Arapahoe Station Jan. 30, 1954

PLAINTIFF'S EXHIBIT

ZUR-14

Mr. Harry Young
Mech. Chief Denver Maint. Pool.

The following work was done at Arapahoe during the month of January 1954

Jan. 3 The warmup line on 3A feed pump failed. The 1" line was leaking and was so thin that pump had to be taken out of service for safety. When the standby pump no. 3C was put on line the oil circulator did not start to circulate oil for several minutes, by the time pump was shut down the Kingsbury thrust had burned out on the inboard thrust. I was called out at 10 PM to repair thrust. The thrust disc was OK. The outboard thrust was OK. New thrust shoes were installed on the inboard side of thrust after cleaning all oil lines and bearing boxes. The motor to pump coupling seemed to move free enough. The line bearings were both OK. No. 3 boiler had been held at a one pump load while pump was out of service. New oil put in pump. Pump test ran and ready for service at 2 AM.

Jan 4 Ralph Johnson from EBASCO came out and welded in a new 1" warmup line on 3A feedwater pump. We made an orifice of heat treated steel 4" long with socket weld for 1" pipe. The orifice size was 3/16". Schedual 160 pipe was used for the warmup line and a crane angle valve 2000 lb. was installed next to the pump discharge. On no. 2B feedwater the motor was running rougher than normal. Coupling inspected and found OK as far as alignment. Bearing clearance on motor was outboard .012" to .013" Inboard .014" to .016" Shaft size 2.750" This was Allis-Chalmers motor no. 33744K630 - RSW -3-1. New bearings were installed. Clearance outboard now .006" to .008" Clearance inboard now .006 to .008 Motor vibration now .001". Pump back in service 5 PM Jan. 4. Installed new section of 1" line 3 feet long in Calgon system. This Calgan line is all getting bad. Inspect no. 3 control air comp. A small amount of carbon was found on discharge valves. No change in cyl. walls. No mud or scale was found in water jackets. Oil has been cut to two drops per min to cyls. This has helped the carbon condition some.

Jan. 5 Start pulling runner and volute no. 1C feedpump to install new cover to barrel gasket. We got the cover to barrel flange off Jan. 6. When inspected we found two cuts in face of cover, gasket surface. The seat on barrel was OK. The cover was sent to Cair and Binderup where gasket face was machined to remove cuts. The gasket face was then built back to standard with metal spray using Molybdenum as the spray metal. Pump assembled Jan. 9. Tested and put in service 5:30 PM Jan. 9.

Jan. 6 Inspected no. 1 and no. 2 control air compressors. No carbon on valves, no change in cyls. no mud or rust in water jackets. These compressors had been running under no load all month. A new Dollinger air filter was installed on no. 1 control air compressor as a test. This is the comp that will be working during Jan. The filters that we now have on these comps. will only stop very course material from entering the compressor as the screen size runs from about 3/16" to 1/8" mesh. Jan. 6 we finished the 1½" sootblowing air line to the dust collector no. 1 unit today. This is a blowing tube installed in air duct just upstream of a row of dust seperators about center of the bank of seperator tubes. The line has 5/16" holes drilled 6" apart and directed at the seperator nozzles. This is supplied with sootblowing air. This will be blown each time the soot-blowers are used to see what the effect will be in the dust collector. Inspected no. 1 sootblowing air compressor today. Valves, cylinders and water jackets clean and in good condition.

Jan. 7 Tear down portable fire pump for inspection. Shaft sent to Cair and Binderup for metal spray at packing gland portion of shaft. Fire pump assembled and ready for test Jan. 28. Jan. 7 Inspect no. 2 sootblowing air comp. Very little carbon on valves almost no silt or rust in water jacket. We also started building a duct from the mirror on the firing level to the West water gauge glass

on no. 1 boiler. This is a test, it is supposed to keep out the light and let operator in control room have a better view of the gauge.

Jan. 9 The 40 HP Allis-Chalmers motor on no. 3 control air comp. burned the bearing on the pulley end of motor. Compressor had been put in service because of same control trouble on no. 1 compressor. No. 3 motor ran only about 10 to 20 min. when it failed. The bearing melted and let rotor down on the stator. This burned out the winding. Allis-Chalmers was tied in and the failure. The oil level was normal no reason was found for the bearing burning. The belts have not been adjusted. The compressor had run under boad during the month of Dec. with no trouble. Service was changed from no. 3 to no. 1 comp. for Jan. No. 3 put on standby. The compressor was inspected for any cause of overload. Everything was OK. One of the original 30 HP motors was installed and compressor test ran. Operation OK. No repairs have been made on the 40 HP motor as Allis-Chalmers indicates that they will do the job. They are now looking into bearing design. We have started installing Gits oil caps on all Allis-Chalmers motors now so that the oil rings may be inspected. This will be done on all compressor motors. Primary fan motors on no. 1 and no. 3 unit mills. High press. drip pumps, low press. drip pumps, fire pump, and condensate transfer pumps.

Jan. 12 We built and installed a chute in no. 3A coal bunker. This was to try to get the coal to feed farther out into the bunker in an atempt to fill bunker a little fuller. This didn't work. The coal level was the same before and after.

Jan. 12 & 13 We installed grease fittings on all the gate valves on the ash handling and hydroveyer on ash handling systems. Also the pyrites hydrojet valves. We raised the baffle bar on the West apron coal feeder to get more coal capacity. We increased the feed a lot, but we also got ourselves into a good cleanup job as the hopper loading no. 3 belt could not get rid of the coal fast enough. This dumped several ton of coal at the no. 3 belt tail pulley. We set the baffle bar back where it was and cleaned up the coal.

Jan. 13 The recirculating line on no. 1A feed pump cut through the pipe just down stream of the orifice. A new section of line was welded in between the orifice and valve at the deaerator. We also tore down the motor on 2A low press. drip pump so that elect. could clean winding motor assembled and coupling lined up back in service Jan. 13 4 PM.

Jan. 14 Installed new skirting on coal belt hoppers. Removed one of the baffle plates from the hopper to no. 3 coal belt. Raised the feed regulating bar in West apron feeder. Hopper still couldn't take care of the extra load. Bar again lowered to cut feed. The stroke on the south reciprocating feeder was increased from 4 3/4" to 6 1/2" Dec. 28. This seems to be about the limit of feed that no. 3 hopper can take care of with the present baffle setup. As soon as we have some good weather when it is safe to play with the coal feed, I will take out more baffle and see what it will do.

Jan. 15 Inspect no. 3 sootblowing air compressor. Some carbon on HP discharge valves. Water jacket clean. Started to install explosion doors on no. 1 turbine oil tank. Job could not be done while machine is on line due to loss of neg. press. in oil tank. This loss of vacuum lets oil spurt from the front bearing against the steam chest.

Jan. 18 The thrust bearing no. 2A feed pump wore out. Inboard line bearing started to wipe. You have complete details on a seperate report on this job. Remove no. 1 control air compressor after cooler because of air leaking into cooling water. Almost all tubes were plugged with small rocks and carbon. Tubes roded out and rolled. Cooler back in service 4 PM. All tubes OK. 4 men sent to Zuni to remove gas heaters from old shop, for installation at Arapahoe warehouse. Allan on coal today. Gardner off sick. Repack 3A low press. drip pump.

Jan. 19 Started installing gas heaters in Arapahoe warehouse. Inspect coal mills no. 1 unit. The condition is good. The new wear plates show no wear. All mills on no. 3 unit needed tightening down on the pressure springs. This was also done. All mills on No. 3 unit look OK. Britton on coal. Reed off sick.

Jan. 20 No. 3 sootblowing comp. blew a gasket on HP disch. valve seat. This was replaced. Started building a cabinet for the turbine operators coffee.

Clean out hydrojets no. 1 and 3 units.

Jan. 21 Started inspection and repair of no. 2 engine on locomotive. This engine has started adding fuel to the crankcase oil, about 2 gal. last week. Cummins sent a man out Jan. 26. New injectors were put in and engine tuned up. We have found no fuel in the oil since. Thile the service man was here the injectors were also set on no. 1 engine, also the Bay City crane and Tournadozer. We had to clean up breaker house again today. A check was ran on coal over the scale 252 ton per hr. This is too low. Replace clutch disks and bolts in reverse transmission clutch on Tournadozer. Thaw atemperator sample lines no. 1 & 2 units.

Jan. 22 Motor bearings on no. 1A condensate reported hot and rough. Motor was pulled and dismantled. Bearings were inspected and found to be in good condition. Both bearings were very much overlubricated. Grease cleaned out and winding on motor washed. Motor assembled and reinstalled. Gap between couplings .053" at all points. Test run made on pump, and turned back for service 5:30 PM. Bearings run cool. Bearing in 3A low pressure drip pump reported hot. Bearing removed and inspected. Bearing in good condition. We also found the pillow block in this pump full to the top with grease. All grease removed from bearing and changed over to oil. An oil level indicator was installed in housing and turbine oil used. We have been changing from grease to oil on the antifriction bearings where possible. They all seem to run cooler and more trouble free so far. Allan, Rogers, Connell off sick.

Jan. 25 We had to remove the Zurn service water filter for repair to the plug stem today. This is the filter that cleans the water to the circulating pumps. When we work on this filter we have to run 3 hoses from the city water to the circ. pump glands. We changed this setup this time. We installed valves in the service water line so that the Zurn filter may be cut out and one hose connected to the service water line which supplies the pumps. This is much faster and safer. The recirculating line header cut out between the deaerator and the valves. We had to weld a patch on the back side of header as doaerator could not be cut out. This patch was made of 4" pipe cut in half and about 30 inches long. A hole was cut in patch and a 1" coupling welded on where the patch covered hole in header. This relieved the pressure till weld was made. Then the coupling was plugged and seal welded. Savage, Jensen off sick.

Jan. 26 Myself, Jackson and Garts called out at 4 AM to weld patch over hole in no. 2 HP flash tank. The tank had cut through on the opposite side from the inlet line. There seems to be a large section of this tank that is thin. A patch 12" X 20" was shaped and welded on tank. Ready for service 9:30 AM. We also had the recirculating line on 2B boiler feedwater pumps cut out today, between the orifice and valve at deaerator header. A new section of schedule 120 pipe 6 in. long was welded in here. Back in service 4:30 PM.

Jan. 27 We installed the 3" meter on the city water line to the service water basin. The meter only lasted a few hours then came apart. I guess we were running too much water through it. The vent line from the bottom of the 7th stage heater no. 1 unit cut through at the first ell from the heater shell. We removed the ells and built 2 expansion bottles. These were installed and a new section of line welded in. Heater back in service 3:00 PM. Connell off sick at 2 PM.

Jan. 28 Connell off sick. Started building sediment bottles for ½" orifice lines on gas headers no. 1-2-3 units. Reed and Jensen to Dr. 10 AM to 12 N. Garts, Allan, Jackson attending Eutectic welding clinic.

Jan. 29 Build shields to cover packing glands on feed pumps. Remove and repair meter no. 3 Zeolite water softener.

Two men were busy all month insulating where we have made repairs. They also painted insulation where it was replaced. Britton busy all month painting blr. fronts, deaerators, evaporators, vent condensers, evaporater preheaters, handrails and plant doors. One man spent several days painting pump bases and pumps. We did the oil changing on the locomotive, cat, and tournadozer this month because coal crew

were busy most of the time. We are using one man each Friday or Monday to clean the warehouse. We didn't have much water glass trouble on the heaters this month. We only replaced 2 one on 7th stage no. 1 unit, one on 4th stage no. 2 unit. One on West side of no. 3 blr. One on no. 2 deaerator. We had to clean the hydrojets on no. 1-2-3 units several times due to wet flyash in nozzles. We replaced one inspection door no. 3 blr wet ash bottom. Painted the lines in acid room where acid spray had removed paint. Cleaned the sampling coils on no. 1-2-3 units also removed and cleaned the scale from drain lines on sample tables. Freed up a few primary and secondary air dampers and installed new pins in shafts where needed. Replaced damaged grease fittings in coal conveyors. Freed up and greased frozen idler, return and troughing pulleys on coal conveyors. Did some cleaning in plant building, shop, and yard. This about covers everything for the month of Jan. 1954.

John Donaldson