U.S. LCI Database Project, Phase II:

Quarterly Report
Development Plan Update

Prepared for:

National Renewable Energy Laboratory,
U.S. Department of Energy

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Quarterly Report and Development Plan Update

1 Introduction

As discussed in the December 2002 Quarterly Report and Development Plan, quarterly progress reports serve two functions. First, they provide an overview of the progress made during the quarter. Second, the quarterly reports provide an opportunity to update and adjust the project development plan to accurately reflect the planned focus for the subsequent quarter.

This report covers the second quarter of 2004, and in the next section we present a brief overview of progress from April 1, 2004 through June 30, 2004. Updates to the work program and timeline are then discussed in Section 3.

2 Summary of Progress to June 30, 2004

Due to budget constraints, work on the project was essentially stalled during the quarter.

2.1 Task 1: Development plan, reporting and project management

1. The development plan will be updated as necessary in this and future quarterly reports.

2.2 Task 2: Database format

1. The streamlined EcoSpold spreadsheet format has been continually reviewed and modified to further enhance the spreadsheet. Specifically, the spreadsheet's capability to handle a "product system profile" as compared to a single product unit process was investigated and changes were incorporated into the spreadsheet. Further, investigation is ongoing to determine if the streamlined Ecospold spreadsheet (for a system) is being imported into various tools correctly.

2.3 Task 3: Additions to data development guidelines

1. The flow nomenclature and elementary flow tasks are ongoing.

2.4 Task 4: Data collection

1. The precombustion and biomass modules were submitted to NREL, including a streamlined spreadsheet, working papers and data details (mini-report).
2. Modules for US Southeast kiln-dried softwood lumber were submitted to NREL, including a cradle-to-gate description with a unit process flow diagram, a worksheet showing a complete roll-up for a 1000 board feet of lumber and two streamlined spreadsheets - one for an unallocated and the other for an allocated system profile.
3. Specific fuels and energy database work was undertaken, as follows:
    - **Gaseous Fluoride Emissions from Aluminum Smelting.** Due to continuing questions from representatives of the plastics industry, Franklin Associates developed a comprehensive appraisal of existing life cycle data for aluminum smelting. It was concluded that The Aluminum Association and other industry representatives are transparently reporting gaseous fluoride and other emissions.

- **Review of Completed Fuels and Energy Modules.** Due to questions raised by Anne Landfield (First Environment), the fuels and energy modules that have already been submitted to NREL were reviewed. Minor mistakes and inconsistencies were found and corrected in the modules, and the project team will coordinate with NREL to ensure that they have the most recent versions of the fuels and energy modules.

- **Commodity Materials.** Work commenced on the five commodity modules (primary aluminum, salt mining, chlorine/caustic soda production, limestone mining, and soda ash mining). The primary aluminum module is the top priority in this category; the main issue with the aluminum module is developing an accurate electricity profile for aluminum smelting.

4. Specific work on the VRP (Vehicle Recycling Partnership) data on metal casting processes continued as follows:

   Iron Casting Data. The data that was originally submitted was reviewed and found to have inadequate values for waterborne emissions and require more documentation.

5. Specific work on materials used in the manufacture of automobiles/other durables and building and construction products was as follows:

   - **Steel**. Discussions are ongoing with representatives of the industry to assure industry agreement with data prior to posting.

   - **Structural Wood**. Work continued on the adaptation of CORRIM project wood data to the streamlined spreadsheet format.

3 Work Program Elements and Schedule

Given the limited additional funding, work has been prioritized to focus on the most important tasks.

Work currently ongoing to finish the standard substance nomenclature system and the elementary flow reporting guidelines is scheduled to be completed by the end of August 2004.

Table 1 shows the delivery dates and progress for upcoming modules. A number of modules will be completed in the third quarter of 2004, including primary aluminum, chlorine/caustic soda, salt mining, limestone mining and soda ash mining.

Work will continue on the CORRIM data; two upcoming modules include Pacific Northwest kiln-dried softwood lumber and green softwood lumber. The adaptation of existing Athena Institute databases such as steel is ongoing. Finally, the Vehicle Recycling Partnership will be providing revised iron casting data, which will be formatted for the Database Project in the upcoming quarter.

Table 1: Progress and Delivery Schedule for Unit Processes

Dataset	Progress	Expected Delivery Date
ALTERNATIVE FUELS		
Hydropower	Postponed	
Wind	Postponed	
Solar	Postponed	
Geothermal	Postponed	
MATERIALS USED IN THE MANUFACTURE OF AUTOMOBILES/OTHER DURABLES		
Steel	Currently being researched	9/30/2004
Aluminum Production	Research ongoing	9/30/2004
Plastic Resins - Basic Polymers	Work at preliminary stages	
BUILDING AND CONSTRUCTION PRODUCTS		
Structural Wood	Some modules completed	9/30/2004
Structural Steel	Currently being researched	9/30/2004
COMMODITY CHEMICALS/MATERIALS		
Limestone Mining	Research beginning	9/30/2004
Soda Ash Mining	Research beginning	9/30/2004
Salt Mining	Research beginning	9/30/2004
Chlorine/Caustic Soda Production	Research beginning	9/30/2004
TRANSFORMATION PROCESSES		
Iron Casting	Currently being researched	9/30/2004
Steel Stamping	VRP currently collecting data	
Note: Shading indicates 3rd party data production effort		