howard1v@deseretgt.com on 02/13/2002 09:16:18 AM

To: Mike Owens/P2/R8/USEPA/US@EPA
cc:

Subject: Bonanza Title V Information

Hi Mike,

I have attached two EXCEL files which contain updated information for the Bonanza Title V permit. The main change is for the Auxilliary boiler SO2. Deseret now uses only low sulfur fuel to fire the boiler. All the fuel is below 0.5% Sulfur. This brings the aux boiler SO2 emissions below the 2 ton threshold. I updated some of the equations in the fugitive emissions spreadsheet (#2) to match the newest AP-42 data.

You should be able to save the EXCEL files to your hard drive or floppy drive and then get them to a computer that has EXCEL on it. If you can't save these, I will send you some floppys with the files on them.

Let me know if you get these.

Thanks..... Howard

EPA Title V #1 2002.xl: EPA Title V #2 2002.xl:

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Main Boiler
FUEL: Bituminous and Subbituminous Coal (p. 1 of 3)
rev. 1

PROCESS DATA

YEAR: 2000 SCC CODE	DESIGN OUTPUT (kW) (est)	HEAT INPUT (MMBTU/HR)	CALCULATED HEATRATE (Btu/kWh)	PROCESS RATE	SCC UNITS	DESIGN RATE (SCC UNIT/HR)	SULFUR CONTENT (% BY WEIGHT)	ASH CONTENT (% BY WEIGHT)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
10100222	500	4,578	9,156	2,005,164	TON	228.90	1.000	9.00	20.00

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD			POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
CO			0.00	0.50		Ssection 1.1, sup E AP-42			501.29
VOC			0.00	0.07		Section 1.1, Sup E AP-42			70.18
NOx	Low NOx Burners		0.00	Controlled 10.00		Emission Limit (0.50 lbs/MMBtu)			10,025.82
SO2	Scrubber		Calc on 2.0 #/MMBtu inlet 95.12	40.00	S	Emission Limit 0.0976 lbs/MMbtu			1,957.04
PM	Baghouse	Scrubber	(CALCULATED) 99.67	180.00	A	Emission Limit (.0297 lbs/MMBtu)			595.53
PM10	Baghouse	Scrubber	(CALCULATED) 99.68	180.00	A	Emission Limit (.0286lbs/MMBtu)			573.48
Lead	Baghouse	Scrubber	(AIR TOXICS) 95.00	(.0008 #/MMBtu) 0.0160		Coal Analysis (11/1998) 8 PPM			0.80
Arsenic	Scrubber	Baghouse	(AIR TOXICS) 94.30	(.0002 #/MMBtu) 0.0040		Coal Analysis (11/1998) 2 PPM			0.23
Beryllium	Baghouse		(AIR TOXICS) 99.30	(.00007 #/MMBtu) 0.0014		Coal Analysis (11/1998) 0.7 PPM			0.01
Cadmium	Baghouse		Stack Test 99.80	(.00003 #/MMBtu) 0.0006		Coal Analysis (11/1998) <0.3 PPM			0.00
Chromium	Scrubber	Baghouse	(AIR TOXICS) 71.50	(0.0007 #/MMBtu) 0.0140		Coal Analysis (11/1998) 7 PPM			4.00
Mercury	Scrubber		(AIR TOXICS) 25.00	(.000004 #/MMBtu) 0.0001		Coal Analysis (11/1998) <0.04 PPM			0.06
Manganese	Baghpuse		(AIR TOXICS) 78.50	(.0011 #/MMBtu) 0.0220		Coal Analysis (11/1998) 11 PPM			4.74
Nickel	Scrubber		(AIR TOXICS) 72.70	(.0001 #/MMBtu) 0.0020		Coal Analysis (11/1998) <1.0 PPM			0.55
Selenium	Baghouse		(XATEF1) 92.00	(24.34 lbs/10^12 Btu) 0.0005		AIR TOXICS (for bitum coal)			0.04
POM	Baghouse		Unknown; factor w/ control	(18.5 lbs/10^12 Btu) 0.0004		AIR TOXICS (for bitum coal)			0.37

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Main Boiler
FUEL: Bituminous and Subbituminous Coal (p. 2 of 3)
rev. 1

PROCESS DATA

YEAR: 2000 SCC CODE	MAXIMUM DESIGN OUTPUT (kW)	MAXIMUM HEAT INPUT (MMBTU/HR)	CALCULATED HEATRATE (Btu/kWh)	ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	SULFUR CONTENT (% BY WEIGHT)	ASH CONTENT (% BY WEIGHT)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
10100222	500	4,578	9,156	2,005,164	M	TON	228.90	1.000	9.00	20.00
				0	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	POTENTIAL CONTROLLED EMISSIONS *(TONS/YEAR)
Formaldehyde	Baghouse		Misc Control	0.0024		Fire 6.22 (for bitum coal)	2.41
Radionuclides	Baghouse		Unknown; factor w/ BGHSE	(0.004 pCi U-238/g PM) N/A		FIRE: XATEF1	2,162,978,427 *(nCi U-238/YEAR)
Chlorodibenzo-p-dioxin, chlorodibenzofurans, total	Baghouse		Unknown; factor w/ BGHSE	(0.109 mg/Mg) 2.18E-07		FIRE: L&E (for bitum coal)	2.19E-04
Heptachlorodibenzo-p-dioxins, total	Baghouse		Misc Control	8.34E-11		FIRE: L&E (for bitum coal)	8.36E-08
Heptachlorodibenzofurans, total	Baghouse		Misc Control	7.68E-11		FIRE: L&E (for bitum coal)	7.70E-08
Hexachlorodibenzo-p-dioxins, total	Baghouse		Misc Control	2.87E-11		FIRE: L&E (for bitum coal)	2.88E-08
Hexachlorodibenzofurans, total	Baghouse		Misc control	1.92E-10		FIRE: L&E (for bitum coal)	1.92E-07
Pentachlorodibenzo-p-dioxins, total	Baghouse		Misc Control	4.47E-11		FIRE: L&E (for bitum coal)	4.48E-08
Pentachlorodibenzofurans, total	Baghouse		Misc Control	3.53E-10		FIRE: L&E (for bitum coal)	3.54E-07
Polychlorinated dibenzo-p-dioxins, total	Baghouse		Misc Control	1.76E-09		FIRE: L&E (for bitum coal)	1.76E-06
Polychlorinated dibenzo-furans, total	Baghouse		Misc control	1.09E-09		FIRE: L&E (for bitum coal)	1.09E-06
Tetrachlorodibenzo-p-dioxins, total	Baghouse		Misc control	9.28E-11		FIRE: L&E (for bitum coal)	9.30E-08
Tetrachlorodibenzofurans, total	Baghouse		Misc Control	4.04E-10		FIRE: L&E (for bitum coal)	4.05E-07

*Or as noted for radionuclide emissions.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	Main Boiler
FUEL:	Bituminous and Subbituminous Coal (p. 3 of 3)
	rev. 1

NOTES:

ACTUAL 1994 EMISSIONS

1) Actual NOx emissions based on average CEM data (0.55lbs/MMBtu) for the period of 1/1/94 through 12/31/94.

2) Actual PM emissions based unit emission limitations and stack tests.

3) Actual PM emissions based unit emission limitations and stack tests.

4) Actual emissions of all other criteria pollutants and HAPs based on emissions factors published in AP-42, AIRS, AIR TOXICS, and FIRE, as noted for each pollutant. Many emission factors used to estimate HAPs were for bituminous coal combustion (as noted), but were used due to lack of an emissions factor specifically for sub-bituminous coal combustion. Where a range of emissions factors was given in literature reviewed, the most conservative factor was generally used. Additonally, note that although actual 1994 SO2 emissions were based on AP-42, CEM data should be used for determining future actual SO2 emissions.

POTENTIAL CONTROLLED EMISSIONS

5) Maximum heat input (4,381 MMBtu/hr) based on PSD permit limits (taken from New Source Performance Standards (NSPS) for solid fossil fuel) for SO2 of 0.1 lbs/MMBtu and 438.10 lbs/hr, and for TSP of 0.03 lbs/MMBtu and 131.43 lbs/hr.

6) All potential controlled emissions are based on maximum expected heat input.

7) Potential NOx emissions based on an expected Part 76 limit of .50 lbs/MMBTU (40 CFR 76.7).

8) Potential SO2, PM, and PM10 emissions based on current permit limits of 0.1 lbs/MMBtu and 0.03 lbs/MMBtu, respectively, under Utah State Approval Order DAQE-523-95.

9) Potential emissions of all other criteria pollutants and HAPs based on emissions factors published in AP-42, AIRS, AIR TOXICS, and FIRE, as noted for each pollutant. Many emission factors used to estimate HAPs were for bituminous coal combustion (as noted), but were used due to lack of an emissions factor specifically for sub-bituminous coal combustion. Where a range of emissions factors was given in literature reviewed, the most conservative factor was generally used.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

10) Emissions control equipment consists of an Baghouse, Scrubber, and Low-NOx Burners.

11) Baghouse control efficiencies for PM and PM10 calculated based on comparing controlled emissions calculated from stack test results to predicted uncontrolled emissions calculated using AP-42 emissions factors.

12) Baghouse control efficiencies for metals were calculated based on comparing average uncontrolled and average Baghouse controlled emissions data published in AIR TOXICS and FIRE. Where a range of emissions factors was given in literature reviewed, the most conservative factors for uncontrolled emissions were used.

13) Control efficiencies for the remaining non-metals HAPs are unknown. Emissions factors used were without any control equipment.

14) Low-NOx Burners control efficiency for NOx calculated based on engineering data.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Main Boiler
FUEL: No. 2 Fuel Oil (p. 1 of 2)

PROCESS DATA

YEAR: 1995 SCC CODE	MAXIMUM DESIGN OUTPUT (kW)	MAXIMUM HEAT INPUT (MMBTU/HR)	CALCULATED HEATRATE (Btu/kWh)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	SULFUR CONTENT (% BY WEIGHT)	FUEL DENSITY (LBS/GAL)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
10100501	440,000	576	1,309	250	M	GALS^3	3.84	1.00	8.300	15.50
				250	A			(Estimated)	(Estimated)	

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	(TONS/YEAR)
CO			0.00	5.0000		AIRS	0.63	19.20	0.63
VOC			0.00	0.2000		AIRS	0.03	0.00	0.03
NOx			0.00	24.0000		AIRS	3.00	92.16	3.00
SO2			0.00	70.6000	S	AIRS	8.83	271.10	8.83
PM			0.00	2.0000		AIRS	2.50E-01	7.68	0.25
PM10			0.00	1.0000		AIRS	1.25E-01	3.84	0.13
Lead			0.00	(8.9 lbs/10^12 Btu) 0.0001		AIR TOXICS	1.72E-05	5.30E-04	1.72E-05
Arsenic			0.00	(4.2 lbs/10^12 Btu) 0.0001		AIR TOXICS	8.14E-06	2.50E-04	8.14E-06
Beryllium			0.00	(2.5 lbs/10^12 Btu) 0.0000		AIR TOXICS	4.84E-06	1.49E-04	4.84E-06
Cadmium			0.00	(10.5 lbs/10^12 Btu) 0.0002		AIR TOXICS	2.03E-05	6.25E-04	0.00
Chromium			0.00	(48 lbs/10^12 Btu) 0.0007		AIR TOXICS	9.30E-05	0.00	0.00
Mercury			0.00	(3 lbs/10^12 Btu) 0.0000		AIR TOXICS	5.81E-06	0.00	0.00
Manganese			0.00	(14 lbs/10^12 Btu) 0.0002		AIR TOXICS	2.71E-05	0.00	0.00
Nickel			0.00	(170 lbs/10^12 Btu) 0.0026		AIR TOXICS	3.29E-04	0.01	0.00
POM			0.00	(9.04 lbs/10^12 Btu) 0.0003		AIR TOXICS	4.36E-05	0.00	0.00
Formaldehyde			0.00	(405 lbs/10^12 Btu) 0.0063		AIR TOXICS	7.85E-04	0.02	0.00

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	Main Boiler
FUEL:	No. 2 Fuel Oil (p. 2 of 2)

NOTES:

ACTUAL 1994 EMISSIONS

1) Actual PM emissions based on using an emissions factor published in AIRS.
2) Actual PM10 emissions calculated from the results for PM emissions and AP-42 Table 1.3-2 "Cumulative Particle Size Distribution and Size Specific Emission Factors for Utility Boilers Firing Residual Oil". This table was used as the best data available because there is no such table for distillate oil No. 2 firing.
3) Actual emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.

POTENTIAL UNCONTROLLED EMISSIONS

4) All potential controlled emissions are based on maximum heat input and limited hours of operation
5) Potential NOx emissions based on an expected Part 76 limit of .50 lbs/MMBTU (40 CFR 76.7).
6) Potential SO2, PM, and PM10 emissions based on current permit limits of 0.1 lbs/MMBtu and 0.03 lbs/MMBtu, respectively, under Utah State Approval Order DAQE-523-95.
7) Potential emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

8) Emission factors used were without any control equipment or with unspecified control equipment.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	AUXILIARY BOILER
FUEL:	No. 2 Fuel Oil (p. 1 of 2)

YEAR: 1995 SCC CODE	ESTIMATED MAXIMUM HEAT INPUT (MMBTU/HR)	PROCESS RATE: MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	SULFUR CONTENT (% BY WEIGHT)	FUEL DENSITY (LBS/GAL)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
10200501	184	50	M	GALS^3	0.60	1.00	8.30	150.00
		25	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	(TONS/YEAR)
CO			0.00	5.0000		AIRS	0.06	3.00	0.13
VOC			0.00	0.2000		AIRS	0.00	0.12	0.01
NOx			0.00	20.0000		AIRS	0.25	12.00	0.50
SO2			0.00	70.5500	S	AIRS	0.88	147.53	1.76
PM			0.00	2.0000		AIRS	0.03	1.20	0.05
PM10			0.00	1.0000		AIRS	0.01	0.60	0.03
Lead			0.00	0.0004		AIRS	0.00	2.40E-04	1.00E-05
				(4.2 lbs/10^12 Btu)					
Arsenic			0.00	0.0006		AIR TOXICS	0.00	3.78E-04	1.58E-05
				(2.5 lbs/10^12 Btu)					
Beryllium			0.00	0.0004		AIR TOXICS	0.00	2.25E-04	9.38E-06
				(10.5 lbs/10^12 Btu)					
Cadmium			0.00	0.0016		AIR TOXICS	0.00	9.45E-04	3.94E-05
				(48 lbs/10^12 Btu)					
Chromium			0.00	0.0072		AIR TOXICS	0.00	4.32E-03	0.00
				(3 lbs/10^12 Btu)					
Mercury			0.00	0.0005		AIR TOXICS	0.00	2.70E-04	1.13E-05
				(14 lbs/10^12 Btu)					
Manganese			0.00	0.0021		AIR TOXICS	0.00	1.26E-03	0.00
				(170 lbs/10^12 Btu)					
Nickel			0.00	0.0255		AIR TOXICS	0.00	0.02	0.00
				(9.04 lbs/10^12 Btu)					
POM			0.00	0.0034		AIR TOXICS	0.00	2.03E-03	0.00
				(405 lbs/10^12 Btu)					
Formaldehyde			0.00	0.0608		AIR TOXICS	0.00	0.04	0.00

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	AUXILIARY BOILER
FUEL:	No. 2 Fuel Oil (p. 2 of 2)

NOTES:

ACTUAL 1994 EMISSIONS

1) Actual emissions of all criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.

POTENTIAL CONTROLLED EMISSIONS

2) As vendor information available did not indicate heat input data, the maximum heat input to the boiler was estimated based on the boiler ratings for steam flow, pressure, and temperature, and assuming a steam return temperature of 212 F and boiler efficiency of 85%.

3) All potential controlled emissions are based on maximum heat input (estimated to be 150 MMBtu/SCC UNIT) and limited hours of operation..

4) Potential emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.

5) SO2 Emissions are based on max sulfur in the fuel of 0.5%

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

6) There is no emissions control equipment on the auxiliary boiler.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Emergency Diesel Generator
FUEL: No. 2 Fuel Oil (p. 1 of 2)

PROCESS DATA

YEAR: 1995 SCC CODE	MAXIMUM DESIGN OUTPUT (kW)	CALCULATED MAXIMUM HEAT INPUT (MMBTU/HR)	ESTIMATED HEATRATE (Btu/kWh)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	SULFUR CONTENT (% BY WEIGHT)	FUEL DENSITY (LBS/GAL)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
20200401	750	7.95	10,000	2.75	M	GALS^3	0.05	1.00	8.30	150.00
				1.38	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/MMBtu)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	(TONS/YEAR)
CO			0.00	0.8100		AP-42	0.08	0.00	0.17
VOC			0.00	0.1000		AP-42	0.01	0.80	0.02
NOx			0.00	3.1000		AP-42	0.32	24.65	0.64
SO2			0.00	1.0100		MASS BALANCE	0.10	8.03	0.21
PM			0.00	(50 lbs/1000 gal) 0.3333		AIRS	0.03	2.65	0.07
PM10			0.00	(46 lbs/1000 gal) 0.3067		AIRS	0.03	2.44	0.06
Lead			0.00	8.90E-06		AIR TOXICS/ ENGR JUDGMT	0.00	7.08E-05	0.00
Acetaldehyde			0.00	7.67E-04		AP-42	0.00	6.10E-03	0.00
Acrolein			0.00	9.25E-05		AP-42	0.00	7.35E-04	0.00
Benzene			0.00	9.33E-04		AP-42	0.00	0.01	0.00
Formaldehyde			0.00	1.18E-03		AP-42	0.00	9.38E-03	0.00
Napthalene			0.00	8.48E-05		AP-42	0.00	6.74E-04	0.00
Propylene			0.00	2.58E-03		AP-42	0.00	0.02	0.00
Toluene			0.00	4.09E-04		AP-42	0.00	3.25E-03	0.00
Xylenes			0.00	2.85E-04		AP-42	0.00	2.27E-03	0.00

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	Emergency Diesel Generator
FUEL:	No. 2 Fuel Oil (p. 2 of 2)

NOTES:

ACTUAL 1994 EMISSIONS

1) The amount of fuel oil burned by the diesel in 1994 is estimated based on operating .5 hrs/wk.
2) Actual SO2 emissions based on the sulfur content of the fuel oil and mass balance calculations.
3) Actual emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.

POTENTIAL CONTROLLED EMISSIONS

*b397WáÞ½ Due to a lack of data, the maximum heat input to the diesel was estimated by assuming a fuel heat rate of 10,000 Btu/gal.
5) All potential controlled emissions are based on maximum heat input (estimated to be 150 MMBtu/SCC UNIT) and unlimited hours of operation.
6) Potential emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

7) There is no emissions control equipment on the diesel engine.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Emergency Diesel Fire Pump
FUEL: No. 2 Fuel Oil (p. 1 of 2)

PROCESS DATA

YEAR: 1995 SCC CODE	CALCULATED MAXIMUM HEAT INPUT (MMBTU/HR)	ESTIMATED HEATRATE (Btu/kWh)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	SULFUR CONTENT (% BY WEIGHT)	FUEL DENSITY (LBS/GAL)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
20200102	2.83	10,000	1.04	M	GALS^3	0.02	1.00	8.30	150.00
			0.52	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/MMBtu)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	(TONS/YEAR)
CO			0.00	0.8100		AP-42	0.03	0.02	0.06
VOC			0.00	0.1000		AP-42	0.00	0.00	0.01
NOx			0.00	3.1000		AP-42	0.12	0.06	0.24
SO2			0.00	1.0100		MASS BALANCE	0.04	2.26	0.08
PM			0.00	(50lbs/1000 gal) 0.3333		AIRS	0.01	0.01	0.03
PM10			0.00	(46lbs/1000 gal) 0.3067		AIRS	0.01	0.01	0.02
Lead			0.00	8.90E-06		AIR TOXICS/ ENGR JUDGMT	0.00	1.68E-07	6.94E-07
Acetaldehyde			0.00	7.67E-04		AP-42	0.00	1.45E-05	5.98E-05
Acrolein			0.00	9.25E-05		AP-42	0.00	1.75E-06	7.22E-06
Benzene			0.00	9.33E-04		AP-42	0.00	1.76E-05	7.28E-05
Formaldehyde			0.00	1.18E-03		AP-42	0.00	2.23E-05	9.20E-05
Napthalene			0.00	8.48E-05		AP-42	0.00	1.60E-06	6.61E-06
Propylene			0.00	2.58E-03		AP-42	0.00	4.87E-05	2.01E-04
Toluene			0.00	4.09E-04		AP-42	0.00	7.72E-06	3.19E-05
Xylenes			0.00	2.85E-04		AP-42	0.00	5.38E-06	2.22E-05

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	Emergency Diesel Fire Pump
FUEL:	No. 2 Fuel Oil (p. 2 of 2)

NOTES:

ACTUAL 1994 EMISSIONS

1) The amount of fuel oil burned by the diesel in 1994 is estimated based on operating 0.5 hrs/wk.
2) Actual SO2 emissions based on the sulfur content of the fuel oil and mass balance calculations.
3) Actual emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.
4) Emissions factors for all HAPs based on AP-42 emissions data for large bore engines (greater than 600 hp), but were used as the best data available.

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POTENTIAL CONTROLLED EMISSIONS

5) Due to a lack of data, the maximum heat input to the diesel was estimated by assuming a full load heat rate of 10,000 Btu/kWh.
6) All potential controlled emissions are based on maximum heat input (estimated to be 150 MMBtu/SCC UNIT) and limited hours of operation.
7) Potential emissions of all other criteria pollutants and HAPs based on emissions factors published in AIRS and AIR TOXICS, as noted for each pollutant.
8) Emissions factors for all HAPs based on AP-42 emissions data for large bore engines (greater than 600 hp), but were used as the best data available.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

9) There is no emissions control equipment on the diesel engine.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Construction Heaters
FUEL: Propane (p. 1 of 2)

PROCESS DATA

YEAR: 1995 SCC CODE	MAXIMUM HEAT INPUT (MMBTU/HR)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	FUEL DENSITY (LBS/GAL)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
10500105	12.81	150	M	GALS^E3	0.140	4.40	91.50
		75	A				

ESTMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	(TONS/YEAR)
PM			0.00	0.6000		AP-42	0.02	0.08	0.05
SO2			0.00	0.1000		AP-42	0.00	0.01	0.01
NOx			0.00	19.0000		AP-42	0.71	2.66	1.43
CO2			0.00	12500.0000		AP-42	468.75	1,750.00	937.50
CO			0.00	3.2000		AP-42	0.12	0.45	0.24
TOC			0.00	0.5000		AP-42	0.02	0.07	0.04

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	Construction Heaters
FUEL:	Propane (p. 2 of 2)

NOTES:

ACTUAL 1994 EMISSIONS

1) Actual SO2 emissions based on EPA AP-42.

2) Actual emissions of all other criteria pollutants based on emissions factors published in AP-42 and engineering judgement, as noted for each pollutant.

POTENTIAL CONTROLLED EMISSIONS

3) All potential controlled emissions are based on maximum heat input and limited hours of operation.

4) Potential emissions of all other criteria pollutants based on emissions factors published in AP-42 and engineering judgement, as noted for each pollutant.

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CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

5) There is no emissions control equipment on the construction heaters.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: **Bonanza, Unit 1**
SOURCE ID: Main Boiler
FUEL: Natural Gas (p. 1 of 2)
rev. 1

PROCESS DATA

YEAR: 1995 SCC CODE	MAXIMUM DESIGN OUTPUT (kW)	MAXIMUM HEAT INPUT (MMBTU/HR)	CALCULATED HEATRATE (Btu/kWh)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)	FUEL HEAT CONTENT (MMBTU/SCC UNIT)
10100501	440,000	4,600	10,455	40,296.00	M	10^6 ft^3	4.60	1000.00
				40,296.00	A			

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
CO			0.00	40.00		AP-42	805.92	184.00	805.92
NOx			65.00%	550.00		AP-42	11081.40	2,530.00	7,202.91
SO2			0.00	6.00	S	AP-42	120.89	27.60	120.89
PM			0.00	5.00		AP-42	1.01E+02	23.00	100.74
PM10			0.00	5.00		AP-42	1.01E+02	23.00	100.74

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	Main Boiler
FUEL:	Natural Gas (p. 2 of 2)
	rev. 1

NOTES:

ACTUAL 1994 EMISSIONS

1) Actual PM emissions based on using an emissions factor published in AP-42.
2) Actual emissions of all other criteria pollutants based on emissions factors published in AP-42 (1.4 Natural Gas Combustion), as noted for each pollutant.

POTENTIAL CONTROLLED EMISSIONS

3) All potential controlled emissions are based on maximum heat input and limited hours of operation
4) Potential NOx emissions based on an expected Part 76 limit of .50 lbs/MMBTU (40 CFR 76.7).
5) Potential SO2, PM, and PM10 emissions based on current permit limits of 0.1 lbs/MMBtu and 0.03 lbs/MMBtu, respectively, under Utah State Approval Order DAQE-523-95.
6) Potential emissions of all other criteria pollutants based on emissions factors published in AP-42 (1.4 Natural Gas Combustion), as noted for each pollutant.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

7) Emission factors used were without any control equipment or with unspecified control equipment.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	AUXILIARY BOILER
FUEL:	Natural Gas (p. 1 of 2)
	rev. 1

YEAR: 1995		ESTIMATED MAXIMUM HEAT INPUT (MMBTU/HR)		PROCESS RATE MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MAXIMUM DESIGN RATE (SCC UNIT/HR)			FUEL HEAT CONTENT (MMBTU/SCC UNIT)
SCC CODE										
10200501		1,399		0.77	M	10^6 ft^3	0.68			1000.00
				0.38	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	ACTUAL EMISSIONS ESTIMATION METHOD	ACTUAL EMISSIONS (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	(TONS/YEAR)
CO			0.00	40.00		AIRS	0.01	27.20	0.02
NOx			65.00%	550.00		AIRS	0.10	374.00	0.14
SO2			0.00	0.60	S	AIRS	0.00	1,119.20	0.00
PM			0.00	5.00		AIRS	0.00	3.40	0.00
PM10			0.00	5.00		AIRS	0.00	3.40	0.00

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT:	**Bonanza, Unit 1**
SOURCE ID:	AUXILIARY BOILER
FUEL:	Natural Gas (p. 2 of 2)
	rev. 1

NOTES:

ACTUAL 1994 EMISSIONS

1) Actual PM emissions based on using an emissions factor published in AP-42.
2) Actual emissions of all other criteria pollutants based on emissions factors published in AP-42 (1.4 Natural Gas Combustion), as noted for each pollutant.

POTENTIAL CONTROLLED EMISSIONS

3) All potential controlled emissions are based on maximum heat input and limited hours of operation
4) Potential NOx emissions based on an expected Part 76 limit of .50 lbs/MMBTU (40 CFR 76.7).
5) Potential SO2, PM, and PM10 emissions based on current permit limits of 0.1 lbs/MMBtu and 0.03 lbs/MMBtu, respectively, under Utah State Approval Order DAQE-523-95.
6) Potential emissions of all other criteria pollutants based on emissions factors published in AP-42 (1.4 Natural Gas Combustion), as noted for each pollutant.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

7) Emission factors used were without any control equipment or with unspecified control equipment.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL & ASH HANDLING OPERATIONS
SOURCE DESCRIPT: ACCESS HAUL ROAD (PAGE 1 OF 17)

PROCESS DATA

YEAR: 1998 SCC CODE	ROAD SILT CONTENT (%)	MEAN VEHICLE SPEED (MPH)	MEAN VEHICLE WEIGHT (TONS)	MAXIMUM & ACTUAL MILES TRAVELED		MEAN NO. OF WHEELS	DAYS W/ > 0.01" RAIN PER YEAR	HAUL DISTANCE ROUNDTRIP (MILES)	TRUCK CAPACITY (TONS)
30300833	5.00	25	10	5,000	M	8	60	2	10.00
				5,000	A				

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/VMT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Watering	Chemical	(EPRI) 75.00	5.6234		AP-42	3.51	0.80	3.51
PM10	Watering	Chemical	75.00	2.0244		AP-42	1.27	0.29	1.27

NOTES:

AP-42 EQUATION - Section 13.2.2.2- UNPAVED ROADS (PM & PM10)

E = k(5.9)(s/12)(S/30)(W/3)^0.7 (w/4)^0.5 ((365-p)/365) lbs/VMT

where:

E = emission factor (lbs/VMT)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.36

s = silt content of road surface material (%); Estimated to be 5% based on information published in EPRI for gravel roads

S = mean vehicle speed (mph); Estimated to be 25

W = mean vehicle weight (ton); Estimated to be 10 tons (the wt. which gives an avg emissions factor to account for loaded and unloaded hauling wts)

w = mean number of wheels; Estimated to be 8

p = number of days with >= 0.01 inches of precipitation per year; Estimated to be 95 based on AP-42 weather chart

VMT = vehicle miles traveled; Estimated based on a roundtrip distance of 2 miles (measured) and an estimated average truck capacity of 10 tons

AP-42, Section 11.2.1

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for unpaved roads.

POTENTIAL CONTROLLED EMISSIONS

2) Potential emissions based on calculated emissions factors using the above AP-42 equation for unpaved roads.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of periodic watering or chemical addition on an as-needed basis.

5) Control efficiency for watering based on information published in EPRI.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: SECURITY OPERATIONS
SOURCE DESCRIPT: PERIMETER ROAD (Page 2 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE	ROAD SILT CONTENT (%)	MEAN VEHICLE SPEED (MPH)	MEAN VEHICLE WEIGHT (TONS)	MAXIMUM & ACTUAL MILES TRAVELED		Moisture Content %	DAYS W/ > 0.01" RAIN PER YEAR	HAUL DISTANCE ROUNDTRIP (MILES)	
30300833	5.00	25	1	2,000	M A	2	60	2	

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/VMT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM			(EPRI) 0.00	0.9534		AP-42	0.00	0.22	0.95
PM10			0.00	0.3483		AP-42	0.00	0.08	0.35

NOTES:

AP-42 EQUATION - Section 13.2.2.2- UNPAVED ROADS (PM & PM10)

E = k(s/12)^a*(W/3)^b/ (M/0.2)^c*((365-p)/365) lbs/VMT

where:

E = emission factor (lbs/VMT)

k = Constant; PM = 10 and PM10 = 0.38

s = silt content of road surface material (%); Estimated to be 5% based on information published in EPRI for gravel roads

S = mean vehicle speed (mph); Estimated to be 25

W = mean vehicle weight (ton); Estimated to be 10 tons (the wt. which gives an avg emissions factor to account for loaded and unloaded hauling wts)

M= Moisture content

p = number of days with >= 0.01 inches of precipitation per year; Estimated to be 95 based on AP-42 weather chart

VMT = vehicle miles traveled; Estimated based on a roundtrip distance of 2 miles (measured) and an estimated average truck capacity of 10 tons

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for unpaved roads.

POTENTIAL CONTROLLED EMISSIONS

2) Potential emissions based on calculated emissions factors using the above AP-42 equation for unpaved roads.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of periodic watering or chemical addition on an as-needed basis.

5) Control efficiency for watering based on information published in EPRI.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: DOZER COAL STORAGE AND RECLAIM (p.3 of 17)

PROCESS DATA

YEAR: 1998									
SCC CODE		SILT CONTENT (%)	MEAN WIND SPEED (MPH)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MOISTURE CONTENT (%)	ANNUAL HOURS OF OPERATION		
30501040		0.01	10.00	1,400,000	M	TON	15.00	2000		
			(Average)	500,000	A			1650		

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM			0.00	0.00923		AP-42	2.31	0.00	0.01
PM10			0.00	0.00796		AP-42	1.99	0.00	0.01

NOTES:

AP-42 EQUATION 11.9-1 - Western surface Coal Mines

E = k(78.4)(s/5)^1.2/(M/2)^1.3 lbs/Hr

where:

E = emission factor (lbs/ton)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.35

s = Silt Content (Measured at site)

M = material moisture content (%); Measured at the site

ACTUAL 2001 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on 100% fuel delivery by truck, full load unlimited operation of combustion units, and a coal heat content of 8,200 Btu/lb.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) No emissions control equipment.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: RAILCAR AND TRUCK UNLOADING, (p.4 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE	MEAN WIND SPEED (MPH)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MOISTURE CONTENT (%)
	10.00	2,200,000	M	TON	15.00
	(Estimated)	2,000,000	A		(Recieved)

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Dust Suppression		(Estimated) 95.00	0.00047		AP-42	0.023	0.006	0.026
PM10	Dust Suppression		(Estimated) 95.00	0.00016		AP-42	0.008	0.002	0.009

NOTES:

AP-42 EQUATION 13.2.4.3-1 - BATCH OR CONTINUOUS DROP OPERATIONS

E = k(0.0032)(U/5)^1.3/(M/2)^1.4 lbs/ton

where:

E = emission factor (lbs/ton)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.35

U = mean wind speed (mph); Estimated to be 10 mph based on climatology data from PSD and NOI.

M = material moisture content (%); 6% recieved, based on plant data worse case.

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on 100% fuel delivery by train or truck, full load unlimited operation of combustion units, and a coal heat content of 9,381 Btu/lb.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of a fabric filter.
5) Control efficiency for PM based on data published in EPRI and supported by vendor information.
6) Control efficiency for PM10 calculated based on the assumption that all PM escaping control is PM10.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: CONV. 1 AND 2 TO STORAGE, (p. 5 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE		NUMBER OF TRANSFER POINTS	MEAN WIND SPEED (MPH)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MOISTURE CONTENT (%)			
30501011		2	10.00	2,200,000	M	TON	15.00			
			(Estimated)	2,000,000	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Fabric Filter	Dust Suppression	(EPRI: EPA) 99.70	0.00047		AP-42	0.00	0.00	0.00
PM10	Fabric Filter	Dust Suppression	(Calculated) 99.22	0.00016		AP-42	0.00	0.00	0.00

NOTES:

AP-42 EQUATION 13.2.4.3-1 - BATCH OR CONTINUOUS DROP OPERATIONS

E = k(0.0032)(U/5)^1.3/(M/2)^1.4 lbs/ton

where:

E = emission factor (lbs/ton)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.35

U = mean wind speed (mph); Estimated to be 10 mph based on climatology data from PSD and NOI.

M = material moisture content (%); 6% recieved based on plant data worse case.

Actual 1998 Emissions

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on full load unlimited operation of combustion units, and a coal heat content of 9,381 Btu/lb.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of a fabric filter.
5) Control efficiency for PM based on data published in EPRI and supported by vendor information.
6) Control efficiency for PM10 calculated based on the assumption that all PM escaping control is PM10.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: CONVs. 3,4, AND 5 TO PLANT, (p. 6 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE		NUMBER OF TRANSFER POINTS	MEAN WIND SPEED (MPH)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MOISTURE CONTENT (%)			
30501011		3	0.01	2,200,000	M	TON	15.00			
				2,000,000	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Fabric Filter		(EPRI: EPA) 99.70	0.00000		AP-42	0.00	0.00	0.00
PM10	Fabric Filter		(Calculated) 99.22	0.00000		AP-42	0.00	0.00	0.00

NOTES:

AP-42 EQUATION 13.2.4.3-1 - BATCH OR CONTINUOUS DROP OPERATIONS

E = k(0.0032)(U/5)^1.3/(M/2)^1.4 lbs/ton

where:

E = emission factor (lbs/ton)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.35

U = mean wind speed (mph); Estimated to be 10 mph based on climatology data from PSD and NOI.

M = material moisture content (%); 6% recieved based on plant data worse case.

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on full load unlimited operation of combustion units, and a coal heat content of 9,381 Btu/lb.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of a fabric filter.
5) Control efficiency for PM based on data published in EPRI and supported by vendor information.
6) Control efficiency for PM10 calculated based on the assumption that all PM escaping control is PM10.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: COAL CRUSHING, (p. 7 of 17)

PROCESS DATA

YEAR: 1998										
SCC CODE				MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS				
				2,200,000	M	TON				
				2,000,000	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Fabric Filter		(EPRI: EPA) 99.70	0.1800		EPRI	0.54	0.14	0.59
PM10	Fabric Filter		(Calculated) 99.45	0.0900		ENGR JUDGMT	0.49	0.12	0.54

NOTES:

ACTUAL 1998 EMISSIONS

1) Actual emissions based on emissions factor published in EPRI and engineering judgement, as noted for each pollutant.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on full load unlimited operation of combustion units, and a coal heat content of 9,381 Btu/lb.
3) Potential emissions based on emissions factor published in EPRI and engineering judgement, as noted for each pollutant.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of a fabric filter.
5) Control efficiency for PM based on data published in EPRI and supported by vendor information.
6) Control efficiency for PM10 calculated based on the assumption that all PM escaping control is PM10.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: ACTIVE STORAGE - WIND EROSION, (p. 8 of 17)

PROCESS DATA

YEAR: 1995										
SCC CODE	COAL SILT CONTENT (%)	TIME WINDSPEED EXCEEDS 12 MPH AT MEAN PILE HT (%)		MAXIMUM & ACTUAL PILE SIZE (ACRES)		SCC UNITS	NO. DAYS WITH >= 0.01" PRECIP PER YEAR			
	0.01	29.50		5.00	M	TON	60			
		(Estimated)		5.00	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/DAY/ACRE)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM			(EPRI) 0.00	0.0289		AP-42	0.03	0.01	0.03
PM10			0.00	0.0145		ENGR JUDGMT	0.01	0.00	0.01

NOTES:

AP-42 EQUATION - WIND EROSION OF STORAGE PILES

E = 1.7 (s/1.5)((365-p)/235)(f/15) lb/day/acre

where:

E = emission factor (lb/day/acre)

s = silt content of aggregate (%); Estimated to be 6.2% based on data published in AP-42 and EPRI for western coal.

p = number of days with >= 0.01 inch of precipitation per year; Estimated to be 85 based on AP-42 weather chart.

f = time unobstructed wind speed exceeds 12 mph at the mean pile height (%); Estimated to be 29.5% based on climatological summary from PSD and NOI.

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

POTENTIAL CONTROLLED EMISSIONS

2) Potential emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

3) Emissions control consists of periodic watering.
4) Control efficiency for PM based on data published in EPRI.
5) Control efficiency for PM10 based on engineering judgement.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: COAL HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: INACTIVE STORAGE - WIND EROSION, (p. 9 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE	COAL SILT CONTENT (%)	TIME WINDSPEED EXCEEDS 12 MPH AT MEAN PILE HT (%)		MAXIMUM & ACTUAL PILE SIZE (ACRES)		SCC UNITS	NO. DAYS WITH >= 0.01" PRECIP PER YEAR			
	0.01	29.50		17.00	M	TON	60			
		(Estimated)		17.00	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/DAY/ACRE)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Chemical	Compaction	(EPRI) 50.00	0.0289		AP-42	0.04	0.01	0.04
PM10	Chemical	Compaction	50.00	0.0145		ENGR JUDGMT	0.02	0.01	0.02

NOTES:

AP-42 EQUATION - WIND EROSION OF STORAGE PILES

E = 1.7 (s/1.5)((365-p)/235)(f/15) lb/day/acre

where:

E = emission factor (lb/day/acre)

s = silt content of aggregate (%); Estimated to be 6.2% based on data published in AP-42 and EPRI for western coal.

p = number of days with >= 0.01 inch of precipitation per year; Estimated to be 85 based on AP-42 weather chart.

f = time unobstructed wind speed exceeds 12 mph at the mean pile height (%); Estimated to be 29.5% based on climatological summary for local airport

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

POTENTIAL CONTROLLED EMISSIONS

2) Potential emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

3) Emissions control consists of periodic watering.
4) Control efficiency for PM based on data published in EPRI.
5) Control efficiency for PM10 based on engineering judgement.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: LIMESTONE HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: CONVs. L1 AND L2 (p. 10 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE	NUMBER OF TRANSFER POINTS	MEAN WIND SPEED (MPH)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MOISTURE CONTENT (%)
30501011	3	0.01	50,000	M	TON	3.00
		(Estimated)	22,403	A		

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	PROCESS CONTROLLED EMISSIONS (LBS/HR)	PROCESS CONTROLLED EMISSIONS (TONS/YEAR)
PM	Fabric Filter		(EPRI: EPA) 99.70	0.00000		AP-42	0.00	0.00	0.00
PM10	Fabric Filter		(Calculated) 99.62	0.00000		AP-42	0.00	0.00	0.00

NOTES:

AP-42 EQUATION 13.2.4.3-1 - BATCH OR CONTINUOUS DROP OPERATIONS

E = k(0.0032)(U/5)^1.3/(M/2)^1.4 lbs/ton

where:

E = emission factor (lbs/ton)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.35

U = mean wind speed (mph); Estimated to be 10 mph based on climatology data from PSD and NOI.

M = material moisture content (%); 6% recieved based on plant data worse case.

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on full load unlimited operation of combustion units, and a coal heat content of 9,381 Btu/lb.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of a fabric filter.
5) Control efficiency for PM based on data published in EPRI and supported by vendor information.
6) Control efficiency for PM10 calculated based on the assumption that all PM escaping control is PM10.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: LIMESTONE HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: DOZERS ON STORAGE PILE (p. 11 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE	LIMESTONE SILT CONTENT (%)	MEAN VEHICLE SPEED (MPH)	MEAN VEHICLE WEIGHT (TONS)	MAXIMUM & ACTUAL MILES TRAVELED		SCC UNITS	Moisture Content %	DAYS W/ > 0.01" RAIN PER YEAR	Mean Wind speed
	1.60	5	10	200	M	TON	4	60	10
				100	A				

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/VMT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM			(EPRI) 0.00	0.9330		AP-42	0.05	0.02	0.09
PM10			0.00	0.3359		AP-42	0.02	0.01	0.03

NOTES:

AP-42 EQUATION - Section 13.2.4.3- AGGREGATE HANDLING AND STORAGE PILES

E = k(.0032)*((u/5)^1.3/m/2)^1.4)

where:

E = emission factor (lbs/VMT)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.36

U= Mean wind speed

M= Moisture content %

W = mean vehicle weight (ton); 10 tons

w = mean number of wheels; 4

p = number of days with >= 0.01 inches of precipitation per year; Estimated to be 85 based on AP-42 weather chart

VMT = vehicle miles traveled; Estimated based on an average of 8 dozer-hours on piles per day

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for unpaved roads.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum rate based on 16 dozer-hours on piles per day.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for unpaved roads.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of periodic watering on an as-needed basis.
5) Control efficiency for watering based on information published in EPRI.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: LIMESTONE HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: WIND EROSION (P. 12 of 17)

PROCESS DATA

YEAR: 1998 / SCC CODE	LIMESTONE SILT CONTENT (%)	TIME WINDSPEED EXCEEDS 12 MPH AT MEAN PILE HT (%)		MAXIMUM & ACTUAL PILE SIZE (ACRES)		SCC UNITS	NO. DAYS WITH >= 0.01" PRECIP PER YEAR			
	1.50	29.50		2.00	M	TON	60			
		(Estimated)		1.00	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/DAY/ACRE)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM			(EPRI) 0.00	4.3392		AP-42	0.79	0.36	1.58
PM10			0.00	2.1696		ENGR JUDGMT	0.40	0.18	0.79

NOTES:

AP-42 EQUATION - WIND EROSION OF STORAGE PILES

E = 1.7 (s/1.5)((365-p)/235)(f/15) lb/day/acre

where:

E = emission factor (lb/day/acre)

s = silt content of aggregate (%); Estimated to be 6.2% based on data published in AP-42 and EPRI for western coal.

p = number of days with >= 0.01 inch of precipitation per year; Estimated to be 85 based on AP-42 weather chart.

f = time unobstructed wind speed exceeds 12 mph at the mean pile height (%); Estimated to be 29.5% based on climatological summary from PSD and NOI.

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

POTENTIAL CONTROLLED EMISSIONS

2) Potential emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

3) Emissions control consists of periodic watering.
4) Control efficiency for PM based on data published in EPRI.
5) Control efficiency for PM10 based on engineering judgement.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: SLUDGE HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: INACTIVE STORAGE - WIND EROSION (p. 13 of 17)

PROCESS DATA

YEAR: 1998 SCC CODE	SLUDGE SILT CONTENT (%)	TIME WINDSPEED EXCEEDS 12 MPH AT MEAN PILE HT (%)		MAXIMUM & ACTUAL P[LE SIZE (ACRES)		SCC UNITS	NO. DAYS WITH >= 0.01" PRECIP PER YEAR			
	6.50	29.50		14.00	M	TON	60			
		(Estimated)		7.35	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/DAY/ACRE)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM	Watering		(EPRI) 50.00	18.8033		AP-42	12.61	5.48	24.02
PM10	Watering		50.00	9.4016		ENGR JUDGMT	6.31	2.74	12.01

NOTES:

AP-42 EQUATION - WIND EROSION OF STORAGE PILES

E = 1.7 (s/1.5)((365-p)/235)(f/15) lb/day/acre

where:

E = emission factor (lb/day/acre)

s = silt content of aggregate (%); Estimated to be 6.2% based on data published in AP-42 and EPRI for western coal.

p = number of days with >= 0.01 inch of precipitation per year; Estimated to be 85 based on AP-42 weather chart.

f = time unobstructed wind speed exceeds 12 mph at the mean pile height (%); Estimated to be 29.5% based on climatological summary for local airport

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

POTENTIAL CONTROLLED EMISSIONS

2) Potential emissions based on calculated emissions factors using the above AP-42 equation for wind erosion of storage piles.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

3) Emissions control consists of periodic watering.
4) Control efficiency for PM based on data published in EPRI.
5) Control efficiency for PM10 based on engineering judgement.

DESERET GENERATION AND TRANSMISSION COOPERATIVE

PLANT: Bonanza, Unit 1
SOURCE ID: SLUDGE HANDLING & STORAGE OPERATIONS
SOURCE DESCRIPT: CONVs. S1, S2, S3, S4, S5, S6, and RADIAL STACKER (p. 14 of 17)

PROCESS DATA

YEAR: 1998										
SCC CODE		NUMBER OF TRANSFER POINTS	MEAN WIND SPEED (MPH)	MAXIMUM & ACTUAL PROCESS RATE		SCC UNITS	MOISTURE CONTENT (%)			
30501011		7	5.00	230,000	M	TON	6.00			
			(Estimated)	216,394	A					

ESTIMATED EMISSIONS

POLLUTANT	CONTROL EQUIPMENT PRIMARY	CONTROL EQUIPMENT SECONDARY	OVERALL CONTROL EFFICIENCY (%)	EMISSION FACTOR (LBS/SCC UNIT)	ASH/SULFUR FLAG	EMISSIONS ESTIMATION METHOD	ACTUAL CONTROLLED (TONS/YEAR)	POTENTIAL CONTROLLED EMISSIONS (LBS/HR)	POTENTIAL CONTROLLED EMISSIONS (TONS/YEAR)
PM			0.00	0.00069		AP-42	0.52	0.13	0.55
PM10			0.00	0.00024		AP-42	0.18	0.04	0.19

NOTES:

AP-42 EQUATION 13.2.4.3-1 - BATCH OR CONTINUOUS DROP OPERATIONS

E = k(0.0032)(U/5)^1.3/(M/2)^1.4 lbs/ton

where:

E = emission factor (lbs/ton)

k = particle size multiplier (dimensionless); PM = 1 and PM10 = 0.35

U = mean wind speed (mph); Estimated to be 10 mph based on climatology data from PSD and NOI.

M = material moisture content (%); 6% recieved based on plant data worse case.

AP-42, Section 11.2.3

ACTUAL 1998 EMISSIONS

1) Actual emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

POTENTIAL CONTROLLED EMISSIONS

2) Maximum process rate based on full load unlimited operation of combustion units, and a coal heat content of 9,381 Btu/lb.
3) Potential emissions based on calculated emissions factors using the above AP-42 equation for batch or continuous drop operations.

CONTROL EQUIPMENT AND ASSOCIATED EFFICIENCIES

4) Emissions control equipment consists of a fabric filter.
5) Control efficiency for PM based on data published in EPRI and supported by vendor information.
6) Control efficiency for PM10 calculated based on the assumption that all PM escaping control is PM10.