

Submission Date: April 15/2011 E.C.

Assignment on Spillway design:

Given below is data to be used for design of ogee shape spillway. The assignment is going to be done in groups of four students. The initial routing water level is at the crest level of the spillway.

- Given the following data, determine the head over the spillway (the design head) using levelpool routing method. Perform your calculations in MS.excel.
- Draw the inflow vs outflow graph in MS.excel.
- Perform the design of an ogee type of spillway.
- Plot the spillway drawing using AutoCad.
- Determine and fix also the freeboard requirement.

**GROUP
ONE**

Elevation, m	Storage, MMC	PMF time, hr	Inflow, m ³ /s
1952.1	185	0	0
1953.1	193.75	5	0
1954.1	201.23	10	370
1955.1	209.05	15	1970
1956.1	219.55	20	1620
		25	920
		30	220
		35	70
		40	0
		45	0
		50	0
		55	0

Spillway length, m	Crest level of Spillway, m	initial H_d , m	length of approach channel, m	effective fetch length, km	wind speed, m/s	river bed level	number of bays	K_a	K_p
91	1952.1	4.5	11	6.5	17	1872.1	7	0.1	0.01

GROUP TWO

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1955.1	185.8	0	0
1956.1	194.55	5	0
1957.1	202.03	10	375
1958.1	209.85	15	1975
1959.1	220.35	20	1625
		25	925
		30	225
		35	75
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
92	1955.1	4.6	12	6.2	18	1875.1	8	0.1	0.01

GROUP THREE

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1922.1	186.4	0	0
1923.1	195.15	5	0
1924.1	202.63	10	380
1925.1	210.45	15	1980
1926.1	220.95	20	1630
		25	930
		30	230
		35	80
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
93	1922.1	4.7	11.5	6.3	19	1840.1	7	0.1	0.01

GROUP FOUR

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1932.1	187.8	0	0
1933.1	196.55	5	0
1934.1	204.03	10	385
1935.1	211.85	15	1985
1936.1	222.35	20	1635
		25	935
		30	235
		35	85
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
96	1932.1	4.8	12.5	7.5	16.5	1854.1	8	0.1	0.01

**GROUP
FIVE**

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1962.1	184.2	0	0
1963.1	192.95	5	0
1964.1	200.43	10	390
1965.1	208.25	15	1990
1966.1	218.75	20	1640
		25	940
		30	240
		35	90
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	numbe r of bays	K a	Kp
99	1962.1	4.9	13	6.7	15.8	1879.1	7	0. 1	0.0 1

**GROUP
SIX**

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1912.1	183.4	0	0
1913.1	192.15	5	0
1914.1	199.63	10	365
1915.1	207.45	15	1965
1916.1	217.95	20	1615
		25	915
		30	215
		35	65
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
88	1912.1	5	14	5	18.5	1842.1	8	0.1	0.01

GROUP SEVEN

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m ³ /s
1952.1	183.9	0	0
1953.1	192.65	5	0
1954.1	200.13	10	360
1955.1	207.95	15	1960
1956.1	218.45	20	1610
		25	910
		30	210
		35	60
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
100	1952.1	4.4	12.5	7.2	14.5	1865.1	8	0.1	0.01

GROUP EIGHT

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1942.1	182.8	0	0
1943.1	191.55	5	0
1944.1	199.03	10	382
1945.1	206.85	15	1982
1946.1	217.35	20	1632
		25	932
		30	232
		35	82
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
94	1942.1	4.3	13.5	5.8	17.9	1863.1	8	0.1	0.01

GROUP NINE

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1902.1	186.6	0	0
1903.1	195.35	5	0
1904.1	202.83	10	394
1905.1	210.65	15	1994
1906.1	221.15	20	1644
		25	944
		30	244
		35	94
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
97	1902.1	4.4	13.8	7.6	19.3	1815.1	7	0.1	0.01

**GROUP
TEN**

Elevation, m	Storage,MM C	PMF time,hr	Inflow,m3 /s
1972.1	188.2	0	0
1973.1	196.95	5	0
1974.1	204.43	10	388
1975.1	212.25	15	1988
1976.1	222.75	20	1638
		25	938
		30	238
		35	88
		40	0
		45	0
		50	0
		55	0

Spillway length,m	Crest level of Spillway,m	initial Hd,m	length of approach channel,m	effective fetch length,k m	wind speed, m/s	river bed level	number of bays	K _a	K _p
89	1972.1	4.3	12.6	7.4	16.7	1896.1	7	0.1	0.01