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## ELS Manager's Telecon April 2006

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## **ELS MANAGER'S TELECON APRIL 2006 5/4/06**

On 4/3/06, the NSCORT received its money for fiscal and final year 4. The center will end operations on September 30, 2006. A no-cost extension request has been submitted.

On 4/9 through 11/06, Cary Mitchell and Gioia Massa attended and presented at NCR 101 in Wooster, Ohio.

On 4/13/06 Adam Stoklosa and Jake Gandolph both Master's Student in Food Science successfully gave their final examination seminar. They were both second generation NSCORT Trainees, Adam presented "Characterization of select wheat cultivars and radiation effects on wheat for a NASA mission to Mars" and Jake presented " Effects of low dose  $\gamma$  (gamma)-radiation of select lipids and antioxidants".

On 4/21/06, John Gonzales, Phd candidate in the Department of Forestry and Natural Resources, and first generation ALS NSCORT trainee, successfully defended his thesis entitled "***Nile Tilapia (Oreochromis niloticus): A Bio-Regenerative Candidate for Advanced Life Support Systems***"

On 4/26/06, Cary Mitchell and Dave Kotterman presented to the Wilmette Harbor Rotary Club, Wilmette, Illinois at the Sheridan Shore Yacht Club. The presentation entitled "Artificial Closed Eco-Systems for Extended Human Habitation in Space" was well received.

## **Spotlight research.**

### Water revitalization of grey water BREATHe II

- Paper submitted and accepted to 2006 International Conference on Environmental Systems (Air and Space) Conference. Paper addressed discolored (black) biosolids within reactors and downstream vortexing biofilm traps. Results indicated that the discolored solids were neither anaerobic, autotrophic nor lysed cells. Experiments are currently underway to attempt to characterize the discolored solids and perhaps determine their nature. An ICES paper addressed this issue in detail.
- A multicomponent gas mixture ( $\text{CO}_2$ ,  $\text{NH}_3$  and  $\text{H}_2\text{S}$ ) is being added to the reactors in incrementally increasing concentrations until full-strength waste is achieved. The gas loading regime was reset following the observation of what seemed to be toxic microenvironments within the system(s). Four of the eight test points have been conducted up to this point and the total time to reach steady state has been approximately 14 days.
- BDOXy analysis will continue to be conducted to characterize lateral and longitudinal population diversity within each reactor.
- Analytical analysis of ethylene glycol (EG) by HPLC and BDOXY methods is continuing to determine the biodegradability of EG and its metabolic byproducts. EG may be a potential non-biodegradable product with human toxicity issues.