091/1-A	Lab Control Sample	Total/NA	Solid	351.2	180091
LCSD 280-180091/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	180091
MB 280-180091/3-A	Method Blank	Total/NA	Solid	351.2	180091

Analysis Batch: 180781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	350.1	180314
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	350.1	180314
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	180314
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	350.1	180314
320-3049-A-4-C MS	Matrix Spike	Total/NA	Solid	350.1	180314
320-3049-A-4-D MSD	Matrix Spike Duplicate	Total/NA	Solid	350.1	180314
320-3049-B-15-B MS	Matrix Spike	Total/NA	Solid	350.1	180314
320-3049-B-15-C MSD	Matrix Spike Duplicate	Total/NA	Solid	350.1	180314
LCS 280-180314/2-A	Lab Control Sample	Total/NA	Solid	350.1	180314
LCSD 280-180314/3-A	Lab Control Sample Dup	Total/NA	Solid	350.1	180314
MB 280-180314/1-A	Method Blank	Total/NA	Solid	350.1	180314
MRL 280-180781/18 MRL	Lab Control Sample	Total/NA	Solid	350.1	

Analysis Batch: 180893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-43506-1	#1 RAW SLUDGE	Total/NA	Solid	Nitrogen,Org	
280-43506-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-43506-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-43506-4	#4 DRY SLUDGE	Total/NA	Solid	Nitrogen,Org	
MB 280-180893/1	Method Blank	Total/NA	Solid	Nitrogen,Org	

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Client Sample ID: #1 RAW SLUDGE

Lab Sample ID: 280-43506-1
Date Collected: 06/17/13 11:00
Matrix: Solid
Date Received: 06/18/13 09:45
Percent Solids: 3.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.08 g	100 mL	179541	06/20/13 13:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			179845	06/20/13 20:16	JKH	TAL DEN
Total/NA	Prep	7471A			0.58 g	50 mL	179902	06/21/13 12:20	JM	TAL DEN
Total/NA	Analysis	7471A		1			180205	06/21/13 16:27	JM	TAL DEN
Total/NA	Analysis	Moisture		1			179537	06/19/13 14:22	AH	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	180018	06/22/13 11:00	DA	TAL DEN
Soluble	Analysis	9045C		1			180084	06/22/13 13:54	DA	TAL DEN
Total/NA	Prep	351.2			0.46 g	25 mL	180091	06/22/13 16:36	MW	TAL DEN
Total/NA	Analysis	351.2		5			180660	06/26/13 22:29	MW	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.05 g	200 mL	180314	06/25/13 08:17	SG	TAL DEN
Total/NA	Analysis	350.1		1			180781	06/27/13 10:23	SJS	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			180893	06/28/13 09:35	RS	TAL DEN

Client Sample ID: #2 PRIMARY DIGESTER

Lab Sample ID: 280-43506-2
Date Collected: 06/17/13 11:00
Matrix: Solid
Date Received: 06/18/13 09:45
Percent Solids: 2.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.02 g	100 mL	179541	06/20/13 13:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			179845	06/20/13 20:25	JKH	TAL DEN
Total/NA	Prep	7471A			0.63 g	50 mL	179902	06/21/13 12:20	JM	TAL DEN
Total/NA	Analysis	7471A		1			180205	06/21/13 16:30	JM	TAL DEN
Total/NA	Analysis	Moisture		1			179537	06/19/13 14:22	AH	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	180018	06/22/13 11:00	DA	TAL DEN
Soluble	Analysis	9045C		1			180084	06/22/13 13:54	DA	TAL DEN
Total/NA	Prep	351.2			0.40 g	25 mL	180091	06/22/13 16:36	MW	TAL DEN
Total/NA	Analysis	351.2		5			180660	06/26/13 22:30	MW	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.00 g	200 mL	180314	06/25/13 08:17	SG	TAL DEN
Total/NA	Analysis	350.1		1			180781	06/27/13 10:25	SJS	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			180893	06/28/13 09:35	RS	TAL DEN

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-43506-3
Date Collected: 06/17/13 11:00
Matrix: Solid
Date Received: 06/18/13 09:45
Percent Solids: 2.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.12 g	100 mL	179541	06/20/13 13:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			179845	06/20/13 20:27	JKH	TAL DEN
Total/NA	Prep	7471A			0.55 g	50 mL	179902	06/21/13 12:20	JM	TAL DEN
Total/NA	Analysis	7471A		1			180205	06/21/13 16:32	JM	TAL DEN
Total/NA	Analysis	Moisture		1			179537	06/19/13 14:22	AH	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	180018	06/22/13 11:00	DA	TAL DEN
Soluble	Analysis	9045C		1			180084	06/22/13 13:54	DA	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-43506-1

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-43506-3

Date Collected: 06/17/13 11:00
Date Received: 06/18/13 09:45

Matrix: Solid
Percent Solids: 2.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			0.36 g	25 mL	180091	06/22/13 16:36	MW	TAL DEN
Total/NA	Analysis	351.2		5			180660	06/26/13 22:35	MW	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.95 g	200 mL	180314	06/25/13 08:17	SG	TAL DEN
Total/NA	Analysis	350.1		5			180781	06/27/13 11:55	SJS	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			180893	06/28/13 09:35	RS	TAL DEN

Client Sample ID: #4 DRY SLUDGE

Lab Sample ID: 280-43506-4

Date Collected: 06/17/13 11:00
Date Received: 06/18/13 09:45

Matrix: Solid
Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.05 g	100 mL	179541	06/20/13 13:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			179845	06/20/13 20:30	JKH	TAL DEN
Total/NA	Prep	3050B			1.05 g	100 mL	179541	06/20/13 13:00	RC	TAL DEN
Total/NA	Analysis	6010B		5			180191	06/21/13 13:24	JKH	TAL DEN
Total/NA	Prep	7471A			0.54 g	50 mL	179902	06/21/13 12:20	JM	TAL DEN
Total/NA	Analysis	7471A		1			180205	06/21/13 16:34	JM	TAL DEN
Total/NA	Analysis	Moisture		1			179537	06/19/13 14:22	AH	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	180018	06/22/13 11:00	DA	TAL DEN
Soluble	Analysis	9045C		1			180084	06/22/13 13:54	DA	TAL DEN
Total/NA	Prep	351.2			0.39 g	25 mL	180091	06/22/13 16:36	MW	TAL DEN
Total/NA	Analysis	351.2		10			180660	06/26/13 22:36	MW	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.05 g	200 mL	180314	06/25/13 08:17	SG	TAL DEN
Total/NA	Analysis	350.1		20			180781	06/27/13 12:21	SJS	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			180893	06/28/13 09:35	RS	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Test America Denver

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 6-17-13 **] Time:** 11:30 **] [] AM [] PM**

Page 1

Sampling Records
From: Cheyenne BOPU) Dry Creek WRF; To Test America.

[] Dates and time of samples collected

[] Sampling locations documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction

2. Vector attraction reduction operators at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.

3. Management Practices

4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids of dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody record

Date: 6-17-13] Time: 11:30] [] AM [] PM

Page 2

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories date and time of sample analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] Analyses and calculation results properly documented or verifiable

[] All analyses are reported on dry weight basis

[] Contract Laboratory:
Test America Laboratory, Inc.
Shipping: 4955 Yarrow Street
Arvada, CO 80002.
Dilea Griego
Project Manager
Direct ph #: 303-736-0173
DiLea.Griego@testamericanic.com
Quote # 28005066
Billing: Test America Denver
4955 Yarrow Street
Arvada, CO 80002
Ph: 303-736-0100
Fax: 303-431-7171
Joy Chang
Project Manager
4955 Yarrow Street
Arvada, CO 80002
Cel: 623-209-9961
Joy.Chang@testamericanic.com

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 6-17-13 Time: 11:30 [] AM [] PM

Page 3

Sample Containers
From (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories

No. 1 Raw Sludge Containers:
4 Glass Container 16 oz.

No. 2 Primary Digester Sludge Containers
2 Glass Container 8 oz.

No. 3 Secondary Digester Containers:
2 Glass Container 8 oz.

No. 4 Dry Sludge Containers
2 Glass Container 8 oz.

5. Cooling with 2 gallon plastic bags for ice.

6. Chain of Custody Record and Labels that stick onto the jars.

7. 1 Cooler (21 inches long) X (14 inches wide) X (11 to 12 inches high.

Date: 6-17-13 **Time:** 11:30 [] AM [] PM

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List of Analysis Required for
Biosolids (Class A or B Program

The following listed analysis is required for wastewater # 1. Raw Sludge:

Analysis	=	Units
Agronomic Properties		
Ammonia as N, KCL Extract	=	% Dry
Nitrogen, Organic	=	Cal.
Total Kjeldahl Nitrogen	=	% Dry
Phosphorus as P	=	%Dry
Physical Properties		
Corrosivity- pH	=	Units
Moisture	=	%
Metals		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance on all (QA/QC program and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Date: 6-17-13] **Time:** 11:30] [] AM [] PM

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List of Analysis Required for
Biosolids (Class A or B) Program

The following listed analyses are required for #2. Primary Digester Sludge, # 3. Secondary Digester Sludge and; # 4. Dry Sludge:

Agronomic Properties		Units
Ammonia as N, KCL Extract	=	% Dry
Nitrogen Organic	=	Cal.
Total kjedahl Nitrogen	=	% Dry
Phosphorus as P	=	% Dry
Physical Properties		
Corrsivity - pH	=	Units
Moisture	=	%
Metals - Total		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry
*Polychlorinated	Biphenyls	(PCB's)
Aroclor - 1016	To be tested 2017	Mg/kg
Aroclar - 1221	To be tested 2017	Mg/kg
Aroclar - 1232	To be tested 2017	Mg/kg
Aroclar - 1242	To be tested 2017	Mg/kg
Aroclar - 1248	To be tested 2017	Mg/kg
Aroclar - 1254	To be tested 2017	Mg/kg
Aroclar - 1260	To be tested 2017	Mg/kg

***PCB's for dry sludge need to be tested in the year 2017.**

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance (QA/QC) program on all analysis and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 6-17-13 **Time:** 11:30 ▯ AM ▯ PM

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Camp Stool Rd.

City: Cheyenne **] State:** WY **] Zip Code:** 82007.

Samples Collected by: Chet Burkell **.[Date/Time:** 6-17-13/11:30AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories Inc.

Address: 4955 Yarrow St.

City: Arvada **] State:** CO **] Zip Code:** 80002 **]**

~~**Name of Analyst:**~~ Project Manager - DiLea Griego.

This Certification is signed by: DiLea Griego.

Date: 7/1/13 **]Time:** 17:09 **] [] AM [X]PM**

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Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-43506-1

Login Number: 43506
List Number: 1
Creator: Branda, Alex

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Field left blank
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Denver
4955 Yarrow Str
Arvada, CO 800
phone 303.736.0.

280-43506 Chain of Custody

33 SK
6/18/13 IR3

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Chet Barkell	Same	6/17/2013	COC No:
Dry Creek WRF	307-637-0865. Fax. 307-635-6833	Lab Contact:	FedEx or UPS	_____ of _____ COCs
8911 Campstool RD	Analysis Turnaround Time			Job No.
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____			
307-637-0865	TAT if different from Below _____			
307-635-68833	☐ 2 weeks			SDG No.
Biosolids	☐ 1 week			
Dry Creek WRF	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample:	Ammonia	Nitrogen Organic	Total Kjeldahl Nitrogen	Phosphorous as P	Pb	Mercury	Potassium	Nitrate & Nitrite	ID # WYSL-22934/Permit # WYG-650002
#1 Raw sludge	6/17/13	11:00 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 2 Primary Digester	6/17/13	11:00 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 3 Secondary Digester	6/17/13	11:00 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 4 Dry sludge	6/17/13	11:00 AM	Dry	Sludge			X	X	X	X	X	X	X	X	Zone E
															Test Nitrogen organic on dry Sludge
															all the time

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Attn. Project Manager. Dilea Griego

Relinquished by: Chet Barkell	Company: BOPU	Date/Time:6-17-2013/ 11:30 am	Received by: Alex Banks	Company: TAP	Date/Time: 6/18/13 900
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-41284-1
Client Project/Site: Biosoloids - Dry Creek WRF

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Chet Barkell

Authorized for release by:
5/7/2013 5:26:32 PM

DiLea Griego, Project Manager I
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-41284-1

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Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: Cheyenne Board of Public Utilities
Project: Biosolids - Dry Creek WRF
Report Number: 280-41284-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 04/23/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 2.4 C.

TOTAL METALS - METHOD 6010B/7471A
Sample #4 DRY SLUDGE (280-41284-4)[10X] required dilution prior to analysis for Phosphorus due to elevated levels. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-41284-4)[10X] required dilution prior to analysis for Mercury. The reporting limits have been adjusted accordingly.

Phosphorus was detected in method blank MB 280-170977/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

No difficulties were encountered.

GENERAL CHEMISTRY
Samples #1 RAW SLUDGE (280-41284-1)[5X], #2 PRIMARY DIGESTER (280-41284-2)[5X], #3 SECONDARY DIGESTER (280-41284-3)[5X] and #4 DRY SLUDGE (280-41284-4)[20X] required dilution prior to analysis for TKN. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-41284-4)[50X] required dilution prior to analysis for Nitrate Nitrite as N. The reporting limits have been adjusted accordingly.

Samples #2 PRIMARY DIGESTER (280-41284-2)[5X], #3 SECONDARY DIGESTER (280-41284-3)[5X] and #4 DRY SLUDGE (280-41284-4) [10X] required dilution prior to analysis for Ammonia. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-172190 were performed on #4 DRY SLUDGE (280-41284-4) and exhibited recoveries outside control limits for Nitrate Nitrite as N. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-172451 were performed on #4 DRY SLUDGE (280-41284-4) and exhibited recoveries outside control limits for Nitrogen, Kjeldahl. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

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Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-41284-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	8200	B	5500	30	mg/Kg	1	☼	6010B	Total/NA
Potassium	1900	J	5500	750	mg/Kg	1	☼	6010B	Total/NA
Mercury	0.43		0.38	0.13	mg/Kg	1	☼	7471A	Total/NA
Ammonia	7000		550	230	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	19000		6100	1500	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	12000		110	45	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.59		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-41284-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	30000	B	14000	78	mg/Kg	1	☼	6010B	Total/NA
Potassium	10000	J	14000	2000	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.0		0.92	0.30	mg/Kg	1	☼	7471A	Total/NA
Ammonia	62000		6600	2700	mg/Kg	5	☼	350.1	Total/NA
Nitrogen, Kjeldahl	57000		16000	3900	mg/Kg	5	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.27		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #3 SECONDARY DIGESTER — Lab Sample ID: 280-41284-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	36000	B	17000	94	mg/Kg	1	☼	6010B	Total/NA
Potassium	12000	J	17000	2400	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.1		1.1	0.36	mg/Kg	1	☼	7471A	Total/NA
Ammonia	80000		7800	3200	mg/Kg	5	☼	350.1	Total/NA
Nitrogen, Kjeldahl	64000		19000	4600	mg/Kg	5	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.70		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #4 DRY SLUDGE — Lab Sample ID: 280-41284-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	18000	B	3300	18	mg/Kg	10	☼	6010B	Total/NA
Potassium	2200		330	45	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.1		0.20	0.066	mg/Kg	10	☼	7471A	Total/NA
Ammonia	3900		290	120	mg/Kg	10	☼	350.1	Total/NA
Nitrogen, Kjeldahl	9700		1500	350	mg/Kg	20	☼	351.2	Total/NA
Nitrogen, Organic	5800		5.8	2.4	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Nitrate Nitrite as N	2600		1200	35	mg/Kg	50	☼	353.2	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.88		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
350.1	Nitrogen, Ammonia	MCAWW	TAL DEN
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
Nitrogen,Org	Nitrogen, Organic	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-41284-1	#1 RAW SLUDGE	Solid	04/22/13 13:00	04/23/13 10:30
280-41284-2	#2 PRIMARY DIGESTER	Solid	04/22/13 13:00	04/23/13 10:30
280-41284-3	#3 SECONDARY DIGESTER	Solid	04/22/13 13:00	04/23/13 10:30
280-41284-4	#4 DRY SLUDGE	Solid	04/22/13 13:00	04/23/13 10:30

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Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Method: 6010B - Metals (ICP)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-41284-1**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 4.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	8200	B	5500	30	mg/Kg	☼	04/24/13 12:30	04/24/13 22:10	1
Potassium	1900	J	5500	750	mg/Kg	☼	04/24/13 12:30	04/24/13 22:10	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-41284-2**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	30000	B	14000	78	mg/Kg	☼	04/24/13 12:30	04/24/13 22:19	1
Potassium	10000	J	14000	2000	mg/Kg	☼	04/24/13 12:30	04/24/13 22:19	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-41284-3**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	36000	B	17000	94	mg/Kg	☼	04/24/13 12:30	04/24/13 22:21	1
Potassium	12000	J	17000	2400	mg/Kg	☼	04/24/13 12:30	04/24/13 22:21	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-41284-4**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 85.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	18000	B	3300	18	mg/Kg	☼	04/24/13 12:30	04/25/13 17:08	10
Potassium	2200		330	45	mg/Kg	☼	04/24/13 12:30	04/24/13 22:23	1

Method: 7471A - Mercury (CVAA)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-41284-1**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 4.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.43		0.38	0.13	mg/Kg	☼	04/24/13 13:00	04/24/13 17:34	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-41284-2**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.0		0.92	0.30	mg/Kg	☼	04/24/13 13:00	04/24/13 17:41	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-41284-3**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.1		1.1	0.36	mg/Kg	☼	04/24/13 13:00	04/24/13 17:43	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-41284-4**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 85.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.1		0.20	0.066	mg/Kg	☼	04/24/13 13:00	04/24/13 17:50	10

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

General Chemistry

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-41284-1**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 4.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	7000		550	230	mg/Kg	☼	05/02/13 10:02	05/02/13 15:01	1
Nitrogen, Kjeldahl	19000		6100	1500	mg/Kg	☼	05/02/13 16:00	05/03/13 00:54	5
Nitrogen, Organic	12000		110	45	mg/Kg	☼		05/03/13 08:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	95		0.10	0.10	%			04/23/13 20:55	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-41284-2**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	62000		6600	2700	mg/Kg	☼	05/02/13 10:02	05/02/13 16:39	5
Nitrogen, Kjeldahl	57000		16000	3900	mg/Kg	☼	05/02/13 16:00	05/03/13 00:59	5
Nitrogen, Organic	ND		270	110	mg/Kg	☼		05/03/13 08:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			04/23/13 20:55	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-41284-3**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	80000		7800	3200	mg/Kg	☼	05/02/13 10:02	05/02/13 16:41	5
Nitrogen, Kjeldahl	64000		19000	4600	mg/Kg	☼	05/02/13 16:00	05/03/13 01:00	5
Nitrogen, Organic	ND		310	130	mg/Kg	☼		05/03/13 08:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			04/23/13 20:55	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-41284-4**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 85.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	3900		290	120	mg/Kg	☼	05/02/13 10:02	05/02/13 16:42	10
Nitrogen, Kjeldahl	9700		1500	350	mg/Kg	☼	05/02/13 16:00	05/03/13 01:09	20
Nitrogen, Organic	5800		5.8	2.4	mg/Kg	☼		05/03/13 08:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14		0.10	0.10	%			04/23/13 20:55	1

General Chemistry - Soluble

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-41284-1**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 4.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		460	14	mg/Kg	☼		05/01/13 15:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.59		0.100	0.100	SU			04/25/13 20:56	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

General Chemistry - Soluble

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-41284-2**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		1100	33	mg/Kg	☼		05/01/13 15:39	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.27		0.100	0.100	SU			04/25/13 20:56	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-41284-3**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 1.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		1300	39	mg/Kg	☼		05/01/13 15:40	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.70		0.100	0.100	SU			04/25/13 20:56	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-41284-4**
Date Collected: 04/22/13 13:00 — **Matrix: Solid**
Date Received: 04/23/13 10:30 — **Percent Solids: 85.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2600		1200	35	mg/Kg	☼		05/01/13 16:29	50

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.88		0.100	0.100	SU			04/25/13 20:56	1

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QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-170977/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171220 — **Prep Batch: 170977**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	8.49	J	300	1.6	mg/Kg		04/24/13 12:30	04/24/13 22:06	1
Potassium	ND		300	41	mg/Kg		04/24/13 12:30	04/24/13 22:06	1

Lab Sample ID: LCS 280-170977/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171220 — **Prep Batch: 170977**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	1030		mg/Kg		103	80 - 112
Potassium	5000	5200		mg/Kg		104	89 - 110

Lab Sample ID: 280-41284-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171220 — **Prep Batch: 170977**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	8200	B	18700	26600		mg/Kg	☼	99	75 - 125
Potassium	1900	J	93400	98600		mg/Kg	☼	104	56 - 172

Lab Sample ID: 280-41284-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171220 — **Prep Batch: 170977**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	8200	B	18200	26400		mg/Kg	☼	100	75 - 125	1	20
Potassium	1900	J	91100	96000		mg/Kg	☼	103	56 - 172	3	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-171039/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171317 — **Prep Batch: 171039**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		04/24/13 13:00	04/24/13 17:29	1

Lab Sample ID: LCS 280-171039/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171317 — **Prep Batch: 171039**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.387		mg/Kg		93	87 - 111

Lab Sample ID: 280-41284-1 MS — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171317 — **Prep Batch: 171039**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.43		8.15	8.19		mg/Kg	☼	95	87 - 111

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-41284-1 MSD — **Client Sample ID: #1 RAW SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171317 — **Prep Batch: 171039**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.43		8.41	8.40		mg/Kg	☼	95	87 - 111	2	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-172300/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172419 — **Prep Batch: 172300**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		5.0	2.1	mg/Kg		05/02/13 10:02	05/02/13 14:56	1

Lab Sample ID: MRL 280-172419/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172419

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.100	0.134		mg/L		134	

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-172414/3-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172451 — **Prep Batch: 172414**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		50	12	mg/Kg		05/02/13 16:00	05/03/13 00:50	1

Lab Sample ID: LCS 280-172414/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172451 — **Prep Batch: 172414**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	300	301		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 280-172414/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172451 — **Prep Batch: 172414**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	300	305		mg/Kg		102	90 - 110	1	30

Lab Sample ID: 280-41284-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172451 — **Prep Batch: 172414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	9700		219	9710	4	mg/Kg	☼	-12	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 280-41284-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172451 — **Prep Batch: 172414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	9700		214	9910	4	mg/Kg	☼	82	90 - 110	2	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MRL 280-172190/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172190

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			0.100	0.0683	J	mg/L		68	50 - 150		

Lab Sample ID: MB 280-172091/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 172190

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		9.9	0.30	mg/Kg			05/01/13 15:33	1

Lab Sample ID: LCS 280-172091/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 172190

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N			51.0	50.1		mg/Kg		98	90 - 110		

Lab Sample ID: LCSD 280-172091/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 172190

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N			49.0	48.0		mg/Kg		98	90 - 110	4	10

Lab Sample ID: 280-41284-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 172190

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate Nitrite as N	2600		95.3	2910	4	mg/Kg	☼	269	90 - 110		

Lab Sample ID: 280-41284-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 172190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	2600		97.3	3080	4	mg/Kg	☼	444	90 - 110	6	10

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Method: 9045C - pH

Lab Sample ID: LCS 280-171393/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171393

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.000		SU		100	97 - 103

Lab Sample ID: LCSD 280-171393/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 171393

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.000		SU		100	97 - 103	0	5

Lab Sample ID: 280-41284-4 DU — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 171393

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	5.88		5.870		SU		0.2	5

Method: Moisture - Percent Moisture

Lab Sample ID: 460-54471-A-20 DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 170984

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	12		12		%		0.8	20

Method: Nitrogen,Org - Nitrogen, Organic

Lab Sample ID: MB 280-172496/1 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 172496

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Organic	ND		5.0	2.1	mg/Kg			05/03/13 08:37	1

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QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Metals

Prep Batch: 170977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-41284-1 MS	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-41284-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	3050B	
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	3050B	
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	3050B	
LCS 280-170977/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 280-170977/1-A	Method Blank	Total/NA	Solid	3050B	

Prep Batch: 171039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-41284-1 MS	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-41284-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	
LCS 280-171039/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 280-171039/1-A	Method Blank	Total/NA	Solid	7471A	

Analysis Batch: 171220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	6010B	170977
280-41284-1 MS	#1 RAW SLUDGE	Total/NA	Solid	6010B	170977
280-41284-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	6010B	170977
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	6010B	170977
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	6010B	170977
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	170977
LCS 280-170977/2-A	Lab Control Sample	Total/NA	Solid	6010B	170977
MB 280-170977/1-A	Method Blank	Total/NA	Solid	6010B	170977

Analysis Batch: 171317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	171039
280-41284-1 MS	#1 RAW SLUDGE	Total/NA	Solid	7471A	171039
280-41284-1 MSD	#1 RAW SLUDGE	Total/NA	Solid	7471A	171039
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	171039
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	171039
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	171039
LCS 280-171039/2-A	Lab Control Sample	Total/NA	Solid	7471A	171039
MB 280-171039/1-A	Method Blank	Total/NA	Solid	7471A	171039

Analysis Batch: 171420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	170977

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

General Chemistry

Analysis Batch: 170984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	Moisture	
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Moisture	
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Moisture	
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	Moisture	
460-54471-A-20 DU	Duplicate	Total/NA	Solid	Moisture	
460-54471-A-20 MS	Matrix Spike	Total/NA	Solid	Moisture	
460-54471-A-20 MSD	Matrix Spike Duplicate	Total/NA	Solid	Moisture	

Leach Batch: 171386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-41284-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-41284-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-41284-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
280-41284-4 DU	#4 DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 171393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Soluble	Solid	9045C	171386
280-41284-2	#2 PRIMARY DIGESTER	Soluble	Solid	9045C	171386
280-41284-3	#3 SECONDARY DIGESTER	Soluble	Solid	9045C	171386
280-41284-4	#4 DRY SLUDGE	Soluble	Solid	9045C	171386
280-41284-4 DU	#4 DRY SLUDGE	Soluble	Solid	9045C	171386
LCS 280-171393/4	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-171393/5	Lab Control Sample Dup	Total/NA	Solid	9045C	

Leach Batch: 172091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-41284-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-41284-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-41284-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
280-41284-4 MS	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
280-41284-4 MSD	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
LCS 280-172091/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-172091/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 280-172091/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 172190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Soluble	Solid	353.2	172091
280-41284-2	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	172091
280-41284-3	#3 SECONDARY DIGESTER	Soluble	Solid	353.2	172091
280-41284-4	#4 DRY SLUDGE	Soluble	Solid	353.2	172091
280-41284-4 MS	#4 DRY SLUDGE	Soluble	Solid	353.2	172091
280-41284-4 MSD	#4 DRY SLUDGE	Soluble	Solid	353.2	172091
LCS 280-172091/2-A	Lab Control Sample	Soluble	Solid	353.2	172091
LCSD 280-172091/3-A	Lab Control Sample Dup	Soluble	Solid	353.2	172091
MB 280-172091/1-A	Method Blank	Soluble	Solid	353.2	172091
MRL 280-172190/18 MRL	Lab Control Sample	Total/NA	Solid	353.2	

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

General Chemistry (Continued)

Prep Batch: 172300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-41284-4 MS	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-41284-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
LCS 280-172300/2-A	Lab Control Sample	Total/NA	Solid	Distill/Ammonia	
LCSD 280-172300/3-A	Lab Control Sample Dup	Total/NA	Solid	Distill/Ammonia	
MB 280-172300/1-A	Method Blank	Total/NA	Solid	Distill/Ammonia	

Prep Batch: 172414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-41284-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-41284-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	
LCS 280-172414/1-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 280-172414/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
MB 280-172414/3-A	Method Blank	Total/NA	Solid	351.2	

Analysis Batch: 172419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	350.1	172300
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	350.1	172300
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	172300
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	350.1	172300
280-41284-4 MS	#4 DRY SLUDGE	Total/NA	Solid	350.1	172300
280-41284-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	350.1	172300
LCS 280-172300/2-A	Lab Control Sample	Total/NA	Solid	350.1	172300
LCSD 280-172300/3-A	Lab Control Sample Dup	Total/NA	Solid	350.1	172300
MB 280-172300/1-A	Method Blank	Total/NA	Solid	350.1	172300
MRL 280-172419/18 MRL	Lab Control Sample	Total/NA	Solid	350.1	

Analysis Batch: 172451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	172414
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	172414
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	172414
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	172414
280-41284-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	172414
280-41284-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	172414
LCS 280-172414/1-A	Lab Control Sample	Total/NA	Solid	351.2	172414
LCSD 280-172414/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	172414
MB 280-172414/3-A	Method Blank	Total/NA	Solid	351.2	172414

Analysis Batch: 172496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-1	#1 RAW SLUDGE	Total/NA	Solid	Nitrogen,Org	
280-41284-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Nitrogen,Org	

General Chemistry (Continued)

Analysis Batch: 172496 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-41284-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-41284-4	#4 DRY SLUDGE	Total/NA	Solid	Nitrogen,Org	
MB 280-172496/1	Method Blank	Total/NA	Solid	Nitrogen,Org	

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Client Sample ID: #1 RAW SLUDGE

Lab Sample ID: 280-41284-1
Date Collected: 04/22/13 13:00
Matrix: Solid
Date Received: 04/23/13 10:30
Percent Solids: 4.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.20 g	100 mL	170977	04/24/13 12:30	RC	TAL DEN
Total/NA	Analysis	6010B		1			171220	04/24/13 22:10	JKH	TAL DEN
Total/NA	Prep	7471A			0.58 g	50 mL	171039	04/24/13 13:00	JM	TAL DEN
Total/NA	Analysis	7471A		1			171317	04/24/13 17:34	JM	TAL DEN
Total/NA	Analysis	Moisture		1			170984	04/23/13 20:55	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	171386	04/25/13 19:50	DA	TAL DEN
Soluble	Analysis	9045C		1			171393	04/25/13 20:56	DA	TAL DEN
Soluble	Leach	DI Leach			4.80 g	100.0 mL	172091	05/01/13 09:36	SJS	TAL DEN
Soluble	Analysis	353.2		1			172190	05/01/13 15:37	SJS	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.97 g	200.0 mL	172300	05/02/13 10:02	SJS	TAL DEN
Total/NA	Analysis	350.1		1			172419	05/02/13 15:01	SJS	TAL DEN
Total/NA	Prep	351.2			0.45 g	25 mL	172414	05/02/13 16:00	MW	TAL DEN
Total/NA	Analysis	351.2		5			172451	05/03/13 00:54	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			172496	05/03/13 08:37	RS	TAL DEN

Client Sample ID: #2 PRIMARY DIGESTER

Lab Sample ID: 280-41284-2
Date Collected: 04/22/13 13:00
Matrix: Solid
Date Received: 04/23/13 10:30
Percent Solids: 1.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.10 g	100 mL	170977	04/24/13 12:30	RC	TAL DEN
Total/NA	Analysis	6010B		1			171220	04/24/13 22:19	JKH	TAL DEN
Total/NA	Prep	7471A			0.59 g	50 mL	171039	04/24/13 13:00	JM	TAL DEN
Total/NA	Analysis	7471A		1			171317	04/24/13 17:41	JM	TAL DEN
Total/NA	Analysis	Moisture		1			170984	04/23/13 20:55	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	171386	04/25/13 19:50	DA	TAL DEN
Soluble	Analysis	9045C		1			171393	04/25/13 20:56	DA	TAL DEN
Soluble	Leach	DI Leach			4.80 g	100.0 mL	172091	05/01/13 09:36	SJS	TAL DEN
Soluble	Analysis	353.2		1			172190	05/01/13 15:39	SJS	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.02 g	200.0 mL	172300	05/02/13 10:02	SJS	TAL DEN
Total/NA	Analysis	350.1		5			172419	05/02/13 16:39	SJS	TAL DEN
Total/NA	Prep	351.2			0.41 g	25 mL	172414	05/02/13 16:00	MW	TAL DEN
Total/NA	Analysis	351.2		5			172451	05/03/13 00:59	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			172496	05/03/13 08:37	RS	TAL DEN

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-41284-3
Date Collected: 04/22/13 13:00
Matrix: Solid
Date Received: 04/23/13 10:30
Percent Solids: 1.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.08 g	100 mL	170977	04/24/13 12:30	RC	TAL DEN
Total/NA	Analysis	6010B		1			171220	04/24/13 22:21	JKH	TAL DEN
Total/NA	Prep	7471A			0.58 g	50 mL	171039	04/24/13 13:00	JM	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosoloids - Dry Creek WRF

TestAmerica Job ID: 280-41284-1

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-41284-3

Date Collected: 04/22/13 13:00
Date Received: 04/23/13 10:30

Matrix: Solid
Percent Solids: 1.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7471A		1			171317	04/24/13 17:43	JM	TAL DEN
Total/NA	Analysis	Moisture		1			170984	04/23/13 20:55	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	171386	04/25/13 19:50	DA	TAL DEN
Soluble	Analysis	9045C		1			171393	04/25/13 20:56	DA	TAL DEN
Soluble	Leach	DI Leach			4.80 g	100.0 mL	172091	05/01/13 09:36	SJS	TAL DEN
Soluble	Analysis	353.2		1			172190	05/01/13 15:40	SJS	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.00 g	200.0 mL	172300	05/02/13 10:02	SJS	TAL DEN
Total/NA	Analysis	350.1		5			172419	05/02/13 16:41	SJS	TAL DEN
Total/NA	Prep	351.2			0.41 g	25 mL	172414	05/02/13 16:00	MW	TAL DEN
Total/NA	Analysis	351.2		5			172451	05/03/13 01:00	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			172496	05/03/13 08:37	RS	TAL DEN

Client Sample ID: #4 DRY SLUDGE

Lab Sample ID: 280-41284-4

Date Collected: 04/22/13 13:00
Date Received: 04/23/13 10:30

Matrix: Solid
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.07 g	100 mL	170977	04/24/13 12:30	RC	TAL DEN
Total/NA	Analysis	6010B		1			171220	04/24/13 22:23	JKH	TAL DEN
Total/NA	Prep	7471A			0.59 g	50 mL	171039	04/24/13 13:00	JM	TAL DEN
Total/NA	Analysis	7471A		10			171317	04/24/13 17:50	JM	TAL DEN
Total/NA	Prep	3050B			1.07 g	100 mL	170977	04/24/13 12:30	RC	TAL DEN
Total/NA	Analysis	6010B		10			171420	04/25/13 17:08	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			170984	04/23/13 20:55	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	171386	04/25/13 19:50	DA	TAL DEN
Soluble	Analysis	9045C		1			171393	04/25/13 20:56	DA	TAL DEN
Soluble	Leach	DI Leach			5.00 g	100.0 mL	172091	05/01/13 09:36	SJS	TAL DEN
Soluble	Analysis	353.2		50			172190	05/01/13 16:29	SJS	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.01 g	200.0 mL	172300	05/02/13 10:02	SJS	TAL DEN
Total/NA	Analysis	350.1		10			172419	05/02/13 16:42	SJS	TAL DEN
Total/NA	Prep	351.2			0.40 g	25 mL	172414	05/02/13 16:00	MW	TAL DEN
Total/NA	Analysis	351.2		20			172451	05/03/13 01:09	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			172496	05/03/13 08:37	RS	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-41284-1

Login Number: 41284
List Number: 1
Creator: Kettula, Dee A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Test America Denver

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

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(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 4-22-13] **Time:** 1:30] [] **AM** [] **PM**

Page 1

Sampling Records
From: Cheyenne BOPU) Dry Creek WRF; To Test America.

[] Dates and time of samples collected

[] Sampling locations documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction
2. Vector attraction reduction operators at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids of dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody record

Date: 4-22-13] Time: 1:30] [] AM [] PM

Page 2

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories date and time of sample analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] Analyses and calculation results properly documented or verifiable

[] All analyses are reported on dry weight basis

[] Contract Laboratory:
Test America Laboratory, Inc.
Shipping: 4955 Yarrow Street
Arvada, CO 80002.
Dilea Griego
Project Manager
Direct ph #: 303-736-0173
DiLea.Griego@testamericanic.com
Quote # 28005066
Billing: Test America Denver
4955 Yarrow Street
Arvada, CO 80002
Ph: 303-736-0100
Fax: 303-431-7171
Joy Chang
Project Manager
4955 Yarrow Street
Arvada, CO 80002
Cel: 623-209-9961
Joy.Chang@testamericanic.com

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 4-22-13 Time: 1:30 [] AM [PM]

Page 3

Sample Containers
From (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories

No. 1 Raw Sludge Containers:
4 Glass Container 16 oz.

No. 2 Primary Digester Sludge Containers
2 Glass Container 8 oz.

No. 3 Secondary Digester Containers:
2 Glass Container 8 oz.

No. 4 Dry Sludge Containers
2 Glass Container 8 oz.

5. Cooling with 2 gallon plastic bags for ice.

6. Chain of Custody Record and Labels that stick onto the jars.

7. 1 Cooler (21 inches long) X (14 inches wide) X (11 to 12 inches high.

Date: 4-22-13 **] Time:** 1130 **] [] AM [] PM**

Page 4

List of Analysis Required for
Biosolids (Class A or B Program

The following listed analysis is required for wastewater # 1. Raw Sludge:

Analysis	=	Units
Agronomic Properties		
~~Ammonia as N, KCL Extract~~	~~=~~	~~% Dry~~
Nitrogen, Organic	=	Cal.
Total Kjeldahl Nitrogen	=	% Dry
Phosphorus as P	=	%Dry
Physical Properties		
Corrosivity- pH	=	Units
Moisture	=	%
Metals		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance on all (QA/QC program and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Date: 4-22-13 **] Time:** 1:30 **] [] AM [] PM**

Page 5

List of Analysis Required for
Biosolids (Class A or B) Program

The following listed analyses are required for #2. Primary Digester Sludge, # 3. Secondary Digester Sludge and; # 4. Dry Sludge:

Agronomic Properties		Units
Ammonia as N, KCL Extract	=	% Dry
Nitrogen Organic	=	Cal.
Total kjedahl Nitrogen	=	% Dry
Phosphorus as P	=	% Dry
Physical Properties		
Corrsivity - pH	=	Units
Moisture	=	%
Metals - Total		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry
*Polychlorinated	Biphenyls	(PCB's)
Aroclor - 1016	To be tested 2017	Mg/kg
Aroclar - 1221	To be tested 2017	Mg/kg
Aroclar - 1232	To be tested 2017	Mg/kg
Aroclar - 1242	To be tested 2017	Mg/kg
Aroclar - 1248	To be tested 2017	Mg/kg
Aroclar - 1254	To be tested 2017	Mg/kg
Aroclar - 1260	To be tested 2017	Mg/kg

***PCB's for dry sludge need to be tested in the year 2017.**

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance (QA/QC) program on all analysis and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 4-22-13 **]Time:** 1:30 **] [] AM [] PM**

Page 6

Project Name: Biosolids

Location: Dry Creek WRF

Address: 8911 Campstool Rd.

City: Cheyenne] State: WY] Zip Code: 82007

Samples Collected by: Chet Barbell [Date/Time: 4-22-13/1:30PM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories, Inc

Address: 4955 Yarrow St.

City: Arvada] State: CO] Zip Code: 80002]

~~Name of Analyst:~~ DiLea Griego - Project manager

This Certification is signed by: DiLea Griego

Date: 5-7-13]Time: 17:23] [] AM [X]PM

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Page 7

Denver
4955 Yarrow Street

Arvada, CO 80002
phone 303.736.0100 fax 303.431.7171

Chain of Custody Record

2.4 ua 4/23/13
ma

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Chet Barkell	Same	4/22/2013
Dry Creek WRF	307-637-0865, Fax. 307-635-6833	Lab Contact:	FedEx or UPS
8911 Campstool RD	Analysis Turnaround Time		
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____		
307-637-0865	TAT if different from Below _____		
307-635-6833	☐ 2 weeks		
Biosolids	☐ 1 week		
Dry Creek WRF	☐ 2 days		
	☐ 1 day		

COC No: _____ of _____ COCs

Job No.

SDG No.

ID # WYSL-22934/Permit # WYG-650002

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Ammonia	Nitrogen Organic	Total Kjeldahl Nitrogen	Phosphorous as P	Pb	Mercury	Potassium	Nitrate & Nitrite	
#1 Raw sludge	4/22/13	1:00 PM	Liquid	Sludge		X	X	X	X	X	X	X	X	
# 2 Primary Digester	4/22/13	1:00 PM	Liquid	Sludge		X	X	X	X	X	X	X	X	
# 3 Secondary Digester	4/22/13	1:00 PM	Liquid	Sludge		X	X	X	X	X	X	X	X	
# 4 Dry sludge	4/22/13	1:00 PM	Dry	Sludge		X	X	X	X	X	X	X	X	Zone E

Test Nitrogen organic on dry Sludge

all the time

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Attn. Project Manager. Dilea Griego

Relinquished by: Chet Barkell	Company: BOPU	Date/Time: 4-22-2013/ 1:30 pm	Received by: [signature]	Company: TA	Date/Time: 4-23-13 1030
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-38806-1
Client Project/Site: Biosolids - Dry Creek WRF

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Chet Barkell

Authorized for release by:
2/28/2013 2:51:54 PM
Lisa Uriell
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Designee for

DiLea Griego
Project Manager I
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-38806-1

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Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Cheyenne Board of Public Utilities

Project: Dry Creek WRF - Biosolids

Report Number: 280-38806-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 02/13/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.0 C.

TOTAL METALS - METHOD 6010B/7471A

Sample #4 DRY SLUDGE (280-38806-4)[10X] required dilution prior to analysis for Phosphorus. The reporting limit has been adjusted accordingly.

Sample #4 DRY SLUDGE (280-38806-4)[10X] required dilution prior to analysis for Mercury. The reporting limit has been adjusted accordingly.

No other difficulties were encountered.

GENERAL CHEMISTRY

Samples #1 RAW SLUDGE (280-38806-1) [5X], #2 PRIMARY DIGESTER (280-38806-2) [5X], #3 SECONDARY DIGESTER (280-38806-3) [5X] and #4 DRY SLUDGE (280-38806-4)[20X] required dilution prior to analysis for TKN. The reporting limits have been adjusted accordingly.

Samples #2 PRIMARY DIGESTER (280-38806-2) [5X], #3 SECONDARY DIGESTER (280-38806-3) [5X] and #4 DRY SLUDGE (280-38806-4)[20X] required dilution prior to analysis for Ammonia. The reporting limits have been adjusted accordingly.

Sample #4 DRY SLUDGE (280-38806-4)[100X] required dilution prior to analysis for Nitrate-Nitrite. The reporting limit has been adjusted accordingly.

TKN was detected in method blank MB 280-161523/3-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". If the associated sample reported a result above the MDL and/or RL, the result has been "B" flagged. Refer to the QC report for details.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-161762 were performed on #4 DRY SLUDGE (280-38806-4) and exhibited recoveries outside control limits for Ammonia. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-161781 were performed on #4 DRY

Job ID: 280-38806-1 (Continued)

3

Laboratory: TestAmerica Denver (Continued)

SLUDGE (280-38806-4) and exhibited recoveries outside control limits for TKN. The presence of the '4' qualifier in the report indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-161777 were performed on #2 PRIMARY DIGESTER (280-38806-2) and exhibited recoveries outside control limits for Nitrate Nitrite as N. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F	MS or MSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

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Client Sample ID: #1 RAW SLUDGE — Lab Sample ID: 280-38806-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	11000		9400	51	mg/Kg	1	☼	6010B	Total/NA
Potassium	2400	J	9400	1300	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.9		0.58	0.19	mg/Kg	1	☼	7471A	Total/NA
Ammonia	11000		870	360	mg/Kg	1	☼	350.1	Total/NA
Nitrogen, Kjeldahl	32000	B	8800	2100	mg/Kg	5	☼	351.2	Total/NA
Nitrogen, Organic	21000		170	71	mg/Kg	1	☼	Nitrogen,Org	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	5.87		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #2 PRIMARY DIGESTER — Lab Sample ID: 280-38806-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	32000		16000	86	mg/Kg	1	☼	6010B	Total/NA
Potassium	9500	J	16000	2200	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.2		0.92	0.30	mg/Kg	1	☼	7471A	Total/NA
Ammonia	84000		7300	3000	mg/Kg	5	☼	350.1	Total/NA
Nitrogen, Kjeldahl	63000	B	15000	3700	mg/Kg	5	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.72		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #3 SECONDARY DIGESTER — Lab Sample ID: 280-38806-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	34000		17000	94	mg/Kg	1	☼	6010B	Total/NA
Potassium	9800	J	17000	2400	mg/Kg	1	☼	6010B	Total/NA
Mercury	2.8		0.95	0.31	mg/Kg	1	☼	7471A	Total/NA
Ammonia	95000		8100	3400	mg/Kg	5	☼	350.1	Total/NA
Nitrogen, Kjeldahl	63000	B	17000	4100	mg/Kg	5	☼	351.2	Total/NA
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	7.96		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: #4 DRY SLUDGE — Lab Sample ID: 280-38806-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	23000		3500	19	mg/Kg	10	☼	6010B	Total/NA
Potassium	2300		350	47	mg/Kg	1	☼	6010B	Total/NA
Mercury	1.2		0.18	0.059	mg/Kg	10	☼	7471A	Total/NA
Ammonia	12000		590	240	mg/Kg	20	☼	350.1	Total/NA
Nitrogen, Kjeldahl	7100	B	1400	330	mg/Kg	20	☼	351.2	Total/NA
Nitrate Nitrite as N	2900		1100	34	mg/Kg	100	☼	353.2	Soluble
Analyte	**Result**	**Qualifier**	**RL**	**RL**	**Unit**	**Dil Fac**	**D**	**Method**	**Prep Type**
pH adj. to 25 deg C	6.24		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
7471A	Mercury (CVAA)	SW846	TAL DEN
350.1	Nitrogen, Ammonia	MCAWW	TAL DEN
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
Moisture	Percent Moisture	EPA	TAL DEN
Nitrogen,Org	Nitrogen, Organic	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-38806-1	#1 RAW SLUDGE	Solid	02/12/13 10:00	02/13/13 10:00
280-38806-2	#2 PRIMARY DIGESTER	Solid	02/12/13 10:00	02/13/13 10:00
280-38806-3	#3 SECONDARY DIGESTER	Solid	02/12/13 10:00	02/13/13 10:00
280-38806-4	#4 DRY SLUDGE	Solid	02/12/13 10:00	02/13/13 10:00

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Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Method: 6010B - Metals (ICP)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-38806-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 2.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	11000		9400	51	mg/Kg	☼	02/18/13 14:00	02/19/13 03:47	1
Potassium	2400	J	9400	1300	mg/Kg	☼	02/18/13 14:00	02/19/13 03:47	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-38806-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	32000		16000	86	mg/Kg	☼	02/18/13 14:00	02/19/13 03:49	1
Potassium	9500	J	16000	2200	mg/Kg	☼	02/18/13 14:00	02/19/13 03:49	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-38806-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	34000		17000	94	mg/Kg	☼	02/18/13 14:00	02/19/13 03:52	1
Potassium	9800	J	17000	2400	mg/Kg	☼	02/18/13 14:00	02/19/13 03:52	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-38806-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 83.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	23000		3500	19	mg/Kg	☼	02/18/13 14:00	02/19/13 20:46	10
Potassium	2300		350	47	mg/Kg	☼	02/18/13 14:00	02/19/13 03:54	1

Method: 7471A - Mercury (CVAA)

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-38806-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 2.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.9		0.58	0.19	mg/Kg	☼	02/14/13 14:45	02/14/13 21:19	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-38806-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.2		0.92	0.30	mg/Kg	☼	02/14/13 14:45	02/14/13 21:21	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-38806-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	2.8		0.95	0.31	mg/Kg	☼	02/14/13 14:45	02/14/13 21:28	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-38806-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 83.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	1.2		0.18	0.059	mg/Kg	☼	02/14/13 14:45	02/14/13 21:35	10

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

General Chemistry

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-38806-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 2.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	11000		870	360	mg/Kg	☼	02/21/13 10:13	02/23/13 12:12	1
Nitrogen, Kjeldahl	32000	B	8800	2100	mg/Kg	☼	02/21/13 22:35	02/23/13 16:45	5
Nitrogen, Organic	21000		170	71	mg/Kg	☼		02/27/13 15:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	97		0.10	0.10	%			02/15/13 12:29	1

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-38806-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	84000		7300	3000	mg/Kg	☼	02/21/13 10:13	02/23/13 12:19	5
Nitrogen, Kjeldahl	63000	B	15000	3700	mg/Kg	☼	02/21/13 22:35	02/23/13 16:47	5
Nitrogen, Organic	ND		290	120	mg/Kg	☼		02/27/13 15:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			02/15/13 12:29	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-38806-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	95000		8100	3400	mg/Kg	☼	02/21/13 10:13	02/23/13 12:18	5
Nitrogen, Kjeldahl	63000	B	17000	4100	mg/Kg	☼	02/21/13 22:35	02/23/13 16:52	5
Nitrogen, Organic	ND		330	140	mg/Kg	☼		02/27/13 15:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	98		0.10	0.10	%			02/15/13 12:29	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-38806-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 83.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	12000		590	240	mg/Kg	☼	02/21/13 10:13	02/23/13 12:13	20
Nitrogen, Kjeldahl	7100	B	1400	330	mg/Kg	☼	02/21/13 22:35	02/23/13 17:12	20
Nitrogen, Organic	ND		6.0	2.5	mg/Kg	☼		02/27/13 15:47	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16		0.10	0.10	%			02/15/13 12:29	1

General Chemistry - Soluble

Client Sample ID: #1 RAW SLUDGE — **Lab Sample ID: 280-38806-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 2.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		350	10	mg/Kg	☼		02/23/13 13:27	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	5.87		0.100	0.100	SU			02/20/13 20:07	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

General Chemistry - Soluble

Client Sample ID: #2 PRIMARY DIGESTER — **Lab Sample ID: 280-38806-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.7**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		580	18	mg/Kg	☼		02/23/13 13:29	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.72		0.100	0.100	SU			02/20/13 20:07	1

Client Sample ID: #3 SECONDARY DIGESTER — **Lab Sample ID: 280-38806-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 1.5**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		650	19	mg/Kg	☼		02/23/13 13:33	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.96		0.100	0.100	SU			02/20/13 20:07	1

Client Sample ID: #4 DRY SLUDGE — **Lab Sample ID: 280-38806-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 10:00 — **Percent Solids: 83.8**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	2900		1100	34	mg/Kg	☼		02/23/13 13:35	100

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.24		0.100	0.100	SU			02/20/13 20:07	1

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-160348/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		300	1.6	mg/Kg		02/18/13 14:00	02/19/13 03:10	1
Potassium	ND		300	41	mg/Kg		02/18/13 14:00	02/19/13 03:10	1

Lab Sample ID: LCS 280-160348/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	1010		mg/Kg		101	80 - 112
Potassium	5000	4820		mg/Kg		96	89 - 110

Lab Sample ID: 280-38823-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	340		956	1560	F	mg/Kg	☼	128	75 - 125
Potassium	3100		4780	7710		mg/Kg	☼	96	56 - 172

Lab Sample ID: 280-38823-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	340		938	1290		mg/Kg	☼	102	75 - 125	19	20
Potassium	3100		4690	7810		mg/Kg	☼	100	56 - 172	1	20

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-160244/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		02/14/13 14:45	02/14/13 20:51	1

Lab Sample ID: LCS 280-160244/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.398		mg/Kg		96	87 - 111

Lab Sample ID: 280-38732-A-8-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.026		0.466	0.473		mg/Kg	☼	96	87 - 111

Method: 7471A - Mercury (CVAA) (Continued)

Lab Sample ID: 280-38732-A-8-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.026		0.382	0.389		mg/Kg	☼	95	87 - 111	19	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 280-161387/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161762 — **Prep Batch: 161387**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		5.0	2.1	mg/Kg		02/21/13 10:13	02/23/13 11:49	1

Lab Sample ID: LCS 280-161387/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161762 — **Prep Batch: 161387**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	100	107		mg/Kg		107	90 - 110

Lab Sample ID: LCSD 280-161387/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161762 — **Prep Batch: 161387**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	99.7	102		mg/Kg		102	90 - 110	4	10

Lab Sample ID: 280-38806-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161762 — **Prep Batch: 161387**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	12000		597	13100	4	mg/Kg	☼	235	90 - 110

Lab Sample ID: 280-38806-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161762 — **Prep Batch: 161387**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia	12000		591	14300	4	mg/Kg	☼	437	90 - 110	9	10

Lab Sample ID: MRL 280-161762/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161762

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	0.100	0.128	J	mg/L		128	

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 280-161523/3-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161781 — **Prep Batch: 161523**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	22.0	J	50	12	mg/Kg		02/21/13 22:35	02/23/13 16:44	1

Lab Sample ID: LCS 280-161523/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161781 — **Prep Batch: 161523**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	300	284		mg/Kg		95	90 - 110

Lab Sample ID: LCSD 280-161523/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161781 — **Prep Batch: 161523**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	300	280		mg/Kg		93	90 - 110	1	30

Lab Sample ID: 280-38806-4 MS — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161781 — **Prep Batch: 161523**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	7100	B	218	10500	4	mg/Kg	☼	1544	90 - 110

Lab Sample ID: 280-38806-4 MSD — **Client Sample ID: #4 DRY SLUDGE**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161781 — **Prep Batch: 161523**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	7100	B	213	8250	4	mg/Kg	☼	536	90 - 110	24	30

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MRL 280-161777/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161777

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.100	0.0805	J	mg/L		81	50 - 150

Lab Sample ID: MB 280-160574/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		10	0.30	mg/Kg			02/23/13 13:08	1

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 280-160574/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	50.0	53.2		mg/Kg		106	90 - 110

Lab Sample ID: LCSD 280-160574/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	49.0	53.3		mg/Kg		109	90 - 110	0	10

Lab Sample ID: 280-38806-2 MS — **Client Sample ID: #2 PRIMARY DIGESTER**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	ND		2340	2080	F	mg/Kg	☼	89	90 - 110

Lab Sample ID: 280-38806-2 MSD — **Client Sample ID: #2 PRIMARY DIGESTER**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	ND		2340	2170		mg/Kg	☼	93	90 - 110	4	10

Method: 9045C - pH

Lab Sample ID: LCS 280-161300/56 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103

Lab Sample ID: LCSD 280-161300/57 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161300

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103	0	5

Lab Sample ID: 280-38533-A-15-B DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161300

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH adj. to 25 deg C	8.54		8.540		SU		0	5

QC Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Method: Moisture - Percent Moisture

Lab Sample ID: 280-38812-A-16 DU
Matrix: Solid
Analysis Batch: 160570

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	16			17		%				5	20

Method: Nitrogen,Org - Nitrogen, Organic

Lab Sample ID: MB 280-162372/1
Matrix: Solid
Analysis Batch: 162372

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Organic	ND		5.0	2.1	mg/Kg			02/27/13 15:47	1

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QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Metals

Prep Batch: 160244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38732-A-8-D MS	Matrix Spike	Total/NA	Solid	7471A	
280-38732-A-8-E MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	
LCS 280-160244/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 280-160244/1-A	Method Blank	Total/NA	Solid	7471A	

Prep Batch: 160348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	3050B	
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	3050B	
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	3050B	
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	3050B	
280-38823-A-1-C MS	Matrix Spike	Total/NA	Solid	3050B	
280-38823-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
LCS 280-160348/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 280-160348/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 160567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38732-A-8-D MS	Matrix Spike	Total/NA	Solid	7471A	160244
280-38732-A-8-E MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	160244
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	7471A	160244
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	7471A	160244
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	7471A	160244
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	7471A	160244
LCS 280-160244/2-A	Lab Control Sample	Total/NA	Solid	7471A	160244
MB 280-160244/1-A	Method Blank	Total/NA	Solid	7471A	160244

Analysis Batch: 160959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	6010B	160348
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	6010B	160348
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	6010B	160348
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	160348
280-38823-A-1-C MS	Matrix Spike	Total/NA	Solid	6010B	160348
280-38823-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	160348
LCS 280-160348/2-A	Lab Control Sample	Total/NA	Solid	6010B	160348
MB 280-160348/1-A	Method Blank	Total/NA	Solid	6010B	160348

Analysis Batch: 161101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	6010B	160348

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

General Chemistry

Analysis Batch: 160570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	Moisture	
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Moisture	
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Moisture	
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	Moisture	
280-38812-A-16 DU	Duplicate	Total/NA	Solid	Moisture	

Leach Batch: 160574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-38806-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-38806-2 MS	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-38806-2 MSD	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-38806-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-38806-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	
LCS 280-160574/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-160574/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 280-160574/1-A	Method Blank	Soluble	Solid	DI Leach	

Leach Batch: 161081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38533-A-15-B DU	Duplicate	Soluble	Solid	DI Leach	
280-38806-1	#1 RAW SLUDGE	Soluble	Solid	DI Leach	
280-38806-2	#2 PRIMARY DIGESTER	Soluble	Solid	DI Leach	
280-38806-3	#3 SECONDARY DIGESTER	Soluble	Solid	DI Leach	
280-38806-4	#4 DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 161300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38533-A-15-B DU	Duplicate	Soluble	Solid	9045C	161081
280-38806-1	#1 RAW SLUDGE	Soluble	Solid	9045C	161081
280-38806-2	#2 PRIMARY DIGESTER	Soluble	Solid	9045C	161081
280-38806-3	#3 SECONDARY DIGESTER	Soluble	Solid	9045C	161081
280-38806-4	#4 DRY SLUDGE	Soluble	Solid	9045C	161081
LCS 280-161300/56	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-161300/57	Lab Control Sample Dup	Total/NA	Solid	9045C	

Prep Batch: 161387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Distill/Ammonia	
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-38806-4 MS	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
280-38806-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	Distill/Ammonia	
LCS 280-161387/2-A	Lab Control Sample	Total/NA	Solid	Distill/Ammonia	
LCSD 280-161387/3-A	Lab Control Sample Dup	Total/NA	Solid	Distill/Ammonia	
MB 280-161387/1-A	Method Blank	Total/NA	Solid	Distill/Ammonia	

Prep Batch: 161523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	

General Chemistry (Continued)

Prep Batch: 161523 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-38806-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	
280-38806-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	
LCS 280-161523/1-A	Lab Control Sample	Total/NA	Solid	351.2	
LCSD 280-161523/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	
MB 280-161523/3-A	Method Blank	Total/NA	Solid	351.2	

Analysis Batch: 161762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	350.1	161387
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	350.1	161387
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	350.1	161387
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	350.1	161387
280-38806-4 MS	#4 DRY SLUDGE	Total/NA	Solid	350.1	161387
280-38806-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	350.1	161387
LCS 280-161387/2-A	Lab Control Sample	Total/NA	Solid	350.1	161387
LCSD 280-161387/3-A	Lab Control Sample Dup	Total/NA	Solid	350.1	161387
MB 280-161387/1-A	Method Blank	Total/NA	Solid	350.1	161387
MRL 280-161762/18 MRL	Lab Control Sample	Total/NA	Solid	350.1	

Analysis Batch: 161777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Soluble	Solid	353.2	160574
280-38806-2	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	160574
280-38806-2 MS	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	160574
280-38806-2 MSD	#2 PRIMARY DIGESTER	Soluble	Solid	353.2	160574
280-38806-3	#3 SECONDARY DIGESTER	Soluble	Solid	353.2	160574
280-38806-4	#4 DRY SLUDGE	Soluble	Solid	353.2	160574
LCS 280-160574/2-A	Lab Control Sample	Soluble	Solid	353.2	160574
LCSD 280-160574/3-A	Lab Control Sample Dup	Soluble	Solid	353.2	160574
MB 280-160574/1-A	Method Blank	Soluble	Solid	353.2	160574
MRL 280-161777/18 MRL	Lab Control Sample	Total/NA	Solid	353.2	

Analysis Batch: 161781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	351.2	161523
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	351.2	161523
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	351.2	161523
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	351.2	161523
280-38806-4 MS	#4 DRY SLUDGE	Total/NA	Solid	351.2	161523
280-38806-4 MSD	#4 DRY SLUDGE	Total/NA	Solid	351.2	161523
LCS 280-161523/1-A	Lab Control Sample	Total/NA	Solid	351.2	161523
LCSD 280-161523/2-A	Lab Control Sample Dup	Total/NA	Solid	351.2	161523
MB 280-161523/3-A	Method Blank	Total/NA	Solid	351.2	161523

Analysis Batch: 162372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-1	#1 RAW SLUDGE	Total/NA	Solid	Nitrogen,Org	
280-38806-2	#2 PRIMARY DIGESTER	Total/NA	Solid	Nitrogen,Org	

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

General Chemistry (Continued)

Analysis Batch: 162372 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38806-3	#3 SECONDARY DIGESTER	Total/NA	Solid	Nitrogen,Org	
280-38806-4	#4 DRY SLUDGE	Total/NA	Solid	Nitrogen,Org	
MB 280-162372/1	Method Blank	Total/NA	Solid	Nitrogen,Org	

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Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Client Sample ID: #1 RAW SLUDGE

Lab Sample ID: 280-38806-1
Date Collected: 02/12/13 10:00
Matrix: Solid
Date Received: 02/13/13 10:00
Percent Solids: 2.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			0.60 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:19	NF	TAL DEN
Total/NA	Prep	3050B			1.10 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			160959	02/19/13 03:47	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Total/NA	Prep	Distill/Ammonia			1.98 g	200 mL	161387	02/21/13 10:13	SG	TAL DEN
Total/NA	Analysis	350.1		1			161762	02/23/13 12:12	SJS	TAL DEN
Soluble	Leach	DI Leach			9.90 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		1			161777	02/23/13 13:27	SJS	TAL DEN
Total/NA	Prep	351.2			0.49 g	25 mL	161523	02/21/13 22:35	MW	TAL DEN
Total/NA	Analysis	351.2		5			161781	02/23/13 16:45	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			162372	02/27/13 15:47	KEK	TAL DEN

Client Sample ID: #2 PRIMARY DIGESTER

Lab Sample ID: 280-38806-2
Date Collected: 02/12/13 10:00
Matrix: Solid
Date Received: 02/13/13 10:00
Percent Solids: 1.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			0.65 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:21	NF	TAL DEN
Total/NA	Prep	3050B			1.10 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			160959	02/19/13 03:49	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.01 g	200 mL	161387	02/21/13 10:13	SG	TAL DEN
Total/NA	Analysis	350.1		5			161762	02/23/13 12:19	SJS	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		1			161777	02/23/13 13:29	SJS	TAL DEN
Total/NA	Prep	351.2			0.48 g	25 mL	161523	02/21/13 22:35	MW	TAL DEN
Total/NA	Analysis	351.2		5			161781	02/23/13 16:47	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			162372	02/27/13 15:47	KEK	TAL DEN

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-38806-3
Date Collected: 02/12/13 10:00
Matrix: Solid
Date Received: 02/13/13 10:00
Percent Solids: 1.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			0.71 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:28	NF	TAL DEN
Total/NA	Prep	3050B			1.13 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38806-1

Client Sample ID: #3 SECONDARY DIGESTER

Lab Sample ID: 280-38806-3

Date Collected: 02/12/13 10:00
Date Received: 02/13/13 10:00

Matrix: Solid
Percent Solids: 1.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010B		1			160959	02/19/13 03:52	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.03 g	200 mL	161387	02/21/13 10:13	SG	TAL DEN
Total/NA	Analysis	350.1		5			161762	02/23/13 12:18	SJS	TAL DEN
Soluble	Leach	DI Leach			10.2 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		1			161777	02/23/13 13:33	SJS	TAL DEN
Total/NA	Prep	351.2			0.48 g	25 mL	161523	02/21/13 22:35	MW	TAL DEN
Total/NA	Analysis	351.2		5			161781	02/23/13 16:52	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			162372	02/27/13 15:47	KEK	TAL DEN

Client Sample ID: #4 DRY SLUDGE

Lab Sample ID: 280-38806-4

Date Collected: 02/12/13 10:00
Date Received: 02/13/13 10:00

Matrix: Solid
Percent Solids: 83.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7471A			0.67 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		10			160567	02/14/13 21:35	NF	TAL DEN
Total/NA	Prep	3050B			1.03 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			160959	02/19/13 03:54	JKH	TAL DEN
Total/NA	Analysis	6010B		10			161101	02/19/13 20:46	JKH	TAL DEN
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Total/NA	Prep	Distill/Ammonia			2.03 g	200 mL	161387	02/21/13 10:13	SG	TAL DEN
Total/NA	Analysis	350.1		20			161762	02/23/13 12:13	SJS	TAL DEN
Soluble	Leach	DI Leach			10.4 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		100			161777	02/23/13 13:35	SJS	TAL DEN
Total/NA	Prep	351.2			0.44 g	25 mL	161523	02/21/13 22:35	MW	TAL DEN
Total/NA	Analysis	351.2		20			161781	02/23/13 17:12	MW	TAL DEN
Total/NA	Analysis	Nitrogen,Org		1			162372	02/27/13 15:47	KEK	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-38806-1

Login Number: 38806
List Number: 1
Creator: Laspe, Laura

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Test America Denver

Identification Reporting: No. WYSL – 22934

Permit No. WYG – 650002

(Cheyenne BOPU) Dry Creek Water Reclamation Facility

Samples and Analytical

Quality Assurance/Quality Control QA/QC

Date: 2-12-13 **] Time:** 10:30 **] [] AM [] PM**

Page 1

Sampling Records
From: Cheyenne BOPU) Dry Creek WRF; To Test America.

[] Dates and time of samples collected

[] Sampling locations documented

[] Sampling types appropriate

[] Sampling volumes recorded

[] Name of person sampling recorded

[] Types of sampling containers

[] Methods of preservation

[] Sampling quality assurance/quality control QA/QC available

[] Pollutant limits red flagged if over mg/kg (Table 1,2,3,4 and Section 503.13) (Class A and B Biosolids)

[] Certification statement signed with each laboratory analytical report:

1. Pathogen reduction
2. Vector attraction reduction operators at Dry Creek WRF analysis samples. Results from daily sheets and results, recorded daily.
3. Management Practices
4. Site restrictions

[] Class A sludge: average temperature, (volatile solids percent) and (total solids of dry sludge) once a month. Turn rows once a month, weather permitting.

[] Chain of custody record

Date: 2-12-13] Time: 10:30] [] AM [] PM

Page 2

Analytical Records

From: (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories date and time of sample analysis

[] Name of analyst

[] Analytical methods used including digestion method

[] Analyses and calculation results properly documented or verifiable

[] All analyses are reported on dry weight basis

[] Contract Laboratory:
Test America Laboratory, Inc.
Shipping: 4955 Yarrow Street
Arvada, CO 80002.

Dilea Griego
Project Manager
Direct ph #: 303-736-0173
DiLea.Griego@testamericanic.com
Quote # 28005066

Billing: Test America Denver
4955 Yarrow Street
Arvada, CO 80002
Ph: 303-736-0100
Fax: 303-431-7171

Joy Chang
Project Manager
4955 Yarrow Street
Arvada, CO 80002
Cel: 623-209-9961
Joy.Chang@testamericanic.com

[] Analytical quality assurance/quality control (QA/QC) available

[] Analytical results available

[] Chain of custody record

Date: 2-12-13]Time: 10:30] [] AM [] PM

Page 3

Sample Containers
From (Cheyenne BOPU) Dry Creek WRF
To: Test America Denver Laboratories

No. 1 Raw Sludge Containers:
4 Glass Container 16 oz.

No. 2 Primary Digester Sludge Containers
2 Glass Container 8 oz.

No. 3 Secondary Digester Containers:
2 Glass Container 8 oz.

No. 4 Dry Sludge Containers
2 Glass Container 8 oz.

5. Cooling with 2 gallon plastic bags for ice.

6. Chain of Custody Record and Labels that stick onto the jars.

7. 1 Cooler (21 inches long) X (14 inches wide) X (11 to 12 inches high.

Date: 2-12-13 **] Time:** 10:30 **] [] AM [] PM**

Page 4

List of Analysis Required for
Biosolids (Class A or B Program

The following listed analysis is required for wastewater # 1. Raw Sludge:

Analysis	=	Units
Agronomic Properties		
Ammonia as N, KCL Extract	=	% Dry
Nitrogen, Organic	=	Cal.
Total Kjeldahl Nitrogen	=	% Dry
Phosphorus as P	=	%Dry
Physical Properties		
Corrosivity- pH	=	Units
Moisture	=	%
Metals		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance on all (QA/QC program and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Date: 2-12-13 **] Time:** 10:30 **] [] AM [] PM**

Page 5

List of Analysis Required for
Biosolids (Class A or B) Program

The following listed analyses are required for #2. Primary Digester Sludge, # 3. Secondary Digester Sludge and; # 4. Dry Sludge:

Agronomic Properties		Units
Ammonia as N, KCL Extract	=	% Dry
Nitrogen Organic	=	Cal.
Total kjedahl Nitrogen	=	% Dry
Phosphorus as P	=	% Dry
Physical Properties		
Corrsivity - pH	=	Units
Moisture	=	%
Metals - Total		
Mercury	=	Mg/kg Dry
Potassium as K	=	Mg/kg Dry
*Polychlorinated	Biphenyls	(PCB's)
Aroclor - 1016	To be tested 2017	Mg/kg
Aroclar - 1221	To be tested 2017	Mg/kg
Aroclar - 1232	To be tested 2017	Mg/kg
Aroclar - 1242	To be tested 2017	Mg/kg
Aroclar - 1248	To be tested 2017	Mg/kg
Aroclar - 1254	To be tested 2017	Mg/kg
Aroclar - 1260	To be tested 2017	Mg/kg

***PCB's for dry sludge need to be tested in the year 2017.**

All analysis on dry weight basis.

All laboratories must have quality control /quality assurance (QA/QC) program on all analysis and data sheet. Digestion method included on metals.

Monitoring (six times per year) February, April, June, August, October, and December.

Zone: Dry Sludge E.

Date: 2-12-13 **]Time:** 10:30 **] [] AM [] PM**

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007.

Samples Collected by: Chet Barber. [**Date/Time:** 2-12-13/10:30Am

---

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories, Inc.

Address: 4955 Yarrow St.

City: Arvada] **State:** CO] **Zip Code:** 80002]

Name of Analyst: D. Lu Griego - Project Manager.

This Certification is signed by: D. Lu Griego.

Date: 2-28-13] **Time:** 14:22] [] AM [X] PM

Denver
4955 Yarrow Street

Arvada, CO 80002
phone 303.736.0100 fax 303.431.7171

3.0°C Th PO
2-13-13

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Chet Barkell	Same	2/12/2013	COC No:
Dry Creek WRF	307-637-0865, Fax. 307-635-6833	Lab Contact:	FedEx or UPS	____ of ____ COCs
8911 Campstool RD	Analysis Turnaround Time			Job No.
Cheyenne, WY 82007	Calendar (C) or Work Days (W) ____			
307-637-0865	TAT if different from Below ____			
307-635-68833	☐ 2 weeks			SDG No.
Biosolids	☐ 1 week			
Dry Creek WRF	☐ 2 days			
	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Ammonia	Nitrogen Organic	Total Kjeldahl Nitrogen	Phosphorous as P	Pb	Mercury	Potassium	Nitrate & Nitrite	ID # WYSL-22934/Permit # WYG-650002
#1 Raw sludge	2/12/13	10:00 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 2 Primary Digester	2/12/13	10:00 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 3 Secondary Digester	2/12/13	10:00 AM	Liquid	Sludge			X	X	X	X	X	X	X	X	
# 4 Dry sludge	2/12/13	10:00 AM	Dry	Sludge			X	X	X	X	X	X	X	X	Zone E
															Test Nitrogen organic on dry Sludge
															all the time

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Attn. Project Manager. Dilea Griego

Relinquished by: Chet Barkell	Company: BOPU	Date/Time:2-12-2013/ 10:30 am	Received by:	Company: TAD	Date/Time: 2/13/13 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ATTACHMENT: 2

BIOSOLIDS TRACKING PROGRAM

2013

CHEYENNE	2013							
DRY CREEK WATE R RECLAMATION FACILITY								
BIOSOLIDS TRACKING PROGRAM								
DISPOSAL SITE: 12								
Owner: Brant Miller	Ph: 307-649-2289	Latitude: N 41* - 06.300': Longitude W 104* -29.253'						
Address: 41778		Township: 13 N	Range: 64 W	Section 12				
County Rd. 207		Acers:35						
Carpenter WY,82054								
TOTAL HECTARS	12.95	TOTAL ACERS	25.6	SOIL pH:	7.07	CEC	17	
DATE OF APPLICATION:			Date:10-9-2013	THRU	Date::12-30-2013			
CUBIC YARDS APPLIED	329.60							
POUNDS PER CUBIC YARD	1000.00							
METRIC DRY TONS APPLIED	149.44							
METRIC TONS PER HECTARE	11.53							
US DRY TONS APPLIED	164.80							
US DRY TONS PER ACRE	6.43							
SLUDGE CHARACTERISTICS:			AS APPLID		PCBs		AS APPLID	
TOTAL SOLIDS (%);			78.60		AROCLOR-1016		ND	
pH STANDARD UNITS			5.58		AROCLOR-1221		ND	
Fecal MPN/gm			2.61		AROCLOR-1232		ND	
					AROCLOR-1242		ND	
					AROCLOR-1248		ND	
					AROCLOR-1254		ND	
					AROCLOR-1260		ND	
TOTAL NUTRIENTS:			AS APPLID		Kg/HECTARE		Lbs/Acre	
AMMONIA NITROGEN mg/Kg)			4765.00		68.74		61.28	
KJELDAHL NITROGEN mg/kg)			7600.00		109.64		97.74	
PHOSPHORUS (mg/Kg)			17333.00		250.05		222.90	
POTASSIUM mg/Kg			2017.00		29.10		25.94	
TOTAL METALS (Mg/Kg):		PCC	AS APPLID		Kg/HECTARE		Lbs/Acre	
		(Mg/Kg)						
ARSENIC		75	3.35		0.05		0.04	
CADMIUM		85	1.60		0.02		0.02	
COPPER		4300	552.00		7.96		7.10	
LEAD		840	36.65		0.53		0.47	
MERCURY		57	1.44		0.02		0.02	
MOLYBDENUM		75	5.85		0.08		0.08	
NICKEL		420	8.75		0.13		0.11	
SELENIUM		100	10.60		0.15		0.14	
ZINC		7500	478.80		6.91		6.16	

CHEYENNE	2013						
DRY CREEK WATE R RECLAMATION FACILITY							
BIOSOLIDS TRACKING PROGRAM							
DISPOSAL SITE: 7							
Owner: Brant Miller	Ph: 307-649-2289						
Address: 41778		Latitude N 41* - 06.262':	Longitude W 104*-28.822'				
County Rd. 207		Township: 13 N	Range: 64 W	Section: 7	Crop: Pasture		
Carpenter WY,82054		Acers: 320					
TOTAL HECTARS	9.05	TOTAL ACERS	22.4	SOIL pH:	7.56	CEC	15
DATE OF APPLICATION:			Date:9-26-2013	THRU	Date::10-9-2013		
CUBIC YARDS APPLIED	288.40						
POUNDS PER CUBIC YARD	1000.00						
METRIC DRY TONS APPLIED	130.76						
METRIC TONS PER HECTARE	14.44						
US DRY TONS APPLIED	144.19						
US DRY TONS PER ACRE	6.43						
SLUDGE CHARACTERISTICS:			AS APPLID		PCBs		AS APPLID
TOTAL SOLIDS (%);			78.60		AROCLOR-1016		ND
pH STANDARD UNITS			5.58		AROCLOR-1221		ND
Fecal MPN/gm			2.61		AROCLOR-1232		ND
					AROCLOR-1242		ND
					AROCLOR-1248		ND
					AROCLOR-1254		ND
					AROCLOR-1260		ND
TOTAL NUTRIENTS:			AS APPLID		Kg/HECTARE		Lbs/Acre
AMMONIA NITROGEN mg/Kg)			4765.00		68.74		61.28
KJELDAHL NITROGEN mg/kg)			7600.00		109.64		97.74
PHOSPHORUS (mg/Kg)			17333.00		250.05		222.90
POTASSIUM mg/Kg			2017.00		29.10		25.94
TOTAL METALS (Mg/Kg):		PCC	AS APPLID		Kg/HECTARE		Lbs/Acre
		(Mg/Kg)					
ARSENIC		75	3.35		0.05		0.04
CADMIUM		85	1.60		0.02		0.02
COPPER		4300	552.00		7.96		7.10
LEAD		840	36.35		0.52		0.47
MERCURY		57	1.44		0.02		0.02
MOLYBDENUM		75	5.85		0.08		0.08
NICKEL		420	8.75		0.13		0.11
SELENIUM		100	10.60		0.15		0.14
ZINC		7500	478.80		6.91		6.16

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Attachment: #6.
Dry Creek Water Reclamation Facility

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Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ATTACHMENT: 2A

DATES OF BIOSOLIDS

APPLICATION

2013

Dry Creek WRF	2/12/2013	Site							
8911 Campstool Rd.									
Cheyenne, WY 82007									
Owner: Brant Miller	Ph: 307-649-2289								
Address: 41778									
County Rd. 207									
Carpenter WY,82054									
Latitude N 41* - 06.262':	Longitude W 104*-28.822'								
Township: 13 N	Range: 64 W	Section: 7							
Acers: 320									
Latitude: N 41* - 06.300':	Longitude W 104* -29.253'								
Township: 13 N	Range: 64 W	Section 12							
Acers:35									
2013									
Biosolids Class B									
Site:7									
	Date	Time	No. Loads	US Ton	Me Ton	Lbs	Cu/yard	Zone	
Section 7	9/26/2013	4:00 PM	5	25.75	23.35	51,500	51.5	E	
Section 7	9/30/2013	3:30 PM	4	20.6	18.68	41,200	41.2	E	
Total			**9**	**46.35**	**42.03**	**92,700**	**92.7**		
Section 7	10/2/2013	4:10 PM	5	25.75	23.35	51,500	51.5	E	
Section 7	10/3/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/4/2013	3:50 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/7/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/9/2013	11:00 AM	2	10.3	9.34	20,600	20.6	E	
Total			**19**	**97.85**	**88.73**	**195,700**	**195.7**		
Section 12	10/9/2013	3:50 PM	1	5.15	4.67	10,300	10.3	E	
Section 12	10/10/2014	3:50 PM	4	20.6	18.68	41,200	41.2	E	
Total			**5**	**25.75**	**23.35**	**51,500**	**51.5**		
Section 12	11/4/2013	4:15 PM	5	25.75	23.35	51,500	51.5	E	
Section 12	11/5/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 12	11/6/2013	2:30 PM	3	15.45	14.01	30,900	30.9	E	
Section 12	11/7/2013	3:00 PM	3	15.45	14.01	30,900	30.9	E	
Total			**15**	**77.25**	**70.05**	**154,500**	**154.5**		
									Page 1 /2

2013 Biosolids									
Section 12	12/2/2013	9:30 AM	1	5.15	4.67	10,300	10.3	E	
Section 12	12/18/2013	4:00 PM	5	25.75	23.35	51,500	51.5	E	
Section 12	12/19/2013	2:00 PM	3	15.45	14.01	30,900	30.9	E	
Section 12	12/30/2013	3:50 PM	3	15.45	14.01	30,900	30.9	E	
Total			**12**	**61.8**	**56.04**	**123,600**	**123.6**		
Final Total			**9**	**46.35**	**42**	**92,700**	**92.7**		
			19	**97.85**	**88.75**	**195,700**	**195.7**		
			5	**25.75**	**23.35**	**51,500**	**51.5**		
			15	**77.25**	**70.05**	**154,500**	**154.5**		
			12	**61.8**	56.04	123,600	**123.6**		
Total			**60**	**309**	**280**	**618,000**	**618**		
									Page 2/2

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

ATTACHMENT: 3

LANDOWNER

AGREEMENT

2013

Approved as to form only:
AKR
Date: 2-26-13

SEWAGE SLUDGE PRODUCTS (BIOSOLIDS)
LAND APPLICATION AGREEMENT

This Agreement is made this 26 day of March, 2013, by and between the Board of Public Utilities ("BOARD") of the City of Cheyenne, Wyoming ("CITY"), and Brent Miller, a person, company or agency (hereinafter "LAND OWNER") for the application of Class A or Class B sewage sludge product.

WITNESSETH

WHEREAS, the BOARD manages, operates, maintains and controls the municipal water works, sanitary sewer system, and disposal system for the City of Cheyenne, Wyoming;

WHEREAS, the BOARD generates treated sewage sludge products ("biosolids") in its wastewater treatment process and desires to provide the biosolids to LAND OWNER for application on specific property designated by the LAND OWNER (the "designated property"), as described in Exhibit A; and

WHEREAS, the LAND OWNER desires to have the biosolids applied by the BOARD to such designated property.

NOW, THEREFORE, in consideration of the mutual promises and covenants herein contained, it is agreed by and between the BOARD and the LAND OWNER as follows:

1. The BOARD agrees to:

a. Provide, apply, sample, and test biosolids on the designated property pursuant to the terms and conditions of this Agreement and in accordance with the BOARD's "General Permit for Facilities/Operations that Generate, Treat, and/or Use/Dispose of Sewage Sludge by Means of Land Application, Landfill, and Surface Disposal Under the National Pollutant Discharge Elimination System in the State of Wyoming Except for Indian Country," Permit No.: WYG-650002 (hereinafter "Permit"), granted and authorized by the United States Environmental Protection Agency, Region 8, a copy of which is available upon request to the BOARD.

b. Produce biosolids that meet or exceed all parameters of the Permit and D.E.Q Chapter 15 (Standards for the Use or Surface Disposal of Biosolids) and contain no hazardous or toxic chemicals in concentrations which exceed those authorized by the Wyoming Department of Environmental Quality and Region 8 of the Environmental Protection Agency.

c. Comply with all reasonable requests from the LAND OWNER relating to the BOARD's physical operations on the designated property.

2. The LAND OWNER agrees to:

a. Allow the BOARD access to the designated property to apply biosolids, conduct soil sampling, conduct water sampling, and perform other tests and procedures as required by the Permit and any other applicable laws, rules, and regulations.

b. Prohibit livestock grazing on the designated property where Class B Biosolids have been applied for a period of at least (30) days after application has occurred.

c. Take all necessary actions to prevent the application of Class B Biosolids to crops or vegetation intended for human consumption, and to property where such crops or vegetation will be planted, grown, and/or harvested.

d. Work with the BOARD to ensure that the application of biosolids is in accordance with the Permit and any other applicable laws, rules, and regulations.

e. Indemnify, hold harmless and defend the BOARD and the CITY from and against any and all liabilities, claims, penalties, forfeitures or suits, and the cost and expenses incident thereto, including reasonable attorney's fees, that may hereafter arise, including the death or injury of any person or any destruction or damage to fields, crops, livestock, water or water transportation ditches and devices as a result of any activities of the BOARD, its agents and employees arising from the sale or use of the biosolids and the management of this sludge plan.

3. Warranties: The BOARD does not insure or warrant any results or effects of the land application of its biosolids product, including but not limited to specific increases in field or pasture production rate, plant growth rates, or plant qualities.

4. Term and Effective Date: This Agreement shall commence on the date the last required signature is attached hereto and shall continue in full force and effect for a period of five years from the date on which it is signed. The Agreement may be renewed for one additional five year period upon the written concurrence of all signature parties to this Agreement.

5. Modification: Any changes, modifications, revisions or amendments to this Agreement which are mutually agreed upon by the parties to this Agreement shall be incorporated by written instrument, executed and signed by all parties to this Agreement.

6. Governmental Immunity: The BOARD and the CITY and their officials and employees do not waive governmental immunity by entering into this Agreement and specifically retain all immunities and defenses available to them as Governmental Entities pursuant to Wyo. Stat. § 1-39-101, *et seq*, and all other applicable laws, except to the extent necessary solely for the enforcement of the terms and conditions of this Agreement as between the parties. Further, the BOARD and the CITY fully retain all immunities and defenses provided by law with regard to any action, whether in tort, contract or any other theory of law, based on this Agreement. Designation of venue, choice of law and similar provisions should not be construed as a waiver of governmental immunity.

7. Governing Law, Jurisdiction and Venue: The construction, interpretation and enforcement of this Agreement shall be governed by the laws of the State of Wyoming. The courts of the State of Wyoming shall have jurisdiction over any action arising out of this Agreement and over the parties, and the venue shall be the First Judicial District, Laramie County, Wyoming.

8. Notices: Any notice, correspondence or billing required to be given by the terms of this Agreement shall be delivered by hand, or delivered by mail, postage prepaid, to the addresses of the respective parties stated below:

BOARD: Jim Hughes, Water Reclamation Division Manager
Board of Public Utilities
P.O. Box 1469
Cheyenne, WY 82003-1469
Telephone 1-307-635-3163

LAND OWNER: Brant Miller
4178 Rd. 207
Carpenter WY 82054

9. Termination: The BOARD and the LAND OWNER may, by written notice to the other party, terminate this Agreement in whole or in part by giving the other party fifteen (15) days written notice.

10. Assignment: Neither party shall assign this Agreement without prior written consent of both parties. Any delegation or assignment shall not operate to relieve either party of its responsibilities hereunder.

11. Third Party Rights: The Parties do not intend to create in any other individual or entity the status of third party beneficiary, and this Agreement shall not be construed so as to create such status. The rights, duties and obligations contained in this Agreement shall operate only between the parties to this Agreement, and shall inure solely to the benefit of the parties to this Agreement. The parties to this Agreement intend and expressly agree that only the parties signatory to this Agreement shall have any legal or equitable right to seek to enforce this Agreement, to seek any remedy arising out of a party's performance or failure to perform any term or condition of this Agreement, or to bring action for breach of this Agreement. This paragraph is not intended nor shall it be construed to waive any of the parties' immunities.

12. Entire Agreement of the Parties: This Agreement contains the entire understanding of the parties. There are no other terms or conditions, written or oral, concerning or controlling this matter.

REST OF THIS PAGE INTENTIONALLY LEFT BLANK

IN WITNESS WHEREOF, the parties to this Agreement, through their duly authorized representatives, have executed this Agreement on the days and dates set out below and certify that they have read, understood and agreed to the terms and conditions of this Agreement.

The effective date of this Agreement is the date of the last signature affixed to this page.

BOARD OF PUBLIC UTILITIES

BY: _____

Timothy E. Wilson, Director

State of Wyoming)
)ss
County of Laramie)

Subscribed and sworn before me this 29 day of March, 2013.

_____
Notary Public

My Commission Expires: 04/08/2015

DENISE A. FETZER NOTARY PUBLIC
COUNTY OF LARAMIE STATE OF WYOMING
MY COMMISSION EXPIRES APR. 8, 2015

(LAND OWNER _____)

BY: Brant Mills

_____

State of WYOMING)
)ss
County of LARAMIE)

Subscribed and sworn before me this 26th day of MARCH, 2013.

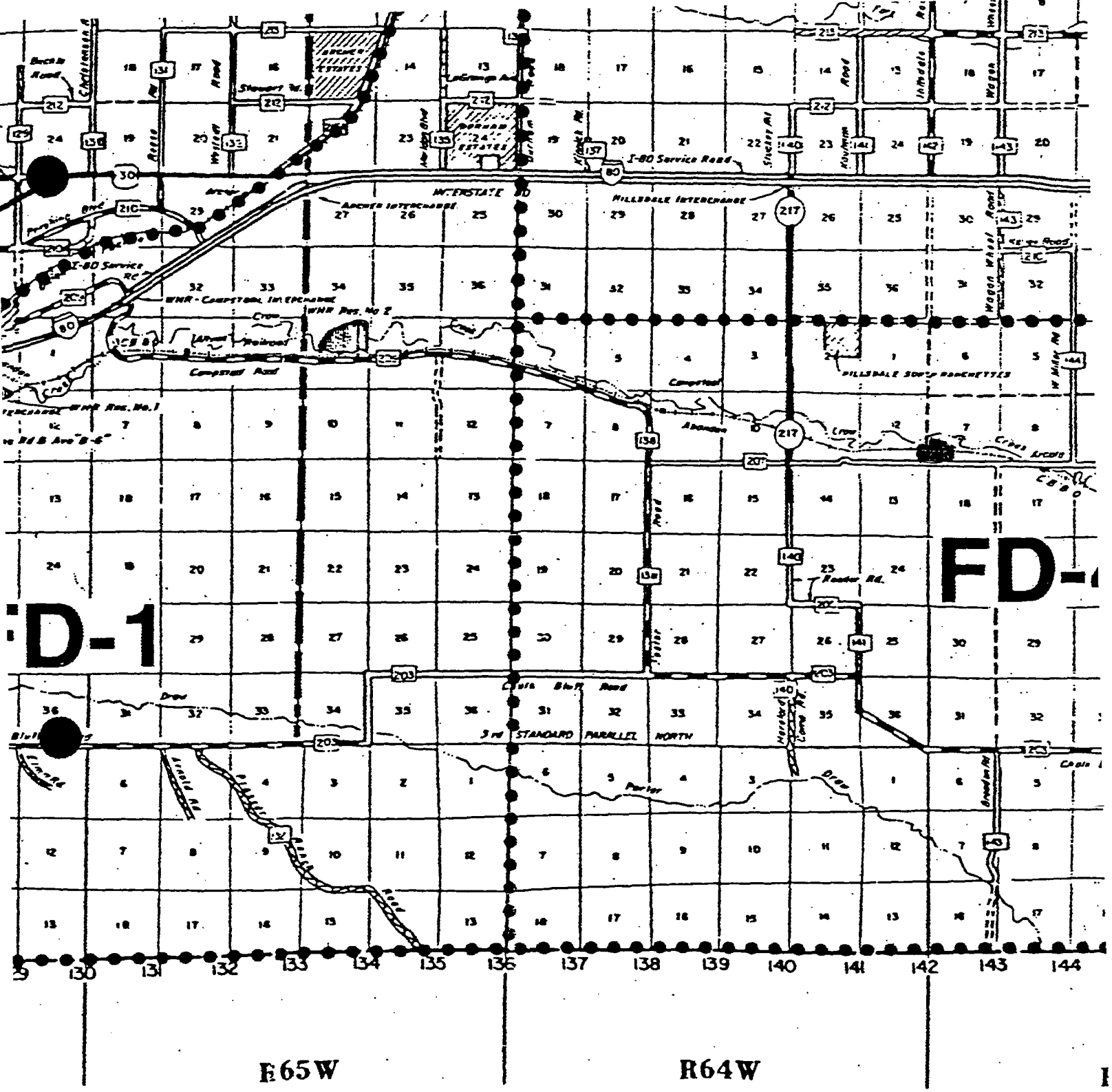
_____
Notary Public

My Commission Expires: 3/24/2014

EARL M. SWEENEY NOTARY PUBLIC LARAMIE COUNTY

Revised Atty 012613

EXHIBIT A



FD-1
FD-
I-80 Service Road
INTERSTATE 80
ARCHER INTERCHANGE
HILLSDALE INTERCHANGE
WHR - CAMPSTOOL INTERCHANGE
WHR Res. No 2
Campstool Road
HILLSDALE SOUTH RANCHETTES
Crow
Abandon
Creek
Arcola
Reeder Rd.
Coals Bluff Road
3rd STANDARD PARALLEL NORTH
Porter
Draw
Wagon Wheel Road
Kaufman Road
Inffedale Road
Stewart Rd.
Arnold Rd.
Pleasant Ranch Road
Elm Rd.
Broadway Rd.
Hereford Corner Rd.
Chain
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
R65W
R64W

O L O R A D O

Dry Creek WRF	2/12/2013	Site							
8911 Campstool Rd.									
Cheyenne, WY 82007									
Owner: Brant Miller	Ph: 307-649-2289								
Address: 41778									
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Carpenter WY,82054									
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Section 7	10/2/2013	4:10 PM	5	25.75	23.35	51,500	51.5	E	
Section 7	10/3/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/4/2013	3:50 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/7/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/9/2013	11:00 AM	2	10.3	9.34	20,600	20.6	E	
Total			**19**	**97.85**	**88.73**	**195,700**	**195.7**		
Section 12	10/9/2013	3:50 PM	1	5.15	4.67	10,300	10.3	E	
Section 12	10/10/2014	3:50 PM	4	20.6	18.68	41,200	41.2	E	
Total			**5**	**25.75**	**23.35**	**51,500**	**51.5**		
Section 12	11/4/2013	4:15 PM	5	25.75	23.35	51,500	51.5	E	
Section 12	11/5/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 12	11/6/2013	2:30 PM	3	15.45	14.01	30,900	30.9	E	
Section 12	11/7/2013	3:00 PM	3	15.45	14.01	30,900	30.9	E	
Total			**15**	**77.25**	**70.05**	**154,500**	**154.5**		
									Page 1 /2

2013 Biosolids									
Section 12	12/2/2013	9:30 AM	1	5.15	4.67	10,300	10.3	E	
Section 12	12/18/2013	4:00 PM	5	25.75	23.35	51,500	51.5	E	
Section 12	12/19/2013	2:00 PM	3	15.45	14.01	30,900	30.9	E	
Section 12	12/30/2013	3:50 PM	3	15.45	14.01	30,900	30.9	E	
Total			**12**	**61.8**	**56.04**	**123,600**	**123.6**		
Final Total			**9**	**46.35**	**42**	**92,700**	**92.7**		
			19	**97.85**	**88.75**	**195,700**	**195.7**		
			5	**25.75**	**23.35**	**51,500**	**51.5**		
			15	**77.25**	**70.05**	**154,500**	**154.5**		
			12	**61.8**	56.04	123,600	**123.6**		
Total			**60**	**309**	**280**	**618,000**	**618**		
									Page 2/2

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ATTACHMENT:4

PATHOGEN REDUCTION

2013

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

ATTACHMENT: 5

VECTOR ATTRACTION

REDUCTION

2013

Volatile Destruction 2013			
Dry creek			
Raw Sludge			Destruction/
Month	TS	VS	Digester %
January	3.73	3.53	61%
February	3.75	3.33	36%
March	3.62	3.35	55%
April	4.16	3.72	50%
May	5.83	5	44%
June	3.35	2.97	46%
July	3.41	3.02	40%
August	3.88	3.19	40%
September	3.8	2.9	42%
October	3.84	3.3	66%
November	4.3	3.79	60%
December	4.59	4.1	61%
Total	**48.26**	**42.2**	**601%**
Average	**4.02**	**3.52**	**50%**

PRIMARY CLARIFIERS AND DRUM THICKENERS' SLUDGE PUMPED						
TO DIGESTER AT THE DRY CREEK WATER RECLAMATION FACILITY IN 2013						
					Inf. Flow	Sludge Monthly
MONTH	GALLONS	DMT	%SOLIDS	LBS	Monthly Average	Aver.Temperature
Jan	889,500	125.51	3.73	276,707.44	5.08	93
Feb	772,200	109.55	3.75	241,505.55	5.4	95
Mar	998,400	136.73	3.62	301,424.95	5.28	94.5
Apr	1,180,500	185.78	4.16	409,567.39	5.66	94.6
May	1,450,500	319.91	5.83	705,265.01	6.07	94
Jun	1,616,700	204.89	3.35	451,689.81	5.68	94.8
Jul	1,153,500	148.80	3.41	328,048.48	5.66	98.8
Aug	1,064,100	156.19	3.88	344,334.25	5.15	98
Sep	1,145,550	127.87	3.8	281,900.34	5.96	97.3
Oct	1,182,900	171.84	3.84	378,830.82	5.65	93.3
Nov	1,064,100	173.10	4.3	381,607.54	4.74	96.9
Dec	1,206,600	209.51	4.59	461,893.72	4.59	95.3
Total	**13,724,550**	**2069.66**		**4,562,775.30**	**5.41**	**95.5**

CROW CREEK WATER RECLAMATION FACILITY, PRIMARY AND SECONDARY SLUDGE FROM CLARIFIERS ARE BEING PUMPED TO DRY CREEK WATER RECLAMATION FACILITY TO BE FURTHER PROCESSED. THE SLUDGE IS DISCHARGED IN THE INTERCEPTOR LINE TO DRY CREEK WATER RECLAMATION FACILITY. THE TOTAL SOLIDS FROM CROW CREEK WATER RECLAMATION ARE CALCULATED AS AN ESTIMATE OF A CONSERVATIVE .2 PERCENT OF SOLIDS.

					Inf. Flow
MONTH	GALLONS	DMT	%SOLIDS	LBS	Monthly Average
Jan	31,993,716	242.06	0.2	276,707.44	2.91
Feb	25,957,937	196.40	0.2	432,978.39	2.87
Mar	29,007,046	219.47	0.2	483,837.53	2.81
Apr	31,408,249	237.63	0.2	523,889.59	2.95
May	28,370,438	214.65	0.2	473,218.91	3.25
Jun	24,454,222	185.02	0.2	407,896.42	3.09
Jul	15,103,233	114.27	0.2	251,921.93	3.08
Aug	8,887,304	67.24	0.2	148,240.23	3.05
Sep	10,841,595	82.03	0.2	180,837.80	3.35
Oct	17,203,199	130.16	0.2	245,849.44	3.66
Nov	14,739,175	111.52	0.2	245,849.44	3.42
Dec	15,273,966	115.56	0.2	254,769.75	3.36
Total	**253,240,080**	**1,916.01**		**4,224,044.53**	
Dry Creek	**13,724,550**	**2,069.66**		**4,562,755.30**	
Final Total	**266,964,630**	**3,985.67**		8,786,799.83	

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

ATTACHMENT: 6

MANAGEMENT

PRACTICES

2013

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

ATTACHMENT: 7

SITE RESTRICTIONS

2013

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

Dry Creek WRF	2/12/2013	Site							
8911 Campstool Rd.									
Cheyenne, WY 82007									
Owner: Brant Miller	Ph: 307-649-2289								
Address: 41778									
County Rd. 207									
Carpenter WY,82054									
Latitude N 41* - 06.262':	Longitude W 104*-28.822'								
Township: 13 N	Range: 64 W	Section: 7							
Acers: 320									
Latitude: N 41* - 06.300':	Longitude W 104* -29.253'								
Township: 13 N	Range: 64 W	Section 12							
Acers:35									
2013									
Biosolids Class B									
Site:7									
	Date	Time	No. Loads	US Ton	Me Ton	Lbs	Cu/yard	Zone	
Section 7	9/26/2013	4:00 PM	5	25.75	23.35	51,500	51.5	E	
Section 7	9/30/2013	3:30 PM	4	20.6	18.68	41,200	41.2	E	
Total			**9**	**46.35**	**42.03**	**92,700**	**92.7**		
Section 7	10/2/2013	4:10 PM	5	25.75	23.35	51,500	51.5	E	
Section 7	10/3/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/4/2013	3:50 PM	4	20.6	18.68	41,200	41.2	E	
Section 7	10/7/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
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Total			**19**	**97.85**	**88.73**	**195,700**	**195.7**		
Section 12	10/9/2013	3:50 PM	1	5.15	4.67	10,300	10.3	E	
Section 12	10/10/2014	3:50 PM	4	20.6	18.68	41,200	41.2	E	
Total			**5**	**25.75**	**23.35**	**51,500**	**51.5**		
Section 12	11/4/2013	4:15 PM	5	25.75	23.35	51,500	51.5	E	
Section 12	11/5/2013	3:45 PM	4	20.6	18.68	41,200	41.2	E	
Section 12	11/6/2013	2:30 PM	3	15.45	14.01	30,900	30.9	E	
Section 12	11/7/2013	3:00 PM	3	15.45	14.01	30,900	30.9	E	
Total			**15**	**77.25**	**70.05**	**154,500**	**154.5**		
									Page 1 /2

2013 Biosolids									
Section 12	12/2/2013	9:30 AM	1	5.15	4.67	10,300	10.3	E	
Section 12	12/18/2013	4:00 PM	5	25.75	23.35	51,500	51.5	E	
Section 12	12/19/2013	2:00 PM	3	15.45	14.01	30,900	30.9	E	
Section 12	12/30/2013	3:50 PM	3	15.45	14.01	30,900	30.9	E	
Total			**12**	**61.8**	**56.04**	**123,600**	**123.6**		
Final Total			**9**	**46.35**	**42**	**92,700**	**92.7**		
			19	**97.85**	**88.75**	**195,700**	**195.7**		
			5	**25.75**	**23.35**	**51,500**	**51.5**		
			15	**77.25**	**70.05**	**154,500**	**154.5**		
			12	**61.8**	56.04	123,600	**123.6**		
Total			**60**	**309**	**280**	**618,000**	**618**		
									Page 2/2

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 12 Date: 11-1-2013

Observation: ready to land apply some more

Problems Needing Correction: NA

Inspector: Chet Barkell, Chet Barkell
Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 12 Date: 10-8-2013

Observation: Every Thing Looks Good & ready to Land Apply.

Problems Needing Correction:

Inspector: Chet Barkell, Chet Barkell
Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 7 Date: 10-1-2013

Observation: Every Thing Looks Good.

Problems Needing Correction: NA

Inspector: Chet Barkell, Chet Barkell
Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 7 Date: 9-25-2013

Observation: ready TO land apply.

Problems Needing Correction: NA

Inspector: Chet Barkell, Chet Barkell
Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 7+12 Date: 4-15-2013

Observation: The weather is Bad snowing

Can't spread

Problems Needing Correction: NA

Inspector: Chet Barkell / Chet Barkell

Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 7412 Date: 3-28-2013

Observation: It rained + snowing everthing is wet

Problems Needing Correction: NA

Inspector: Chet Barkell, Chet Barkell
Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION

P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 7+12 Date: 2-12-13

Observation: It all Looks Good

going To put 90 Acres into

alFalFa.

Problems Needing Correction: NA

Inspector: Chet Barkell / Chet Barkell

Printed Name Signature

Board of Public Utilities

WATER RECLAMATION DIVISION
P.O. Box 1469, 2416 Snyder Ave. Cheyenne, Wyoming 82003 Ph (307) 637-6460
Dry Creek Water Reclamation facility 8911 Campstool Rd, (307)635-3163
Cheyenne WY 82007 Facsimile (307) 635-6833

BIOSOLIDS MANAGEMENT PROGRAM
LAND APPLICATION SITE INSPECTION

Site: 12 Date: 12-2-2013

Observation: It Look Good. The site Looks Dry.

Problems Needing Correction: NA

Inspector: Chet Barkell / Chet Barkell
Printed Name Signature

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

ATTACHMENT:8B

CORE SAMPLES NEW

SITES FOR BIOSOILDS

LAND APPLICATION

SOIL AND

SOIL SLUDGE MIX 50%

SOIL 50% DRY SLUDGE
2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-38804-1
Client Project/Site: Biosolids - Dry Creek WRF
Revision: 1

For:
Cheyenne Board of Public Utilities
Cheyenne Water and Sewer Department
8911 Campstool Rd.
Cheyenne, Wyoming 82007

Attn: Chet Barkell

Authorized for release by:
3/28/2013 9:42:50 PM

DiLea Griego
Project Manager I
dilea.griego@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-38804-1

3

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE
Client: Cheyenne Board of Public Utilities
Project: Biosolids - Dry Creek WRF
Report Number: 280-38804-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 02/13/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.0 C.

TestAmerica Denver subcontracted the Cation Exchange Capacity (CEC) analysis to TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403. Phone: 802-660-1990.

TOTAL METALS - METHOD 6010B/7471A
Sample SECTION 12 SOIL & MIXED DRY SLUDGE (280-38804-4)[5X] required dilution prior to analysis due to elevated concentrations of target analytes. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-160959 were performed on a sample from another job and the MS exhibited recoveries outside control limits for Phosphorus. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

TOTAL METALS (ICP) - METHOD 6010C
Sample SECTION 12 SOIL (280-38804-3)[2X] required dilution prior to analysis due to matrix effects on the internal standard. The reporting limits have been adjusted accordingly.

No other difficulties were encountered.

GENERAL CHEMISTRY
Samples SECTION 7 SOIL & MIXED DRY SLUDGE (280-38804-2)[10X] and SECTION 12 SOIL & MIXED DRY SLUDGE (280-38804-4)[20X] required dilution prior to analysis for Nitrate Nitrite as N. The reporting limits have been adjusted accordingly.

The matrix spike / matrix spike duplicate (MS/MSD) samples associated with analysis batch 280-161777 were performed on a sample from another job and exhibited recoveries outside control limits for Nitrate Nitrite as N. Method precision and accuracy have been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other difficulties were encountered.

REVISION
Per client request, the sample IDs were revised as listed below:
SECTION 7 SOIL (280-38804-1)
SECTION 7 SOIL & MIXED DRY SLUDGE (280-38804-2)
SECTION 12 SOIL (280-38804-3)
SECTION 12 SOIL & MIXED DRY SLUDGE (280-38804-4)

No other changes were made.

Definitions/Glossary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

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Client Sample ID: SECTION 7 SOIL — Lab Sample ID: 280-38804-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	250	J	280	1.5	mg/Kg	1	☼	6010B	Total/NA
Potassium	1600		280	38	mg/Kg	1	☼	6010B	Total/NA
Sodium	53	J	390	5.9	mg/Kg	1	☼	6010C	Total/NA
Nitrate Nitrite as N	38		10	0.31	mg/Kg	1	☼	353.2	Soluble

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Cation Exchange Capacity	15		5.4	5.4	meq/100gm	10		9081	Total/NA
Sodium	15		5.4	5.4	meq/100gm	10		9081	Total/NA
pH adj. to 25 deg C	7.56		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE — Lab Sample ID: 280-38804-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	1900		280	1.5	mg/Kg	1	☼	6010B	Total/NA
Potassium	1800		280	39	mg/Kg	1	☼	6010B	Total/NA
Sodium	65	J	300	4.5	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.23		0.020	0.0066	mg/Kg	1	☼	7471A	Total/NA
Nitrate Nitrite as N	360		100	3.1	mg/Kg	10	☼	353.2	Soluble

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Cation Exchange Capacity	19		5.3	5.3	meq/100gm	10		9081	Total/NA
Sodium	19		5.3	5.3	meq/100gm	10		9081	Total/NA
pH adj. to 25 deg C	6.73		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: SECTION 12 SOIL — Lab Sample ID: 280-38804-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	270	J	300	1.6	mg/Kg	1	☼	6010B	Total/NA
Potassium	2000		300	42	mg/Kg	1	☼	6010B	Total/NA
Sodium	43	J	550	8.3	mg/Kg	2	☼	6010C	Total/NA
Nitrate Nitrite as N	7.0	J	10	0.31	mg/Kg	1	☼	353.2	Soluble

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Cation Exchange Capacity	17		5.4	5.4	meq/100gm	10		9081	Total/NA
Sodium	17		5.4	5.4	meq/100gm	10		9081	Total/NA
pH adj. to 25 deg C	7.07		0.100	0.100	SU	1		9045C	Soluble

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — Lab Sample ID: 280-38804-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	7200		1400	7.3	mg/Kg	5	☼	6010B	Total/NA
Potassium	2300		270	37	mg/Kg	1	☼	6010B	Total/NA
Sodium	76	J	330	5.0	mg/Kg	1	☼	6010C	Total/NA
Mercury	0.56		0.018	0.0060	mg/Kg	1	☼	7471A	Total/NA
Nitrate Nitrite as N	960		220	6.5	mg/Kg	20	☼	353.2	Soluble

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Cation Exchange Capacity	35		5.4	5.4	meq/100gm	10		9081	Total/NA
Sodium	35		5.4	5.4	meq/100gm	10		9081	Total/NA
pH adj. to 25 deg C	6.25		0.100	0.100	SU	1		9045C	Soluble

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL BUR
7471A	Mercury (CVAA)	SW846	TAL DEN
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL DEN
9045C	pH	SW846	TAL DEN
9081	Cation Exchange Capacity (CEC)	SW846	TAL BUR
Moisture	Percent Moisture	EPA	TAL DEN

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Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-38804-1	SECTION 7 SOIL	Solid	02/12/13 10:00	02/13/13 09:30
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Solid	02/12/13 10:00	02/13/13 09:30
280-38804-3	SECTION 12 SOIL	Solid	02/12/13 10:00	02/13/13 09:30
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Solid	02/12/13 10:00	02/13/13 09:30

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Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Method: 6010B - Metals (ICP)

Client Sample ID: SECTION 7 SOIL — **Lab Sample ID: 280-38804-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	250	J	280	1.5	mg/Kg	☼	02/18/13 14:00	02/19/13 03:38	1
Potassium	1600		280	38	mg/Kg	☼	02/18/13 14:00	02/19/13 03:38	1

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	1900		280	1.5	mg/Kg	☼	02/18/13 14:00	02/19/13 03:40	1
Potassium	1800		280	39	mg/Kg	☼	02/18/13 14:00	02/19/13 03:40	1

Client Sample ID: SECTION 12 SOIL — **Lab Sample ID: 280-38804-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	270	J	300	1.6	mg/Kg	☼	02/18/13 14:00	02/19/13 03:43	1
Potassium	2000		300	42	mg/Kg	☼	02/18/13 14:00	02/19/13 03:43	1

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 92.1**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	7200		1400	7.3	mg/Kg	☼	02/18/13 14:00	02/19/13 20:43	5
Potassium	2300		270	37	mg/Kg	☼	02/18/13 14:00	02/19/13 03:45	1

Method: 6010C - Metals (ICP)

Client Sample ID: SECTION 7 SOIL — **Lab Sample ID: 280-38804-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	53	J	390	5.9	mg/Kg	☼	02/18/13 14:15	02/20/13 02:02	1

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	65	J	300	4.5	mg/Kg	☼	02/18/13 14:15	02/20/13 02:17	1

Client Sample ID: SECTION 12 SOIL — **Lab Sample ID: 280-38804-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	43	J	550	8.3	mg/Kg	☼	02/18/13 14:15	02/22/13 13:41	2

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 92.1**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	76	J	330	5.0	mg/Kg	☼	02/18/13 14:15	02/20/13 02:43	1

Client Sample Results

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Method: 7471A - Mercury (CVAA)

Client Sample ID: SECTION 7 SOIL — **Lab Sample ID: 280-38804-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.018	0.0058	mg/Kg	☼	02/14/13 14:45	02/14/13 21:09	1

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.23		0.020	0.0066	mg/Kg	☼	02/14/13 14:45	02/14/13 21:12	1

Client Sample ID: SECTION 12 SOIL — **Lab Sample ID: 280-38804-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.016	0.0051	mg/Kg	☼	02/14/13 14:45	02/14/13 21:14	1

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 92.1**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.56		0.018	0.0060	mg/Kg	☼	02/14/13 14:45	02/14/13 21:16	1

General Chemistry

Client Sample ID: SECTION 7 SOIL — **Lab Sample ID: 280-38804-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity	15		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 20:54	10
Sodium	15		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 20:54	10
Percent Moisture	4.1		0.10	0.10	%			02/15/13 12:29	1

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity	19		5.3	5.3	meq/100gm		02/19/13 14:23	02/21/13 21:09	10
Sodium	19		5.3	5.3	meq/100gm		02/19/13 14:23	02/21/13 21:09	10
Percent Moisture	4.7		0.10	0.10	%			02/15/13 12:29	1

Client Sample ID: SECTION 12 SOIL — **Lab Sample ID: 280-38804-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity	17		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 21:14	10
Sodium	17		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 21:14	10
Percent Moisture	3.4		0.10	0.10	%			02/15/13 12:29	1

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity	35		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 21:19	10

General Chemistry (Continued)

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	35		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 21:19	10
Percent Moisture	7.9		0.10	0.10	%			02/15/13 12:29	1

General Chemistry - Soluble

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Client Sample ID: SECTION 7 SOIL — **Lab Sample ID: 280-38804-1**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.9**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	38		10	0.31	mg/Kg	☼		02/23/13 13:12	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.56		0.100	0.100	SU			02/20/13 20:07	1

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-2**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 95.3**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	360		100	3.1	mg/Kg	☼		02/23/13 13:14	10

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.73		0.100	0.100	SU			02/20/13 20:07	1

Client Sample ID: SECTION 12 SOIL — **Lab Sample ID: 280-38804-3**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 96.6**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	7.0	J	10	0.31	mg/Kg	☼		02/23/13 13:15	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	7.07		0.100	0.100	SU			02/20/13 20:07	1

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE — **Lab Sample ID: 280-38804-4**
Date Collected: 02/12/13 10:00 — **Matrix: Solid**
Date Received: 02/13/13 09:30 — **Percent Solids: 92.1**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	960		220	6.5	mg/Kg	☼		02/23/13 13:26	20

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH adj. to 25 deg C	6.25		0.100	0.100	SU			02/20/13 20:07	1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 280-160348/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		300	1.6	mg/Kg		02/18/13 14:00	02/19/13 03:10	1
Potassium	ND		300	41	mg/Kg		02/18/13 14:00	02/19/13 03:10	1

Lab Sample ID: LCS 280-160348/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1000	1010		mg/Kg		101	80 - 112
Potassium	5000	4820		mg/Kg		96	89 - 110

Lab Sample ID: 280-38823-A-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	340		956	1560	F	mg/Kg	☼	128	75 - 125
Potassium	3100		4780	7710		mg/Kg	☼	96	56 - 172

Lab Sample ID: 280-38823-A-1-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160959 — **Prep Batch: 160348**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	340		938	1290		mg/Kg	☼	102	75 - 125	19	20
Potassium	3100		4690	7810		mg/Kg	☼	100	56 - 172	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 200-52021/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 52136 — **Prep Batch: 52021**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		500	7.5	mg/Kg		02/18/13 14:15	02/20/13 00:32	1

Lab Sample ID: LCS 200-52021/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 52136 — **Prep Batch: 52021**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sodium	2000	1900		mg/Kg		95	80 - 120

Method: 7471A - Mercury (CVAA)

Lab Sample ID: MB 280-160244/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.017	0.0055	mg/Kg		02/14/13 14:45	02/14/13 20:51	1

Lab Sample ID: LCS 280-160244/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.417	0.398		mg/Kg		96	87 - 111

Lab Sample ID: 280-38732-A-8-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.026		0.466	0.473		mg/Kg	☼	96	87 - 111

Lab Sample ID: 280-38732-A-8-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 160567 — **Prep Batch: 160244**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.026		0.382	0.389		mg/Kg	☼	95	87 - 111	19	20

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MRL 280-161777/18 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161777

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	0.100	0.0805	J	mg/L		81	50 - 150

Lab Sample ID: MB 280-160574/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND		10	0.30	mg/Kg			02/23/13 13:08	1

Lab Sample ID: LCS 280-160574/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	50.0	53.2		mg/Kg		106	90 - 110

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCSD 280-160574/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	49.0	53.3		mg/Kg		109	90 - 110	0	10

Lab Sample ID: 280-38806-B-2-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate Nitrite as N	ND		2340	2080	F	mg/Kg	☼	89	90 - 110

Lab Sample ID: 280-38806-B-2-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Soluble**
Analysis Batch: 161777

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate Nitrite as N	ND		2340	2170		mg/Kg	☼	93	90 - 110	4	10

Method: 9045C - pH

Lab Sample ID: LCS 280-161300/36 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103

Lab Sample ID: LCS 280-161300/56 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161300

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103

Lab Sample ID: LCSD 280-161300/37 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161300

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103	0	5

Lab Sample ID: LCSD 280-161300/57 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 161300

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
pH adj. to 25 deg C	7.00	7.010		SU		100	97 - 103	0	5

Method: 9045C - pH (Continued)

Lab Sample ID: 280-38533-A-15-B DU
Matrix: Solid
Analysis Batch: 161300

Client Sample ID: Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
pH adj. to 25 deg C	8.54			8.540		SU				0	5

Method: 9081 - Cation Exchange Capacity (CEC)

Lab Sample ID: MB 200-52080/1-A ^10
Matrix: Solid
Analysis Batch: 52201

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 52080

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Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cation Exchange Capacity	ND		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 20:49	10
Sodium	ND		5.4	5.4	meq/100gm		02/19/13 14:23	02/21/13 20:49	10

Method: Moisture - Percent Moisture

Lab Sample ID: 280-38812-A-16 DU
Matrix: Solid
Analysis Batch: 160570

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	16			17		%				5	20

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Metals

Prep Batch: 52021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	3050B	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	3050B	
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	3050B	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	3050B	
LCS 200-52021/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 200-52021/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 52136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	6010C	52021
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	6010C	52021
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	6010C	52021
LCS 200-52021/2-A	Lab Control Sample	Total/NA	Solid	6010C	52021
MB 200-52021/1-A	Method Blank	Total/NA	Solid	6010C	52021

Analysis Batch: 52238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	6010C	52021

Prep Batch: 160244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38732-A-8-D MS	Matrix Spike	Total/NA	Solid	7471A	
280-38732-A-8-E MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	7471A	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	7471A	
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	7471A	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	7471A	
LCS 280-160244/2-A	Lab Control Sample	Total/NA	Solid	7471A	
MB 280-160244/1-A	Method Blank	Total/NA	Solid	7471A	

Prep Batch: 160348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	3050B	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	3050B	
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	3050B	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	3050B	
280-38823-A-1-C MS	Matrix Spike	Total/NA	Solid	3050B	
280-38823-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
LCS 280-160348/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 280-160348/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 160567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38732-A-8-D MS	Matrix Spike	Total/NA	Solid	7471A	160244
280-38732-A-8-E MSD	Matrix Spike Duplicate	Total/NA	Solid	7471A	160244
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	7471A	160244
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	7471A	160244
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	7471A	160244
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	7471A	160244
LCS 280-160244/2-A	Lab Control Sample	Total/NA	Solid	7471A	160244
MB 280-160244/1-A	Method Blank	Total/NA	Solid	7471A	160244

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Metals (Continued)

Analysis Batch: 160959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	6010B	160348
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	6010B	160348
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	6010B	160348
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	6010B	160348
280-38823-A-1-C MS	Matrix Spike	Total/NA	Solid	6010B	160348
280-38823-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	160348
LCS 280-160348/2-A	Lab Control Sample	Total/NA	Solid	6010B	160348
MB 280-160348/1-A	Method Blank	Total/NA	Solid	6010B	160348

Analysis Batch: 161101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	6010B	160348

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General Chemistry

Prep Batch: 52080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	9081	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	9081	
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	9081	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	9081	
MB 200-52080/1-A ^10	Method Blank	Total/NA	Solid	9081	

Analysis Batch: 52201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	9081	52080
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	9081	52080
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	9081	52080
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	9081	52080
MB 200-52080/1-A ^10	Method Blank	Total/NA	Solid	9081	52080

Analysis Batch: 160570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Total/NA	Solid	Moisture	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	Moisture	
280-38804-3	SECTION 12 SOIL	Total/NA	Solid	Moisture	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Total/NA	Solid	Moisture	
280-38812-A-16 DU	Duplicate	Total/NA	Solid	Moisture	

Leach Batch: 160574

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Soluble	Solid	DI Leach	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Soluble	Solid	DI Leach	
280-38804-3	SECTION 12 SOIL	Soluble	Solid	DI Leach	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Soluble	Solid	DI Leach	
280-38806-B-2-B MS	Matrix Spike	Soluble	Solid	DI Leach	
280-38806-B-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
LCS 280-160574/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 280-160574/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
MB 280-160574/1-A	Method Blank	Soluble	Solid	DI Leach	

QC Association Summary

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

General Chemistry (Continued)

Leach Batch: 161081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38533-A-15-B DU	Duplicate	Soluble	Solid	DI Leach	
280-38804-1	SECTION 7 SOIL	Soluble	Solid	DI Leach	
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Soluble	Solid	DI Leach	
280-38804-3	SECTION 12 SOIL	Soluble	Solid	DI Leach	
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Soluble	Solid	DI Leach	

Analysis Batch: 161300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38533-A-15-B DU	Duplicate	Soluble	Solid	9045C	161081
280-38804-1	SECTION 7 SOIL	Soluble	Solid	9045C	161081
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Soluble	Solid	9045C	161081
280-38804-3	SECTION 12 SOIL	Soluble	Solid	9045C	161081
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Soluble	Solid	9045C	161081
LCS 280-161300/36	Lab Control Sample	Total/NA	Solid	9045C	
LCS 280-161300/56	Lab Control Sample	Total/NA	Solid	9045C	
LCSD 280-161300/37	Lab Control Sample Dup	Total/NA	Solid	9045C	
LCSD 280-161300/57	Lab Control Sample Dup	Total/NA	Solid	9045C	

Analysis Batch: 161777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-38804-1	SECTION 7 SOIL	Soluble	Solid	353.2	160574
280-38804-2	SECTION 7 SOIL & MIXED DRY SLUDGE	Soluble	Solid	353.2	160574
280-38804-3	SECTION 12 SOIL	Soluble	Solid	353.2	160574
280-38804-4	SECTION 12 SOIL & MIXED DRY SLUDGE	Soluble	Solid	353.2	160574
280-38806-B-2-B MS	Matrix Spike	Soluble	Solid	353.2	160574
280-38806-B-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	353.2	160574
LCS 280-160574/2-A	Lab Control Sample	Soluble	Solid	353.2	160574
LCSD 280-160574/3-A	Lab Control Sample Dup	Soluble	Solid	353.2	160574
MB 280-160574/1-A	Method Blank	Soluble	Solid	353.2	160574
MRL 280-161777/18 MRL	Lab Control Sample	Total/NA	Solid	353.2	

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Client Sample ID: SECTION 7 SOIL

Lab Sample ID: 280-38804-1
Date Collected: 02/12/13 10:00
Matrix: Solid
Date Received: 02/13/13 09:30
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.33 g	100.00 mL	52021	02/18/13 14:15	JFF	TAL BUR
Total/NA	Analysis	6010C		1			52136	02/20/13 02:02	ETK	TAL BUR
Total/NA	Prep	7471A			0.60 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:09	NF	TAL DEN
Total/NA	Prep	3050B			1.12 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			160959	02/19/13 03:38	JKH	TAL DEN
Total/NA	Prep	9081			4.02 g	100.00 mL	52080	02/19/13 14:23	JFF	TAL BUR
Total/NA	Analysis	9081		10			52201	02/21/13 20:54	ETK	TAL BUR
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Soluble	Leach	DI Leach			10.2 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		1			161777	02/23/13 13:12	SJS	TAL DEN

Client Sample ID: SECTION 7 SOIL & MIXED DRY SLUDGE

Lab Sample ID: 280-38804-2
Date Collected: 02/12/13 10:00
Matrix: Solid
Date Received: 02/13/13 09:30
Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.76 g	100.00 mL	52021	02/18/13 14:15	JFF	TAL BUR
Total/NA	Analysis	6010C		1			52136	02/20/13 02:17	ETK	TAL BUR
Total/NA	Prep	7471A			0.53 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:12	NF	TAL DEN
Total/NA	Prep	3050B			1.11 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			160959	02/19/13 03:40	JKH	TAL DEN
Total/NA	Prep	9081			4.04 g	100.00 mL	52080	02/19/13 14:23	JFF	TAL BUR
Total/NA	Analysis	9081		10			52201	02/21/13 21:09	ETK	TAL BUR
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Soluble	Leach	DI Leach			10.2 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		10			161777	02/23/13 13:14	SJS	TAL DEN

Client Sample ID: SECTION 12 SOIL

Lab Sample ID: 280-38804-3
Date Collected: 02/12/13 10:00
Matrix: Solid
Date Received: 02/13/13 09:30
Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.88 g	100.00 mL	52021	02/18/13 14:15	JFF	TAL BUR
Total/NA	Analysis	6010C		2			52238	02/22/13 13:41	ETK	TAL BUR
Total/NA	Prep	7471A			0.67 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:14	NF	TAL DEN
Total/NA	Prep	3050B			1.02 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN

Lab Chronicle

Client: Cheyenne Board of Public Utilities
Project/Site: Biosolids - Dry Creek WRF

TestAmerica Job ID: 280-38804-1

Client Sample ID: SECTION 12 SOIL

Lab Sample ID: 280-38804-3

Date Collected: 02/12/13 10:00
Date Received: 02/13/13 09:30

Matrix: Solid
Percent Solids: 96.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010B		1			160959	02/19/13 03:43	JKH	TAL DEN
Total/NA	Prep	9081			4.01 g	100.00 mL	52080	02/19/13 14:23	JFF	TAL BUR
Total/NA	Analysis	9081		10			52201	02/21/13 21:14	ETK	TAL BUR
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Soluble	Leach	DI Leach			10.0 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		1			161777	02/23/13 13:15	SJS	TAL DEN

Client Sample ID: SECTION 12 SOIL & MIXED DRY SLUDGE

Lab Sample ID: 280-38804-4

Date Collected: 02/12/13 10:00
Date Received: 02/13/13 09:30

Matrix: Solid
Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.63 g	100.00 mL	52021	02/18/13 14:15	JFF	TAL BUR
Total/NA	Analysis	6010C		1			52136	02/20/13 02:43	ETK	TAL BUR
Total/NA	Prep	7471A			0.60 g	50 mL	160244	02/14/13 14:45	NF	TAL DEN
Total/NA	Analysis	7471A		1			160567	02/14/13 21:16	NF	TAL DEN
Total/NA	Prep	3050B			1.20 g	100 mL	160348	02/18/13 14:00	RC	TAL DEN
Total/NA	Analysis	6010B		1			160959	02/19/13 03:45	JKH	TAL DEN
Total/NA	Analysis	6010B		5			161101	02/19/13 20:43	JKH	TAL DEN
Total/NA	Prep	9081			4.00 g	100.00 mL	52080	02/19/13 14:23	JFF	TAL BUR
Total/NA	Analysis	9081		10			52201	02/21/13 21:19	ETK	TAL BUR
Total/NA	Analysis	Moisture		1			160570	02/15/13 12:29	AFB	TAL DEN
Soluble	Leach	DI Leach			40 g	40 mL	161081	02/20/13 17:46	DA	TAL DEN
Soluble	Analysis	9045C		1			161300	02/20/13 20:07	DA	TAL DEN
Soluble	Leach	DI Leach			10.1 g	100.0 mL	160574	02/15/13 12:49	SJS	TAL DEN
Soluble	Analysis	353.2		20			161777	02/23/13 13:26	SJS	TAL DEN

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-38804-1

Login Number: 38804
List Number: 1
Creator: Laspe, Laura

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	False	Sample splitting required for subcontract purposes.
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Cheyenne Board of Public Utilities

Job Number: 280-38804-1

Login Number: 38804
List Number: 1
Creator: Poucher, Stephanie A

List Source: TestAmerica Burlington
List Creation: 02/15/13 01:15 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	861558
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6°C IR GUN ID 181. CF -0.2.
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007

Samples Collected by: Chet Burbul .[**Date/Time:** 2-12-13/10:40AM

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40 CFR Part 503 Sludge Regulations. Based on my inquiry of the person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report, and information submitted is, to the best on my knowledge and belief, true, accurate, and completed."

Name of Laboratory: Test America Laboratories, Inc.

Address: 4955 Yarrow St.

City: Arvada] **State:** CO] **Zip Code:** 80002]

Name of Analyst: Dilea Griego - Project Manager.

This Certification is signed by: Dilea Griego.

Date: 2-28-13]**Time:** 14:46] [] AM [X] PM

Dry Creek WRF	2/12/2013		New Site			
8911 Campstool Rd.						
Cheyenne, WY 82007						
Owner: Brant Miller	Ph: 307-649-2289					
Address: 41778						
County Rd. 207						
Carpenter WY,82054						
Latitude N 41* - 06.262':	Longitude W 104*-28.822'					
Township: 13 N	Range: 64 W	Section: 7				
Acers: 320						
Latitude: N 41* - 06.300':	Longitude W 104* -29.253'					
Township: 13 N	Range: 64 W	Section 12				
Acers:35						
Test America soil and soil sludge mix						
Analyses	**Results**	**Units**	**MCL/RL/ QCL**	**Method**		
Agronomic Properties						
Cation Exchange (CEC)	None at this time	**meq/100g**	None at this time			
Nitrogen, Nitrate+Nitrite as N	None at this time	**mg/kg-dry**	None at this time	353.2		
Physical Properties						
Moisture	None at this time	**%**	None at this time	3550C		
pH	None at this time	**S.U.**	None at this time	9045C		
Metals - Total						
Mercury	None at this time	**mg/kg-dry**	None at this time	7471A		
Phosphorus	None at this time	**mg/kg-dry**	None at this time	6010B		
Potassium	None at this time	**mg/kg-dry**	None at this time	6010B		
Date: 2-12-2013	**Time: 10:40 AM**					
Date: 3-28-2013	**Time: 10:00 AM**	**Revision 1**				
Samples collected by:	**Chet Barkell**					
Signature:	Chet Barkell					

TestAmerica Denver
4955 Yarrow Stre
Arvada, CO 80002
phone 303.736.0100 fax 303.431.7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	**Chet Barkell**	**Same**	**Date:2-12-2013**	COC No:
Dry Creek WRF	**307-637-0865; Fax: 307-635-6833**	**Lab Contact:**	**Fedx or UPS**	_____ of _____ COCs
8911 Campstool Rd.	**Analysis Turnaround Time**			**For Lab Use Only:**
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____			Walk-in Client:
307-637-0865	TAT if different from Below _____			Lab Sampling:
307-635-6833	☐ 2 weeks			
Project Name:Biosolids	☐ 1 week			Job / SDG No.:
Dry Creek WRF	☐ 2 days			
	☐ 1 day			Sampler:

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample (Y / N)	Composite = C / Grab = G	CEC	mositure	Phosphorous P	Ph	Mercury	Nitrogen, Nitrate +Nitrite	Sample Specific Notes:
Section ~~11~~ 7 Soil CB	2/12/13	10:00 am	Soil	Plastic	1bag	N	G	X	X	X	X	X	X	**Soil**
Section ~~12~~ 7 Soil & mixed Dry Sludge	2/12/13	10:00 am	Soil&sludge	Plastic	1bag	N	G	X	X	X	X	X	X	**Soil & Sludge Mix**
Section ~~13~~ 12 Soil CB	2/12/13	10:00 am	Soil	Plastic	1bag	N	G	X	X	X	X	X	X	**Soil**
Section ~~14~~ 12 Soil & mixed Dry Sludge	2/12/13	10:00 am	Soil&sludge	Plastic	1bag	N	G	X	X	X	X	X	X	**Soil & Sludge Mix**

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by: Chet Barkell	**Company: BOPU**	**Date/Time:2-12-13/10:40 am**	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Denver
4955 Yarrow Street

Arvada, CO 80002
phone 303.736.0100 fax 303.431.7171

Chain of Custody Record

3.0°C

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Chet Barkell	Same	Date:2-12-2013	COC No:
Dry Creek WRF	307-637-0865; Fax: 307-635-6833	Lab Contact:	Fedx or UPS	____ of ____ COCs
8911 Campstool Rd.	Analysis Turnaround Time			For Lab Use Only:
Cheyenne, WY 82007	Calendar (C) or Work Days (W) _____			Walk-in Client:
307-637-0865	TAT if different from Below _____			Lab Sampling:
307-635-6833	☐ 2 weeks			
Project Name:Biosolids	☐ 1 week			Job / SDG No.:
Dry Creek WRF	☐ 2 days			
	☐ 1 day			Sampler:

Sample Identification CB	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample (Y/N)	Composite = C / Grab = G	CEC	moisture	Phosphorous P	Ph	Mercury	Nitrogen, Nitrate +Nitrite	Sample Specific Notes:
Section ~~12~~ Soil Section 7	2/12/13	10:00 am	Soil	Plastic	1bag	N	G	X	X	X	X	X	X	Soil
Section ~~18~~ Soil & mixed Dry Sludge Section 7	2/12/13	10:00 am	Soil&sludge	Plastic	1bag	N	G	X	X	X	X	X	X	Soil & Sludge Mix
Section ~~14~~ Soil Section 12 CD	2/12/13	10:00 am	Soil	Plastic	1bag	N	G	X	X	X	X	X	X	Soil
Section ~~7~~ Soil & mixed Dry Sludge Section 12 CD	2/12/13	10:00 am	Soil&sludge	Plastic	1bag	N	G	X	X	X	X	X	X	Soil & Sludge Mix CB

Section 12 needs to be 7
Section 11 needs to be 12
3-28-13
Changed Chet Barkell

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Chet Barkell Chet Barkell	BOPU	2-12-13/10:40 am	[illegible]	TAD	2/13/13 0930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4, dated 10/25/2012

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 2-12-13
Date Received: 02-12-13
Sample Location: Section 7 Soil

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
NON-METALS						
Total Solids	95.4	%		1.0	SM 2540 G	02-12-13 / mw
Total Vol. Solids	4.3	%		1.0	SM 2540 E	02-12-13 / mw
METALS – TOTAL						
Ag, Silver	ND	mg/kg		0.1	EPA 6010B	04-05-13 / kl
As, Arsenic	1.2	mg/kg		0.2	EPA 6010B	04-05-13 / kl
Cadmium, Cd	0.8	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Chromium, Cr	6.3	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Copper, Cu	7.4	mg/kg		0.2	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	0.2	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Nickel, Ni	4.1	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Lead, Pb	7.3	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Selenium, Se	1.1	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Zinc, Zn	24.4	mg/kg		0.03	EPA 6010B	04-05-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4-9-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 2-12-13
Date Received: 02-12-13
Sample Location: Section 7 Soil + Sludge

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
NON-METALS						
Total Solids	92.4	%		1.0	SM 2540 G	02-12-13 / mw
Total Vol. Solids	13.3	%		1.0	SM 2540 E	02-12-13 / mw
METALS – TOTAL						
Ag, Silver	3.1	mg/kg		0.1	EPA 6010B	04-05-13 / kl
As, Arsenic	2.7	mg/kg		0.2	EPA 6010B	04-05-13 / kl
Cadmium, Cd	1.2	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Chromium, Cr	9.9	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Copper, Cu	187	mg/kg		0.2	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	2.0	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Nickel, Ni	6.6	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Lead, Pb	16.4	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Selenium, Se	4.5	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Zinc, Zn	176	mg/kg		0.03	EPA 6010B	04-05-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4-9-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 2-12-13
Date Received: 02-12-13
Sample Location: Section 12 Soil

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
NON-METALS						
Total Solids	97.1	%		1.0	SM 2540 G	02-12-13 / mw
Total Vol. Solids	3.4	%		1.0	SM 2540 E	02-12-13 / mw
METALS – TOTAL						
Ag, Silver	ND	mg/kg		0.1	EPA 6010B	04-05-13 / kl
As, Arsenic	1.3	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Cadmium, Cd	0.8	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Chromium, Cr	7.3	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Copper, Cu	6.2	mg/kg		0.3	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	0.3	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Nickel, Ni	5.2	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Lead, Pb	7.1	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Selenium, Se	1.3	mg/kg		0.4	EPA 6010B	04-05-13 / kl
Zinc, Zn	23.9	mg/kg		0.04	EPA 6010B	04-05-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed

ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4-9-13
Date:

ANALYTICAL RESULTS

DRY CREEK WWTP LABORATORY

Cheyenne BOPU
8911 Campstool Road
Cheyenne, Wyoming 82007
Phone: 307-635-3163
Fax: 307-635-6833

Date Sampled: 2-12-13
Date Received: 02-12-13
Sample Location: Section 12 Soil + Sludge

Sampled By: CB
Date Reported: 04-09-13
Sample Matrix: Solid

Analyses	*Result*	*Units*	*Qual*	*RL*	*Method*	*Analysis Date/ By*
NON-METALS						
Total Solids	96.7	%		1.0	SM 2540 G	02-12-13 / mw
Total Vol. Solids	5.2	%		1.0	SM 2540 E	02-12-13 / mw
METALS – TOTAL						
Ag, Silver	6.0	mg/kg		0.1	EPA 6010B	04-05-13 / kl
As, Arsenic	3.2	mg/kg		0.2	EPA 6010B	04-05-13 / kl
Cadmium, Cd	1.6	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Chromium, Cr	12.6	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Copper, Cu	369	mg/kg		0.2	EPA 6010B	04-05-13 / kl
Molybdenum, Mo	3.7	mg/kg		0.05	EPA 6010B	04-05-13 / kl
Nickel, Ni	9.0	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Lead, Pb	24.6	mg/kg		0.1	EPA 6010B	04-05-13 / kl
Selenium, Se	6.6	mg/kg		0.4	EPA 6010B	04-05-13 / kl
Zinc, Zn	319	mg/kg		0.04	EPA 6010B	04-05-13 / kl

Report Definitions:

RL – Reporting Limit
NA – Not Analyzed
ND – Not detected at the reporting limit.
Note: QA/QC available in Dry Creek Laboratory

Kent Loader, Laboratory Supervisor

4-9-13
Date:

Project Name: Biosolids.

Location: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **Sate:** WY] **Zip Code:** 82007.

Samples Colleted by: Chet Barbell .[**Date/Time:** 2-12-13 / 10:40 am
soil + sludge mix 50% soil + 50% sludge mix

Analytical Certification

This certification must be completed by the Analytical Laboratory performing service for the Cheyenne Board of Public Utilities and submitted with each "Analytical Report".

"I certify that these analysis and resulting report (s) were prepared under my direction and supervision in accordance with a system designed to assure that qualified personal properly analyze all samples and accurately report the results. I certify that all analysis were performed in accordance with method approved for Wastewater under the latest revision to 40CFR Part 503 Sludge Regulations. Based on my inquiry of person or persons who manage the system, or those person directly responsible for analyzing the wastewater samples and generating the report (s), the analysis, report and information submitted is, to the best on my knowledge and belief, true, and completed.

Name of Laboratory: Dry Creek WRF.

Address: 8911 Campstool Rd.

City: Cheyenne] **State:** WY] **Zip Code:** 82007.

Name of Analyst: Kent Loader.

This Certification is signed by: 4-12-13.

Date: 4-12-13] **Time:** 9] [X] **AM** [] **PM**

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: Dry Creek WRF Contact Name: Chet Rowbell Sampler's Name (if other than Contact):

Report Required For: New CB
SIFC ~~12~~ 7 + 12 CB
Biosolids
Zone E For Sludge + Soil mix

SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED: Metals	ANALYSIS REQUESTED: Solids Total	ANALYSIS REQUESTED	ANALYSIS REQUESTED	ANALYSIS REQUESTED	ANALYSIS REQUESTED	ANALYSIS REQUESTED	How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1 Section ~~12~~ 7-12 CB Soil	2-12-13	10:00 AM	1 plastic Pail	X	X						NH	Grab		
2 Section ~~12~~ 7-CB Sludge Soil mix	2-12-13	10:00 AM	↓	X	X						↓	↓		
3 Section 12 CB Soil	2-12-13	10:00 AM	↓	X	X						↓	↓		
4 Section 12 CB Sludge mix	2-12-13	10:00 AM	↓	X	X						↓	↓		
5														
6														
7														

Custody Record MUST be Signed	Relinquished by:	Date/Time:	Received by:	Date/Time:
	Chet Rowbell	2-12-13 10:40 AM		2-12-13 10:50 AM

Sample Disposal: Return to client: Lab disposal: Log# 671

ID # Layer 2-2-13 Permit # 19 X C - 16002

Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

Cheyenne Board of Public Utilities
Water Reclamation Laboratory
Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT CLEARLY, provide as much information as possible

Client's Name: [illegible] Contact Name: [illegible] Sampler's Name (if other than Contact):

Report Required For:

[illegible]
7+12
Zone E [illegible]

SAMPLE IDENTIFICATION (Name, Location, etc.)	Collection Date	Collection Time	Number of Containers Sample Type A W S V B O Air Water Soils/Solids Vegetation Bioassay Other MATRIX	ANALYSIS REQUESTED							How Preserved HNO3 H2SO4 4°C HCL None	Sample Type Grab or Composite	Other Information (pH, Field Analysis, etc.)	Analysis Completed Yes / No (Lab use only)
1 Section 7 [illegible]	2-12-13	[illegible]	[illegible]								NA	Grab		✓
2 Section 7S [illegible]	2-12-13	↓	↓								↓	↓		✓
3 Section 12 [illegible]	2-12-13	↓	↓								↓	↓		✓
4 Section 12 [illegible]	2-12-13	↓	↓								↓	↓		✓
5												↓		
6														
7														

Custody Record MUST be Signed	Relinquished by:	Date/Time: 2-12-13 [illegible] AM	Received by:	Date/Time: 2-12-13 [illegible]
	Sample Disposal: Return to client: Lab disposal:		Log# [illegible] 633	

ID # [illegible] Permit # [illegible]

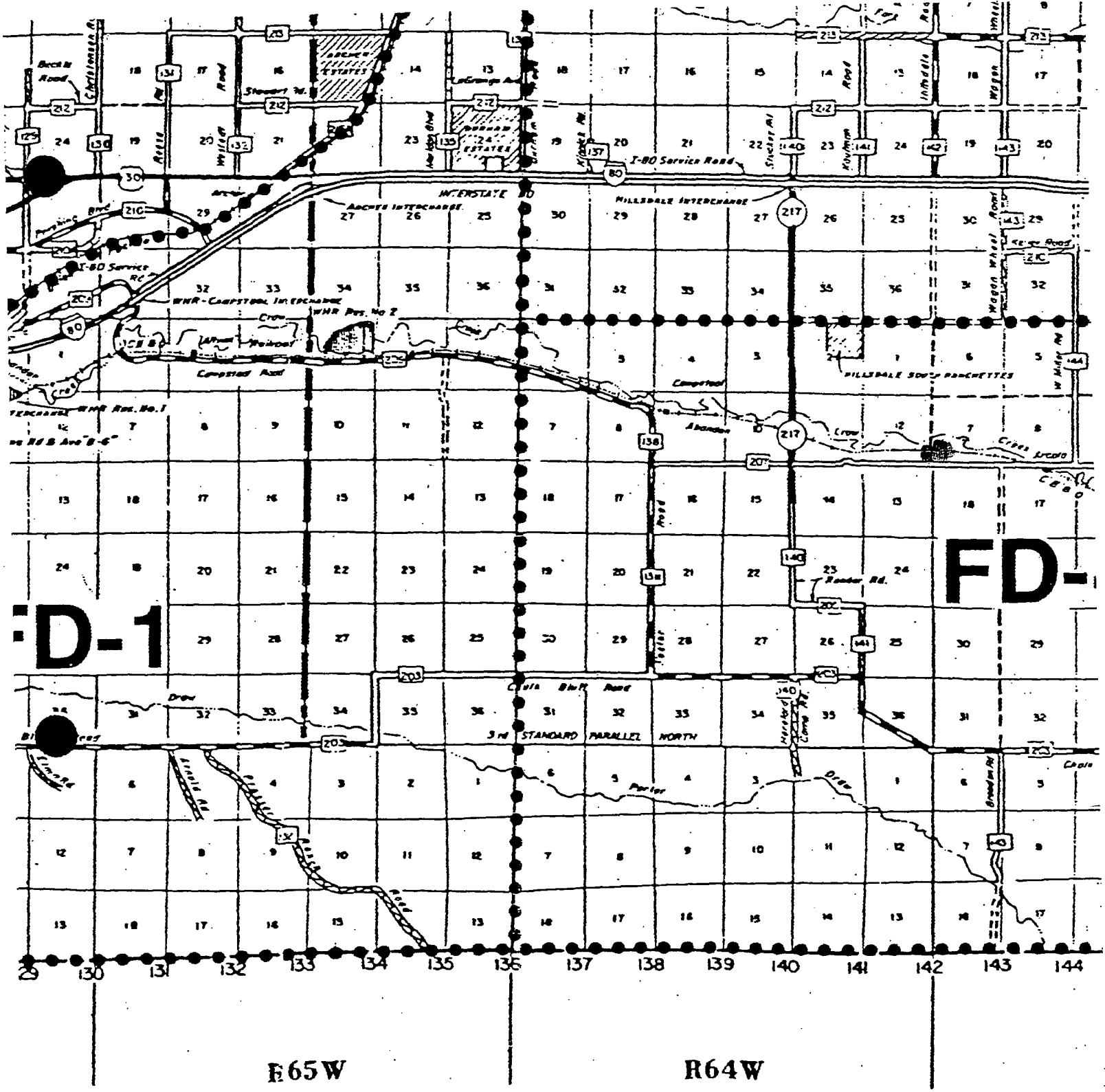
Copies to: White - Book in Laboratory Yellow - Laboratory Hard Copy Pink - Client

March 28, 2013

This is an Amendment to the owner Brant Miller on their sections: Section 12 is section 7: Section 12 is section 11. On the new site:

Address: 4178
County Rd. 207
Carpenter WY, 82054

PH: 307-649-2289


FD-1
FD-
I-80 Service Road
INTERSTATE 80
ARCHER INTERCHANGE
HILLSDALE INTERCHANGE
WHR-CAMPSTOOL INTERCHANGE
WHR Res. No 2
WHR Res. No. 1
Campstool Road
HILLSDALE SOUTH RANCHETTES
Abandon
Crow
Creek
Arcola
Chalk Bluff Road
3rd STANDARD PARALLEL NORTH
Porter
Draw
Wagon Wheel Road
Kaufman Road
Stewart Rd.
Beckle Road
Christensen Rd.
Reese Rd.
Wallett Road
Hardin Blvd
Kiplick Rd.
Stuckey Rd.
Inffeldale Road
Wagon Wheel Road
Kelley Road
Hereford Corner Rd.
Breeden Rd.
Elm Rd.
Arnold Rd.
Prosser Ranch Road
Chalk
29
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
R65W
R64W

O L O R A D O

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

I certify under the penalty of law that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including in the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personal properly gather and evaluate the information used to determine that the pathogen requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

ATTACHEMENT:9

DRY CREEK SLUDGE

TEMPERATURE

HEAT EXCHANGER

2013

Heat Exchanger Temperature		2013					
	January	February	March	April	May	June	July
1	93.4	90.1	90.8	94.4	98.8	92.3	100.8
2	93.2	96.1	90.6	99.4	89.6	99.1	100.2
3	86.7		98.7	91.8	91.3	101.3	91.2
4	91.1	97.8	100.4	99.8	90.2	96.2	90.8
5	88.0	92.0	101.0	99.8	99.7	93.2	92.4
6	91.9	90.2	100.1	93.1	98.1	91.6	94.5
7	95.2	88.9	91.3	99.4	99.7	92.8	102.3
8	94.8	91.4	90.1	96.1	90.8	92.7	102.4
9	94.9	99.4	92.1	96.4	90.5	97.2	101.0
10	85.3	100.4		91.6	90.8	95.9	95.8
11	94.1	97.1	98.9	91.9	90.1	95.1	96.9
12	95.2	91.4	99.9	91.3	96.1	91.1	98.5
13	94.4	91.5	92.2	90.3	94.4	92.3	96.1
14	98.8	89.8	91.0	98.4	97.1	94.2	101.3
15	97.1		89.5	99.1	90.7	93.8	103.5
16	87.0	99.2	92.7	98.8	92.3	92.5	103.0
17	88.4	100.4	97.7	89.0	91.6		98.0
18	88.7	100.9	100.0	90.3	90.8		
19	91.9		101.0	89.5	95.6	91.9	103.0
20	96.8	93.9	93.0	91.3	99.3	92.1	99.0
21	98.9	93.0	94.1	98.6	96.8	93.5	102.3
22	98.1	92.0	91.7	99.1	91.5	92.4	97.1
23	97.1	99.0		98.7	90.0	96.6	100.1
24	90.7	101.0	95.7	89.6	91.4	95.8	99.7
25	89.3	98.7	98.5	87.8	92.2	101.8	97.6
26	89.9	92.3	96.9	91.4	100.1	92.9	98.7
27	97.1	92.6	90.9	91.4	100.1	95.6	
28	97.1		85.8	91.5	96.0	94.1	103.1
29	96.9		85.8	98.7	91.7	93.3	93.7
30	96.3		91.1	99.2	94.1	102.3	102.4
31	85.5		100.1		92.9		98.5
Total	**2883.7**	**2279.0**	**2741.5**	**2837.6**	**2914.1**	**2653.5**	**2863.8**
Average	**93.0**	**95.0**	**94.5**	**94.6**	**94.0**	**94.8**	**98.8**

2013				
August	September	October	November	December
97.0	98.7	99.8	97.6	101.0
96.2	104.0	96.6	97.0	96.6
96.5	99.0	97.5	97.7	94.9
97.5	97.1	95.7	97.5	95.9
102.2	94.3	94.0	100.7	95.4
102.2	92.8	97.5	97.1	96.7
97.3	93.0	95.1	97.8	96.1
	97.6		94.9	94.6
96.8	98.2	96.3	95.0	96.4
97.9	98.5	100.0	101.6	96.0
101.1	91.6		100.2	93.8
101.1	93.7	93.0	94.4	91.2
97.7	96.6	100.7	93.4	93.0
98.0	93.8	96.4	94.3	95.3
	93.6	97.6	95.5	98.6
94.7	100.0		97.8	94.8
96.4	99.5		101.8	94.4
96.4	93.4	94.8	100.7	95.7
96.4	93.7	96.3	101.2	95.0
98.4	93.7		95.5	92.2
94.7	95.1	95.7	95.0	94.0
96.1	100.0	95.9	94.9	100.3
100.3	101.1	96.4	95.9	93.3
97.4	100.1	96.3	95.3	92.3
100.4	101.8	98.5	94.5	92.4
102.1	96.6	98.7	94.4	94.7
102.7	99.6	96.6	96.6	94.7
97.9	102.0	99.1	96.2	94.3
97.1	101.5	97.3	95.8	98.4
92.8	99.1	97.6		95.9
		95.8		95.1
2745.2	**2919.8**	**2519.1**	**2810.3**	**2953.1**
98.0	**97.3**	**93.3**	**96.9**	**95.3**

Volatile Destruction 2013			
Dry creek			
Raw Sludge			Destruction/
Month	TS	VS	Digester %
January	3.73	3.53	61%
February	3.75	3.33	36%
March	3.62	3.35	55%
April	4.16	3.72	50%
May	5.83	5	44%
June	3.35	2.97	46%
July	3.41	3.02	40%
August	3.88	3.19	40%
September	3.8	2.9	42%
October	3.84	3.3	66%
November	4.3	3.79	60%
December	4.59	4.1	61%
Total	**48.26**	**42.2**	**601%**
Average	**4.02**	**3.52**	**50%**

Attachment: #4.
Dry Creek Water Reclamation Facility

F. Pathogen reduction is accomplished through anaerobic digestion. The primary and secondary digested sludge is treated in the absence of air for mean cell residence time and temperature between 25 and 35 days at 92 to 100 degrees Fahrenheit. Air dried sludge is obtained with a tractor aerator on paved drying beds and on site unpaved storage area in windrows that are turned approximately once a month dependant on the weather conditions.
The Biosolids production (dry weight) at the Dry Creek WRF is over 1500 metric tons a year. Therefore samples are collected six times a year (February, April, May, June, August, October, and December). The laboratories analyze the dry samples for metals, nutrients, organics pathogens, volatile solids and total solids.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.3, the management practices in Part I.D (if necessary) (including the practice in part I. D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #5.
Dry Creek Water Reclamation Facility

G. Vector attraction reduction requirements are met through anaerobic digestion when there is thirty eight percent or more reduction in volatile solids. Volatile solids destruction is measured weight by volume average ((Vol. Solids Reduction = VS in - VS out / (VS in -((VS in * VS out))(Use Average). The sludge is also air dried in windrows for further vector attraction reduction. The dry solids in windrows are between 65% to 80% total volatile solids reduction before land application.
RE: Flows From: Primary North and Primary South Raw sludge Average: Total solids (change % to Mg/l (10000) (NRS & SRS): Total Vol Solids (NRS & SRS): Total C-2 (wasting) cake flow gal: C-1 (digested) Solids (mg/L) cake: C-1 Vol solids cake (mg/L): C-2 solids cake (mg/L): C-2 Vol Solids cake (mg/L) Cake flow from Rotary Drum Thicker to digester.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in part I.D (if necessary) (including the practices in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager
Water Reclamation Division

Attachment: #6.
Dry Creek Water Reclamation Facility

H. Best management practices are accomplished by applying biosolids at a whole sludge application rate that is less than or equal to the agronomic rate for the specific site and plant species. The Biosolids are applied so that it does not adversely affect a threatened or endangered species.

Biosolids are not dispersed on sites that are flooded or snow covered, frozen ground with a slope of three percent or more to prevent run off into wetland or surface water. A buffer zone of thirty-five feet from waterways, stock wells, and surface water is observed. Biosolids land applications are prohibited to sites where the available phosphorous content of the existing soil exceeds 400 pounds per acre.

Stored Biosolids on the plant facility remain in windrows for two years or less. The Biosolids are land applied in the winter, spring and fall of the year, weather permitting. Biosolids and soil are analytically tested before disposal. Cheyenne's sludge management practice ensures compliance with both Federal and State parameters and provides for long term Biosolids procedures with little or no detriment to the environment, while enhancing the native grass and field crop production of those participating ranchers and farmers who utilize Biosolids as a fertilizer supplement and soil conditioner.

CERTIFICATION STATEMENT

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Jim Hughes

Signature
Jim Hughes, Manager

Water Reclamation Division
Attachment: #7.
Dry Creek Water Reclamation Facility

I. Site restrictions are first achieved through the quality of sewage sludge product which has been stabilized to reduce pathogenic organisms, which has been dried to a solids concentration of sixty percentile or greater and contains no hazardous or toxic compounds or chemicals in concentrations which exceed those authorized by the USA EPA REGION VIII and WYOMING DEQ for land application in Part C.1, Specific Limitations and Self Monitoring Requirements and Chemical Pollutant Limitations.

The dry sludge that is produced is class A and B which are applied primarily to range land. Before applying sewage sludge on rangeland, pastureland, farm land, or fields, soil samples have been collected and have had the appropriate soil analysis conducted.

The Class B Sludge with respect to pathogens has been in compliance with the entire site restrictions listed in Part I.C.2. No sludge or material derived from sludge exceeds the limits in Table 3 Part I.C.1. The Class A pathogen reduction limits in Part I.C.2 meets the first 4 vector attraction reduction alternatives in Part I.C.3. There are sufficient management practices used to prevent malfunctions and deterioration, operator errors and discharges which may cause or lead to the release of sludge to the environment, a threat to human health or a nuisance.

CERTIFICATION STATEMENT

I certify under the penalty of law, that the pathogen requirements in Part I.C.2, one of the vector attraction reduction alternatives in Part I.C.3, the management practices in Part I.D (if necessary) including the practice in Part I.D.13 if the table 4 annual pollutant limits are used) and the site restrictions in Part I.C.2 (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attractions reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment.

Signature
Jim Hughes, Manager

FOLDERID	FOLDERTITLE	FOLDERSUBTITLE	FOLDERDESCRIP	CHEDULENU	ITEM	MAILCODE	Box	Box of
5454	BIO WY - 0022357	ROCK SPRINGS, CITY OF		205	b	8P-W-WW	15	18
5506	BIO WY - 0022934	CHEYEYNNE BOPU		205	b	8P-W-WW	15	18
5830	BIO WY - 0028282	GARDENS NORTH HOA		205	b	8P-W-WW	15	18
6398	BIO WYG-650001	SHERIDAN, CITY OF	Annual Reports (Formerly WY-0020010)	205	b	8P-W-WW	15	18
105027	BIO WYG-650001	Sheridan, City of	(Formerly WY-0020010)	205	b	8P-W-WW	15	18
6399	BIO WYG-650002	CHEYENNE BOARD OF PUBLIC UTILITIES		205	b	8P-W-WW	15	18
41647	BIO WYG-650002	CHEYENNE BOPU	2004 ANNUAL REPORT, PART 1 OF 2	205	b	8P-W-WW	15	18
41648	BIO WYG-650002	CHEYENNE BOPU	2004 ANNUAL REPORT, PART 2 OF 2	205	b	8P-W-WW	15	18
105992	BIO WYG-650002	Cheyenne BOPU Dry Creek	Annual Rpt 2013 (1 of 2)	205	b	8P-W-WW	15	18