UTAH STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORY SERVICES
Environmental Chemistry Analysis Report

DEPT OF NATURAL RESOURCES - OGM
STEVE CHRISTENSEN
1594 W NORTH TEMPLE - STE 1210
SALT LAKE CITY UT 84114-1210 801-538-5350

Lab Number: 201602078 Sample Type: 04 Cost Code: 901B
Description: DAME FIELD IRRIGATION LINE
Collector: PB

Site ID:	Source No: 00	Organic Review:	
Sample Date: 05/25/2016	Time: 14:00	Inorganic Review:	06/24/2016
		Radiochemistry Review:	
Dis. Cations: 138 mg/l	8.8 me/l	Microbiology Review:	
Dis. Anions: 669 mg/l	16.1 me/l		
Total Wt: 807 mg/l	%D = 29.3		

TEST RESULTS:

Bicarbnate	340 mg/l	CO3 Solids	167 mg/l
Carb. Diox	4 mg/l	Carbonate	0 mg/l
Chloride	12.6 mg/l	D-Calcium	78.9 mg/l
D-Magnesum	59.5 mg/l	Fluoride	0.3791 mg/l
Hydroxide	0 mg/l	L-Sp. Cond	1355 umhos
Lab-pH *	8.091	Manual pH *	8.216
Sulfate	489.0 mg/l	T-Aluminum	734.04 ug/l
T-Arsenic	<1.0 ug/l	T-Berylium	<1 ug/l
T-Boron	94.8 ug/l	T-Cadmium	<0.5 ug/l
T-Calcium	78.9 mg/l	T-Chromium	<2.0 ug/l
T-Cobalt	<30 ug/l	T-Copper	<5.0 ug/l
T-Iron	1.1 mg/l	T-Lead	0.701 ug/l
T-Magnesum	59.5 mg/l	T-Mangan	30.57 ug/l
T-Molybdum	4.372 ug/l	T-Nickel	<5.0 ug/l
T-Potassum	6.28 mg/l	T-Selenium	2.837 ug/l
T-Sodium	174.0 mg/l	T-Vanadium	<30 ug/l
T-Zinc	<50.0 ug/l	T. Hardns.	441.7 mg/l
TDS @ 180C	1006 mg/l	Tot. Alk.	279 mg/l

QUALIFYING COMMENTS (*) on test results:

Manual pH. Holding time was exceeded before sample delivery.
Manual pH. Holding time was exceeded before analysis was completed.
Lab-pH.... pH should be performed as a field test.

Trace levels up to 0.2 ppb metals may be present in bottles

END OF REPORT

UTAH DEPARTMENT OF HEALTH

CHAIN OF CUSTODY

Utah Public Health Laboratory
Chemical and Environmental Services
4431 S 2700 W Taylorsville, UT 84129-8600
801 965 2400 Fax 801 969 3238
http://health.utah.gov/lab/chemistry

- [x] Hand Delivered
- [ ] Shipped Samples
- [ ] Cooler Returned

System/Agency Name:	System/Agency Number:	Cost/Project Code:	Received Date and Time:
Division of Oil, Gas & Mining	WT1177	901B	

REPORTING/CONTACT

Attn: Priscilla Burton
Address: 319 North Carbonville Rd
City, State, Zip: Price UT
Phone: 435-613-3733
Fax:
Email: priscillaburton@utah.gov
Submitted By: Priscilla Burton

BILLING (list if different)

Special Code:
Attn: Div Oil Gas + Mining
Address: 1594 West North Temple
City, State, Zip: SLC UT 84114-5801
Phone: 801-538-5340
Fax:

REQUESTED TESTS

COLLECTION POINT DESCRIPTION	Collectors Initials	Collection Date (mm/dd/yy)	Collection Time (24 hr)	COMMENTS	pH, EC, TDS → cond	Ca, Mg, Na, K (Calculated SAR)	Carbonate, bicarbonate, Cl, SO4, NO3, NO3-N, B, Se	~~Total~~ metals: Al, As, Be, Cd, Cr, Co, Cu, F, FLIC	Fe, Pb, Li, Mn, Mo, Ni, V, Zn	Receipt temperature	Receipt pH	LAB NUMBER
Dame field irrigation line	PB.	5/25/16	14:00*	1/2 gal x1 TC x1 TM x1						4.3 4.3 4.5	c2	201602078 05/31/2016 16:06
Read pH, NO3, & N post holding, emailed Priscilla												
ok to still run pH												

Sample Receipt Conditions

Yes	No	
[x]	[ ]	Documentation complete
[x]	[ ]	Proper containers and in-date
[x]	[ ]	Containers intact
[x]	[ ]	Within holding time
[x]	[ ]	Coolant
[x]	[ ]	Temperature within-range
[x]	[ ]	Acceptable pH [ ] N/A
[x]	[ ]	Custody Seals Intact

Dispatched By:	Date and Time:	Courier Company Name:	Invoice/Airbill #:
[signature]	5/31/16 3:55 pm.		
Relinquished By:	Date and Time:	Received by:	Date and Time:
Relinquished to USL:PH by:	Date and Time:	Received at USL:PH by: [signature]	Date and Time: 5-31-16 4:05 pm

see attached 2 forms for requested tests.
* 1/2 gallon not in ephl container (says minerals). provided extra if needed for testing.

le 3. Recommended limits for constituents in reclaimed water for irrigation. (Adapted from Rowe and Abdel-Magid, 1995)

Constituent	Long-term use (mg/L)	Short-term use (mg/L)	Remarks
Aluminum (Al)	5.0	20	Can cause nonproductivity in acid soils, but soils at pH 5.5 to 8.0 will precipitate the ion and eliminate toxicity.
Arsenic (As)	0.10	2.0	Toxicity to plants varies widely, ranging from 12 mg/L for Sudan grass to less than 0.05 mg/L for rice.
Beryllium (Be)	0.10	0.5	Toxicity to plants varies widely, ranging from 5 mg/L for kale to 0.5 mg/L for bush beans.
Boron (B)	0.75	2.0	Essential to plant growth, with optimum yields for many obtained at a few-tenths mg/L in nutrient solutions. Toxic to many sensitive plants (e.g., citrus) at 1 mg/L. Most grasses relatively tolerant at 2.0 to 10 mg/L.
Cadmium (Cd)	0.01	0.05	Toxic to beans, beets, and turnips at concentrations as low as 0.1 mg/L in nutrient solution. Conservative limits recommended.
Chromium (Cr)	0.1	1.0	Not generally recognized as essential growth element. Conservative limits recommended due to lack of knowledge on toxicity to plants.
Cobalt (Co)	0.05	5.0	Toxic to tomato plants at 0.1 mg/L in nutrient solution. Tends to be inactivated by neutral and alkaline soils.
Copper (Cu)	0.2	5.0	Toxic to a number of plants at 0.1 to 1.0 mg/L in nutrient solution.
Fluoride (F^-)	1.0	15.0	Inactivated by neutral and alkaline soils.
Iron (Fe)	5.0	20.0	Not toxic to plants in aerated soils, but can contribute to soil acidification and loss of essential phosphorus and molybdenum.
Lead (Pb)	5.0	10.0	Can inhibit plant cell growth at very high concentrations.
Lithium (Li)	2.5	2.5	Tolerated by most crops at up to 5 mg/L; mobile in soil. Toxic to citrus at low doses recommended limit is 0.075 mg/L.
Manganese (Mg) Mn	0.2	10.0	Toxic to a number of crops at a few-tenths to a few mg/L in acid soils.
Molybdenum (Mo)	0.01	0.05	Nontoxic to plants at normal concentrations in soil and water. Can be toxic to livestock if forage is grown in soils with high levels of available molybdenum.
Nickel (Ni)	0.2	2.0	Toxic to a number of plants at 0.5 to 1.0 mg/L; reduced toxicity at neutral or alkaline pH.
Selenium (Se)	0.02	0.02	Toxic to plants at low concentrations and to livestock if forage is grown in soils with low levels of added selenium.
Vanadium (V)	0.1	1.0	Toxic to many plants at relatively low concentrations.
Zinc (Zn)	2.0	10.0	Toxic to many plants at widely varying concentrations; reduced toxicity at increased pH (6 or above) and in fine-textured or organic soils.

IRRIGATION WATER ANALYSIS

SOURCE: Well #3

"Routine Package"

	Results	Results	
Conductivity	2500	µmhos/cm	(E.C. x 1,000,000)
pH	8.3		

	mg/L	meq/L
Calcium	325	16.22
Magnesium	14.7	1.21
Sodium	45	1.96
Potassium	2.9	0.07
Carbonate	38.5	1.28
Bicarbonate	40	0.66
Chloride	62.4	1.76
Sulfate	350.0	7.29
Nitrate	0.6	0.01
Nitrate-Nitrogen	0.1	0.01
Boron	0.13	
Pounds of Sulfate per acre foot	311	
Pounds of Nitrate per acre foot	0.37	

SAR	0.8	Salinity Hazard	Medium	Sodium Hazard	low	

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