

**Investigation of the Long Term Effects of Magnesium Chloride and
Other Concentrated Salt Solutions on
Pavement and Structural Portland Cement Concrete**

Project Number: SD2002-01

Submitted by:

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Quarterly Report

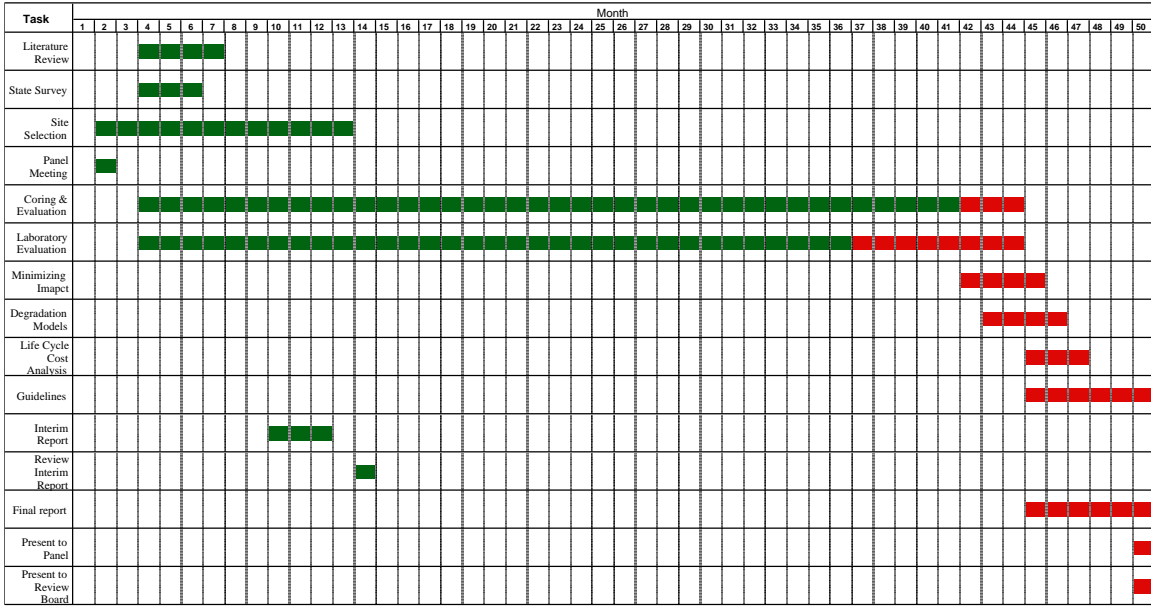
Overview

This Quarterly Report is submitted to outline the work accomplished during the reporting period 10-15-05 to 12-15-05, identify problems (current and anticipated), and to describe any deviations from the agreed Work Plan. This Quarterly Report is arranged by the Tasks described in the project Work Plan. Tasks not listed have been completed and the details of each can be found in previous reports. The following is a summary of results for this reporting period.

- A revised project schedule is provided.
- Petrographic examination of core samples obtained for Task 5 has continued. The principal work performed was chloride profiling using the x-ray microscope.
- Preparation of specimens for Task 6 continued. Sample production is projected to be completed, and Phase II testing begun, in the next reporting cycle.

Revised Project Schedule

Michigan Technological University was granted a no-cost time extension to SDDOT contract 310802 through March 31, 2007. Under this extension, the draft final report for the project SD2001-01 shall be due prior to February 17, 2007, and the completed revised final report shall be due on March 31, 2007. The schedule provided below reflects this time extension.



The individual tasks for the project remain the same and are listed below for reference.

- Task 1: Literature Review
- Task 2: Conduct Survey
- Task 3: Site Selection
- Task 4: Meeting with Technical Panel
- Task 5: Characterization of Field Specimens
- Task 6: Laboratory Experiment
- Task 7: Assessing and Minimizing the Impact of Deicing/Anti-Icing Chemicals
- Task 8: Effects of Various Deicing/Anti-Icing Chemicals
- Task 9: Life Cycle Cost Analyses
- Task 10: Development of Guidelines
- Task 11: Submit Interim Report
- Task 12: Meeting With Technical Panel at Michigan Tech
- Task 13: Prepare and Submit Final Report
- Task 14: Executive Presentation to Research Panel
- Task 15: Executive Presentation to SDDOT Executive Review Board

Task Report

Task 5: Characterization of Field Specimens

Work under Task 5 this reporting period has focused on analysis of core samples obtained from various sites recommended by the Technical Advisory Panel. Specifically, selected specimens have been prepared and chloride depth penetration profiles are being completed using the x-ray microscope. Concentration of chloride at depth is being determined quantitatively by first standardizing the x-ray microscope with standard specimens prepared at Michigan Tech.

Task 5 Problems and/or Deviations from Work Plan

There were no problems for Task 5 incurred during the reporting period.

Task 5 Completion -65%

Task 6: Laboratory Experiment

During the reporting period, concrete and mortar specimens for Task were prepared. This was about 75% accomplished prior to the holiday break. It is anticipated that this will be finished in January and the last specimens will be fully cured by the end of February. During February, cured specimens will be placed in brine solution for testing in accordance with the revised Phase II work plan.

Task 6 Problems and/or Deviations from Work Plan

There were no problems for Task 6 incurred during the reporting period.

Task 6 Completion -60%

Task 7: Assessing and Minimizing the Impact of Deicing/Anti-Icing Chemicals

Task 7 Problems and/or Deviations from Work Plan

None

Task 7 Completion -0%

Task 8: Effects of Various Deicing/Anti-Icing Chemicals

No additional work has been conducted on Task 8. Further work will continue once specimens from the Phase II experiments are ready for analysis.

Task 8 Completion -25%

Task 9: Life Cycle Cost Analysis

Task 9 Problems and/or Deviations from Work Plan

None

Task 9 Completion -0%

Task 10: Development of Guidelines

Task 10 Problems and/or Deviations from Work Plan

None

Task 10 Completion -0%

Task 13: Final report

Task 13 Problems and/or Deviations from Work Plan

None

Task 13 Completion -0%

Task 14: Present to Panel

Task 14 Problems and/or Deviations from Work Plan

None

Task 14 Completion -0%

Task 15: Present to Review Board

Task 15 Problems and/or Deviations from Work Plan

None

Task 15 Completion -0%