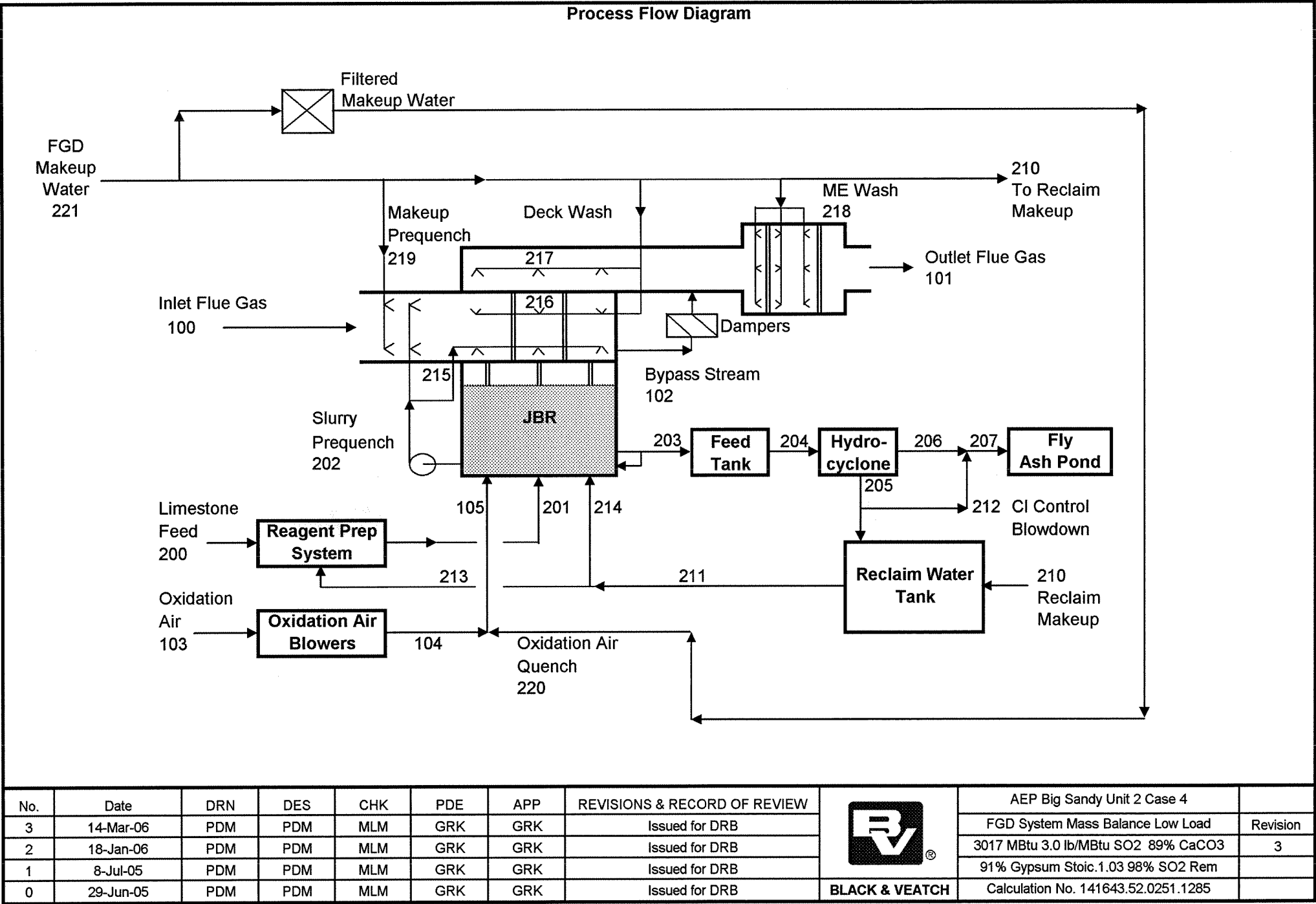




Consolidated Summary

DESIGN BASIS SUMMARY	
FGD System Mass Balance Low Load	
Unit Rating, MW (net)	300
Boiler Heat Input, MMBtu/hr	3,017
Fuel Burn Rate, lb/hr	241,553
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	3.00
SO ₂ Removal Efficiency, %	98
Excess Air, %	21.4
Air Heater Leakage, %	39.5
Oxygen at FGD Inlet, %	8.5

COAL ANALYSIS ¹	
Carbon, %	69.33
Hydrogen, %	4.67
Sulfur, %	1.87
Nitrogen, %	1.34
Oxygen, %	6.03
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, %	91.0
CaSO ₃ -1/2 H ₂ O, %	0.0
CaCO ₃ , %	1.5
Inerts, %	4.2
MgCO ₃ , %	1.6
Fly Ash, %	1.7
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	1,267,559	1,125,036	0	33,845	24,427	33,132
Flow, lb/hr	4,166,899	4,487,633	0	156,193	156,193	228,106
H ₂ O, lb/hr	143,519	316,383	0	1,055	1,055	72,968
O ₂ , lb/hr	383,514	417,208	0	35,905	35,905	35,905
N ₂ , lb/hr	3,016,643	3,133,815	0	117,172	117,172	117,172
CO ₂ , lb/hr	613,595	620,046	0	71	71	71
SO ₂ , lb/hr	9,025	181	0	0	0	0
HCl, lb/hr	497	0	0	0	0	0
Fly ash lb/hr	712	60	0	0	0	0
Temp, F	290	120	290	56	128	75.2
Pressure, inwg	16.5	1.0	16.5	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	--	93	22,721	251	251	176	75	105			50
Frequency, min/day	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous	Continuous			Continuous
Flow, lb/hr	16,513	57,606	12,826,434	141,647	141,647	89,461	52,186	67,310			25,036
Total SS, lb/hr	16,513	17,282	2,565,287	28,329	28,329	2,237	26,093	26,471			0
Total SS, %	100	30	20	20	20	2.5	50	39			0
Specific gravity	--	1.23	1.13	1.13	1.13	1.01	1.39	1.29			1.00
H ₂ O, lb/hr	0	40,324	10,261,147	113,318	113,318	87,225	26,093	40,839			25,036
CaCO ₃ , lb/hr	14,697	14,785	58,059	641	641	256	385	428			0
MgCO ₃ , lb/hr	661	756	63,158	697	697	279	418	466			0
CaSO ₄ -2H ₂ O, lb/hr	0	43	2,161,808	23,874	23,874	125	23,748	23,770			0
CaSO ₃ -1/2H ₂ O, lb/hr	0	0	0	0	0	0	0	0			0
Fly ash, lb/hr	0	446	156,622	1,730	1,730	1,297	432	652			0
Inerts, lb/hr	1,156	1,252	125,640	1,387	1,387	279	1,109	1,156			0
Cl, lb/hr	0	360	123,134	1,360	1,360	1,047	313	490			1
Cl, mg/L	0	8,927	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	196	30	81	115	6,657	437	316	651	83	144	435
Frequency, min/day	Continuous	Continuous	Continuous	Continuous	Continuous	393	100	36	Continuous	Continuous	Continuous
Flow, lb/hr	99,373	15,124	41,093	58,280	3,758,150	59,727	10,940	8,200	41,807	71,913	217,623
Total SS, lb/hr	1,858	378	768	1,090	751,630	0	0	0	0	0	0
Total SS, %	1.9	2.5	1.9	1.9	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	97,514	14,746	40,324	57,190	3,006,520	59,727	10,940	8,200	41,807	71,913	217,623
CaCO ₃ , lb/hr	213	43	88	125	17,011	0	0	0	0	0	0
MgCO ₃ , lb/hr	232	47	96	136	18,505	0	0	0	0	0	0
CaSO ₄ -2H ₂ O, lb/hr	104	21	43	61	633,411	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	1,078	219	446	632	45,890	0	0	0	0	0	0
Inerts, lb/hr	232	47	96	136	36,813	0	0	0	0	0	0
Cl, lb/hr	871	177	360	511	36,078	1.9	0.4	0.3	1	2.3	7
Cl, mg/L	8,927	12,000	8,927	8,927	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	8,845
HCl removed, lb/hr	497
Fly ash removed, lb/hr	652
Limestone Reagent Stoichiometry Guarantee in Waste Solids	1.03
Limestone consumption, tph	8.3
Makeup water required, gpm	435
Chloride blowdown, gpm	29.8
Gypsum byproduct production (wet basis), tph	26.1

NO.	DATE	DRN	DES	CHK	PDE	APP	REVISIONS & RECORD OF REVIEW		AEP Big Sandy Unit 2 Case 4	
3	14-Mar-06	PDM	PDM	MLM	GRK	GRK	Issued for DRB		FGD System Mass Balance Low Load	Revision
2	18-Jan-06	PDM	PDM	MLM	GRK	GRK	Issued for DRB		3017 MBtu 3.0 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. 141643.52.0251.1285	