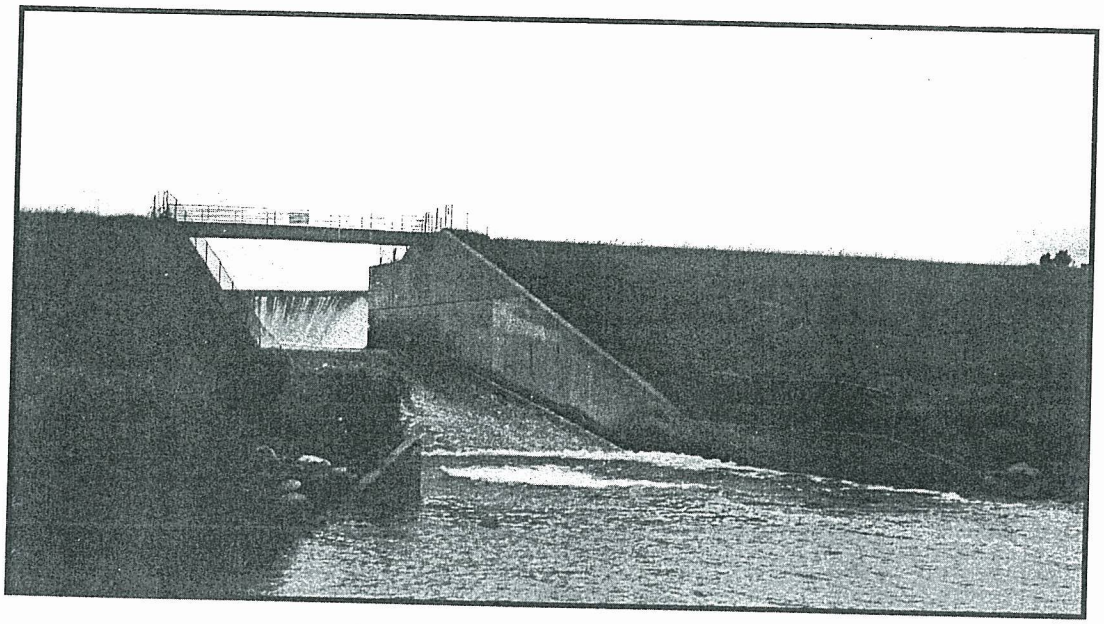
LAKE ISABELLA DAM INSPECTION

Dam Identification No.: 434
Hazard Potential: High
Section 35, T. 15 N. – R.6 W
Sherman Township, Isabella County, Michigan
Chippewa River



Per Part 315, Act 451 of 1994
PREPARED FOR:

Isabella County Drain Commissioner
Rick Jakubiec
200 N. Main Street
Mt. Pleasant, MI 48858
(989) 772-0911 ext. 247
rjakubiec@isabellacounty.org

PREPARED BY:

Spicer Group, Inc.

INSPECTED BY:

Shawn P. Middleton, P.E. #42722

James E. Ensign E.I.T.

Date of Inspection: July 23, 2010
Date of Report: November 30, 2010

Project I.D. Number 118623SG2010

TABLE OF CONTENTS

INTRODUCTION

The Lake Isabella Dam was inspected pursuant to the requirements of Parts 307 and 315, Dam Safety, Natural Resources and Environmental Protection Act, Act 451 of 1994. Spicer Group, Inc. conducted the three-year inspection of the dam on July 23, 2010 as requested by the owner of the dam, the Isabella County Drain Commissioner. The scope of this inspection is to identify conditions that constitute an existing or potential hazard to the dam. The identification of potential hazards is limited to the field visual inspection, review of previous reports, review of previous plans, and general computations. The contents of this report are not to be treated as a detailed engineering evaluation.

This inspection report will serve as a supplement to previous inspections performed on the dam. Previous inspection reports, drawings, sketches, calculations, etc. will be referred to as part of this inspection report. A summary of the design, construction, maintenance, and subsequent inspections of the dam are outlined in the Project Information section of this report. All references regarding the orientation of the dam shall be made as viewed looking downstream. The terms satisfactory, fair, poor, and unsatisfactory will be used to describe the conditions of the dam. The following is a brief definition of each term.

- Satisfactory – No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerance risk guidelines.
- Fair – No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and /or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action.
- Poor – Dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary. Poor may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency: further investigations and studies are necessary.
- Unsatisfactory – Dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution. Reservoir restrictions may be necessary until problem resolution.

CONCLUSIONS AND RECOMMENDATIONS

A. *Overall Condition*

Visual inspection of the dam indicates that the dam and its appurtenant structures are in satisfactory overall condition. The spillway appeared to be in satisfactory condition and its capacity adequate for passing the design storm. The calculated normal freeboard is 2.5 feet for the design event. The following is a list of observed deficiencies and recommendations.

B. *Observed Deficiencies and Recommendations*

1. *Observation:* Seepage was observed along the left side of the spillway at the downstream end. This seepage was noted in the last inspection report. The seepage was clear at the time of the inspection, however rust colored deposits were evident along the overland flow path of the seepage.
   Recommendation: The seepage should be monitored on a regular basis. Any evidence of an increase in volume or the presence of earthen material in the water should be brought to the attention of a qualified engineer.

2. *Observation:* The 48x48" sluice gate has not been operated in the last few years. This gate is necessary for drawing the lake level down to the winter level. Also the gate is the primary tool available should an emergency drawdown be necessary.
   Recommendation: The gate should be maintained and operated on a routine basis to ensure that it is in operable condition. Since the gate has not be operated for several years, the initial opening could be performed during a time of high inflow to the lake. This would protect against the lake level dropping should the gate not fully reseal.

C. *Further Detailed Studies and/or Investigations*

At this time, we do not recommend any further investigation of the dam outside of normal. Every three years, inspection by an engineer and periodic inspection by the dam owner is recommended.