

**Water Quality Status Report No. 5**

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**REPORT ON SERIOUS WATER POLLUTION PROBLEMS IN  
UPPER AND MIDDLE PORTIONS OF THE SNAKE RIVER**

**February 8, 1961**

**IDAHO DEPARTMENT OF HEALTH  
Engineering and Sanitation Section**

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A serious water pollution problem has developed in the Milner Reservoir portion of the Snake River near Burley. The portion of the Reservoir where the extreme pollution exists extends from the Village of Heyburn to the Milner Dam, a distance of about fourteen miles. The reason for the serious pollution condition is twofold: (1) very large increase in potato processing, particularly in the Burley-Heyburn area, with a resultant marked increase in the waste load; (2) the greatly reduced water flows through the Milner Reservoir.

Waste Load

Wastes from food processing plants have an extremely high biochemical oxygen demand. As an example, the biochemical oxygen demand in the waste water from the processing of one ton of potatoes varies between 50 and 70 pounds. This oxygen is obtained from that dissolved in the water in the river. When there is an insufficient amount of dissolved oxygen in the river water to satisfy the biochemical oxygen demand, septic conditions result.

Untreated and inadequately treated domestic sewage in addition to adding to the biochemical oxygen demand problem, also creates a serious bacteriological problem.

The daily biochemical oxygen demand of wastes presently being discharged to the Snake River above the Milner Dam is estimated at 190,000 pounds. Although septic conditions have not been created in the Snake River above the American Falls Dam, the biochemical oxygen demand of the river water presently being discharged to the Milner Reservoir has increased and adds to the problem in the Milner Reservoir.

Reduced Water Flows

In view of the shortage of water for irrigation use in the Palisades and American Falls Reservoirs, the Twin Falls Southside and Northside Canal Companies decided to curtail water use during the months of November through February. The flow through Milner Reservoir was cut to 700 cubic feet per second during November and December and to 350 cubic feet per second during January and February. Minimum flows for previous years during this time of the year have been 1,270 cubic feet per second. Since during periods of prolonged ice cover the only oxygen available to stabilize organic wastes is that which is dissolved in the water, the lower flows result in less oxygen available to assimilate wastes. The contribution of pollution to the Milner Reservoir from waste sources, particularly potato processing above American Falls Reservoir, is difficult to evaluate with precision. However, flow records for December, 1960, indicated a flow in the Idaho Falls-Blackfoot area of approximately 2,700 cubic feet per second.

### Results of the Stream Pollution Problem

1. This pollution problem has resulted in an emergency insofar as the Twin Falls water supply is concerned. The main source of Twin Falls water supply is the water diverted from the Milner Reservoir through the South Side Canal to the water treatment plant. The pollution problem caused high coliform counts in the raw water, increased organic material in the raw water which requires more chemicals for treatment and tends to increase the taste and odor problem in the water. Since the City of Twin Falls did not feel they would be able to adequately treat this water when the flow through Milner Reservoir was reduced to 350 cubic feet per second, they made arrangements to obtain an emergency supply from Rock Creek. This water is only available during the winter months.
2. The pollution problem has also caused an extensive fish kill in the Milner Reservoir and Murtaugh Lake due to the depletion of the dissolved oxygen in the water. It has been estimated by the Fish and Game Department that approximately 250,000 fish have been killed.
3. Nuisance conditions have been created in the Milner Reservoir. Due to the septic condition of the water leaving the reservoir, hydrogen sulphide gas is being released from the water and is noticeable for a considerable distance around the reservoir outlet.

### Control Measures Necessary Below Minidoka Dam

1. A meeting was held in Twin Falls on December 21, 1960, to determine what emergency measures could be taken to reduce the pollution load to the river. All major industries discharging wastes to the Milner Reservoir and Main Drain were represented at this meeting. The emergency measures discussed would reduce the waste load by about forty per cent. A resurvey on January 18 indicated that the emergency measures which had been taken were not sufficient to adequately protect the stream.
2. It is our opinion that in order to adequately protect the Twin Falls water supply, to keep a sufficient amount of dissolved oxygen in the water to maintain fish life, and to prevent nuisance conditions during the periods of recently established minimum flows, the 5-day biochemical oxygen demand of the raw wastes discharged to the Milner Reservoir and Main Drain must be reduced by at least ninety per cent. In addition, provisions should be made for effective coliform bacteria reduction of any domestic sewage waste.

### Control Measures Necessary Above Minidoka Dam

1. While it is more difficult to exactly evaluate the upstream contribution because of the attenuating effect of the American Falls Reservoir, present calculations based on stream flows, change in the 5-day biochemical oxygen demand in the river during the past few years and present waste discharges would indicate that a total of fifty per cent reduction in the strength of the wastes being discharged directly to the Snake River upstream from Minidoka Dam would protect the upper section of the river and contribute to the solution of the critical Milner Reservoir problem. In addition provisions should be made for effective coliform bacteria reduction of any domestic sewage waste.

2. Greater reductions in the Upper Snake River area may be required in the future if present flow patterns in the river are substantially altered, or if substantial additional pollution loads are added to this portion of the stream.
3. It should also be understood that greater than fifty per cent reductions may be necessary in the Upper Snake River area where discharges are to a tributary stream rather than directly to the Snake River.

### Conclusions

To arrive at a satisfactory solution in providing the degree of treatment necessary to correct this stream pollution problem will require considerable study, planning and action by the industries involved.

If the present snow pack is any indication of what the amount of runoff water to the Snake River will be this year, it can be expected that the minimum flows presently being maintained through the Milner Reservoir will be repeated again next year. In view of this condition a goal for having the waste treatment facilities to provide the necessary reduction in strength of wastes discharged should be set at the earliest possible date. For this reason a date of July 1, 1961, has been established for the submission of plans or proposals for providing this treatment. Although this may be short notice for accomplishing this, the problem is of such serious nature that immediate action is necessary.