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Degradation Below Garrison Dam Observations in 1954

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DEGRADATION BELOW GARRISON DAM
OBSERVATIONS IN 1954

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Introduction. Twenty-three degradation ranges were established on the Missouri River below Garrison Dam for the purpose of observing the rate and magnitude of degradation of the river due to operation of the reservoir. These ranges cover a reach of river about 55 miles long. The original survey of the range profiles was made during the period 1946 to 1949. The first resurvey of these ranges was made during August and September 1954. This was about 16 months after closure of Garrison Dam, which was accomplished on 15 April 1953, and about 8 months after storage began on 1 December 1953. The resurvey was made to determine what changes had occurred to the river during the first few months of operation of the reservoir project. In addition to survey of degradation ranges, other observations made include: water surface profiles, a continuous record of normal readjustments of the river bed at a given section, shift in the stage-discharge relation curve at river gaging stations, river bed material grain size and suspended sediment load and grain size. The location of the degradation ranges is shown on the map in Figure 1. River mileage to the ranges and distance between ranges is shown in Table 1. Garrison Reservoir inflow, outflow, and pool elevation hydrographs for 1953 and 1954 calendar years are shown in Figures 2 and 3.

River Profiles. Two water surface profiles, one for a discharge of 36,300 c.f.s. and the other for a discharge of 15,000 c.f.s., were obtained