

# Fisher Leak Detection Identifies \$744,000 of Heat Loss and Prevents Unnecessary Valve Rebuild.

## CHALLENGE

A combined cycle power plant striving to maximize efficiency and minimize heat loss needed to identify leaking drain, vent, and process valves. Evaluating these valves while in service was historically difficult. As a result, valves would often be repaired or replaced at scheduled intervals during annual maintenance rather than when the valve exhibited seat wear. As a result, some valves were unnecessarily repaired or replaced. Others were allowed to remain in-service and unrepaired while leaking.

## SOLUTION

Control Southern and Fisher Lifecycle Services performed acoustic emission seat leak testing on critical isolation valves while closed and in-service. Not only did this testing determine which valves were leaking by the seat; it also quantified the amount. This economic analysis was used to make informed decisions and plan the appropriate valve repairs during a future shutdown.

## RESULTS

Over seventy valves were tested to determine the amount of seat leakage. The total annual heat loss through these valves exceeded \$700,000/year. Ten of the valves tested were identified as accounting for 94.9% of the total loss. These valves were repaired during the following outage.

Additionally, one of the valves scheduled for repair showed very minimal leakage during the testing. This valve repair was canceled and that unnecessary investment was avoided.

**Savings Identified: \$744,147**



Over seventy valves were tested.

Total Loss: <b>\$744,147</b>												
LOCATION: 8/26/15-8/27/15												
Valve ID	Signal Level dB	Up Stream dB	Down Stream dB	Pressure Difference		Inlet Size ins NB	Valve Type	Seat Type	Valve Equation	Leak Rate lb/hr	Energy Loss MMBTU/hr	Total Loss Per Valve \$/yr
				PSI	Bar							
PVC-273-0110	70	50	67	307	20.9	24	Globe	Hard	GAS LB	47.2	0.064	\$2,831
PVC-270-0110	75	67	33	1116	75.9	12	Globe	Hard	GAS	494.5	0.738	\$32,493
MOV-11-4902	61	38	44	67	4.6	10	Gate	Hard	GAS	47.4	0.061	\$2,673
MOV-11-4561	65	67	51	360	24.5	6	Gate	Hard	GAS	0.0	0.000	\$0
MOV-11-4683	74	62	69	278	18.9	12	Gate	Hard	GAS	4389.7	5.913	\$260,169
MOV-11-4253	78	60	62	1375	93.5	8	Gate	Hard	GAS	547.6	0.818	\$35,983
PCV-273-0110	64	59	35	304	20.7	24	Globe	Hard	GAS LB	189.6	0.259	\$11,391
PCV-270-0110	70	52	54	1116	75.9	12	Globe	Hard	GAS	98.1	0.147	\$6,455
PCV-270-0110	87	69	65	1119	76.1	12	Globe	Hard	GAS	1236.7	1.843	\$81,092
PCV-273-0110	55	45	31	302	20.5	24	Globe	Hard	GAS LB	2216.2	3.310	\$145,033
MOV-11-4902	57	24	41	67	4.6	10	Gate	Hard	GAS	45.7	0.059	\$2,578
MOV-11-4561	62	59	42	340	23.1	6	Gate	Hard	GAS	0.0	0.000	\$0
MOV-11-4683	84	66	71	265	18.0	12	Gate	Hard	GAS	181.4	0.248	\$10,930
MOV-11-4253	82	57	74	1343	91.4	8	Gate	Hard	GAS	634.1	0.948	\$41,716
MOV-11-4902	60	45	44	72	4.9	10	Gate	Hard	GAS	9.6	0.012	\$540
MOV-11-4561	54	56	43	393	26.7	6	Gate	Hard	GAS	0.0	0.000	\$0
MOV-11-4683	91	72	76	297	20.2	12	Gate	Hard	GAS	1284.7	1.757	\$77,314
MOV-11-4253	66	56	43	1460	99.3	8	Gate	Hard	GAS	139.3	0.208	\$9,137

Only ten of the valves tested were identified as accounting for 94.9% of the total loss.

