

**Division of Antarctic Infrastructure and
Logistics
Future Directions and Challenges**

**OPP Office Advisory Committee
November 8-9, 2007**

Insuring McMurdo Fuel Supply

Phased construction of 4 additional 2 M gal fuel storage tanks

- construction beginning in FY 08, completion in FY 11

Phased delivery of additional fuel

- Fill the tanks with remaining capacity on the tanker.
- Begin filling in FY 09, complete depending on available budget



Wind Energy on Ross Island

- **Purpose:**

- Decrease Fossil Fuel Req't for Ross Island via Renewable Wind energy

- **Intent**

- AntNZ to capitalize Wind Energy production and provide electrical power to USAP-McMurdo Station as part of logistics resource sharing

- **Scope: Stage 1**

- Establish a Proof-of-concept three turbine wind farm (1 MW) on Crater Hill, Ross Island

- **Benefits**

- 10% Estimated reduction in fuel for power generation (122,300 gallons/yr)
- NZ contribution to joint resource pool
- Demonstrates Environmental commitment and stewardship



South Pole: Optimization of Operations

Workshop: April 2007 –Key Recommendations

1. **Science** : project out year req'ts; ID resources available; plan within constraints
2. **IT & Comms**: Increase services remotely; optimize services; re-evaluate system architecture and assess redundancy in systems
3. **Operations**: Extend summer operations; transfer equipment maintenance to McM, where possible; move job-specific training to McM or CHC
4. **Logistics**: Update on-site inventory needs; utilize JIT re-supply; insure that what goes to Pole must go; utilize traverse to accelerate retrograde
5. **Environment, Safety, Health**: reduce solid and haz waste before sending material to Pole; adopt consistent safety policies; enhance emergency response

Follow On Strategy

Establish a Strategic Management Plan for:

- Pro-active vs reactive management of station processes
- Controlling outcomes through risk management and contingency planning
- Detailed planning and utilization of constrained resources



South Pole: Mitigating Constraints for Science and Operations

Power – Fixed generating capacity

- Reduce demand - duty cycle equipment, improve energy efficiency factor, conservation, implement renewable energy strategies.
- Apply energy codes & standards to facilities, vehicles, science equipment and instrumentation. Establish energy budgets.

Bandwidth – Cost and infrastructure limitations

- Refresh earth station (SPTR2)
- Examine new satellite applications

Population – Fixed life support systems (water, fuel, facilities)

- Implement stand-alone concepts for surge capability
- Control and cycle projects to reduce concurrent demand levels
- Increase functions performed off station

Restore Deep Field LC-130 Operations

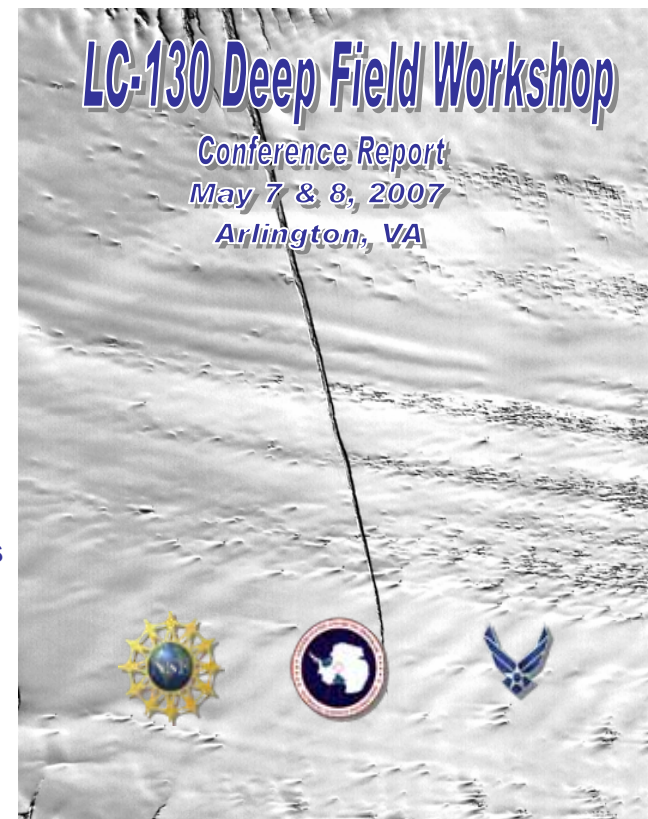
Motivation for convening the Workshop

Completion of the new South Pole Station, and use of the South Pole Surface Traverse to assist in the re-supply, will provide the opportunity to re-allocate LC-130 capability to deep field science support

Recognition of need to restore the expertise to operate LC-130's safely and effectively in support of remote field sites

Results:

- Committee of Antarctic glaciologists with expertise in remote sensing of snow to advise 109th AW
- Timeline established to align grant awards with logistics planning
- More efficient allocation of resources
- Not every site is the same; combined science advice, remote sensing imagery, site history, and pilot expertise will provide information needed to better assess risk.
- Improved capabilities will increase access to Antarctica by LC-130s
- Ability to task LC-130s without long lead time. Possibly for immediate use in benign areas
- Joint funding with Antarctic Sciences to create a GIS database for Antarctic Field, landing, and science field reports
- Process began for 2007-08 season and is already starting for 2008-09 season



An aerial photograph of a snowy, flat landscape, likely a field or tundra. The ground is covered in snow and marked with numerous tracks from heavy machinery. In the center-right, there is a cluster of buildings and equipment, including what appears to be a large red structure and several smaller vehicles. The tracks form a complex pattern, suggesting a well-used route. The overall scene is bright and clear, with shadows cast by the buildings and equipment.

2007-2008 Heavy Traverse Activities

- **October (early) – Deliver and assemble production traverse fleet**
- **November (early) – Depart McMurdo performing trail maintenance along established route to South Pole**
- **November (late) – Cache 12k lb and 2k gal of fuel at 84.3° South, and prepare Twin Otter landing site for POLENET project**
- **December (late) – Complete trail maintenance, arrive at South Pole and deliver modest load of fuel and/or cargo**
- **January (mid) – Pick-up and remove of POLENET cache remains**

Antarctic Research and Supply Vessel (ARSV)

ARSV Science Advisory Committee: conducted a detailed review/revision of Technical Performance Specifications (Fall 2006)

End of Current Contract: January 16th, 2008

Contract Extended: 16 July, 2010

Bidders Conference: 6 Potential Bidders, many questions, revised timeline according to concerns of bidders if a new build was to be seriously considered (October 18, 2007).

Current Timeline:

- Draft RFP to NSF for review 11-12-07
- Release RFP to bidders 11-28-07
- Bidder's conference 2-12 to 2-13-08
- Final bids due 4-25-08
- RPSC recommendation to NSF 6-6-08
- Negotiate & award contract 8-29-08



Palmer Station-Replace Existing Pier

Why? 1960's era - past its design life, and damaged from tidal forces, ice scouring, and erosion in the marine environment

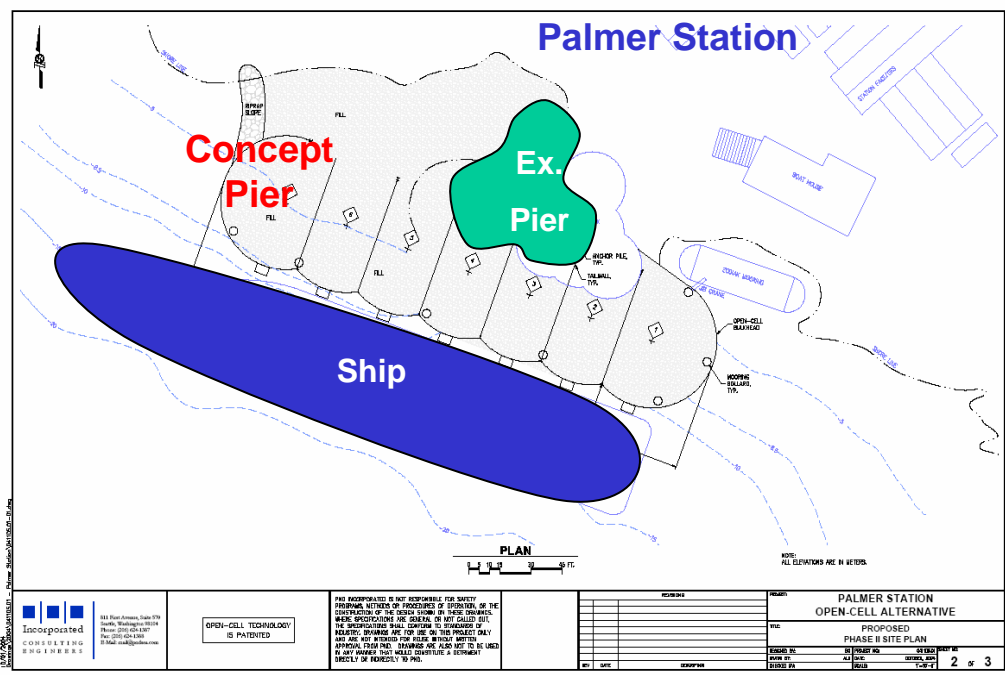
Design new pier ~150' long to accommodate larger ships that now service Palmer



Course of Action

- Have developed a design concept
- Currently verifying requirements
- Environmental Documentation

Planned Completion - 2009



Antarctic Support Contract

- Current Contract with Raytheon Polar Services expires on March 31, 2010
- Have identified task requirements
- Expected value - \$1.3 – \$1.5B
- Issues:
 - **Contract type: fixed price; cost plus; some combination**
 - **Number of contracts: Omnibus contract; multiple contracts; Management contract**
- **Contract Award**
 - **1 Oct 2009**