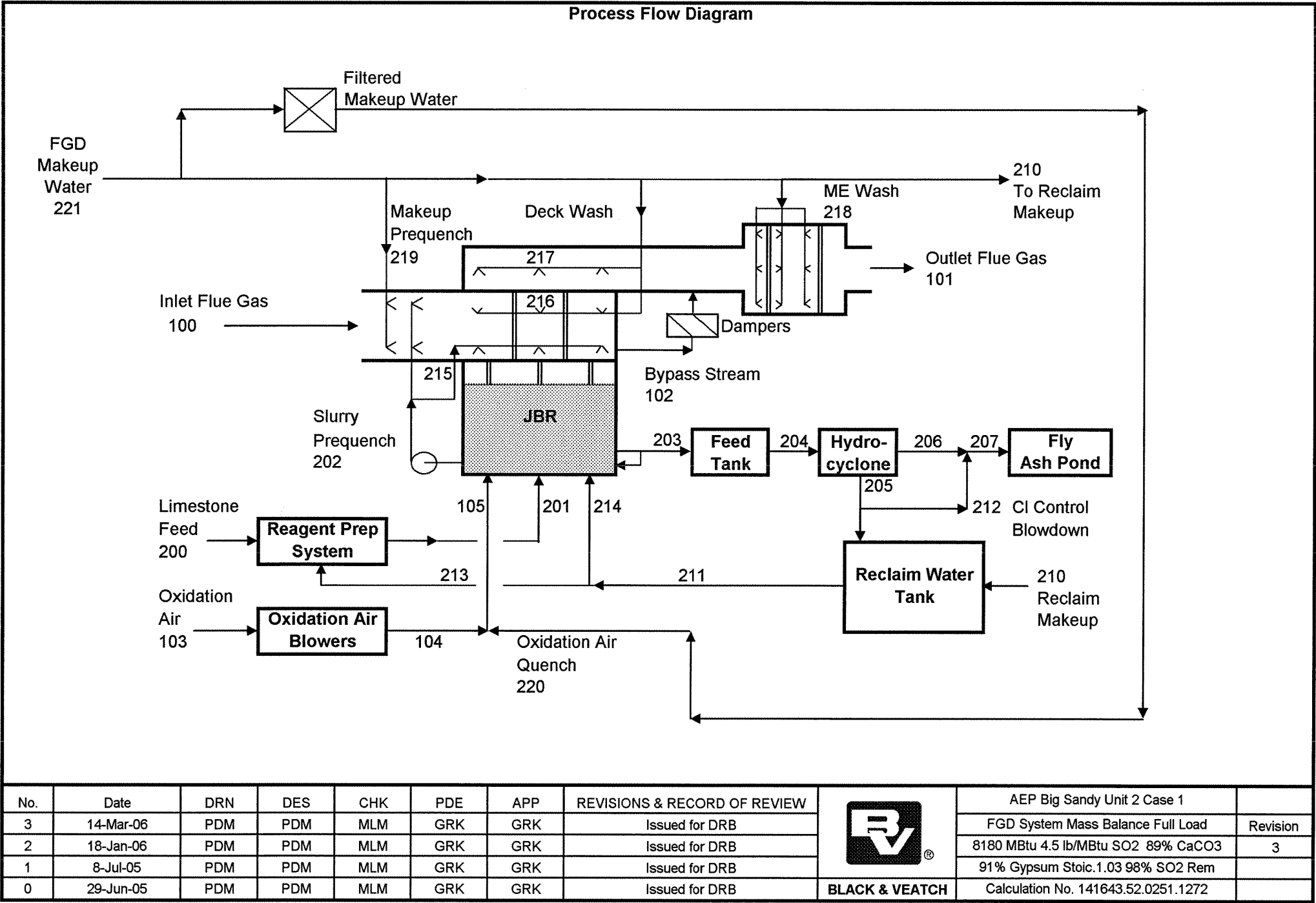




Consolidated Summary

DESIGN BASIS SUMMARY	
FGD System Mass Balance Full Load	
Unit Rating, MW (net)	800
Boiler Heat Input, MMBtu/hr	8,180
Fuel Burn Rate, lb/hr	654,924
Altitude, ft. above MSL	568
Ambient Pressure, in H ₂ O	399
Ambient Temperature, °F	56
SO ₂ Inlet Loading, lb of SO ₂ /MMBtu	4.50
SO ₂ Removal Efficiency, %	98
Excess Air, %	21.3
Air Heater Leakage, %	16.4
Oxygen at FGD Inlet, %	6.0

COAL ANALYSIS ¹	
Carbon, %	69.33
Hydrogen, %	4.67
Sulfur, %	2.81
Nitrogen, %	1.34
Oxygen, %	5.10
Moisture, %	6.63
Chlorine, %	0.20
Ash, %	9.89
High Heating Value (HHV), Btu/lb	12,490

LIMESTONE ANALYSIS	
CaCO ₃ , %	89.0
Reactive MgCO ₃ , %	2.0
Total MgCO ₃ , %	4.0
Inerts, %	7.0
Slurry Solids, %	30.0
Specific gravity	1.23
Bond Work Index (BWI)	12
Delivered size	3/4" x 0"

GYPSUM QUALITY (Dry Basis)	
CaSO ₄ -2H ₂ O, %	90.7
CaSO ₃ -1/2 H ₂ O, %	0.0
CaCO ₃ , %	1.6
Inerts, %	4.3
MgCO ₃ , %	1.7
Fly Ash, %	1.6
Maximum Chloride Content, ppm	12,000
Solids, % min	50
Crystal Size (Stokes Mean Size), microns	40 - 70

Note:

- 1 Coal analysis is the ultimate analysis adjusted for moisture
2 All the flows denoted are on per unit basis

Gas Streams	100	101	102	103	104	105
	Total Inlet Flue Gas	Total Outlet Flue Gas	Bypass Stream	Oxidation Air-Inlet	Oxidation Air-Outlet	Oxidation Air-Humidified
Flow, acfm	3,086,836	2,588,889	0	33,845	24,427	33,132
Flow, lb/hr	9,500,016	10,155,378	0	156,193	156,193	228,106
H ₂ O, lb/hr	376,957	900,191	0	1,055	1,055	72,968
O ₂ , lb/hr	614,322	641,251	0	35,905	35,905	35,905
N ₂ , lb/hr	6,806,821	6,923,993	0	117,172	117,172	117,172
CO ₂ , lb/hr	1,663,641	1,689,210	0	71	71	71
SO ₂ , lb/hr	36,638	733	0	0	0	0
HCl, lb/hr	1,347	0	0	0	0	0
Fly ash lb/hr	1,930	164	0	0	0	0
Temp, F	350	127	350	56	128	75.2
Pressure, inwg	19.0	1.0	19.0	0.0	235.0	235.0

Liquid Streams	200	201	202	203	204	205	206	207	208	209	210
	Limestone Feed	Reagent Feed	Slurry Prequench	Absorber Bleed	H'cyclone Feed	H'cyclone Overflow	H'cyclone Underflow	Inlet to Fly Ash Pond	Not Used	Not Used	Reclaim Make Up
Flow, gpm	--	370	43,098	1,023	1,023	718	305	314			400
Frequency, min/day	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous			Continuous
Flow, lb/hr	65,993	228,687	24,329,110	577,255	577,255	364,582	212,673	217,349			200,287
Total SS, lb/hr	65,993	68,606	4,865,822	115,451	115,451	9,115	106,337	106,453			0
Total SS, %	100	30	20	20	20	2.5	50	49			0
Specific gravity	--	1.23	1.13	1.13	1.13	1.01	1.39	1.38			1.00
H ₂ O, lb/hr	0	160,081	19,463,288	461,804	461,804	355,468	106,337	110,896			200,287
CaCO ₃ , lb/hr	58,734	59,058	119,143	2,827	2,827	1,131	1,696	1,711			0
MgCO ₃ , lb/hr	2,640	2,992	129,607	3,075	3,075	1,230	1,845	1,861			0
CaSO ₄ -2H ₂ O, lb/hr	0	141	4,087,373	96,981	96,981	492	96,489	96,495			0
CaSO ₃ -1/2H ₂ O, lb/hr	0	0	0	0	0	0	0	0			0
Fly ash, lb/hr	0	1,464	286,856	6,806	6,806	5,105	1,701	1,767			0
Inerts, lb/hr	4,620	4,951	242,842	5,762	5,762	1,157	4,605	4,620			0
Cl, lb/hr	0	1,225	233,559	5,542	5,542	4,266	1,276	1,331			6
Cl, mg/L	0	7,651	12,000	12,000	12,000	12,000	12,000	12,000			32
pH	NA	7.5 - 8.5	4.5 - 5.5	4.5 - 5.5	4.5 - 5.5	4.5 - 5.5	4.5 - 5.5	4.5 - 5.5			5.5 - 7.5

Liquid Streams	211	212	213	214	215	216	217	218	219	220	221
	Reclaim Water	Cl Control Blowdown	Reclaim to Reagent	Reclaim to JBR	Lower Deck Wash	Inlet Deck Wash	Upper Deck Wash	Makeup ME Wash	Makeup Prequench	Oxid Air Quench	Total Makeup
Flow, gpm	1,109	9	322	787	6,657	437	316	651	604	144	1,305
Frequency, min/day	Continuous	Continuous	Continuous	Continuous	Continuous	393	100	36	Continuous	Continuous	Continuous
Flow, lb/hr	560,193	4,676	162,694	397,499	3,758,150	59,727	10,940	8,200	302,204	71,913	653,272
Total SS, lb/hr	8,998	117	2,613	6,385	751,630	0	0	0	0	0	0
Total SS, %	1.6	2.5	1.6	1.6	20	0	0	0	0	0	0
Specific gravity	1.01	1.01	1.01	1.01	1.13	1.00	1.00	1.00	1.00	1.00	1.00
H ₂ O, lb/hr	551,196	4,560	160,081	391,115	3,006,520	59,727	10,940	8,200	302,204	71,913	653,272
CaCO ₃ , lb/hr	1,116	15	324	792	18,404	0	0	0	0	0	0
MgCO ₃ , lb/hr	1,214	16	353	862	20,021	0	0	0	0	0	0
CaSO ₄ -2H ₂ O, lb/hr	486	6	141	345	631,382	0	0	0	0	0	0
CaSO ₃ -1/2H ₂ O, lb/hr	0	0	0	0	0	0	0	0	0	0	0
Fly ash, lb/hr	5,039	65	1,464	3,576	44,311	0	0	0	0	0	0
Inerts, lb/hr	1,142	15	332	811	37,512	0	0	0	0	0	0
Cl, lb/hr	4,217	55	1,225	2,992	36,078	1.9	0.4	0.3	10	2.3	21
Cl, mg/L	7,651	12,000	7,651	7,651	12,000	32	32	32	32	32	32
pH	5.5 - 7.5	4.5 - 5.5	5.5 - 7.5	5.5 - 7.5	4.5 - 5.5	5.5 - 7.5	5.5 - 7.5	5.5 - 7.5	5.5 - 7.5	5.5 - 7.5	5.5 - 7.5

PERFORMANCE DATA	
SO ₂ removed, lb/hr	35,905
HCl removed, lb/hr	1,347
Fly ash removed, lb/hr	1,767
Limestone Reagent Stoichiometry Guarantee in Waste Solids	1.03
Limestone consumption, tph	33.0
Makeup water required, gpm	1,305
Chloride blowdown, gpm	9.2
Gypsum byproduct production (wet basis), tph	106.3

NO.	DATE	DRN	DES	CHK	PDE	APP	REVISIONS & RECORD OF REVIEW		AEP Big Sandy Unit 2 Case 1	
3	14-Mar-06	PDM	PDM	MLM	GRK	GRK	Issued for DRB		FGD System Mass Balance Full Load	Revision
2	18-Jan-06	PDM	PDM	MLM	GRK	GRK	Issued for DRB		8180 MBtu 4.5 lb/MBtu SO2 89% CaCO3	3
1	8-Jul-05	PDM	PDM	MLM	GRK	GRK	Issued for DRB		91% Gypsum Stoic.1.03 98% SO2 Rem	
0	29-Jun-05	PDM	PDM	MLM	GRK	GRK	Issued for DRB	BLACK & VEATCH	Calculation No. 141643.52.0251.1272	