BEFORE THE

IDAHO PUBLIC UTILITIES COMMISSION

CASE NO. IPC-E-05-28

IDAHO POWER COMPANY

EXHIBIT NO. 21

GREGORY W. SAID

PCA REGRESSION DERIVATION

PCA REGRESSION DERIVATION

obs.	year	runoff	ln(runoff)		npsc		predicted y
1	1928	6,660,438	15.71	$	35,321,910	$	13,850,484
2	1929	3,333,945	15.02	$	70,393,680	$	98,905,651
3	1930	2,680,257	14.80	$	135,887,590	$	125,729,332
4	1931	2,195,347	14.60	$	163,173,510	$	150,258,140
5	1932	4,597,987	15.34	$	89,144,270	$	59,395,693
6	1933	4,164,069	15.24	$	99,578,170	$	71,578,951
7	1934	2,330,769	14.66	$	223,520,510	$	142,901,188
8	1935	3,032,333	14.92	$	134,283,640	$	110,560,201
9	1936	4,959,005	15.42	$	84,467,680	$	50,105,598
10	1937	2,925,640	14.89	$	95,571,640	$	114,962,605
11	1938	6,822,575	15.74	$	13,898,290	$	10,894,363
12	1939	3,757,156	15.14	$	89,947,770	$	84,217,526
13	1940	4,161,283	15.24	$	85,668,140	$	71,661,234
14	1941	3,736,691	15.13	$	84,775,830	$	84,888,838
15	1942	4,836,089	15.39	$	38,581,570	$	53,190,405
16	1943	9,024,815	16.02	$	1,387,990	$	(23,487,753)
17	1944	3,291,366	15.01	$	75,896,690	$	100,485,456
18	1945	4,643,867	15.35	$	2,763,850	$	58,175,381
19	1946	6,739,646	15.72	$	21,741,760	$	12,397,460
20	1947	5,178,770	15.46	$	41,247,810	$	44,776,059
21	1948	5,778,546	15.57	$	23,252,470	$	31,307,363
22	1949	5,306,979	15.48	$	39,974,800	$	41,770,335
23	1950	6,373,426	15.67	$	4,213,020	$	19,264,304
24	1951	6,443,611	15.68	$	(1,472,200)	$	17,918,232
25	1952	10,272,230	16.14	$	5,525,140	$	(39,400,038)
26	1953	5,894,428	15.59	$	24,951,540	$	28,866,989
27	1954	5,479,740	15.52	$	64,650,200	$	37,833,038
28	1955	3,456,000	15.06	$	46,841,930	$	94,486,467
29	1956	7,788,058	15.87	$	15,795,980	$	(5,372,922)
30	1957	7,771,260	15.87	$	4,775,760	$	(5,107,538)
31	1958	7,406,335	15.82	$	33,049,510	$	803,868
32	1959	3,789,767	15.15	$	74,638,360	$	83,155,358
33	1960	4,218,730	15.26	$	82,295,240	$	69,976,086
34	1961	3,065,597	14.94	$	109,615,210	$	109,219,250
35	1962	4,433,230	15.30	$	49,085,940	$	63,880,588
36	1963	4,530,163	15.33	$	47,275,190	$	61,222,195
37	1964	5,525,141	15.52	$	(814,650)	$	36,818,904
38	1965	8,391,765	15.94	$	(4,938,020)	$	(14,549,074)
39	1966	3,469,492	15.06	$	86,163,250	$	94,007,596
40	1967	4,676,331	15.36	$	32,910,830	$	57,319,175
41	1968	3,332,063	15.02	$	28,326,820	$	98,975,063
42	1969	6,787,323	15.73	$	32,387,220	$	11,531,069
43	1970	6,105,965	15.62	$	(16,237,370)	$	24,533,450
44	1971	10,246,610	16.14	$	(27,380,100)	$	(39,093,106)
45	1972	7,735,381	15.86	$	2,799,940	$	(4,538,777)
46	1973	3,861,620	15.17	$	25,141,100	$	80,846,882
47	1974	9,567,549	16.07	$	(4,861,200)	$	(30,665,392)
48	1975	8,032,582	15.90	$	(30,956,370)	$	(9,172,531)
49	1976	7,168,628	15.79	$	34,463,490	$	4,813,270
50	1977	2,118,298	14.57	$	139,148,030	$	154,649,312
51	1978	5,057,794	15.44	$	11,270,440	$	47,681,227
52	1979	3,861,850	15.17	$	66,736,760	$	80,839,560
53	1980	5,830,780	15.58	$	10,469,890	$	30,201,346
54	1981	4,160,499	15.24	$	40,349,250	$	71,684,376
55	1982	9,273,023	16.04	$	(34,284,570)	$	(26,822,388)
56	1983	9,934,443	16.11	$	(60,738,430)	$	(35,290,480)
57	1984	11,353,603	16.25	$	(60,612,610)	$	(51,701,912)
58	1985	5,509,033	15.52	$	13,355,630	$	37,177,745
59	1986	8,412,897	15.95	$	(22,973,040)	$	(14,858,186)
60	1987	3,000,589	14.91	$	102,609,150	$	111,853,614
61	1988	2,487,374	14.73	$	122,981,870	$	134,908,640
62	1989	4,281,227	15.27	$	92,329,690	$	68,168,670
63	1990	2,875,083	14.87	$	131,158,020	$	117,105,071
64	1991	2,672,257	14.80	$	131,147,870	$	126,096,701
65	1992	1,866,885	14.44	$	219,995,420	$	170,177,577
66	1993	6,004,054	15.61	$	12,520,180	$	26,602,123
67	1994	2,494,387	14.73	$	131,775,230	$	134,562,571
68	1995	6,578,715	15.70	$	(6,079,330)	$	15,367,869
69	1996	8,063,851	15.90	$	1,745,140	$	(9,650,057)
70	1997	10,019,530	16.12	$	(22,526,440)	$	(36,338,676)
71	1998	8,382,875	15.94	$	(21,674,160)	$	(14,418,802)
72	1999	7,679,720	15.85	$	7,551,880	$	(3,651,199)
73	2000	4,269,779	15.27	$	86,129,850	$	68,497,781
74	2001	2,382,545	14.68	$	153,619,740	$	140,200,774
75	2002	3,306,419	15.01	$	126,482,480	$	99,924,641
76	2003	3,566,991	15.09	$	108,200,540	$	90,601,311
77	2004	3,147,287	14.96	$	146,239,330	$	105,987,013
averages		5,384,057	15.40	$	51,891,599	$	51,891,599

regression statistics	
multiple r	0.9043
r square	0.8177
adjusted r square	0.8153
standard error	26,209,791
observations	77

anova

	df
regression	1
residual	75
total	76

coefficients	
intercept	1,944,927,036
x variable 1	(122,906,946)

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