United States Antarctic Program

After Operations Report

Contract Year Eight - April 1, 2007, through March 31, 2008

UNITED STATES ANTARCTIC PROGRAM

National Science Foundation
PRSS 0000373

After Operations Report

Contract Year Eight — 1 April 2007, through 31 March 2008

Raytheon
Polar Services

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EXECUTIVE SUMMARY

Solutions, innovation and relationships: These are the foundational pillars for the United States Antarctic Program (USAP). Technology plays an increasingly important role throughout today's Antarctic operations. Equally important, however, is the application of old-fashioned ingenuity, agility and follow-through. Our challenge for Contract Year (KY08) was to harness our technological innovation and professional experience to deliver superior service in support of science amidst the world's most challenging environment. We believe we accomplished this.

The International Polar Year (IPY) debuted in KY08. It marked a series of landmark accomplishments in support of science and operations, from the official dedication of the new Amundsen-Scott South Pole Station, to revitalized efforts to build an overland route to the South Pole, to an extended summer season for IPY scientists working from McMurdo Station.

The Science Planning Group processed 13 IPY Support Information Packages (SIPs) in addition to 146 non-IPY SIPs, delivering its work on time to prevent delay to science or operations. Our focus on customer service helped major, high-profile science projects like IceCube and ANDRILL to surpass project goals for the season. Science Support/Marine Science also rotated three employees to the NSF/OPP for six weeks, to assist the NSF Antarctic Infrastructure and Logistics Division, and the Antarctic Science Division, in reviewing SIPs and operations reviews.

Logistics successfully decoupled South Pole Station from its dependence on the resupply cargo vessel by double purchasing, staging and delivering cargo early in the season. The division also made a concerted effort at retrograding obsolete and excess materials, thus freeing up real estate footprint at McMurdo Station.

The South Pole Traverse laid the foundation for significant delivery of fuel and outsized cargo to the South Pole in subsequent seasons. A single traverse will reduce 40-plus LC-130 flights required to deliver fuel to the Pole. It will also return retrograde to McMurdo Station that does not easily fit into the aircraft.

Critical South Pole staff opened the station in early October, safely using the Basler BT-67 aircraft to overcome the extreme low temperatures that traditionally prevent such an early start to the new season. This allowed us to safely and effectively ramp up the station support infrastructure before the science and construction began in earnest. Consequently, we were able to sustain a high tempo of operations and tasking throughout the austral summer.

The reduced McMurdo Station winter staffing, due to budget constraints, caused some loss in early Mainbody support, especially to science. We learned how to mitigate this in future seasons by better identifying critical areas of focus and personnel. We also began subcontracting maintenance of Caterpillar heavy equipment and power plant generators to a New Zealand company that warranties its work. Some work was performed on-Ice, while some equipment was sent to New Zealand to be retrofitted or refurbished during the winter. This saved footprint and labor.

Through effective management of people and cargo, we reduced the C-17 airlift by three missions, saving nearly $400K. Vessel operations also had some paradigm shifts when we brought in New Zealand Defence Forces personnel to serve as drivers during cargo ship off-load. This freed up more RPSC personnel to handle the receiving functions or, in some cases, to release contract employees early, saving labor and support costs. The extension of the traditional summer season at McMurdo Station allowed us to accommodate IPY science, as well as to conduct important construction, facilities and equipment maintenance.

KY08 was also a year of important personnel transitions, as key people left and we hired qualified candidates to fill pivotal leadership roles, including directors for McMurdo Area, Medical, and Environmental, Health & Safety. Once again, the Deployment Specialists Group (DSG) safely delivered 2,400 USAP participants to Antarctica and back, employing quick thinking and ingenuity in the face of airline contract negotiations, and mid-stream changes to the Raytheon Company travel agency and credit card contracts.

When airline talks threatened to affect USAP travelers, DSG management negotiated a special airline contract customized to the USAP demographic and critical timetable. Such solutions, borne of good ideas and hard work, typify the company's performance in KY08.

We reorganized several areas of the company. Marine Operations moved under Palmer Area Directorate to better align the vessel operations and support; science construction moved under Facilities, Engineering, Maintenance & Construction (FEMC) to coordinate all related activities under single management; and utilities moved from station operations to FEMC. South Pole projects were reorganized under an experienced project manager to provide better overall coordination with limited resources at South Pole Station. In addition, the Project Management Office (PMO) refined new project proposal processes. All of these realignments have helped significantly reduce the "silo effect" within Polar Services, and with NSF/OPP Activity Based Managers. These changes offer better integrated projects, tasks and operations across the organization. This minimized surprises and improved coordination between operations, projects and science.

We expanded the role of [redacted] in the program during KY08 [redacted] is now responsible for hiring all employees to support Station Services functional areas. The company's performance was exceptional through KY08, a significant turnaround from previous years. [redacted] greatly assisted our hiring by providing several hard-to-fill, critical trades positions. [redacted] worked with RPSC and third-party inspectors to ensure this year's $2 million bulk-food order was purchased, packaged, accurately inventoried and delivered to Port Hueneme for vessel transport.

We made a paradigm shift in staffing at South Pole Station. We converted several contract positions into fulltime positions to improve continuity between seasons, as well as to ensure critical positions are filled each year.

We also recognized the rigorous working environment at the South Pole and rolled out a pay differential, structured as an add-on incentive. This incentive also made it easier to recruit McMurdo Station staff to augment some South Pole projects, and to bring in specific expertise for short periods of time, while managing limited bed space. The pay differential proved to be an effective retention tool for next season.

We continued to improve our internal processes. For the first time in contract history, all Annual Program Plan labor requirements for the three stations were uploaded from the Integrated Master Schedule. We augmented and certified the PMO staff and continued work on rate tables to quantify costs to the USAP. These milestones reflect our ongoing effort to improve the planning and operating environment.

KY08 may have been one of the most successful and challenging years in recent memory for the USAP. We supported IPY science on a scale not attempted since perhaps the International Geophysical Year, while maintaining normal operations and activities in a difficult financial climate. We continue to work through the challenges of maintaining a talented and motivated workforce, a key factor in providing the technological innovations and solutions necessary to move the program forward.

In KY09, we will continue to drive positive change in the structure and support of the USAP. Cultural change is slow, but necessary to improve the professionalism and level of quality service with quality resources. In an austere budget environment, we will focus to reduce and save fuel, and all the aspects that fuel impacts.

Additional challenges and corresponding innovation and improvements for KY08 are detailed in the *Program Summary* and *Departmental Reviews and Summaries* sections.

PROGRAM SUMMARY

A. METRICS (BY WBS)

The following metric charts delineate program performance for the quantitative portion of the contract year award fee evaluation. Mitigating factors are provided for your consideration of items listed as Satisfactory or below. As a note, an extensive review of the KY09 Quantitative Performance Measures (QPM) is underway by RPSC. The expected result is a new slate of QPMs that will move the Program toward using "leading indicators," allowing RPSC to be proactive in identifying performance issues and timely in their resolution.

Area Directorate

ID No. 30 Spill Severity Index Tracking

The failure of the Spill Severity Index (SSI) metric resulted from a combination of factors. While the SSI did not gain a greater than or equal to rating demonstrating a 10% reduction from KY07, it essentially stayed the same as KY07.

Analysis of the SSI and the causal factors of the KY08 spills indicated that a considerable percentage, 73%, stemmed from equipment failure, indicating vehicle- and facility-infrastructure-related spill causal factors. Aging vehicles and infrastructure resulted in failures associated with system deterioration due largely to a lack of investment in life cycle replacement. History supports this analysis, as this is the second consecutive contract year that a 10% reduction was not achieved with similar spill causal factors in both.

As these vehicles and systems age, spill avoidance becomes problematic without adequate life cycle replacements. Investment in modernization and life cycle replacement of vehicle and facility infrastructure is required to achieve a reasonable reduction in the SSI.

Operator error and procedural mistakes caused 27% of spills. At Palmer Station, the 300-gallon spill resulted from an undocumented change in process, resulting in a valve being left open.

The operator was given immediate remedial training and procedures were reviewed and updated to mitigate future risk.

While the SSI remained the same, every spill was completely remediated, negating the environmental impact. This SSI metric is under review in a joint effort between NSF/OPP and RPSC to determine if it accurately measures and provides incentive for enterprise stewardship of the Antarctic environment. This is a lagging indicator and provides only a measure of spill event severity.

ID No. 56 Prepare and Maintain Piers and Airfields

A total of four incidents caused this metric to be exceeded. The failure of this quality performance standard should be excepted as the delays resulted from aging infrastructure and a weather event. At Palmer Station, the unprecedented failure of three mooring points prevented a vessel from tying to the pier. Yet, cargo operations and passenger transfers were accomplished without impact to the vessel schedule. Flight delays caused the three remaining events. Two flight delays occurred simultaneously due to a safety-of-flight decision to respectively delay and cancel the events due to the failure of a power line at the Sea Ice airfield. The third flight delay was weather related and should be excepted as not covered in the metric. The departure of a Twin Otter from the South Pole was delayed while waiting for an aircraft heater related to a temperature drop below -50 degrees F. This metric is under review in a joint effort by the NSF/OPP Activity Based Manager (ABM) and RPSC.

Facilities, Engineering, Maintenance and Construction

ID No. 53 Provide Safe Potable Water at McMurdo, South Pole and Palmer

In 2007, Station Utilities transferred from Operations to Facilities, Engineering, Maintenance and Construction (FEMC).

Upon scrutinizing the reporting of safe potable water, it was discovered the pH level was not properly accounted for when compared to the metric's water standards.

RPSC has provided safe, potable water at McMurdo, South Pole and Palmer stations 100% of the time.

However, on occasion, the stations experienced

excursions in the pH level, slightly higher than that specified in the KY08 metric. The KY08 metric dictates pH no greater than 9.0, while occasional readings were slightly higher. The readings were well within the safe operating range for drinking water, although greater than the specified metric. RPSC Environmental Health & Safety confirmed the excursions are minute and never entered a range that would endanger human health. Also, pH is a secondary requirement of the U. S. Safe Water Drinking Act, not a primary requirement.

For KY09, the proposed metric is modified to accept a higher pH reading, while providing the same safe potable water at all three stations.

Human Resources

ID No. 21 Cumulative Voluntary Turnover in Fulltime Staff

RPSC experienced a higher than anticipated voluntary turnover rate for fulltime employees. The fulltime turnover cannot be attributed to any single influence. However, Human Resources (HR) anticipates that, as the end of the contract nears, a greater number of employees may seek employment elsewhere due to the uncertainty of the re-bid. To mitigate such effects, the department will strategize methods to retain key talent, focusing on succession planning and concentrating recruiting efforts on highly qualified talent.

ID No. 22 Voluntary Turnover of Active Deploying Contract Employees

RPSC experienced a higher than expected voluntary turnover rate for contract employees. There is no single reason why employees chose to end the contracts early. Some resigned for personal or family reasons; others for higher paying jobs elsewhere. Still others experienced a conflicting expectation about the work in Antarctica. RPSC will endeavor to provide a safe working environment with a reasonable quality of life to retain its contract employees as much as possible.

ID No. 26 Staffing: Deploying Positions Filled 8 Weeks Prior to Need Date (Excludes Vessels)

KY08 marked the first year that HR tracked this metric, with the department fully anticipating filling 95% of the positions within eight weeks prior to need date. The department set the goal to give candidates sufficient time to complete the medical process in advance of the deployment date.

Unfortunately, HR experienced significant deficiencies in the candidate pools for a number of trade positions. Many trade professions – such as electricians, carpenters, and ironworkers – exclusively prefer union work. Qualified pools of candidates within these trades are difficult to access or penetrate. Though HR markets the Program based on its uniqueness, candidates may still prefer a union environment. The department achieved hiring at 73.70% of the goal within eight weeks prior to need date. While several positions went unfilled, HR did hire 96% of its overall staffing requirements.

To increase the recruiters' efficiency and assimilate added responsibilities resulting from the Office of Federal Contract Compliance Programs, HR restructured to a dedicated service team for each business unit. The recruiting team also implemented use of an annual Recruiting Operating Plan to better identify needs and expectations, in addition to a recruiting timeline and established progression milestones. The recruiting team underwent a major effort to work with its hiring managers to provide accurate job descriptions that will allow candidates to better assess whether they meet minimum qualifications for the positions. The recruiting teams identified rehires as a major asset to the program and worked to have employees apply via RayCATS from the McMurdo and South Pole stations and receive on-Ice offers. The annual job fair at the RPSC Denver office was scheduled earlier in the year to expedite the candidate search. The recruiters will continue to partner with hiring managers to identify candidates in time to meet milestone hiring goals. An additional enhancement is the scheduling of several Polar-specific recruiting events in states and cities where unemployment rates are favorable towards available candidate pools, as well as in areas of the country familiar with the conditions in Antarctica. Such efforts are complemented by a strategic local and national advertising plan.

Logistics

ID No. 65 Inventory Accuracy (McMurdo)

The winter Supply Operations staff was reduced from [redacted] people, with a loss of [redacted] labor hours during the KY08 period. Remaining staff resources were dedicated 60% to general customer and community support and 40% to vessel receiving.

The amount of labor hours required for customer and community support was proportionate to the reduced station population. The amount of labor required to complete vessel receiving was above the winter average due to an above average amount of cargo delivered on the 2007 vessel (17,311 line items 2007 vs. 14,000 line items as a seasonal average).

Certain warehouses that are normally staffed during the winter were “self help” in an effort to allocate more labor hours to vessel receiving. Consequently, winter “customers” often went to the un-manned warehouses to find and fill their own requirements. It was in these un-manned warehouses where inventory accuracy suffered the most due to the lack of accurate issue data for transactions.

The Logistics Storage Metric is based on Supply Operations having clear inventory control, specifically areas where the staffing levels permit regularly scheduled inventory audits and consistent year-round inventory management. The current McMurdo Storage Metric for KY08 contains information from un-manned warehouses, as well as the warehouses staffed by Supply personnel. The resultant inventory accuracy rate is 80.8% -- short of the metric goal of 87% inventory accuracy. However, by normalizing the metric data and not counting the warehouses that were not staffed as a result of the winter labor reductions, RPSC Logistics achieved 87.8% inventory accuracy. RPSC will work with the NSF/OPP ABM to modify the KY09 metric to include only manned warehouses.

Medical

ID No. 33 Medical Transports or Evacuations of Personnel for Predictable

Conditions

In KY08, one employee was medically evacuated for a predictable condition that is disqualifying by the medical guidelines. The employee requested a waiver. The condition was known to have been present for several years.

The physician-specialist who followed the employee’s condition conducted a complete new evaluation, stated the condition to be stable, cited literature references and recommended the waiver for deployment. The waiver request was reviewed at four levels, including the NSF/OPP, and approved. Unfortunately, after deployment to Antarctica, the employee developed acute symptoms related to the condition and was evacuated to New Zealand.

The Medical director discussed this failure to meet the performance goal with the NSF/OPP division director for Environment, Health and Safety, who agreed those waivers reviewed and receiving concurrence of NSF/OPP should not be considered a performance metric failure. Such waivers will not be considered a performance metric failure in the future, with the performance metric target changed for KY09 performance evaluations.

A second failure occurred when an employee was medically evacuated from Antarctica to New Zealand for a seizure that occurred in mid-January 2008. The employee reported to the McMurdo Station medical staff that he had previously suffered a seizure in May 2007. A subsequent review of the individual’s medical record at the RPSC Denver office revealed he had responded "No" to the question "Seizure Disorder?" in the Yes/No column of the Medical History questionnaire. However, the individual wrote in: “Date of last Seizure: 05-15-07.” In the Additional Comments column, he also wrote, "first seizure cause unknown.” The reviewing physician performing the physical qualification exam failed to see the comment, and wrongly cleared the person for deployment. Had the candidate’s medical history been closely reviewed, the individual would not have been cleared for deployment.

Performance Excellence/Quality Assurance (PE/QA)

ID No. 45 Effectiveness of the Corrective and Preventive Action Response System Program (CAPARS)

Four major nonconformances were not resolved within the required timeframes. The nonconformances were closed, but the reduction in points remains.

CAPARS #424 Science Support - Delinquent Performance Measures Reporting:

Science Support provided KY07 performance measures data as required, but two measures (Metrics 7 & 8) included only preliminary data and were subject to final validation. The validated data was provided after the required reporting milestone, but in time for the KY07 Performance Measures to be reported in the KY07 After Operations Report. The nonconformance was written due to the late submission of the final data.

CAPARS #417 FEMC – Delinquent Performance Measures Reporting:

To provide current Cost Performance Index/Schedule Performance Index data, this KY07 metric was written to use the previous month's financial data. However, the source data could not be provided consistently by the required date. A major nonconformance was written due to the late submission of the required performance measure data. The nonconformance was resolved by the use of the project status report data as the new source data. Since this change was made, the metric was successfully reported on time for the remainder of KY07 and all of KY08.

CAPARS #430 & #431 FEMC – No Concentric Insulators and No Thrust Collars as Required by Project Specification on Station:

When the nonconformances were first identified, FEMC believed that on-site field modifications could correct the issue by the end of the 2007 winter season. Upon further analysis, the on-site materials and/or modifications were found unacceptable and it was necessary to order new materials that would not be delivered until after the winter season. As a result, the original closure dates were not met. Because the FEMC director did not request extensions prior to the original expected closure dates, as required, the nonconformances were counted as late.

Procurement

ID No. 58 Suppliers On-time Delivery to Negotiated Delivery Date

This performance measure is calculated by comparing the P1000 system recorded data for the original negotiated delivery date against that for the date the material was actually received at Port Hueneme, Calif. The 81.58% performance resulted from factors including the increased work activity after October 1, 2007, as requisitions poured in due to late-funded projects requiring material and equipment for vessel delivery. The late season activity required the department to focus its resources to place orders, deferring system update activities to later.

Buyers and Subcontract administrators negotiate changing delivery dates with various suppliers at different times due to fluctuation in production schedules, material availability, and schedules for carrier or freight availability.

The department coordinates such changes so as not to impact Program success. However, if the revised delivery dates are not changed in the legacy P1000 system, the calculation captures the previously recorded date for the planned delivery of the material and equipment. Thus, the system records a miss in the Supplier On-Time delivery metric, even though the overall Program schedule was not impacted. For all required-on-station (ROS) date delivery requirements, Procurement and Subcontracts had a 96% success rate, which does not correspond with the Supplier On-Time delivery metric recorded.

Also, material and equipment received at Port Hueneme that is deemed as discrepant is not recorded into P1000 as received. Once the discrepancy is resolved, the received date recorded in P1000 is shown as the later date and not the date of actual receipt, thus skewing the report data.

Replacing legacy systems will improve the updating and tracking of materials received.

Science Support

ID No. 2 Timely Delivery of Research Support Plan to Grantee

Science Support was late in submitting 10 Research Support Plans (RSP) to the principal investigators six weeks in advance of the science project deployment to Antarctica – an issue that caused inefficiencies and complaints. To ensure timely submittal of future RSPs, the division implemented a new tracking tool and process that focuses on milestones and deadlines to prevent such delays.

ID No. 3 Delivery of Draft Operations Review Memos to the NSF

On two occasions, Science Support missed the deadline to submit the operational reviews, a delay that reduced performance measure points. To ensure all future operational review memos from RPSC to NSF/OPP Antarctic Infrastructure and Logistics are submitted on time, the division successfully implemented a new process and tracking tool. The new process includes weekly discussions with the NSF ABM to track the status of all operational reviews. The new tracking tool contains the updated status and all additional operational review actions.

Metric 1 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
AD		*AD*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
29	Accuracy of hazardous waste shipments.	>99% accurately documented and packaged per line entry.	[redacted]				
30	Spill Severity Index (SSI) Tracking.	>=10% reduction in spill index compared to KY07.	[redacted]				[redacted]
31	Efficiency of Solid Waste Operations.	90% solid waste containers collected.	[redacted]				
54	Station-based heavy and light rolling stock preventive maintenance (PM) work orders performed on time.	>=95% of PM work orders completed on time.	[redacted]				
55	Equipment availability based on VMF repair work orders.	>=92.5% light vehicle and heavy equipment	[redacted]				
56	Prepare and maintain piers and airfields.	Zero flight delays or 1 vessel delay of 60 minutes or greater.	[redacted]				[redacted]

[redacted] **100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Figure Summary - 2: RPSC Performance Metric Report (2 of 13)

Metric 2 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

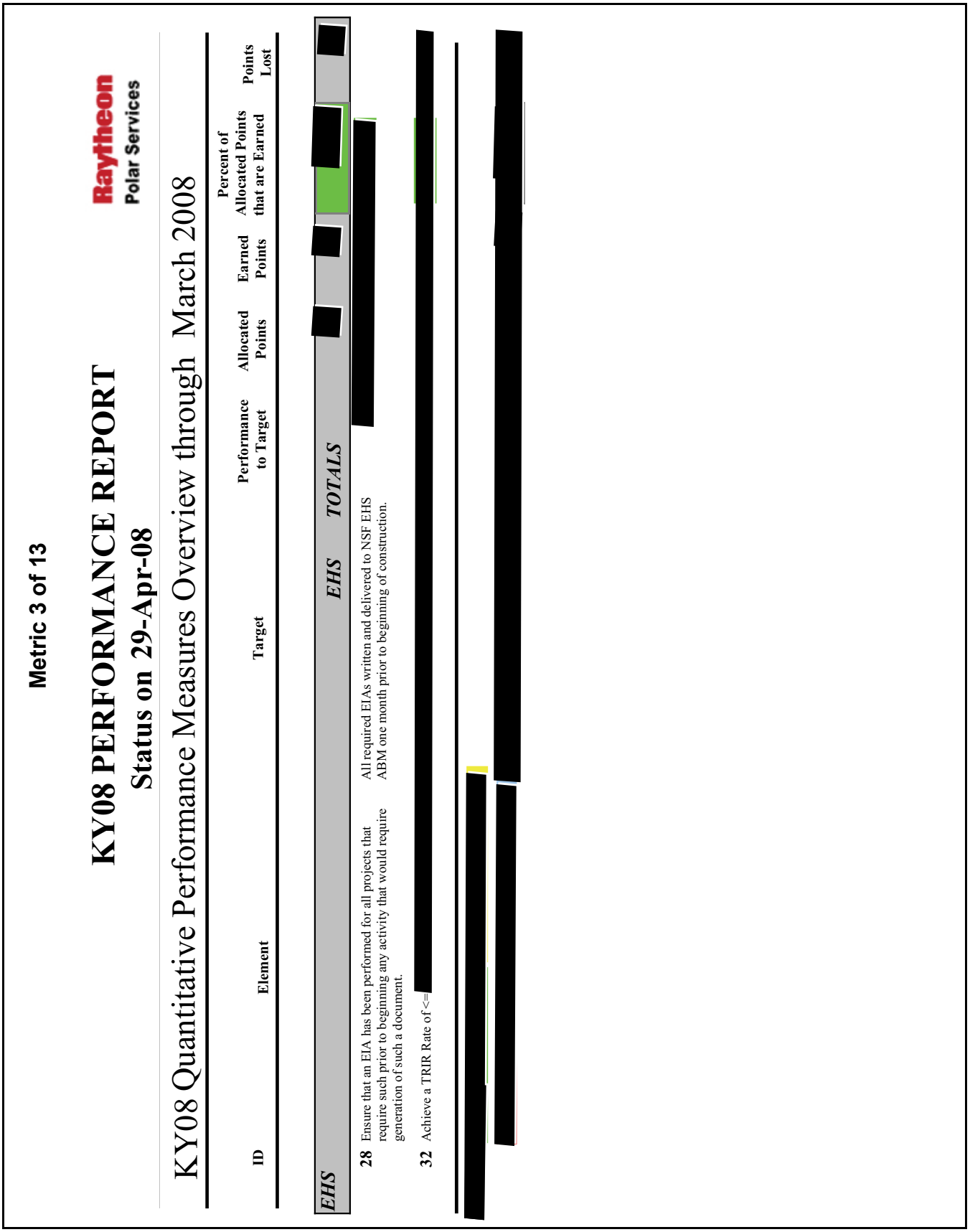
KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Contr		*Contr*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
42	Compliance of Contract deliverables.	4 or less late for contract	[redacted]				
43	Quality of Contract deliverables.	Average two iterations per deliverable.	[redacted]				
44	Responsiveness to Contract deliverables.	4 or less late for the contract	[redacted]				

[redacted] 100 .00 - 96.00% Satisfactory = 95.99 - 90.00%

Unsatisfactory = 89.99% and lower Performance Not Reported

TOTALS [redacted]



Metric 3 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
EHS			*EHS TOTALS*				
28	Ensure that an EIA has been performed for all projects that require such prior to beginning any activity that would require generation of such a document.	All required EIAs written and delivered to NSF EHS ABM one month prior to beginning of construction.					
32	Achieve a TRIR Rate of <=						

Figure Summary - 3: RPSC Performance Metric Report (3 of 13)

Figure Summary - 4: RPSC Performance Metric Report (4 of 13)

Metric 4 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
FEMC		*FEMC TOTALS*		[redacted]	[redacted]	[redacted]%	[redacted]
48	Project rework shall be kept at or below the RPSC target value of 4%.	<=4% rework hours (compared to the total hours worked on the project during the contract year.					
49	Projects shall be executed in a timely and cost effective manner.	New Projects: Schedule and Cost Performance indices of .9 or greater Existing Projects: Schedule and Cost Performance indices equal to or greater than those generated at the end of the previous contract year or .9, whichever is less.					
50	FEMC work order audits.	>=94% work orders audited were completed with quality work.					
51	Facility Maintenance.	>=92% PM and emergency work orders completed per Element Definition.					
52	Provide reliable electrical power at all 3 stations.	99.97% power availability.					
53	Provide safe, potable water at McMurdo, South Pole and Palmer.	Zero failures (100% availability) of safe, potable water at all 3 stations.					
			TOTALS	[redacted]	[redacted]	[redacted]%	[redacted]

LEGEND **Excellent 100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

Metric 5 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Fin		*Fin*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
37	Timely and accurate reporting of all costs.	All monthly cost reports submitted within 3 business days of contract due date.	[redacted]				
38	Timely reporting of all property.	Property reports submitted within 2 business days of date mutually agreed to by NSF and RPSC.	[redacted]				
39	Accurate reporting of all property.	>=97% accuracy for all property reports.	[redacted]				

LEGEND **Excellent 100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**
Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Figure Summary - 6: RPSC Performance Metric Report (6 of 13)

Metric 6 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
HR		*HR*	*TOTALS*	[redacted]	[redacted]	0	[redacted]
21	Cumulative voluntary turnover in full-time staff.	<=15%		[redacted]			[redacted]
22	Voluntary Turnover of Active Deploying Contract Employees.	<=1.5%		[redacted]			[redacted]
23	Involuntary Turnover of Active Deploying Contract Employees	<=0.6% Involuntary Turnover.		[redacted]			
24	Diversity - People of Color	>=8% of population is people of color.		[redacted]			[redacted]
25	Diversity - Females	>=33.0% of population is female.		[redacted]			
26	Staffing: Deploying Positions filled 8 weeks prior to need date (excludes Vessels).	>=95%positions filled 8 weeks prior to need date.		[redacted]			[redacted]
27	*** NOTE: RPSC HR requests NSF's approval to delete this metric. One point re-allocated to each Metric #22 and #23.	*** NOTE: RPSC HR requests NSF's approval to delete this metric.		0.00			
	Staffing: Leadership Positions filled with qualified Internal Employees.	>=65% Leadership Positions filled with qualified Internal Employees					

[redacted] **100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Metric 7 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
IT/Comms			*IT/Com TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
17	IT/Comms system Intranet performance	>=99.5% Intranet availability.	[redacted]				
18	IT/Comms Internet system performance	>=99.5% Internet availability.	[redacted]				
19	IT/Comms South Pole TDRSS KU system performance	99.5% TDRSS KU availability.	[redacted]				[redacted]
20	Customer satisfaction for IT products and services supported through the Help Desk.	>=90% of all eligible Help Desk work orders sampled are rated as satisfactory.	[redacted]				

LEGEND **Excellent 100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Figure Summary - 8: RPSC Performance Metric Report (8 of 13)

Metric 8 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Log		*Log*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
60	Cargo ROS USAP	>=97.0% delivered on ROS.	[redacted]				
61	USAP COMSUR	>=87% cargo delivered by COMSUR.	[redacted]				
62	Minimize Loss or Damage to cargo in transportation	>=99.75% yield.	[redacted]				
63	Zero damage to science samples shipped to Grantee designated destinations	Zero instance of damage.	[redacted]				
64	USAP Air: RPSC Accurately Plan Christchurch to McMurdo Military Airlift: Realize cargo movement weight between 90-110% of RPSC allocated weight.	90-110% of allocated weight.	[redacted]				
65	Inventory accuracy (McMurdo).	>=87.00% inventory accuracy - McMurdo.	[redacted]				[redacted]
66	Inventory accuracy (Palmer).	>= 84.0% inventory accuracy - Palmer.	[redacted]				
67	Inventory accuracy (South Pole).	>= 74.0% inventory accuracy - South Pole.	[redacted]				
68	Implement supply chain initiative: Decouple South Pole from the Resupply Vessel.	Ship 100% South Pole vessel 2009 food, excluding "freshies", to McMurdo on the resupply vessel and provide required storage until it can be moved to South Pole in the Austral Summer 08-09. That is, 100% of the food received at PTH in time to load on the resupply vessel.	[redacted]				
69	Implement supply chain initiative: CMP Plan.	Increase scope of CMP managed items by 50% starting from a base line of 1,413 items procured in KY07. The KY08 target becomes 2,119 line items.	[redacted]				
70	Implement supply chain initiatives: McMurdo Inventory Reclamation.	Return 500 line items to Mapcon inventory control by the end of [redacted]	[redacted]				
71	Delayed aircraft launches due to passenger or cargo delays at Christchurch and McMurdo.	97%	[redacted]				
			TOTALS	[redacted]	[redacted]	[redacted]	[redacted]

[redacted] **100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

Metric 9 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Med		*Med*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
33	Medical transports or evacuations of personnel for predictable conditions.	Zero medical transports or evacuations due to predictable conditions.	[redacted]				
34	Availability of Medical equipment.	Zero pieces of medical equipment not being tested and calibrated prior to use. Testing/QA will occur prior to use, or at a minimum every two months.	[redacted]				

[redacted] **100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Figure Summary - 10: RPSC Performance Metric Report (10 of 13)

Metric 10 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
PE/QA		*PE/QA TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
45	Effectiveness of the Corrective and Preventive Action Response System Program (CAPARS).	All major nonconformances effectively resolved within allocated time period (per CAPARS Procedure, 6 months or as amended).	[redacted]				[redacted]
46	Effectiveness of Supplier Surveillance Program.	100% of all projects over $100K requiring fabricated material will be inspected at the supplier facility (if travel funds are available).	[redacted]				

[redacted] **100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Metric 11 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
PMO		*PMO*	*TOTALS*	[redacted]			
35	All major projects, defined and selected by mutual agreement due to their cost, schedule, risk, priority and/or complexity, will monitor and report on overall cost and schedule performance.	All Major Project Performance Reporting will be provided on a quarterly basis as a part of the RPSC Quarterly Performance Review.	[redacted]				
36	All requests for cost estimates and schedule support to the PMO will be reviewed and responded to within 5 working days of the request. Requests for support approved by the appropriate PMO Manager (Cost Estimating, Planning & Control) will be initiated and completed within the assigned schedule as defined when the request is approved. The delivery schedule will be developed based upon request need and other factors included in the Standard Table of Delivery maintained by the PMO. The Standard Table of Delivery can be found in the PMO On-Line Project Management Manual.	100%. All requests for service will be reviewed and dispositioned within 5 working days of submittal and all approved requests will be completed within the assigned schedule.	[redacted]				
40	All major projects, defined and selected by mutual agreement due to their cost, schedule, risk, priority and/or complexity, will submit a detailed spending plan	All Spending Plans, based on the project cost estimate will be submitted before initiation of the Procurement /Implementation Phase of each major project and will be updated only by approval of Change Orders through the project change management process.	[redacted]				
41	All major projects, defined and selected by mutual agreement due to their cost, schedule, risk, priority and/or complexity, will submit a final detailed Cost and Schedule Performance Report.	All final Cost and Schedule Performance Reports will be submitted as a part of the project final acceptance documentation package for each project.	[redacted]				
47	Station Schedules	All seasonal base lined project schedules will be submitted to the NSF two weeks before the beginning of each season.	[redacted]				

[redacted] 100 .00 - 96.00% Satisfactory = 95.99 - 90.00%

Unsatisfactory = 89.99% and lower Performance Not Reported

TOTALS [redacted]

Figure Summary - 12: RPSC Performance Metric Report (12 of 13)

Metric 12 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Procure		*Procure TOTALS*		[redacted]	[redacted]	[redacted]	[redacted]
57	Transportation Utilization.	78% shipping with preferred shippers.		[redacted]			
58	Suppliers on-time delivery to negotiated delivery date.	>=90.0% deliveries on or before negotiated delivery date.		[redacted]			[redacted]
59	Corporate agreement utilization.	6.0% of material dollars are placed on Corporate Agreement.		[redacted]			

[redacted] **100 .00 - 96.00%** **Satisfactory = 95.99 - 90.00%**

Unsatisfactory = 89.99% and lower **Performance Not Reported**

TOTALS [redacted]

Figure Summary - 13: RPSC Performance Metric Report (13 of 13)

Metric 13 of 13

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Sci		*Sci*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
1	Assessment of currently allocated resources for McMurdo-based groups to NSF by 30-Sept (or following Monday if the 30-Sept falls on a weekend), of the Contract Year.	Resource assessment / allocations delivered per schedule. 30-Sept due date may be modified by mutual agreement with the NSF.	[redacted]				
2	Timely delivery of Research Support Plan (RSP) to Grantee.	Zero RSPs not electronically available at least 6 weeks prior to deployment.	[redacted]				
3	Delivery of Draft Operations Review Memos to the NSF	2 weeks after the RPSC Lead Planning Support Manager (or designee) receives a request from the NSF Research Support Manager to provide the draft Ops Review Memo for the funded project.	[redacted]				
4	Develop the South Pole LHe Winter Support Plan with LHe Working Group (LHeWG)	Develop and post the South Pole Winter plan no later than 15-Septmember of the contract	[redacted]				
5	Develop the South Pole LHe Summer Support Plan with LHe Working Group (LHeWG)	Develop and post the South Pole Summer plan no later than 1-August of the contract	[redacted]				
6	Develop the Air Operations Planning Summary	Develop and convey the summary to NSF no later than 1 Oct of the contract	[redacted]				
7	Management of Laboratory and Observatory Space at McMurdo (3 pts.), Palmer (2 pts.), and Pole (2 pts.).	100% availability of lab space.	[redacted]				
8	Management of Critical Lab Equipment and Instruments McMurdo (5 pts.), Pole (3 pts.), and Palmer (4 pts.).	99% availability of critical lab equipment and [redacted]	[redacted]				
9	Management of Cryogenic Services at: South Pole (Summer only: 1 Nov thru 15 Feb).	<= 5 unproductive science days.	[redacted]				
10	Management of Cryogenic Services at: South Pole (Winter only: 16 Feb thru 31 Oct).	<=3 unproductive science days (normalized for weather and airplane delays).	[redacted]				
11	Management of BFC critical equipment.	>=99% of equipment issued.	[redacted]				
12	Management of MEC critical equipment.	>=95% of equipment issued.	[redacted]				
13	Science Construction's timely construction, opening and closing of all science support facilities in the field (including those near and within existing Stations), normalized for days lost to bad weather and unavailability of aircraft.	100% of projects completed on schedule.	[redacted]				
14	Availability of mission critical material and equipment for use on research cruises during the contract years.	3 or less PIs rate less than Good or Excellent.	[redacted]				
15	Cruise departures on-time.	5 or fewer days of late departures during contract year for LMG and NBP (combined)	[redacted]				
16	Customer Satisfaction	RPSC scores 95% or better with ratings of Satisfactory or better.	[redacted]				

[redacted] 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00%

Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted] [redacted] [redacted]

B. Performance Compared to APP

All additional tasking authorized by the NSF/OPP through February 2008 for FY07 is incorporated into the Estimate at Complete (EAC). Raytheon Polar Services Company (RPSC) forecasts a need for approximately $[redacted] in additional funds.

The requirement for additional funds relates to NSF/OPP direction for the following divisions to perform extra tasking: Science Support; Facilities, Engineering Maintenance & Construction (FEMC); and Information Technology & Communications (IT). RPSC was approved for [redacted] in additional tasking related to life cycle replacement; and $905,400 for the Center for Remote Sensing of Ice Sheets (CReSIS), which impacted the Science Support division. The NSF/OPP approved the FEMC helo fuel filtering project, totaling [redacted]. IT received approval for added tasking including that related to SPTR-2, the National Polar-Orbiting Operational Environmental Satellite System (NPOESS), and disaster recovery. Under runs related to vacant positions, deployment travel, and on-Ice bonus helped to absorb the added tasking.

For FY2008, RPSC has exceeded the plan per the EAC by approximately [redacted] The reasons are varied and include added tasking related to SafeCore, the I/B *Oden*, 2 Factor Authentication, and Antarctic Research & Supply Vessel (ARSV) efforts, among others. RPSC also projects exceeding the plan by [redacted] in deployment travel.

In January 2008, the NSF/OPP reduced the Program budget by $5.1 million. The Business Objects budgeting software continues to generate monthly reprogramming reports, as well as other funding level changes authorized by RPSC management and the NSF/OPP.

C. Summary of Performance Compared to Q1 — Q4 Expectations

Overall, RPSC succeeded in identifying and executing expectations. Significant completions include:

- A total, recordable incident rate (TRIR) [redacted] for the period April through January, exceeding the contract goal of [redacted] and a [redacted] reduction from 2006.
- A proposal to operate McMurdo Station in a six-week, extended season to support research activities in the McMurdo Dry Valleys. The concept included opportunity for work accomplished by taking advantage of the additional airlift and extended season.
- The successful deployment of an R-Event to correct manufacturing faults on the compressed air foam system portion of the Aircraft Rescue and Fire Fighting (ARFF) equipment. The manufacturer deployed a technician at its cost to repair and test the equipment.
- [redacted]
- Successful upgrade to the physical security of the Christchurch complex, along with an increased Internet speed from 2 Mbps to 10 Mpbs. The company completed the hardened office security project to meet U.S. Department of State security standards on time and within budget.
- Efforts by IT to quickly resolve emerging requirements through the contract year, closing 25 of its 28 quarterly expectations on time, with the remaining three deferred due to higher requirements.

Significant outstanding expectations include:

- Combination of the Clothing Distribution Center (CDC) and Travel functions in Christchurch. The concept is deferred pending detailed review during 2008.

D. Major Program Successes

Detail for each Program success below is available in the *Departmental Reviews and Summaries* section.

- KY08 saw the dedication of the South Pole elevated station, a landmark milestone for science research support in Antarctica.

The project was completed after eight years of construction without significant contingency funding. RPSC personnel and government and science dignitaries celebrated the event with a banquet that garnered numerous compliments for station staff.

- The Microwave Landing System (MLS) met another key milestone, delivering Federal Aviation Administration (FAA)-flight-certified units to three McMurdo Station airfields. The MLS saved the Program a significant, multi-million-dollar investment in a new precision navigational system.
- Airfield Management and Logistics contributed to the successful transit and certification of the Australian Airbus A319 for use by the Australian Antarctic Program.
- The South Pole Traverse achieved greater-than-expected progress beyond its scheduled route maintenance and Shear Zone (SZ) remediation, hauling fuel and retrograde sufficient to offset six to eight LC-130 missions. The outstanding progress places the Program in a position to deliver the equivalent of 40-plus LC-130 missions' worth of fuel next season.
- [redacted]
- The USAP cargo supervisor personally intervened to convince a U.S. Department of Agriculture (USDA) agent from further unpacking ice cores en route from Antarctica, saving a tremendous scientific investment.
- The Vehicle Maintenance Facility (VMF) managed an unprecedented 521 preventive maintenance-related work orders at McMurdo Station.
- The South Pole Station opened early, using a Basler BT-67 aircraft to deliver critical personnel—with four of its five missions occurring in temperatures below LC-130 minimums.
- The NSF/OPP granted conditional occupancy of Rodwell #3 at South Pole Station on 27 January 2008.
- For the first time in Program history, the Annual Program Plan (APP) labor requirements for all stations were uploaded entirely from the Integrated Master Schedule (IMS).
- The Christchurch Administration Building and Air Post Office were modified to meet the U.S. Department of Defense (DoD) security standard.
- The Deployment Specialist Group (DSG) created an RPSC-specific airline contract customized to the Program's unique traveler profile and schedule.
- Communications transitioned *The Antarctic Sun* from seasonal hard copy delivery to a year-round, electronic publication. The move released McMurdo Station office space and replaced three contract positions with a single, fulltime journalist.
- Logistics decoupled South Pole Station's dependence on resupply vessel cargo.
- South Pole Station achieved a rate of zero unplanned power outages during the austral summer season after South Pole staff overhauled and tested two main power plant generators during the winter and diagnosed and corrected ongoing problems with a third generator.
- RPSC support allowed the University of Wisconsin IceCube project to exceed its goal for holes drilled and deployment of sensor strings; and enabled the Antarctic Drilling Project (ANDRILL) to complete a second successful season, despite the additional logistical challenges of administering the operation on the sea ice.
- The Long Distance Balloon (LDB) project successfully launched three balloon payloads this season. In cooperation with the U.S. Air Force (USAF), RPSC ensured delivery of critical liquid helium after stateside delays threatened mission schedules on the Ice. The USAP Cargo work center received a timely hazardous cargo waiver, setting a USAP precedent for transporting liquid helium from the United States via a C-17 aircraft.
- Years of planning and preparation came to fruition at West Antarctica Ice Sheet (WAIS) Divide, with the successful deployment of the deep ice sheet coring equipment. Ice core operations reached 580 meters for high-quality samples.
- [redacted]

- A[redacted] the number of Project Management Professional (PMP)-certified experts on staff at RPSC surpassed that of all other RTSC business units.
- To enhance Program outreach, RPSC provided logistics and information technology support to organizations including NBC, CBS and National Public Radio. Dive Services' underwater video footage appeared on the *CBS Nightly News* and *The Today Show*. NBC reported its support and off-Ice data transfer were the best its staff had experienced world-wide.
- [redacted]
- The McMurdo Power and Water Plant Phase I achieved a certificate of occupancy during KY08, with the inspection completed ahead of schedule.
- RPSC supported the first-ever extended season during the IPY Polar Night initiative. Company personnel planned the field and laboratory science support and associated McMurdo Station infrastructure support for four science projects, one Education and Outreach project, and one Artist and Writer project.
- The Supply Retrograde Project processed 3,200 line items of obsolete or excess material for disposal as waste or for resale. This included 688,000 pieces of material, weighing 782,000 pounds, for shipment on the return voyage of the resupply vessel. The project reduced the McMurdo Station footprint by 8,000 square feet, or 64,821 cubic feet, including 29,000 cubic feet of outside storage.
- Vessel operations were completed in a record 6.5 days, with 11.9 million pounds of cargo received (646 lifts). Eight million pounds of cargo and waste were loaded for return (564 lifts) to the United States for disposal.
- When a fire onboard the R/V *Nathaniel B. Palmer* (NBP) damaged critical systems including data acquisition, e-mail, and shared file areas, RPSC personnel collaborated to repair or replace each system within approximately one week, allowing the next science cruise to depart on schedule.
- [redacted]
- RPSC supported and participated in the NSF/OPP-sponsored St. Michaels II (Optimization of South Pole Operations) Conference, where discussion focused on strategies to resolve power issues, optimize science and plan for future research projects across the next 15 years.
- Although the Antarctic Gamburtsev Province (AGAP) project received late NSF/OPP funding approval, the project met all science objectives for the 2007–2008 field season. This included installation of 10 seismic stations for G-055-M/Nyblade, completion of the LC-130-capable skiway, LC-130 support, and construction of four field-camp structures. Innovative thinking resulted in the use of South Pole as an acclimatization point when there was not enough time to establish a separate camp. Science Construction also provided critical support when timeframes were consolidated.
- RPSC successfully removed the backlog of Palmer Station hazardous waste to the United States with no infractions, notices or delays.
- NPOESS project managers and engineers activated the new 10 Mbps circuit via an upgrade of the Black Island 7.2-meter antenna system ahead of schedule, significantly improving the bandwidth to support science data transfer.
- RPSC engineers deployed National Institute of Standards and Technology (NIST) FY07 Enhanced Standard Configurations for all operating systems. Lacking the automated tools to conduct this validation, the IT division assembled a team of more than 30 people to develop and perform testing methods to analyze and report the results. This six-month effort required more than[redacted] work hours, but achieved a[redacted] compliance rate, which met the NSF/OPP compliance target.
- RPSC engineers repaired the South Pole MARISAT/GOES terminal antenna drive mechanism and heater control elements following a drive mechanism failure. The system is again operational, with bi-directional communications for approximately 11.5 hours per day, at a minimum data rate of 1.5 Mbps.
- When three mooring pins failed as the R/V *Laurence M. Gould* (LMG) tied up to the pier at Palmer Station in September, RPSC personnel coordinated to transfer cargo and passengers ashore via Zodiac boats. The company then worked with Edison Chouest Offshore

to engineer and install new bollards within 10 weeks.

E. Major Program Issues

Detail for each Program issue below is available in the *Departmental Reviews and Summaries* section:

- A 4 September 2007 fire aboard the NBP resulted in the loss of approximately $400K in equipment and 20 science days. After approximately one week in port, the vessel was returned to service with key systems functional. Additional system repair and replacement occurred during a two-week port call, which did not disrupt subsequent science cruises. RPSC submitted a loss claim to its insurance company. The claim is being paid.
- An outbreak of influenza at McMurdo Station (157 positive cases) cost the Program in productivity and in immunization, test kits and treatment expense. Medical staff responded with an aggressive educational outreach program concerning flu prevention techniques. The department will obtain the flu vaccine earlier from New Zealand and start its focused immunization program earlier.
- HR failed to meet its overall hiring objectives. The department had difficulty filling key leadership slots and did not fully staff all WinFly, summer and winter positions. HR will initiate a revamped hiring process and recruiting program.
- The USAP ARFF fleet has an insufficient supply of fire fighting agent capacity to meet minimum USAF requirements to simultaneously operate Williams Field, Pegasus/ice runway and South Pole airfields. An R-Event corrected the manufacturing faults on the compressed air foam systems on certain ARFF vehicles. Under the USAF approved waiver, this allowed the department to meet its requirement. Every effort is being made to procure an additional ARFF unit to meet minimum USAF requirements without requiring a waiver for 2008–2009 season.
- The continuing resolution for FY07 delayed funding decisions and impacted Science Support's ability to plan related science support. The Science Planning Group mitigated the delay by initiating the Support Information Package (SIP) process with top-priority projects in anticipation of eventual funding—an effective approach that resulted in most SIPs complete on schedule.
- The NSF/OPP requested that RPSC uniformly provide cost-loaded schedules for all projects and cease reporting until that was accomplished. November, December and January Monthly Reports were not provided to the NSF. The PMO responded with a corrective action plan and redesigned the project performance-reporting format. Reporting was re-initiated in February with select reports fully cost loaded in the IMS. The leadership team will conduct monthly project status reviews.
- Leaks were discovered in special phenolic-lined, bung-top fuel drums used for transporting and caching aviation fuel in the field. Fuel personnel traced the drums to a single manufacturer and RPSC is negotiating with the vendor for compensation.
- For the past three years, the increasing volume of solid and hazardous waste at the South Pole Station overwhelmed the station crew's ability to process it, while nearing standards violations. Waste Management will request an additional position to help process the material.
- [redacted]
- Significant IT system vulnerability challenges were identified mid-year. The division changed its management structure to better focus on vulnerability remediation and also created in-house tools to provide monthly scanning, identification and remediation of vulnerabilities throughout the enterprise. IT management set goals for the RPSC Denver operation and reduced the vulnerabilities from 878 in September 2007 to less than 22 by the end of December 2007.
- The accumulation of wax in one of the Palmer Station bulk fuel tanks triggered a brief power outage in October 2007. RPSC personnel are working to remediate the problem and develop a new process for the future.
- A 300-gallon diesel fuel spill occurred at Palmer Station due to operator error. The station's fuel response team conducted effective clean-up efforts. Personnel revised the fueling procedure and conducted follow-on remediation.

- During the extended season, RPSC personnel reduced the height of the Pegasus White Ice Runway berms, negating the need for a future waiver.

F. Lessons Learned

Detail for each Lesson Learned below is available in the *Departmental Reviews and Summaries* section:

- Following the September vessel fire, Marine laboratory staff developed new procedures for handling and storing lab chemicals aboard research vessels. The lessons learned were also incorporated into the lab set up aboard the I/B *Oden*.
- Air drops using containerized delivery system bundles appear appropriate for winter emergency drops in proximity to the station. The smaller bundles are more compatible with equipment and colder operating temperatures.
- After a hazardous waste subcontractor discovered a sizable quantity of propane in a disposed dewar, Logistics management recognized a need for formal procedures to verify the content of tanks prior to shipment. New procedures require that a label is affixed to each dewar prior to shipment, listing the weight of its contents. The dewar contents are then verified by comparing current weight to tare weight before transfer for disposal.
- Impacts from the reduced winter staff demonstrated the importance of an adequate work force and priority to ensure operational readiness for the austral summer.
- Expanding the scope of the Station Services subcontract proved the viability of outsourcing aspects of station operations and maintenance.
- Due to setbacks in the field test of the ultra-high-molecular-weight polyethylene (UHMWP) sheets used by the South Pole Traverse to carry fuel, the traverse requested a policy requiring future traverses to carry one or two empty 3,000-gallon fuel bladders for emergency fuel transfer.
- Information Security programs and capabilities are needed to respond to the growing number of Office of Management and Budget (OMB) initiatives.
- When frozen science samples received in New Zealand were not properly identified, the Christchurch staff conducted a thorough review of related procedures. The incident highlighted the need to specifically review and update the procedure that provides terminals dispatch advice of science samples prior to shipment.

  Previously the procedure addressed individual shipments and did not require acknowledgement of receipt and appropriate storage. The new procedure introduced a Consolidated Sample Advisory that the dispatching terminal must forward detailing temperature-sensitive items.
- [redacted]
- IT adjusted its organization and the director created a staffing reorganization proposal to consolidate resources from the division's operations and engineering aspects into departments focused on infrastructure, systems and business applications. The division is migrating toward a focused, cradle-to-grave organizational structure centered around commodities and services.

G. NSF Assistance Needed

- The Medical Department may request NSF/OPP assistance to obtain Federal Drug Administration (FDA) approval to use the southern hemisphere flu vaccine, as the vaccine is available earlier than its northern counterpart and could be used for early deployment inoculation efforts.
- RPSC will ask the NSF/OPP to consider a uniform Network Management System to more effectively manage the technology enterprise. The enterprise currently features three different tools, complicating enterprise management and employee training.
- Christchurch Area Directorate requests determination as to whether the NSF/OPP will continue to subsidize "Hold in Christchurch" mail. Also, New Zealand Customs requested a letter from NSF/OPP describing the role of the contractor.

H. Raytheon Reachback

- RPSC requested EH&S resources from RTSC deploy to Punta Arenas, Chile, to assist following the fire aboard the NBP.
  Two experts arrived to supervise the clean up activities and test if the vessel were safe to occupy. The RTSC work minimized the vessel's time in port and allowed it to safely resume its science mission.
- The Contracts manager worked with Raytheon Corporate Insurance to file claims and receive reimbursement to the Program for the NBP fire and August 2007 medical evacuation (MedEvac).
- Raytheon Company corporate legal counsel provides regular guidance to HR on issues related to employment law.
- On multiple occasions during the hiring season, the HR staff requested surge support from Raytheon Company for recruiting assistance.
- The Medical Department sought Raytheon assistance to finalize the hire of the Medical director and determine qualification parameters and background checks of deploying medical staff.
- Procurement utilized Raytheon reach-back to add temporary Subcontracts staff, locate subject matter experts to oversee security work in New Zealand, and for full-time staff in the Medical Department. Procurement utilized corporate agreements for discounts to the Program and to leverage pricing previously negotiated by Raytheon Company.
- During the accelerated recovery actions following the vessel fire, IT staff leveraged RTSC influence with equipment manufacturers to deliver the critical network switches and system servers necessary to reconstitute the IT systems within the allotted two-week maintenance period.
- RTSC provided subject matter experts to assist Information Security in responding to the Office of Inspector General (OIG) Notice of Findings and Recommendations (NFR).
- During the search for a replacement Information Security senior manager, RTSC provided a highly qualified interim manager to ensure security programs continued uninterrupted.
- The vice president of RTSC's Supply Chain Management presented an analysis and recommendation for implementing the Lean McMurdo Study findings. RTSC also provided two senior managers to assist RPSC in developing McMurdo Station strategies and South Pole optimization.

I. Future Plans and Vision

- As part of the Logistics effort to "lean" McMurdo Station, Christchurch Area Directorate will set up a warehouse in the former U.S. Navy dispensary. On-Ice Logistics personnel will identify items currently at McMurdo Station that fit the "lean" strategy criteria and send the material to Christchurch for storage.
- Palmer Station will support the same level of science during both summer and winter. Plans are in place to present a seamless transition from winter to summer in September.
- The company seeks to complete the move from the historic Freight Rate Model to an NSF/OPP-preferred series of Freight Rate Tables to more easily quantify, by freight method, the cost to move freight from its origin point to USAP destinations.
- The Antarctic Research and Supply Vessel (ARSV) Project significantly progressed in KY08. The final Request for Proposal (RFP) was released in December 2007 following an October pre-solicitation meeting with potential bidders. RPSC Marine Operations subsequently met with four potential bidders in February 2008.
- The Medical Department is developing an orientation and training plan to overcome the considerable differences in experience and background of deploying medical providers.
- Finance plans to complete the development and roll out of enhanced Business Objects modules and to include Naval Space and Warfare Systems Center (SPAWAR) and New York Air National Guard (NYANG) data in Business Objects reporting.
- To optimize McMurdo Station airfield resources and geography, McMurdo Area Directorate is analyzing the benefits of transitioning from three airfields to a single airfield.

- A South Pole Traverse Mobility Workshop will provide a forum to optimize full-production traverse operations. Topics for discussion include refining the daily traverse routine to maximize mileage progress and a five-year outlook for the traverse program. The goal next season is to conduct two swings, eliminating 35 to 40 LC-130 missions delivering fuel.
- McMurdo Supply Operations will propose the NSF/OPP extend the McMurdo Retrograde Project one year to process 10,000 excess or obsolete line items in the VMF. Removal of the material would free the ground floor of Building 132 for use as warm storage for the do-not-freeze items currently housed in Building 126, which could then be demolished per the Long Range Development Plan.
- Port Hueneme Logistics operations seeks to imitate the FedEx model by providing simple and easily accessible cargo status information on the USAP Internet. Currently, cargo status updates occur via e-mail and manual research. The online concept has the potential to allow Port Hueneme operations to reprogram its labor from personalized cargo status reports to processing material receipts and cargo.
- There are approximately 264 pallets of waste retrograde to be removed from South Pole Station during the 2008–09 season. The majority of the material—up to 90%—must be dug from the snow, cut to size, stacked and banded before it can be sent off station. The work adds approximately six hours per pallet to existing preparation time. To maximize equipment usage, RPSC will recommend a third shift (shift supervisor, load planner and three cargo handlers) to address the growing waste backlog.
- Related to the Logistics effort above, Waste Management proposes to purchase a waste grinder to more efficiently process waste from South Pole Station demolition projects, including the old station dome.
- The joint effort between Logistics and Marine Operations to identify obsolete materials in the outside storage area next to Warehouse #2 in Punta Arenas will continue in KY09. Obsolete material will be identified for local disposal or auction. The project will reduce the space required from 1,500 to 100 cubic meters, the storage cost by approximately $7,200 annually, and the eyesore visible from the street.
- South Pole staff will review Non-governmental Activities-related (NGA) policies and procedures with the NSF/OPP, given growth in the number of visitors and tour operators on the continent.

DEPARTMENT REVIEW & SUMMARIES

AREA DIRECTORATE — MCMURDO STATION

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
AD		*AD*	*TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
29	Accuracy of hazardous waste shipments.	>99% accurately documented and packaged per line entry.	[redacted]				
30	Spill Severity Index (SSI) Tracking.	>=10% reduction in spill index compared to KY07.	[redacted]				
31	Efficiency of Solid Waste Operations.	90% solid waste containers collected.	[redacted]				
54	Station-based heavy and light rolling stock preventive maintenance (PM) work orders performed on time.	>=95% of PM work orders completed on time.	[redacted]				
55	Equipment availability based on VMF repair work orders.	>=92.5% light vehicle and heavy equipment	[redacted]				
56	Prepare and maintain piers and airfields.	Zero flight delays or 1 vessel delay of 60 minutes or greater.	[redacted]				
			TOTALS	[redacted]	[redacted]	[redacted]	[redacted]

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

Figure MCM - 14: Division Metrics

STATION OPERATIONS

A. PROJECT MANAGEMENT

General Management

This contract year was one of challenge and change for the McMurdo Area Directorate. The challenges provided lessons that influenced several positive operational-strategy adjustments for the future. Significant changes occurred in the areas of leadership, winter season staffing, station services, and power and water plant operations.

The McMurdo Area Directorate changed leadership this period as the director departed the program to pursue other opportunities and RPSC recruited and hired a replacement from Raytheon Intelligence and Information Systems.

McMurdo Station's winter staff was approximately halved to meet budget limitations for sustaining operations in FY07. The reduced winter staff and abbreviated WinFly airlift impacted the operational readiness of both assets and personnel to support summer science activities. Fleet Operations and the VMF suffered the greatest impact. The reduction also required that community members assume housekeeping and dining attendant duties, diverting skilled labor from normal duties. Despite the labor-related cost savings of the reduction, out-year costs will increase due to reduced operational readiness and lost preventive maintenance opportunities.

Nonetheless, the decision to experiment with winter staff levels at McMurdo Station was correct; it tested paradigms and imparted valuable lessons. The impacts were greatest to preparations for future operations and austral summer science support, and to those areas where off-season equipment and facilities maintenance is essential.

As the trend for summer research progressively

increases, preparation during winter season is vital to maximize support of the summer science season.

The lessons proved that a strong winter effort prepares for a smooth and seamless transition from WinFly to the start of the austral summer. Accordingly, RPSC adjusted the winter staffing for 2008 and proposed opportunities during the IPY extended science season to offset deficiencies identified in the reduced staffing experiment.

RPSC expanded the scope of the [redacted] subcontract to include the hiring and managing duties for Station Services: Food Service; Housing; Janitorial; and Recreation, Beverage, and Retail. The enhanced subcontract also includes procuring food products, staffing the Berg Field Center (BFC) food room, and operating the food, beverage, and retail warehouses at the three stations. The increased scope represents a consolidated and more efficient approach to delivering station services.

To pursue outsourcing opportunities, McMurdo Station Operations developed a proposal and subsequent Statement of Work (SOW) to subcontract the operation of the Waste Water Treatment Plant (WWTP). Two companies submitted bid proposals for operation of the WWTP. Neither was acceptable. The department abandoned the outsourcing effort and continued to operate the Power, Water, and Waste Water Treatment plants for the first half of the reporting period. To more appropriately align utility management at McMurdo Station, RPSC transferred the responsibility for utilities operation and maintenance to the FEMC Division in early October. Responsibility for outlying power generation at the three airfields, Black Island, and Marble Point remains with McMurdo Station Operations.

Major Successes

Operations reviewed the need to continue operating three airfields at McMurdo Station. At the McMurdo Optimization Meeting in April, the department proposed to eliminate the ice runway and, eventually, Williams Field, transitioning to a single airfield facility for future operations. The NSF/OPP opted to continue construction of the ice runway for the immediate season.

The department proposed to operate McMurdo Station with a six-week extended season to support research activities in the McMurdo Dry Valleys. The proposal identified tasking that could be accomplished through an extended season and additional airlift.

Through extraordinary effort by Fleet Operations, the snow roads and airfields were quickly reopened following a series of severe storms. In January 2008, the largest storm in a decade deposited eight inches of heavy snow at Williams Field and Pegasus Airfield. Fleet Operations, assisted by other RPSC staff, brought both runways to operable condition within 24 hours.

Operations subcontracted with Christchurch, NZ, Caterpillar dealer Goughs (renamed from Gough, Gough & Hamer) to overhaul the power plant diesel generators and South Pole Station heavy equipment.

Fuels

The Fuels Department provided top-quality fuel support at the three McMurdo Station airfields and also supported fueling operations at Marble Point, South Pole Station, Siple Dome, and WAIS camps. Fuels personnel safely transferred over 13 million gallons of fuel to support ground and aviation operations at McMurdo Station.

Fire Department

Under new leadership, the Fire Department focused on improving response capabilities and developing a fire-prevention program that prioritizes engineering, education and prevention.

Looking to national standards for guidance, the department began a top-to-bottom review of key operational programs: leadership, aircraft rescue fire fighting, respiratory protection, station chemical inventory, hazardous material response, confined space rescue, fire investigations, fire vehicle maintenance, emergency medical services and training. The department made significant progress with firefighter training, completing more than 2,000 hours to ensure the firefighters are prepared to respond.

General Assistant Labor Pool

The general assistant labor pool again enjoyed an injury-free season and dedicated 50% of its total hours to direct science support.

Examples include fish hut fueling and support at the McMurdo Dry Valleys, BFC, Mechanical Equipment Center (MEC), LDB, WAIS Divide, AGAP, and at the Field Safety Training Program (FSTP). The department's ratio of direct science support labor has progressively increased from 30% four seasons ago to 54% for the current reporting period, a 5% jump from the prior contract year. The largest concentration of science labor hours occurred at WAIS Divide [redacted] hours), followed by the BFC ([redacted] and MEC [redacted]). General assistant labor at South Pole Station constituted the largest concentration of non-science labor ([redacted]

Major Issues

The USAP ARFF fleet has an insufficient quantity of fire fighting agent capacity to meet minimum USAF requirements to simultaneously operate Williams Field, Pegasus/ice runway and South Pole airfields. Once new ARFF equipment is operational at South Pole Station, the department will meet the USAF requirement, but without backup capacity. Temporary waivers are necessary for anything more than a short-term ARFF equipment failure.

As the vessel no longer delivers fuel to the Marble Point heliport tanks, delivery now occurs via over-ice traverse—a combination of South Pole traverse equipment and Pegasus Airfield mobile tanks—and six-inch, collapsible hose for the final stretch from the beach to the fuel tank. This method poses significant environmental risk due to the aging condition of the hose and the rocky beach terrain.

The site has the capacity for a two-year supply of fuel, ideally delivered alternate years. Marble Point has sufficient fuel to support FY09 operations. However, subsequent operations from the camp will require additional fuel.

Fuels personnel are analyzing several options to remedy the situation, including replacing the hose line with an engineered steel pipeline or purchasing tracked tanker sleds that would allow traverse from McMurdo Station directly to the Marble Point bulk tanks. Either option requires additional materials not currently available.

B. Program Integration

Coordination with Other Divisions

Fuels personnel actively assisted FEMC with the design, installation and commissioning of the fuel filter upgrades at the McMurdo Station and Marble Point heliports.

C. Innovation & Process Improvement

Visionary Management

Accomplishment: The McMurdo Area director worked with Science Support and Logistics to relocate the "Snow School" site to an area conducive to transporting participants via shuttle van, instead of specialized equipment.
Benefit: The new location is closer to the Williams Field snow road and eliminates the need for specialized vehicles to move personnel over ungroomed snow.

Responsiveness to Challenges

Issue: Of the total 740 phenolic-lined, bung-top fuel drums used to transport and cache aviation fuel, 62 that were filled early in the season developed small leaks. Fuels personnel pinpointed the leaking drums to those originating from a single manufacturer's four production dates. To meet the remaining drum requirement for the season, Logistics airlifted an additional 60 drums to the station.
Response: Fuels personnel cooperated with Performance Excellence/Quality Assurance (PE/QA) and Supply to define the scope of the problem, identify the leaking drums, and to avoid spills to the environment. With no delay to deep field science, Fuels personnel inspected each filled drum daily for two weeks prior issuing it to the field, and maintained a database tracking the fuel orders, drum-manufacture dates, fill date, and field deployment date.

AIRFIELD MANAGEMENT

A. PROJECT MANAGEMENT

General Management

Despite harsh weather conditions, Airfield Management at McMurdo and South Pole stations kept runways and skiways open through effective cooperation with Fleet Operations, maximizing the USAP airlift. The USAP Airfield Manager and Fleet Operations supervisor worked as a team to accommodate weather changes, with minimal effect to flight operations.

Major Successes

Despite unforecast poor weather conditions, the NYANG flew 300-plus sorties to South Pole Station and field locations for a successful close to the season.

Airfield Management opened the annual sea ice and Pegasus White Ice runways on schedule for all C-17 missions despite a reduced winter staff.

All agencies cooperated effectively to move the ice runway to Williams Field and Pegasus White Ice Runway, safely transitioning to the dual airfield operations.

Airfield Management coordinated with the Australian Antarctic Program team to certify an Australian Airbus A319 aircraft operating on a sea ice runway. The aircraft flew two successful missions and was certified for use by the Australian Antarctic Program.

Figure MCM - 15: Australian Airbus A319 Aircraft

Airfield Management provided parking, refueling and Aerospace Generation Equipment (AGE) support for a successful Royal New Zealand Air Force (RNZAF) P-3 Orion aircraft mission. The RNZAF tested the concept of P-3 support as a method to monitor illegal fishing on the Ross Sea.

Microwave Landing System

The MLS project completed another primary milestone, delivering FAA-flight-certified systems to the three, McMurdo Station airfields. The unit design, customized for the Antarctic environment, proved flexible, portable, and suitably robust to accommodate winter survivability. For example, under deadline conditions, two units were successfully exchanged and configured within 24 hours to meet the FAA flight test schedule. The systems exceeded 99% operability, graphically demonstrating the system's stability and low maintenance requirements. A single RPSC MLS technician maintained all systems. In preparation for system transfer to SPAWAR, the MLS project team developed a curriculum and trained SPAWAR subcontractor personnel on system operations.

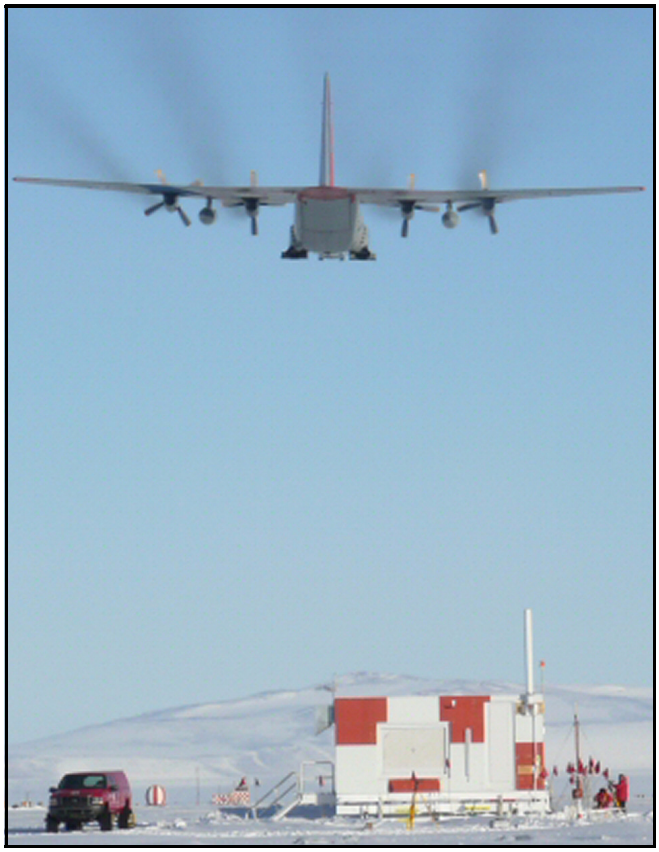


Figure MCM - 16: LC-130 Overflies the MLS during FAA Certification

Major Issues

If large blocks of ice—bergy bits or growlers—freeze into the channel that makes up the ice runway site, future sea ice runway construction will be considerably more difficult than in the 2007–2008 season.

Such conditions would require grinding the large bits of ice to match the surrounding surface. The work is time consuming, affects equipment life cycle, and poses a drastic increase to both construction hours and equipment downtime. RPSC is investigating eliminating the sea ice runway.

The Pegasus White Ice Runway required an airfield waiver due to the height of snow berms on either side of the runway. The berms exceeded the maximum height allowed in the USAF Engineering Technical Letter (ETL) that governs the design of airfields used by USAF aircraft. Continued reduction of the east and west berms is necessary to comply with the ETL requirement and will occur during winter.

Customer Satisfaction

The USAP Airfield Manager assisted the NSF/OPP to test and evaluate an FAA Challenger aircraft to conduct future flight certifications. The suitability testing was a success, with an alternative aircraft now available for FAA flight certifications.

Figure MCM - 17: FAA Challenger Aircraft

Value Engineering

Accomplishment: Airfield Management and the 109th Airlift Wing redesigned the Williams Field skiway refueling area for use starting with the austral summer 2008–2009 season.
Benefit: The new plan will reduce daily engine starts by approximately 60%, as the aircraft may load, unload and refuel without taxiing to the refueling pits each day.

B. Program Integration

Coordination with Other Divisions

Successful inter- and intra-agency coordination by Airfield Management resulted in a single FAA certification of all aerial Navigation Aids (NAVAIDS) at three McMurdo airfields and the South Pole station airfield.

All NAVAIDS certified within scope and on time despite the failure of Global Positioning System survey equipment.

C. Innovation & Process Improvement

Visionary Management

Accomplishment: The department published a draft project management plan and identified key milestones and a time line for the concept of a single-airfield design near McMurdo Station.
Benefit: Despite many unknowns, a single airfield has the potential to save cost and streamline operations.

Responsiveness to Challenges

Issue: The C-17 and LC-130 air crews reported moderate undulations on the annual sea ice runway.
Response: To alleviate the issue, Airfield Management and Fleet Operations conducted additional grading of the sea ice and placed a half-inch cover of loose snow on the runway. Following the improvements, the air crews reported only minor undulations on the runway.

Fleet Management

A. Project Management

General Management

Fleet Management developed several proposals, detailed in the following sections, regarding fleet replacement, SOWs for new and replacement equipment, and various service subcontracts. Primary fleet-related procurements included two aerial lifts, an indoor fork truck and stock picker for South Pole Station. As of KY08, the McMurdo Station fleet included 350 units of riding stock.

Major Successes

Responding to supply and recruitment challenges, Fleet Management deployed a subcontracted R-Event to overhaul two McMurdo Station prime power generators. While the generators were due for major overhaul during the KY08 austral summer, the materials stocks necessary for such overhauls had dwindled in anticipation of a new power plant coming online.

RPSC awarded the subcontract to the Christchurch, NZ, Caterpillar dealer, which provided materials and labor at a reduced cost. The subcontractor deployed two technicians and successfully completed both overhauls on schedule. RPSC expanded the contract scope to also resolve a manufacturing fault discovered on a third generator.

The McMurdo Station linemen aerial-lift truck had never undergone required annual dielectric and structural testing during its years of operation. To remedy the deficiency, Fleet Management developed an SOW to subcontract the test, maintenance, and repair of the equipment. RPSC awarded a contract to Altec Industries, Inc., which deployed a technician to McMurdo Station as an R-Event. The maintenance was successful and Fleet Management will continue this course of action to remain compliant with the annual test and inspection requirement.

Fleet Management successfully negotiated an R-Event to correct manufacturing faults within the compressed air foam system portion of AARF equipment. The equipment manufacturer deployed a technician to McMurdo Station at its cost to repair and test the equipment. The repairs were successful. The equipment was returned to service with no further problems.

Naval Cargo Handling and Port Support (NAVCHAPS) drivers expressed concern over the condition of the McMurdo Station fifth-wheel tractor fleet used during vessel operations. The fleet manager requested the DoD, Defense Reutilization & Marketing Service (DRMS), identify surplus vehicles and other equipment as possible replacements for the equipment. Equipment available did not match the tractor requirement. However, with some modification, the 11 trucks could replace 20 heavy trucks in the McMurdo fleet and reduce the parts inventory by standardizing on fewer types of vehicles. Fleet Management developed and submitted a proposal to modify the units into replacement dump and flat bed trucks. As the proposal was not funded, the department will continue to monitor the DRMS resources to identify suitable fleet replacements.

Major Issues

Fleet Management developed a life-cycle replacement list for the McMurdo Station mobile equipment fleet. This list includes a recommended replacement date, cost of the proposed equipment, and the priority of replacement. The highest priority items are two replacement ambulances in the life-safety category. The list's mission-critical category contains one-deep assets that render the McMurdo Station fleet vulnerable. This includes the Caterpillar V620 container handler, Caterpillar 980 wheeled loader for vessel off/on load, Delta fuel tanker for fuel deliveries to airfields, and the Terra Bus for passenger movement. A mechanical failure of any of the equipment during times of peak requirement could severely impact station activity. However, to maintain 100% readiness, the existing equipment in this mission-critical, one-deep category should be retained as spares, as even new equipment is subject to failure in Antarctic operating conditions. The last major equipment replacement was the light truck and light track vehicle fleets from 1999–2001. Since that time, equipment procurements have either been related to special projects, or due to outright equipment failure.

B. Program Integration

Coordination with Other Divisions

Fleet Management coordinated the earth moving, site preparation and mobile crane support for the three NPOESS project construction sites at McMurdo Station. This involved managing a cooperative schedule across multiple divisions, including coordination with IT project managers and FEMC construction crews.

The VMF and Fleet Operations worked 60-hour shifts while building the ice runway and transitioned to a standard work week for the rest of the season.

C. Innovation & Process Improvement

Visionary Management

Accomplishment: Fleet Management proposed to arrange factory rebuilds for two existing Nodwell ARFF vehicles and to retrofit the equipment with new fire fighting apparatus as a possible platform for South Pole ARFF vehicles.

Benefit: The rebuild cost was roughly half of the cost for a new vehicle, but did not include shipping cost. However, it was ultimately determined it would be more cost effective to use new equipment for this purpose.

FLEET OPERATIONS

A. PROJECT MANAGEMENT

General Management

A reduced winter staff prompted cutbacks to planned projects and standard Fleet Operations services. Despite that challenge, Fleet Operations constructed the annual sea ice runway on schedule with assistance from the VMF and the benefit of smooth channel ice absent the normal bergy bits that slow progress and damage equipment. The construction and maintenance of Williams Field and Pegasus White Ice Runway occurred as planned, with the Pegasus Airfield remaining open to support the extended season.

Major Successes

Science Support

Fleet Operations supported ANDRILL with initial camp and drilling site preparation and set up, fuel delivery, road grooming, and final camp disassembly. Such support directly related to the non-research, operational success of the project.

Explosives handlers assisted the seismic exploration project G-081-M on Mount Erebus, providing direct research support of test blasting in several locations for seismic data collection. The explosives team assisted the project with all explosives aspects, including helicopter transport, booster loading, and detonation.

Figure MCM - 18: Seismic Blasting on Mount Erebus

Project Support

The department installed road crossings at the Ball Park and the rear of the new tank #1 (T1) redundant tank site for the motor vehicle gasoline (MoGas) distribution project.

In preparing the T1 redundant tank pad for the 2M Gallon Fuel Tank Project, Fleet Operations drilled, blasted and graded the site and distributed fill material (fines). Unplanned work for this project included the extra labor and fill material associated with moving the tank footprint, as the original site conflicted with helicopter operations. Also, the tank footprint sits atop a prior dump site, which required additional excavation and backfill in compacted lifts.

Figure MCM - 19: 2 Million Gallon T1 Tank Support

Fleet Operations constructed a road to the transmitter site portion of the NPOESS project site. The antenna site pad and utilities stanchion line routes are fully prepared and ready for construction in the 2008–2009 season. Also related to the project, the department completed additional traverses to Black Island to deliver project construction materials.

Major Issues

Winter staff cuts minimized Fleet Operations support and impacted traverses to Black Island. The reduction to the winter staff level pushed the maintenance of the Black Island road to summer. The road work was required prior to the summer traverses, causing a corresponding two-week delay.

Customer Satisfaction

Efforts by the Fleet Operations supervisor to immediately commence work at WinFly with zero ramp up yielded a number of compliments to the Program. From setup of ANDRILL buildings 24 miles out on the sea ice, to pad construction and placement of all LDB buildings, and annual runway construction, Fleet Operations accomplished its work quickly, safely and on schedule.

B. Program Integration

Coordination with Other Divisions

Fleet Operations actively collaborated with FEMC and IT to plan the construction phases of the MoGas, 2Million Gallon Fuel Tank and NPOESS projects.

C. Innovation & Process Improvement

Technical Solutions

Solution: Fleet Operations staff experimented with different methods of adding fresh water and snow directly to seawater to "patch" runway, ramp, and road surfaces.
Benefit: While this process was not perfected, it holds promise for the construction and repair of sea ice structures.

Solution: With the assistance of a New Zealand-based construction team, the RPSC explosives handlers used 400-grain detonation cord, short-period delays and hand sleds to remove some 150 cubic yards of ice that accumulated under Phase Three of the Crary Science & Engineering Center (CSEC).
Benefit: Over time, expansion of the ice could damage the structure. The only other possible method of removing the ice would be through labor-intensive mechanical means, such as a jackhammer. This innovation saved cost, time and labor.

Figure MCM - 20: CSEC Ice Removal Before and After

Mac Ops

A. Project Management

General Management

Mac Ops delivered 24-hour communications support to field personnel and the South Pole Station, administering 1,993 daily field-camp check-ins through 18 February—a 12.6% increase from the previous year. At 1,429, the department saw a 7.9% jump in its monitoring of regional day trips, including 20 traverses to Black Island, Marble Point, Shear Zone and Granite Harbor.

Mac Ops called out the Search and Rescue Mission Coordinator (SARMC) and Search and Rescue (SAR) response team 11 times during the season.

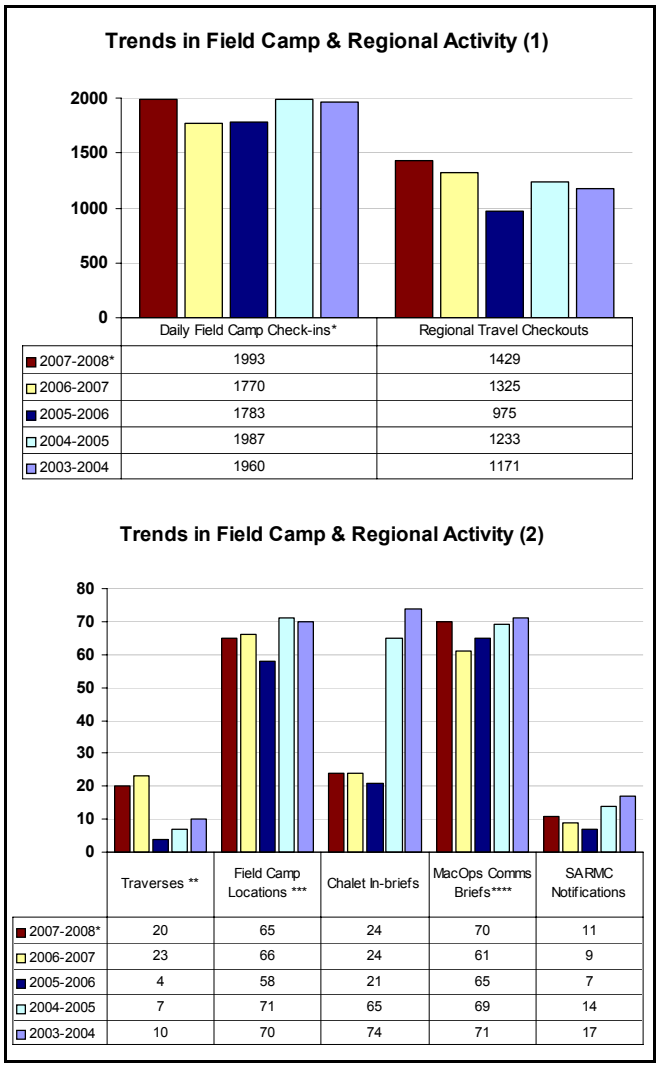
Five notifications originated from late vehicle check-ins, three due to overdue field camps and three to distress calls from field parties. Of 1,993 total daily field-camp check-ins, 55 (2.8%) were overdue. The department trained all operators in the set up of the Emergency Operations Center (EOC) several times during the season. On 5 December, Mac Ops staffed the EOC for a Mass Casualty Incident (MCI) drill.

The department provided communications support to 17 events that required the EOC to muster:

- On 14 November, the operator of a Mattracks Ford F-350 pick-up truck reported a vehicle fire on the Cape Evans road.
- On 19 December, Scott Base reported a Search and Rescue Satellite beacon alert.
- On 2 December, the field camp at Lake Bonney was overdue in its daily field-camp check in.
- On 20 December, the crew of the Kenn Borek Air, Ltd., Basler BT-76 aircraft requested assistance due to aircraft damage suffered near Mt. Paterson.
- On 23 December, the field camp at Minna Bluff was overdue in its daily field-camp check in, requiring a helicopter launch.
- On 27 December, a vehicle accident interrupted power to key station facilities.
- On 1 January, camp staff at Lower Erebus Hut requested assistance following a snow machine accident.
- On 8 January, the field camp at Minna Bluff requested assistance for a snow machine accident.
- On 13 January, the field camp at Lower Beacon Valley was overdue for its daily field-camp check in, requiring a helicopter launch.

The EOC was also activated in response to the following events:

- Three, overdue *e*Foot Plan parties
- Five, overdue regional-travel parties



	Daily Field Camp Check-ins*	Regional Travel Checkouts
2007-2008*	1993	1429
2006-2007	1770	1325
2005-2006	1783	975
2004-2005	1987	1233
2003-2004	1960	1171

	Traverses **	Field Camp Locations ***	Chalet In-briefs	MacOps Comms Briefs****	SARMC Notifications
2007-2008*	20	65	24	70	11
2006-2007	23	66	24	61	9
2005-2006	4	58	21	65	7
2004-2005	7	71	65	69	14
2003-2004	10	70	74	71	17

Figure MCM - 21: Seasonal Travel Activity from 2003

Note: *2007-2008 daily field camp check-ins reported through 18 February. Traverses include Black Island, Marble Point, Shear Zone Camp (02-03, 07-08), and Granite Harbor (07-08)). Field Camp Locations does not include day-trip sites and are overnight campsites at minimum. Chalet in-briefs were held in group format starting in 2005-2006.*

Mac Ops also provided communications assistance to the following Antarctic stations and vessels operating in the Ross Sea:

Antarctic Stations

- Mario Zucchelli Station (Italian)
- Patriot Hills (Private)
- Rothera (British)
- Scott Base (New Zealand)
- Dome-Concordia (Italian/French)

Vessels

- I/B *Oden*
- M/V *Lawrence H. Gianella*
- M/V *American Tern*
- R/V *Akademik Fedorov*
- R/V *Nathaniel B. Palmer*

Major Issues

Aging facilities continue to hamper the abilities of the communication resources in Building 165. A facilities overview with a plan to mitigate the leaking roof and ineffective heating, ventilation and air conditioning infrastructure will improve the work environment for all agencies.

It is necessary to replace obsolete and stand-alone equipment prone to frequent failure. Developing an engineered approach to operator efficiency, maintenance and integration will significantly improve the ability to provide life-safety support services, enhance communications abilities of station personnel and reduce costly maintenance and downtime.

Customer Satisfaction

Mac Ops tracked and provided communications assistance to 65 field camp locations: 31 helicopter-supported camps, 21 fixed-wing-supported camps, 10 vehicle-supported camps and three traverses.

B. Program Integration

Coordination with Other Divisions

Mac Ops hosted work center tours for 18 visitor events and three Support Forces Antarctica (SFA) events.

The department provided cross-divisional support during the MCI.

C. Innovation & Process Improvement

Technical Solutions

Solution: To assist in tracking recreational travelers at McMurdo Station, Mac Ops implemented *e*Foot Plan Version 3, featuring visual and audible alarms for overdue parties.

As of 28 February, the department had filed and tracked 1,298 plans since the project's inception during the 2006–2007 season.

Benefit: The *e*Foot Plan provides electronic data to analyze trail usage and related risk. Electronic tracking alerts dispatchers if a party is overdue and allows the EOC to more efficiently access information during a SAR. The Program may also use the system to evaluate the feasibility of electronically tracking vehicles on the sea ice.

Visionary Management

Accomplishment: The department is pursuing consolidating all operational communications centers —Mac Ops, Fire House dispatch and Air Traffic Control—to a single, common work center.
A consolidated communications center would significantly enhance emergency response and reduce confusion for community members.

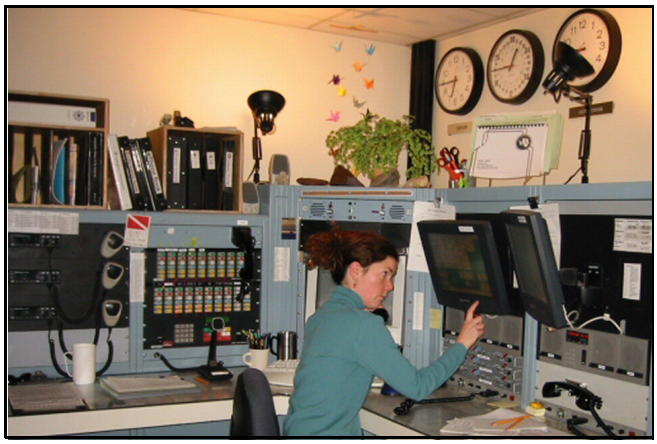


Figure MCM - 22: Current Mac Ops Main Console

South Pole Traverse

A. Project Management

General Management

Delays in funding and the hiring of a project manager reduced planning time for the South Pole Traverse. The traverse nonetheless accomplished an ambitious field schedule. While in the field, project personnel identified an opportunity to test-haul fuel-bladders to South Pole Station.

The NSF/OPP, RPSC and U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) approved the test, which succeeded without issue.

The South Pole Traverse team assisted the Science Planning Group in devising the support structure to field a cache of cargo and fuel for the Polar Earth Observing Network (POLENET) (G-079/Wilson). See also *Major Successes*.

Funding for the Traverse Fleet Expansion Procurement Project was withdrawn in December 2006 and re-instated April 2007. Except for eight of the 12 planned fuel tank sleds, nearly all procurements were accomplished. Four sleds were completed in time for the resupply vessel 2008 delivery. See also *Major Issues*.

Major Successes

The South Pole Traverse project met or exceeded all pre-season planning expectations. The traverse team remediated and re-established the McMurdo SZ crossing, reflagged the entire traverse route, and reoccupied all waypoints. This included remediating over 100 miles of large drifts on the polar plateau to reduce damage to traverse fleet equipment.

In a field season that originally contemplated only route maintenance and SZ remediation, the South Pole Traverse offset a total of six to eight LC-130 missions. The project delivered a net 8,049 gallons of fuel—the equivalent of two or three LC-130 missions—to South Pole Station, and hauled 26,000 pounds of retrograde cargo (a Mantis 3010 crane) from South Pole to McMurdo Station. The latter involved utilizing the UHMWP sleds, a component of the fuel bladder sleds.

Major Issues

Plastic welds on the UHMWP sheets that carry the fuel bladders failed in the field, requiring the project to cache fuel earlier along the trail than expected. While the change did not directly affect the amount of fuel delivered to South Pole, it did affect the test of the UHMWP sheets and extends the project's transition to full production use of the bladder sled concept. Given such challenges, the project is reconsidering the bladder sled method for fuel transport. Steel fuel tanks have a high tare weight, but may provide a simpler alternative, as the bladder sleds are labor intensive to prepare and assemble. The project will also investigate if a single UHMWP sheet without welded seams is available.

The setbacks in field testing of the UHMWP sheets may change originally planned project procurements for the upcoming season.

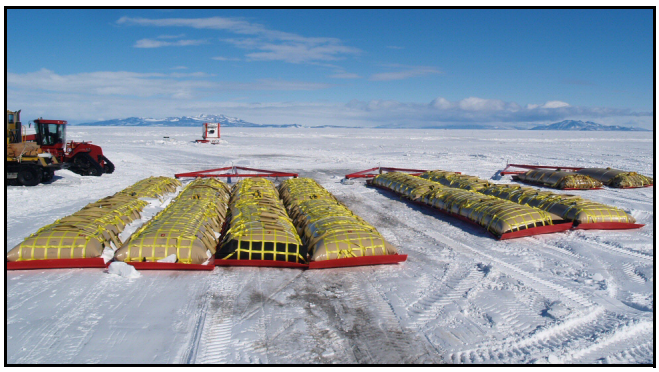


Figure MCM - 23: Fuel Bladders and UHMWP Sled

Due to delayed reinstatement of procurement funding, only four of 12 planned fuel tank sleds were complete in time for delivery on the 2008 resupply vessel. The remaining eight tanks, available March 2008, will require shipment via commercial surface and USAP airlift for use during the 2008–2009 traverse field season.

Figure MCM - 24: Tractor and Steel Tanks

Customer Satisfaction

Assisting the POLENET science project, the South Pole Traverse hauled and cached 6,000 pounds of equipment and 6,000 gallons of fuel, weighing an additional 42,000 pounds, on the Ross Ice Shelf.

Value Engineering

Accomplishment: The traverse project tested its retrograde material hauling capabilities by successfully transporting the body and tracks of the Mantis 3010 crane from South Pole to McMurdo Station, utilizing the UHMWP sheets from the fuel bladder sleds.

Figure MCM - 25: Retro Mantis Crane in Tow

Benefit: Successfully hauling the crane over land yielded several benefits compared to an airlift. An airlift would have required two or three LC-130 missions to transport the crane body and tracks, and two VMF mechanics to disassemble the crane at South Pole Station and to reassemble it at McMurdo Station (costing 1.5 labor weeks per mechanic). Airlift transfer would have consumed precious flight seats, bed space and shop space. The traverse accomplished the same task more efficiently, proving the method as a viable retrograde solution.

B. Program Integration

Coordination with Other Divisions

The project manager and coordinator worked extensively with Science Support to maximize its POLENET support and minimize impact to traverse operations.

The traverse team purchased a hauling winch to test the bladder sled concept in the laboratory. Testing is underway at the CRREL facility, estimated for completion in April. Science Support Marine Operations expressed interest in acquiring the winch after the test is complete. The capital asset is valued at $63K, while repair of an existing, failed winch is estimated at $56K.

In the period before the traverse departed, the project team loaned its equipment assets (fuel tanks and tractors) to assist Fleet Operations, as needed. Such inter-divisional collaboration benefitted the airfield construction, LDB site preparation and ANDRILL.

C. Innovation & Process Improvement

Technical Solutions

Solution: In light of the UHMWP sled failures, the traverse will request a policy to carry one or two empty, 3,000-gallon fuel bladders on future traverses.
Benefit: The extra bladders allow a quick response to any event requiring the emergency transfer of fuel to an alternate container.

Visionary Management

Accomplishment: The traverse conducted a thorough test of its ability to haul retrograde cargo. The project team will present options at the Traverse Mobility Workshop in April to improve its efficiency in handling and hauling retrograde.
Benefit: More LC-130 flights may be offset by increasing the efficiency of the traverse's ability to haul retrograde cargo.

Responsiveness to Challenges

Issue: The failure of the UHMWP plastic sheets created the risk of environmental damage.
Response: The traverse team responded quickly with a plan to safely store the fuel bladders along the trail and retrieve the fuel on the return journey.

Issue: The retrograde crane, carried on UHMWP sheets, penetrated the sheets several times on the return journey, raising the potential need to abandon the crane in the field.
Response: The team devised a technical solution in the field to raise the crane and place additional UHMWP sheets underneath it.

Issue: The NSF/OPP requested the South Pole Traverse be available to potentially assist another traverse that suffered mechanical difficulties.
Response: After lengthy, overnight planning and communications with the NSF/OPP and RPSC management, the traverse turned around and made the 18-hour return trip to South Pole Station to be available to assist.

STATION SERVICES

A. PROJECT MANAGEMENT

General Management

Through an expanded contract, [redacted], assumed the hiring and managing functions for Food Service; Housing; Janitorial; and Recreation, Beverage, and Retail services; as well as food product procurement, BFC food staffing and oversight of related warehouses at the three stations.

Station Services devised creative solutions to accommodate the reduced winter staff, including community housekeeping and dining facility support, and abbreviated services in recreation, retail, and food areas.

Major Successes

Station Services staff transitioned to [redacted] The subcontractor transitioned in August to a customized deployment orientation for its employees, in addition to the existing USAP orientation.

With RPSC assistance, [redacted] implemented a Food Quality Control Plan during the annual food procurement and awarded a food-inspection service contract at Port Hueneme.

[redacted] reported a 50% drop in its rate of repetitive motion injuries. The improved rate reflects its priority of expanded awareness training concerning the work environment and its ergonomic challenges. The Food Services supervisor position, in its second year, was originated to train and oversee the work of McMurdo Station dishwashers—a work group that traditionally suffered the greatest number of injuries. Both the Food Services and Housing groups now meet daily, in addition to weekly safety meetings. The reduced injury rate and expanded awareness training reflect an increasingly safe work culture.

Honoring the dedication of the new South Pole Station, Station Services prepared and served a formal, several-course banquet to staff and visiting dignitaries, garnering many compliments.

Food Service

The New York-based magazine *Government Food Services* again profiled [redacted] The article describes [redacted] Antarctic operation and appeared in the November 2007 issue, distributed to a readership of 9,600-plus food service professionals.

Janitorial

McMurdo Station janitorial staff deployed to South Pole Station to extensively clean the station in time for the new station dedication in January.

Recreation

The Recreation staff controlled its work hours by soliciting community members to assist with activities of personal interest. Volunteers taught classes, presented travelogues, and assisted with the set up and clean up of large station events.

RPSC requested [redacted] purchase $100K worth of life cycle recreational equipment for the three stations and two research vessels. The procurement is complete, with equipment scheduled to arrive on the 2008 vessel and in February 2009.

Retail

In October, Station Services instituted a trial of new store hours to improve access and reduce customers' wait. To accommodate C-17 flight crews, the weekly store closure day was switched from Tuesday to Wednesday.

Major Issues

The kitchen steamer was inoperable for the majority of the season, increasing both the work load and risk of injury for kitchen operations. The steamer failed its life expectancy due to corrosive water. A new kitchen steamer was approved for purchase late WinFly 2008 and arrived on the vessel. A steamer used for steam kettles also frequently malfunctioned and required repair. Station Services issued a work order to replace the insulation on the equipment.

In mid-November, the hairdresser suffered a repetitive motion injury and was restricted to light duty for several weeks. This position reflects a single point of failure, as current staffing levels do not include a back-up hairdresser. When the hairdresser's condition did not improve, [redacted] sought a speedy replacement with approval by Medical and HR management. As [redacted], is unable to hire a New Zealand citizen, RPSC assisted, recruiting a replacement from Christchurch. Meanwhile, [redacted] also located a replacement stateside.

For four weeks, McMurdo Station operated with two hairdressers. There was not sufficient work after the initial catch-up period to keep both personnel fully tasked.

The new food procurement process mandates extensive updates to existing stock records. As the food industry reflects an ever-changing market, each modification to the original request currently requires a written change order. The change orders make the new process cumbersome and time consuming. [redacted] is exploring methods to streamline the process.

B. Program Integration

Coordination with Other Divisions

The Recreation staff successfully hosted a variety of station activities, ranging from multiple live music events to pressure ridge walks. The Town Holiday Party, coordinated by Recreation, was reported as among the current contract's most successful.

C. Innovation & Process Improvement

Responsiveness to Challenges

Issue: The Palmer Station September food order arrived with 60% of the frozen food thawed due to inadequate temperature monitoring during transit from Punta Arenas.
Response: RPSC Procurement personnel and the NANA Services Palmer Food Service supervisor quickly responded with a replacement frozen food order, with no disruption of service.

Issue: Bed space at McMurdo Station was once again at a premium during KY08, particularly related to the Raytheon bed space allocation.
Response: Station Services again added the 30 additional transient beds to help alleviate stress to the station housing system. The beds are disassembled each year and deployed upon need.

Vehicle Maintenance Facility

A. Project Management

General Management

The VMF struggled to continue its previous high level of service, given a dramatically reduced WinFly and Mainbody staff and material budget. The budgeted 2007 winter caretaker crew was reduced by nearly half to nine personnel, while budgeted personnel slots remained unfilled all summer season. The VMF material budget dipped below $1 million.

To support the approximate 350 pieces of equipment at McMurdo Station—approaching 500 pieces across Antarctica—the VMF stocks over 45,000 part line items. The inventory, by far the most extensive single inventory in Antarctica, is estimated at more than $12 million. The VMF continues to strive for world class management of the stock within the limitations imposed.

Major Successes

The VMF improved its Preventive Maintenance (PM) work-order system by adding additional manufacturer-recommended steps and best practices specific to the Antarctic environment. Such improvements reflect a shift toward preventive measures and away from repairs—specifically field failures. Examples include integrating the oil sampling regimen into the Maintenance and Planning Control (MAPCON) PM steps, and a blanket work order to check airporter wheels pending an engineering solution to the weak wheel setup.

In conjunction with retrograde and resupply efforts, VMF personnel continued to improve the MAPCON database. Personnel located unassigned parts and worked with Supply and the MAPCON Editing Team to improve the quality of information and to publicize the availability of stocked parts.

A "zero fill" scenario occurs when a mechanic goes to the part counter to retrieve a part and no such part is available. The facility is progressively improving the rate of such instances, dropping from 600 "zero fill" instances two years ago to 450 last year, and only 320 during KY08 summer.

Major Issues

The 2007–2008 austral summer season largely focused on recouping the momentum lost to the reduced winter staff. Despite significant efforts to mitigate any impact—winter operating equipment was scaled back to some 60 pieces of equipment and customers cooperated to minimize demands and take extra close care of equipment—the reduction did nonetheless impact subsequent VMF operations.

Early difficulties with the bulldozers signaled the most obvious impact. At one point during early austral summer, nearly the entire fleet was inoperable and waiting for service. By the close of summer season, only Caterpillar (Model D6H LGP) remained inoperable. Plus, all but that unit and an extended-track Model D8 ("Stretch 8") were operable in time to facilitate the runway move, an event the Fleet Operations supervisor reported as unprecedented.

Customer Satisfaction

The VMF achieved an unprecedented, second year of a record number of Science Support vehicles operable on the road and in the field. None of the vehicles had significant down time, except for two involved in accidents: 1974 passenger Nodwell and the 2002 Mattracks (TL157), the latter of which was lost to fire.

The consistent operability of Science Support vehicles yielded a string of accolades for Station Operations. The vehicles' reliable record also helped the Science Support Center, a VMF customer, field the increased demands posed by IPY projects.

The VMF continued its program to improve the fleet of older vehicles, with fixes to benefit the operator—seats, suspensions, instruments, heaters, and body parts. The effort poses a long-term gain through quality care of the aging fleet of equipment. Such improvements earned repeated positive compliments from operators, which contributed to crew morale.

Value Engineering

Accomplishment: This contract year marked the first season the VMF achieved a logical break between blanket work orders and the "special codes" that capture administrative-category work aiding in future planning.
Benefit: More efficient use of work order codes creates the baseline necessary to improve overall reporting.

Although cost percentage would be greater, repair work orders constituted 63% of the total. The VMF recorded an unprecedented 521 PM-related work orders. The figures reflect significant improvement in managing fleet maintenance, even considering increased equipment usage.

B. Program Integration

Coordination with Other Divisions

KY08 marked the third year that VMF personnel led the effort to provide power generation at LDB, coordinating the work of FEMC and the LDB camp manager. Dependable power contributed to another, successful "three-launch" LDB season. The camp used the waste heat system to heat the LDB buildings for a portion of the season.

C. Innovation & Process Improvement

Technical Solutions

Solution: The VMF's rudimentary oil analysis program to build fleet performance baselines is now integrated into MAPCON-generated PM work orders, and backed with better tools.
Benefit: Access to major component fluid data allows the VMF to make educated decisions regarding major component casualty avoidance and maintenance intervals, potentially saving fluid costs.

Solution: After repeating an unprecedented elimination of the deadline in 2006, along with a push for good planning and execution by the reduced winter crew, the VMF started its season with all eight Snowblasts and three graders operational.
Benefit: The equipment was critical to preparation and maintenance of the sea ice runway prior to WinFly, avoiding significant delays.

Solution: The VMF repeated last year's highly successful technical-advice visit from [redacted]s. The session revealed partnering opportunities beyond the scope of the original [redacted] proposal.
Benefit: The [redacted] experts validated many of the VMF's proactive efforts implemented over the past three years and answered specific technical questions.

The visit resulted in additional, problem-solving resources for the VMF and identified new, longer-wearing and cost-avoiding parts.

Solution: In a continuing effort to hold suppliers accountable for sub-standard materials sent to Antarctica, the VMF resolved its ongoing dispute with Mattracks. The result was more favorable than expected, specifically due to the strategy pursued by VMF management.
Benefit: The efforts to hold suppliers accountable resulted in approximately $50K in recovered value to the USAP.

Visionary Management

Accomplishment: The department maintained its same leadership team and reenforced its culture promoting safety.
Benefit: The VMF continues to lead the program toward a safer, better organized, and more productive operation, yielding future cost avoidance.

Accomplishment: The professional training program initiated last year continued and was augmented with additional technical training and formal school requests. Key additions included the first, full-battery formal school for winter personnel: a [redacted] D8R five-day course, and [redacted] 2-day PB-100 service school; the first, on-Ice Teledyne bucket-truck technical training, provided by [redacted] during the boom-truck inspection R-event; and participation in the CONEXPO-CON/AGG 2008 heavy-equipment trade show.
Benefit: The additional, professional training created an investment in returning personnel who clearly appreciated the opportunity and benefited the VMF through the faster, more efficient troubleshooting abilities of its staff.

Accomplishment: The VMF maintained one crew on the "long day, short week" schedule proven successful for the past three WinFly operations. The schedule was popular with the crew, improved coordination and prioritized safety.
Benefit: The VMF enjoyed an injury-free contract year, directly resulting from its organizational efforts to emphasize individual responsibility for safety and by supporting the safety tools and concepts suggested by the crew.

Consultation with [redacted] identified a more efficient training program. Rather than send RPSC mechanics to Reno, Nev., [redacted] will send an instructor to Colorado and provide a Pisten Bully from a local ski area for hands-on training.

Benefit: The change will reduce travel costs and simplify the training schedule for VMF mechanics.

Accomplishment: The VMF hosted [redacted] to review updates and warranty issues regarding the Pisten Bully fleet.
Benefit: Even though the Pisten Bullys are out of warranty, [redacted] will provide warranty parts, repairs and redesign of fuel tanks and hydraulic lines, which have suffered multiple failures in recent years.

Responsiveness to Challenges

Issue: Throughout the fleet, the VMF added safety features and improved operator interfaces. As example, a safety circuit added to the new Hagglunds AT120 and 121 sounds an alarm when the door is open while the transmission is in gear. Also, a circuit added to the Volvo, White and GMC dump trucks indicates the bed is raised.
Response: The Hagglunds in-gear alarm is one example of after-market engineering by VMF to address equipment and operational issues specific to the Antarctic environment.

WASTE MANAGEMENT

A. PROJECT MANAGEMENT

General Management

In FY08, Waste Management received, processed, packaged, documented and shipped over 4.2 million pounds of solid, hazardous and resale waste from the three stations and two research vessels. The department successfully attended to spill response at all three stations and enjoyed an injury rate half that of the previous year, with only one recordable injury.

Solid Waste

Waste Management shipped approximately 3 million pounds of solid waste from McMurdo Station, a 20% decrease from the 3.8 million pounds the previous contract year.

The decrease resulted from a deferment of much of the retro team's waste to the resale program, and reduced waste shipped from South Pole Station.

Hazardous Waste

The department shipped approximately 482,000 pounds of hazardous waste from McMurdo Station. The figure represents a 10% decrease from the 536,000 pounds the previous contract year and largely stems from a dramatic drop in high-weight compressed-gas-cylinder waste.

Resale

Waste Management shipped approximately 577,000 pounds of resale waste from McMurdo Station, a 121% increase from the 261,000 pounds last contract year. There are several reasons for this increase: 1) a larger percentage of retro team waste went to the resale program; 2) several high-weight capital equipment items shipped this year; and 3) the department found buyers for some hazardous materials that would have otherwise been transported as hazardous waste.

Recycle Rate

The recycle rate for McMurdo and South Pole waste stands at approximately 60%, the same rate as the previous contract year.

Spill Response

Palmer spill response personnel successfully coordinated the response and clean up of a day tank fuel spill of over 300 gallons. The spilled fuel ran underneath buildings and some migrated to the water. The spill response team deployed sea-boom and contained a significant portion of the released material.

The Spill Severity Index increased 1.5% this contract year, due to the Palmer spill, which had the highest index rating to date; and a large number of smaller spills at McMurdo Station.

Figure MCM - 26: Palmer Spill Response

Major Successes

The Waste Management Department saw key successes in all aspects of its KY08 operations. As in KY07, the department provided a significant level of direct labor to several projects to process and package waste. The projects, including the Inventory Reduction Project (Retro Project) and South Pole Station Modernization (SPSM), generated large volumes of both solid and hazardous waste. Support for SPSM alone required over 350 labor hours from McMurdo-based Waste Management personnel.

Waste Management successfully concluded the Palmer hazardous waste run with no infractions, notices or delays.

Department personnel safely neutralized approximately 50 pounds of unstable chemicals and explosives at the three stations, and successfully decontaminated approximately 100 cubic yards of fuel-contaminated soil using the infrared treatment unit.

Major Issues

The sheer volume of solid and hazardous waste at the South Pole Station has overwhelmed the crew there for the last three years. Solid waste continues to accumulate and the ACA time requirement for removing hazardous waste is approaching the deadline for removal. Waste Management personnel from McMurdo Station temporarily deployed to South Pole to assist, but there remains insufficient labor. Waste Management plans to request one additional position to handle the waste resulting from projects and science at South Pole Station.

The department will also request the addition of a heated facility at South Pole Station to handle the increasing hazardous waste burden. The current hazardous waste facility is significantly sub-standard and unsafe for such work, and unsuitable for routine testing of hazardous waste for confirmation of constituents and characteristics.

Customer Satisfaction

Following review of a waste management outsourcing proposal, the NSF/OPP concluded the current Waste Management configuration performs well and outsourcing is not necessary.

Value Engineering

Accomplishment: Waste management successfully coordinated the transport, receiving and processing of Palmer Station hazardous waste at the final disposal facilities in the United States. The LMG transported the waste through three countries, including through the Panama Canal, without incident. No actions, violations or notifications were received from any of the inspecting regulating agencies. This was a multi-departmental effort between Waste Management, Marine Science, and Palmer Logistics.
Benefit: Compliance with the Antarctic Treaty and ACA requires the safe and timely transportation and disposal of hazardous waste from vessels and stations in Antarctica. This accomplishment maintained the program's excellent track record with regulatory agencies, limited potential liabilities and avoided penalties of up to $30K per violation.

B. Program Integration

Coordination with Other Divisions

Waste Management worked with Logistics at McMurdo Station to develop a wharf lay-down plan, a vessel hazardous materials segregation plan, and a real-time system to share container weights and contents. The coordination increased the efficiency of vessel operations and reduced chances of loading errors, thus also reducing liability.

C. Innovation & Process Improvement

Technical Solutions

Solution: For the fourth consecutive year, Waste Management de-gassed the compressed-gas cylinders to make them officially “non-hazardous” for transport and disposal.
Benefit: These procedures saved an estimated $10K in disposal costs.

Solution: Using hazardous waste lab resources, the Waste Management team neutralized explosives and reactive waste materials, thereby changing the waste profile.
Benefit: This effort eliminated the need to purchase explosive permits or to have the M/V *American Tern* unload the waste material at the Port Hueneme commercial docks, saving $15K-plus in fees.

Solution: The department will resubmit a proposal to purchase a waste grinder to more efficiently handle waste generated by the South Pole Station demolition project.
Benefit: The grinder would reduce waste materials to a size that can be boxed for shipment. This would provide a means to meet current airlift restrictions on uncontained, contaminated, bulk materials, such as glycol-soaked lumber. It would also eliminate the labor-intensive multiple handling currently required.

Visionary Management

Accomplishment: In July, Waste Management coordinated with the current hazardous waste subcontractor to arrange use of an additional, mixed-waste disposal facility.
Benefit: The action will save approximately $80K in disposal costs.

Accomplishment: Also in July, Waste Management personnel developed a new tracking method utilizing available Microsoft Office software, rather than vendor-provided, waste-specific software.
Benefit: The change saved approximately $50K for software and $15K for support agreements.

Accomplishment: The department is investigating returning bulk retrograde shipments via the South Pole Traverse.

Benefit: Bulk shipment via traverse offers the potential to reduce the cost-per-pound of retrograding South Pole waste, while reducing reliance on the already strained LC-130 fleet.

Responsiveness to Challenges

Issue: Due to the complex nature of the new hazardous waste subcontract, the bid process and ultimate contract award was delayed.

Response: This meant profiling and labeling of the hazardous waste could not be accomplished until January 2008. The McMurdo-based hazardous waste team still managed to meet all deadlines and ship the year's waste without delay or drop in work quality. The ACA time allowance for keeping hazardous waste on station was not violated.

AREA DIRECTORATE — SOUTH POLE

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
AD		*AD*	*TOTALS*	[redacted]	[redacted]	[redacted]%	[redacted]
29	Accuracy of hazardous waste shipments.	>99% accurately documented and packaged per line entry.					
30	Spill Severity Index (SSI) Tracking.	>=10% reduction in spill index compared to KY07.					
31	Efficiency of Solid Waste Operations.	90% solid waste containers collected.					
54	Station-based heavy and light rolling stock preventive maintenance (PM) work orders performed on time.	>=95% of PM work orders completed on time.					
55	Equipment availability based on VMF repair work orders.	>=92.5% light vehicle and heavy equipment					
56	Prepare and maintain piers and airfields.	Zero flight delays or 1 vessel delay of 60 minutes or greater.					

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted] [redacted] *0* [redacted] [redacted]

Figure SP - 27: Division Metrics

A. PROJECT MANAGEMENT

General Management

KY08 constituted a landmark year for science support at South Pole Station. The South Pole Area Directorate officially dedicated the new South Pole elevated station on 12 January 2008, marking the beginning of a new era in the future of the USAP and South Pole research.The second station, dedicated 9 January 1975, was decommissioned and the U.S. flag lowered for the final time from atop the dome.

Figure SP - 28: Lowering the Dome Flag for the Last Time

Figure SP - 29: Raising the Flag on the New Station

The contract year also included an optimization conference with the NSF/OPP. A diverse group of stakeholders identified issues and necessary improvements. Management participated in the Annual Planning Conference (APC) in May 2007 to review and approve the enhanced South Pole season. Stakeholders reviewed the 2008 schedule, with the NSF/OPP articulating four project priorities for completion by 2010: SPSM, South Pole Telescope (SPT), South Pole Tracking & Data Relay Satellite System #2 (SPTR 2) and IceCube. South Pole construction met all major milestone objectives furthering the redevelopment initiatives. Science groups realized outstanding achievements in both planned and unplanned activity. Significant South Pole accomplishments include:

- Proposed and implemented an "enhanced season" using the Basler BT-67 aircraft to facilitate early opening.
- Set up and developed infrastructure early to support IceCube in deploying 18 detector strings and 14 IceTop installations.
- Provided unscheduled science-activity support to the AGAP project, such as housing, logistics, flight operations and work space. The project met 100% of its planned season goals.
- Provided unscheduled science activity support to recovery efforts for the Advanced Thin Ionization Calorimeter (ATIC) and Balloon-borne Experiment with Superconducting Spectrometer (BESS) LDB experiments.
- Provided unscheduled support to the stranded Norwegian/U.S. traverse.
- Set up and supported a remote science solar observatory camp (Jefferies) to expand the domain for conducting remote science.
- Supported the new South Pole Station dedication activities.
- Participated in the St. Michaels II (Optimization of South Pole Operations) Conference. South Pole staff participated in an optimization conference with NSF/OPP, SPAWAR and SFA personnel to review the current operating paradigms of the South Pole facilities compared to the original St. Michaels (April 1992) planning assumptions that resulted in the SPSM Requirements Document. The conference identified issues and areas for optimization.

The directorate filled five critical positions at South Pole: the newly created Major Research & Engineering Facility Construction (MREFC) project manager, FEMC manager, Facilities engineer, Power and Water supervisor and Operations Support supervisor. The MREFC project manager position will provide RPSC oversight for large South Pole projects. The directorate filled the fulltime FEMC manager position with an internal candidate experienced with both RPSC and the Polar Ice Coring Office (PICO). The division promoted an experienced contract staff member to fill the Operations manager position. The individual's knowledge base was invaluable in meeting resupply and budgeting deadlines while minimizing costs. Evaluation is underway in areas where re-organization would provide improved services to NSF/OPP.

During the summer season, the station supported a record number of personnel, NSF/OPP-sponsored events and Non-Governmental Activity (NGA). A total 1,032 personnel deployed to South Pole Station. Notable visitors included the National Science Board, several U.S. Congressional members, the Australian Antarctic Program, OIG, NYANG, FAA, British Antarctic Survey, NBC Television and National Public Radio. NGA accounted for 164 additional visitors to the South Pole Station.

The power plant produced 5,803,614 kilowatt hours of electrical power using 395,982 gallons of fuel for the period between 1 March 2007 and 29 February 2008.

The South Pole used a total 769,022 gallons of fuel during the period between 1 March 2007 and 29 February 2008.

The Ice Cube Project surpassed power production in fuel use, making science support the single-largest fuel consumer during the summer season. Fuels and Cargo Operations supported 305 aircraft sorties.

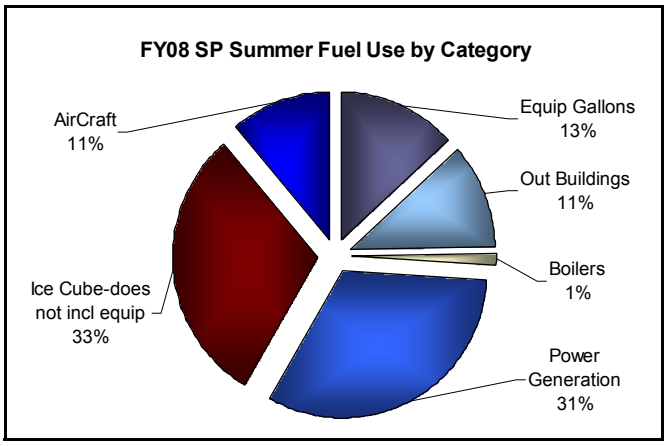


Figure SP - 30: FY08 Summer Fuel Use by Category

Equipment operations supported 8,698 hours of project work including construction, skiway grooming and snow drift maintenance. Effective coordination allowed many scheduled tasks to be completed in fewer hours than planned. The gains were used to accomplish work of opportunity, such as the skiway extension and trenching for the emergency antenna.

The VMF supported equipment operations with an 83% average equipment availability for the summer season. Several initiatives optimized available shop space and labor:

- Joint snowmobile maintenance with McMurdo Station MEC
- Coordinated project equipment use to minimize transition time
- Three-shift shop operations

Major Successes

The South Pole enhanced opening utilized the Basler BT-67 aircraft and occurred during the period of 17 through 28 October 2007. The event marked the first opportunity to attempt an early operational opening of the station with critical staff. Five of seven planned Basler missions were accomplished, with 80 personnel available for station preparation and turnover. Four of the five missions occurred in temperatures below minimums for LC-130 flights.

The enhanced opening period allowed staff to complete required tasking.

- Skiway was groomed and survey conducted for LC-130 operations. Approach markers were installed.
- Fuel pits 1 and 2 were ready for service with all fuel lines installed to the fuel arch, allowing for direct offload to the main arch storage facility.
- Four loaders and four bulldozers were prepped and available for use.
- Station surveys were completed and included drift surveys, IceCube drill camp survey and Naval Civil Engineering Laboratory (NCEL) reference points.
- Twin-Otter-supported aerial photography of station drifting and end of winter status was completed.
- The emergency response turnover drill was completed on 27 October 2007 and the FY08 crew related response duties. Station staff completed training on emergency power plant operations and station fire systems.

The IceCube seasonal equipment camp wintered at the drilling location, versus being stored on the cargo berms. While equipment support for clearing the camp of snow was higher than expected, project personnel were pleased with the result and reported reduced preparation time for the drilling season. The early season opening provided additional capability to clear the camp and develop the road and infrastructure, leading to IceCube's most successful season to date. The project met its season "stretch" goal of 18 deployments, 14 IceTop installations (28 tanks) and surface cable installation into the IceCube Laboratory.

South Pole Area Directorate overhauled and tested two main power plant generators during the FY07 winter season. Station staff diagnosed and corrected ongoing problems with a third generator set tripping off line. The power plant is fully functional and reliable as of the reporting period. The station did not experience a single, unplanned power outage during the FY08 summer season.

Station management reduced station fuel loss by continuing to balance and bring the station control systems into design specifications. The corrections reduced fuel consumption for supplemental heat by approximately 7,500 gallons.

Construction at South Pole met every planned milestone, despite setbacks with labor resources. Hiring shortfalls, physical qualification failures and staff resignations dropped the projected summer construction crew by 10%. By re-focusing resources and transferring critical trades from McMurdo Station, the directorate completed scheduled tasking.

Major Issues

Failure of the elevation drive screw in the gear reducer on the main satellite communications dish reduced satellite connectivity over the winter and created costly repairs during the austral summer.

The handling of contaminated water from the melt water catch basins in the VMF drew both shop availability and labor resources. VMF staff expended 500 hours of labor manually transferring some 8,000 gallons of water, given the lack of water and sewer facilities in the building. When the basins freeze or overflow, the oil-contaminated water presents a significant slip hazard for shop personnel who work in the same area.

With the approaching completion of the Logistics facility, cargo personnel are planning the move into the new building. Existing stockpiles of material (including food, emergency caches, science storage and maintenance spares) exceed the volume capacity of the new facility by a factor of four. While some material is obsolete and should be removed from the station, a large portion is required to support the greater-than-planned-for population levels. In turn, Do Not Freeze (DNF) storage is grossly inadequate. As a result, spaces within the station and outlying buildings are used as a temporary storage solution.

Customer Satisfaction

The AGAP project encountered difficulty with original plans for project support. A revised plan utilized South Pole Station as the staging area for the FY08 project deployments. Eleven personnel plus a supporting air crew operated from South Pole Station and successfully attained a goal of 10 instrument deployments. Station personnel met housing needs by creating a temporary bunkhouse and utilizing an area in the Cryogens Facility to provide a warm work space. Logistics processed inbound LC-130 cargo, outbound retrograde material and Twin Otter cargo with existing staff.

Additionally, RPSC personnel installed a low-power magnetometer instrument for the A-112-M/S project at the AGAP South (AGAP S) field camp.

Due to the location of ATIC and BESS equipment dropped from the LDB launch, payload recovery efforts were staged via South Pole Station.

The Norwegian/U.S. joint traverse encountered equipment problems and was forced to winter the traverse some 200 miles from the South Pole. Station staff provided housing, telecommunications support, DNF storage and cargo support for the shipment of approximately 14,000 pounds of traverse cargo. The station issued 2,200 gallons of fuel to the project to support flights for recovery of passengers and cargo.

South Pole Area Directorate completed specific tasking requested by the NSF/OPP Operations Manager, including: installation of a new survey benchmark, uncovering and evaluating utility cables to the South Pole Remote Earth Science Observatory, and developing a long-range Snow Management Plan.

The division director of Antarctic Sciences, NSF/OPP, passed on appreciation for support of the A-104-S /Mende project at South Pole. The principal investigator reported the project experienced its "best year" for observations and applauded the efforts of the support staff.

The B-179-M/S (altitude symptoms at the South Pole) project completed a two-year study with 248 participants. To facilitate the study, South Pole personnel volunteered off-duty time to participate as subjects.

Station management received letters from the A-115/Jefferies and A-379/Carlstrom projects expressing gratitude for the support provided during the season. Specifically, the science support team and cargo were named for excellent customer service that directly impacted the projects' success.

Value Engineering

Accomplishment: South Pole Area Directorate outsourced the major overhaul of a Caterpillar Model D6D bulldozer to a New Zealand contractor this season.

Benefit: Benefits of outsourcing the service include:

- The rebuild utilizes Caterpillar-approved technicians and specifications, and provides a warranty period.

- The equipment is proven to operate in extreme temperatures and reduces the risk of replacement with new equipment.
- The lifetime owning and operating costs are projected to be $100K less than replacement costs.

B. Program Integration

Coordination with Other Divisions

South Pole Area Directorate coordinated ARFF requirements with NSF/OPP, USAP Airfield Management, South Pole Operations, McMurdo Fleet Operations and SFA personnel.

At NSF/OPP direction, Operations personnel worked with FEMC to affect the turnover of power and water operations to FEMC.

The winter site manager coordinated training requirements for emergency response teams with all hiring managers. The Winter MCI drill was completed on 24 August 2007 and included participation from all departments. A combined emergency response drill was staged during the austral summer with IceCube and RPSC personnel to ensure clear roles and responsibilities.

The South Pole enhanced opening required close coordination between South Pole staff, McMurdo Fixed Wing Operations, Air Services, Kenn Borek Air, Ltd. and the NSF/OPP. The directorate tracked flight movements with routine departure messages to record passenger and cargo movements and arranged for baggage handling to maximize passenger totals.

McMurdo Station staff supported South Pole with the disassembly of the manlift and Caterpillar Model 953 loader to prepare the equipment for shipment. A mechanic traveled to South Pole to assist in reassembly.

The second C-17 airdrop took place on 19 December 2007. The airdrop tested delivery of 20 containerized delivery system (CDS) bundles of approximately 1,000 pounds each. Airdrop using CDS bundles appears effective for winter emergency drops. The smaller bundles are more compatible with available equipment and colder operating temperatures. USAF and RPSC personnel planned the drop, completed safety briefings and prepped the drop zone prior to the event. Personnel from the McMurdo Station ATO and New Zealand Defense Forces prepared the bundles for airdrop.

McMurdo Station provided janitorial assistance to deep clean the elevated station.

South Pole Mechanics performed preventative maintenance on the South Pole Traverse Pisten Bully and five tractors in the garage shops, saving the traverse labor on its return trip to McMurdo Station.

McMurdo Station ATO, the NSF/OPP representative and South Pole personnel coordinated day trips for McMurdo Station staff to visit South Pole. Ground time was approximately two hours with groups of 10 plus a group leader. The day trips allowed McMurdo Station personnel to witness SPSM project results.

C. Innovation & Process Improvement

Technical Solutions

Solution: Station management developed and publicly displayed resource tracking graphs to increase awareness of critical fuel, power, and water resources.

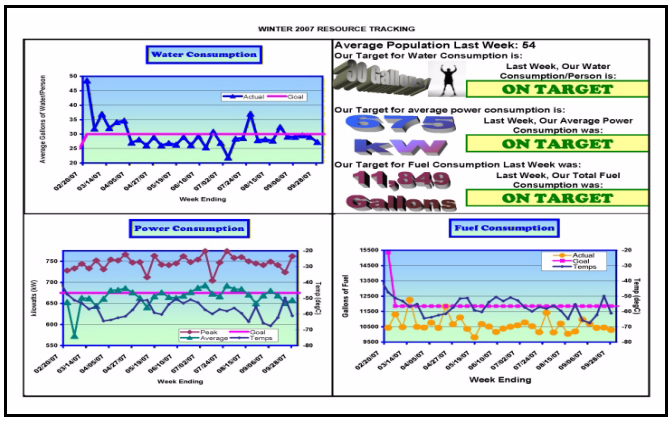


Figure SP - 31: Winter 2007 Resource Tracking

Benefit: The program raised awareness of critical station resources and conserved power, fuel and water.

Solution: The station purchased a Kurtti land plane for skiway and road maintenance. The land plane has been utilized in other areas of the program and its performance characteristics are known.

Benefit: The plane frees up assets, as it requires only one piece of heavy equipment for skiway and road development and maintenance. The previous system required two operators and two bulldozers.

Visionary Management

Accomplishment: RPSC successfully managed increased numbers of NGA visitors (tourists and adventurers), as well as mixed supported/non-supported groups, such as the Chilean expedition.

Benefit: Successful management of the groups demonstrates NSF/OPP diplomacy. As global boundaries continue to diminish, strengthening the NSF/OPP's relationships with international groups creates new opportunities for leading science. As the number of visitors and support organizations increase, RPSC will coordinate with the NSF/OPP to review, revise and improve policies to enhance Program ambassadorship.

Accomplishment: Meetings with the New Zealand Caterpillar dealer Goughs defined requirements for a subcontract to provide maintenance assistance from Christchurch.

Benefit: The Goughs proposal shows long-term cost benefits to the USAP. The parties initiated several proposals to benefit South Pole and McMurdo stations, including:

- Major maintenance support for McMurdo Power Plant
- Major reconditioning of the Caterpillar Model D6D bulldozer for South Pole vehicle fleet, saving some $10 per operating hour over the next decade.
- Technical support for the South Pole Power Plant staff will improve the operation's ability to obtain manufacturer updates and improve the ability of power plant personnel to evaluate and correct problems on site.

Accomplishment: Snowmobile maintenance was coordinated with the McMurdo Station MEC and is now completed at McMurdo Station.

Benefit: The change decreases workload and mitigates South Pole shop space concerns.

Responsiveness to Challenges

Issue: The valve sets on three cylinders of Engine #1 in the South Pole Power Plant showed excessively rapid wear. Valves typically should be replaced every 10,000 hours of operation. However, the three sets required replacement after only 1,000 hours of operation. Operations staff observed the excessive wear during a routine maintenance cycle.

Response: Station staff replaced the three cylinder heads with on-hand repair parts. The three assemblies will be returned to the manufacturer for a warranty analysis. The Operations staff detected the problem early. Because the engine operating hours were low, the problem could have easily been overlooked. Had the valves continued to wear excessively, a major failure would have occurred rendering the engine inoperative for the remainder of the winter season.

Issue: Both RPSC and NSF/OPP expressed serious concerns regarding the reliability of the South Pole Power Plant.

Response: The Power Plant crew identified and corrected transient electrical problems with the #3 engine-generator and issues with the #2 engine-generator not carrying rated load, causing brown outs and power outages when the peaking generator was offline. The crew replaced a failed exhaust gas heat exchanger on the #2 engine-generator and coordinated a solution to the problem with the NSF/OPP design team. Station personnel executed a schedule of maintenance activities for the summer season, bringing all engines into a regular schedule cycle. Staff ordered additional spare parts so as to respond to unexpected failures. As a result, the power plant has since operated reliability with no outages since the start of FY08 summer.

Issue: Fuel spilled from the palletized cab of a piece of equipment being shipped to McMurdo Station for the ITASE traverse. The NYANG notified station personnel that the incident required an investigation and that cargo was not manifested as hazardous.

Response: Upon investigation, the South Pole Area Directorate discovered one palletized Challenger cab (removed from the main chassis by the South Pole Heavy Shop) was shipped 17 January 2008 on flight P188R. During the disassembly process, staff failed to advise the Cargo department that the cab section contained hazardous substances, such as fuel or spillable batteries. Cargo personnel had palletized and manifested the cab sections as normal cargo with no hazardous declarations. A follow-on investigation with NYANG determined the oversight constituted an isolated incident. Station management implemented five corrective actions to prevent reoccurrence.

Issue: An aircraft incident eliminated the Basler BT-67 aircraft from the available fleet for the remainder of the season.

Response: South Pole managers reviewed the summer schedule to determine the impacts of a shortened closing period. The original plan called for three Basler flights after the 15 February scheduled close of LC-130 operations. Personnel reprioritized tasking to complete the summer/winter transition by 15 February.

Issue: The growing fleet of equipment and associated maintenance requirements challenge existing infrastructure.

Response: Station personnel identified equipment for the reuse resale program, including a manlift, Mantis crane and pickup truck. The resale will free shop space. South Pole replaced one of the retrograde vehicles with a more reliable unit. The other two vehicles reflect a reduction in fleet size.

AREA DIRECTORATE — PALMER

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
AD		*AD*	*TOTALS*	[redacted]	[redacted]	[redacted]%	[redacted]
29	Accuracy of hazardous waste shipments.	>99% accurately documented and packaged per line entry.					
30	Spill Severity Index (SSI) Tracking.	>=10% reduction in spill index compared to KY07.					
31	Efficiency of Solid Waste Operations.	90% solid waste containers collected.					
54	Station-based heavy and light rolling stock preventive maintenance (PM) work orders performed on time.	>=95% of PM work orders completed on time.					
55	Equipment availability based on VMF repair work orders.	>=92.5% light vehicle and heavy equipment					
56	Prepare and maintain piers and airfields.	Zero flight delays or 1 vessel delay of 60 minutes or greater.					
			TOTALS	[redacted]	[redacted]	[redacted]	[redacted]

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

Figure PAL - 32: Division Metrics

PALMER STATION

A. PROJECT MANAGEMENT

General Management

The support team at Palmer Station improved station facilities and supported an ambitious science season and visitor schedule. Contract year highlights included upgrades to key systems and improved integration with Marine Operations.

Station management secured alternate transportation for the NSF/OPP Facilities Engineering projects manager to visit Palmer Station for a week in December. The directorate gained valuable insight from the visit and took steps to improve related processes and facilities.

While only 10 scheduled tour ships called at Palmer Station, the station also hosted 18 private yachts and three visits from other national Antarctic programs and military vessels.

In total, Palmer Station hosted more than 3,000 visitors during KY08. Station staff offered presentations to 3,500 visitors—1,500 of whom also toured the station.

Following the transition of Marine Operations to Palmer Area Directorate, Palmer Station and Marine Operations lab and logistics staff improved lab equipment allocation and better managed inventories at the Punta Arenas, Chile, warehouses.

Major Issues

The accumulation of wax in one of the Palmer Station bulk fuel tanks triggered a brief power outage in October 2007. RPSC will deploy a team in June 2008 to determine proper remediation of the wax. In the meantime, the station transitioned to a separate bulk fuel tank.

Customer Satisfaction

The austral summer science season at Palmer Station began in October and continues through the 2008 winter season. The Palmer Station science teams and visiting artists praised the efforts of the staff in outbrief comments.

B. Program Integration

Coordination with Other Divisions

Palmer Station management worked with Logistics and Marine Operations staff to reduce stored materials at the Punta Arenas warehouses. Teams from each work center assessed stored materials and identified excess stock for resale or disposal. As a result, the Punta Arenas warehouses are now better organized and less crowded.

Palmer Station lab staff worked with the FEMC team to safely demolish the old chemical storage lockers. New lockers are being installed without significant impact to station science operations.

Figure PAL - 33: New Palmer Station Chemical Locker

In response to the Palmer Station pier mooring pin failure, station management coordinated with FEMC, Marine Operations, Procurement, and Port Hueneme Operations; the LMG captain; and AGUNSA (RPSC's Chilean agent) to design, procure, deliver, and install a new bollard system for mooring the vessel.

C. Innovation & Process Improvement

Technical Solutions

Solution: Mooring the vessel to the Palmer Station pier relied on a system of mooring pins and hooks anchored into the rock on Gamage Point. The mooring pins have failed more frequently in recent years, most notably the multiple failures in September 2007. With the aid of several other RPSC divisions, the directorate installed a new bollard system to replace the mooring pins.
Benefit: Tying the vessel to bollards provides a secure anchor, allowing the vessel to safely moor to the pier even during heavy swells and high winds.

Visionary Management

Accomplishment: The seawater pump house piping redesign was completed during the KY08 winter season.
Benefit: The new configuration allows each pump and valve to be isolated while keeping the system running. The redesign greatly improved the system's reliability.

Responsiveness to Challenges

Issue: The mooring point failure during LMG port-call operations in September made it impossible to safely secure the vessel to the pier for cargo offload. As a result, the ship could not use the pier to offload personnel and cargo until replacement bollards were installed in November.
Response: Despite often challenging wind and sea ice and demanding physical requirements, personnel used Zodiac boats to supply Palmer Station with required scientific equipment, break bulk cargo, and to safely ferry personnel between ship and station during three port calls in September, October and November.

Issue: In early October, Palmer Station experienced a power outage when cold fuel from the day tank of the Garage, Warehouse, and Recreation Building caused wax to precipitate out of the fuel and clog the filters.
Response: Station personnel transferred fuel to the day tank more frequently and in smaller quantities to allow the fuel to warm before entering the filters. In addition, staff warmed the filters and changed them more frequently. This allowed the station to continue operations until the LMG delivered new fuel in November. See the *Major Issues* section for additional detail.

Issue: Some 300 gallons of fuel spilled from the Biology Lab day tank when a valve was left open during fueling operations.
Response: The Palmer spill response team responded quickly and cleaned up the spill with community members' assistance. To mitigate the risk of future spills, station management updated fueling procedures and initiated a project to install overfill prevention on both day tanks.

MARINE OPERATIONS

A. PROJECT MANAGEMENT

General Management

In KY08, Marine Operations successfully supported eight, extensive science cruises and a 31-day dry dock period aboard the NBP. The LMG completed 10 combined science and shuttle cruises, a hazardous materials shuttle run from Palmer Station to Port Fourchon, Louisiana, and 23-day dry dock period. In addition, Marine Operations supported, for the first time, a 38-day multi-national science cruise aboard the Swedish Icebreaker *Oden*. The events occurred as the directorate managed the transition of Marine Operations from Science Support and the departure of several long-term senior and mid-level management personnel (see *Major Issues* for more information).

Major Successes

As a result of the successful automation of hourly meteorological reports from USAP ships at sea to the National Oceanic and Atmospheric Administration (NOAA) Voluntary Observing Ship Climate program during KY08, meteorological data are now available in almost real time for use in weather forecasting, climate modeling and ground truthing of new climate-monitoring satellites. The automation marks a significant achievement as NOAA has attempted this goal for its own survey and research vessels for several years. Marine Operations now works with NOAA to provide its vessels, and possibly those of the University-National Oceanographic Laboratory System fleet, with this automated data transfer capability.

Marine Operations made significant progress to move the ARSV Project forward in KY08. The department released a draft RFP in late September 2007, hired a naval architect/marine engineer as a technical consultant, held a pre-solicitation meeting with potential bidders in October, and released the final RFP on 5 December based on input from the meeting. In February 2008, Marine Operations held individual conferences with four potential bidders. See the *Contracts* and *Procurement* sections for additional detail.

Major Issues

Fire broke out aboard the NBP on 4 September 2007. RPSC management recommended to the NSF/OPP that the ship be recalled to Punta Arenas to fully assess the damage and potential health impact to the personnel aboard. Once back at port, the smoke- and soot-damaged systems were cleaned, repaired, or replaced with spares from the LMG or with equipment flown from RPSC in Denver. The vessel returned to service within approximately one week, continuing its science mission with functional equipment. Additional repairs occurred during a subsequent two-week port call.

For the first time in the RPSC contract, Marine Operations experienced significant turnover of fulltime personnel, losing two senior managers and five mid-level managers (two marine technician supervisors, two planning support managers and the assistant Marine Lab supervisor). As the department filled four of the open positions, turnover of veteran personnel resulted in a loss of institutional memory and continuity.

Despite reduced staffing and addition of new personnel throughout the year, Marine Operations met all major commitments and operational requirements.

Customer Satisfaction

Marine Operations received specific accolades for its routine high level of customer service and satisfaction on 17 of 18 outbriefs submitted by disembarking LMG and NBP science parties in KY08 (with the NBP07-09 cruise being the sole exception). Grantees commended the group effort, naming several individuals for noteworthy service.

Value Engineering

Accomplishment: Marine Operations worked with Geometrics, Inc., to procure a newly designed, solid seismic streamer, as no other solid single-channel streamers were available worldwide.

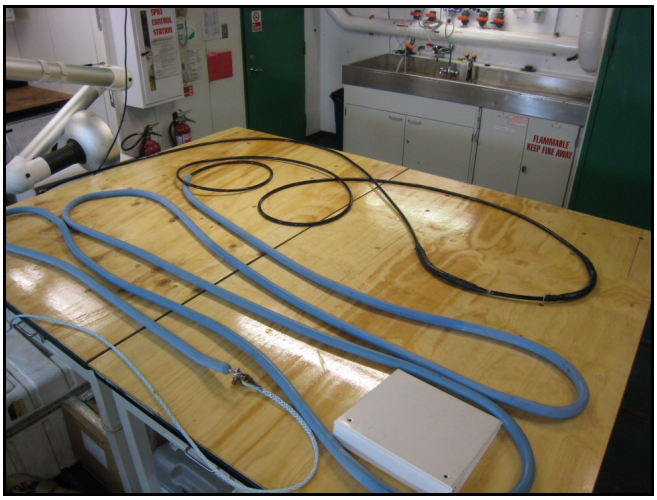


Figure PAL - 34: New Geometrics Solid Seismic Streamer

Benefit: The department replaced the oil-filled, single-channel seismic streamer, lost at sea during operations, with a more environmentally friendly, solid streamer to mitigate future environmental risks and to increase the capability to operate in ice. The new seismic streamer features 12 channels and uses a new patent-pending material called "Spherethane." The new solid streamer has proven rugged and provided outstanding seismic data in the ice-filled waters of the Ross Sea.

B. Program Integration

Coordination with Other Divisions

Following the fire in the NBP Biology Laboratory during cruise NBP07-9, Marine Operations personnel worked with two, RTSC EH&S safety specialists and an industrial hygienist from Liberty Mutual Insurance to assess health and safety risks onboard. This was an excellent example of corporate reachback support.

Marine Operations and Vessel IT cleaned, repaired, or replaced much of the IT and electronic equipment affected by smoke and soot. For the following several days, RPSC staff returned the ship's critical IT infrastructure to working order before the NBP departed for the remainder of cruise NBP07-09.

Marine Operations; IT/Science Support, Stations and Vessels; Procurement and Logistics identified, purchased and delivered approximately $400K total of replacement IT and other electronic equipment for the NBP post-fire recovery.

Palmer Area Directorate, Marine Operations, IT, PMO technical writing staff, Procurement Subcontracts, and Contracts completed the RFP for the ARSV re-bid project. In addition, representatives from Marine Operations, Procurement Subcontracts and Contracts organized and conducted the bidders' pre-solicitation meeting in October 2007, with members from all groups helping to organize and participate in the follow-on individual bidders' conferences in February 2008.

With just under seven weeks lead time for the I/B *Oden* cruise, Marine Operations cooperated with Procurement Subcontracts, Port Hueneme Logistics, and [redacted] to identify, procure, and deliver to Punta Arenas, Chile, the required containerized motor-generators and ancillary equipment, to secure the container aboard the I/B *Oden*, and to connect and test the equipment and science vans it was designed to power. As a result, the cruise achieved its science goals.

C. Innovation & Process Improvement

Technical Solutions

Solution: Marine Operations installed new sonar windows on both the NBP and LMG. The effort required redesigning the old window installations that leaked and replacing the window material, which greatly attenuated the sonar signals, with optical polycarbonate, a new material that is more acoustically transparent. Both efforts constituted world “firsts” in the marine technology field.

Benefit: The new windows are watertight and provide a 20% increase in the acoustic transmission depth range on both vessels. In contrast, the previous installation required expensive, emergency dry dock periods to repair the leaks; and limited both data volume and quality for science events O-315-N and O-317-L.

Figure PAL - 35: New Optical Polycarbonate Sonar Windows Installed on the Under Side of the NBP While in Dry Dock in Talcahuano, Chile, in July 2007.

Solution: Marine Operations designed and implemented a portable, self-contained motor-generator system to supply 440-volt and 208-volt, 60-hertz electrical service to USAP equipment needed aboard the I/B *Oden*, which is only capable of providing European-style 380-volt, 50-hertz electrical service.

Benefit: The two motor-generators successfully provided 440 volts to run the trace metal winch and the radioisotope van; and 208 volts to power a refrigeration van, a van housing the nutrient analyzer, oxygen titrator and fluorometer, and a clean van used for trace-metal sample analysis.

Responsiveness to Challenges

Issue: The fire on the NBP demonstrated that, although there were comprehensive procedures for the safe storage and transportation of potentially hazardous chemicals, the procedures required update and better communication and enforcement.

Response: The department updated its procedures to improve the handling and management of chemicals on both the LMG and NBP. The procedures emphasize shared oversight between RPSC and [redacted] in managing laboratory practices, hazardous materials, and storage of the materials. RPSC and [redacted] signed two cooperative agreements regarding vessel safety and chemical management, including a work-stoppage agreement and comprehensive agreement concerning the cradle-to-grave chemical handling aboard ship. Marine Operations also expanded the bridge report to include all experiments and related procedures used by grantees in the vessel laboratories. RPSC personnel will deliver the report to the bridge crew on the first day of each cruise. These reports are now laboratory specific and are reviewed with the Master to ensure that watch officers are aware of the science being performed in each lab, chemicals in use and its location, and the chemical storage available in the space.

Issue: Marine Operations was tasked with supporting an ambitious science project aboard the I/B *Oden*. The planning and preparation for this cruise was compressed into an eight-week period following an early-October kickoff meeting in Sweden. The accelerated timeline affected all aspects of the planning process—budgets, procurements, shipping, staffing, medical clearances, ship modifications, equipment setup and testing, and general preparation. The tight timeline constituted the most significant challenge to supporting the I/B *Oden* work.

Response: Marine Operations staff reviewed the challenges to support the I/B *Oden* and developed a comprehensive report for the NSF/OPP outlining the lessons learned. Staff will use the recommendations to improve the planning and execution of future USAP science onboard the I/B *Oden*.

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Figure PAL - 36: I/B Oden during USAP Operations in November and December 2007. (Bottom left inset: CTD operations during transit between Punta Arenas, Chile, and McMurdo Station; center: Port of call in Punta Arenas; Upper right inset: Icebreaking in the Ross Sea.)

Lessons Learned

Marine Operations will investigate a new approach to dry dock based on its experience with the two 2007 dry dock periods. The evolutions presented planning and schedule difficulties and raised environmental, health, and safety concerns related to the shipyard setting.

The department will continue to schedule below-the-waterline work that can only be completed in dry dock, but will look to take the vessel off hire whenever reasonable for vessel maintenance and repair. RPSC projects could then be segregated to avoid competition for shipyard resources.

AREA DIRECTORATE — CHRISTCHURCH

A. PROJECT MANAGEMENT

General Management

The Christchurch Area Directorate eliminated its meet-and-greet function, reduced its staff due to restructuring, and oversaw the roll out of new security processes, all the while continuing to deliver high-quality customer service to USAP participants.

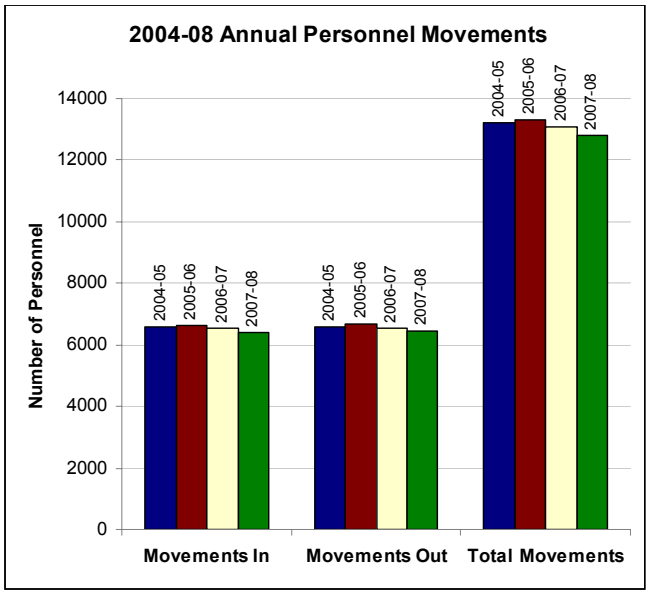


Figure CHC - 37: 2007-2008 Personnel Movements

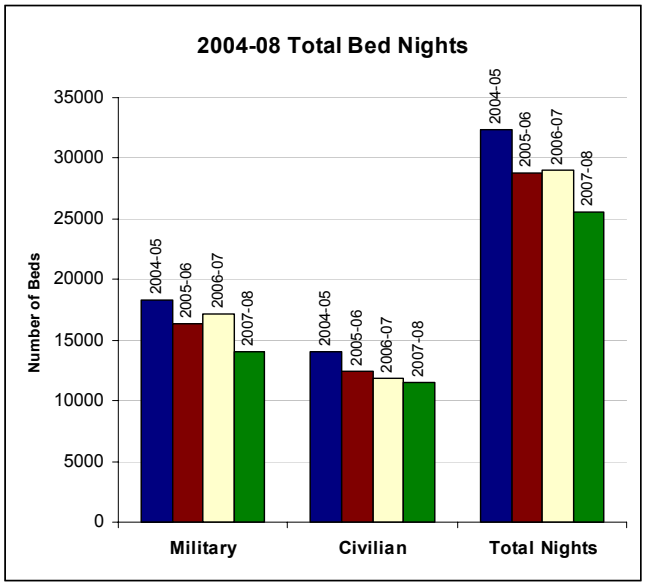


Figure CHC - 38: 2007-2008 Total Bed Nights

Compared to the C-141 unit, the reduced footprint of the C-17 deployed personnel caused a steady decline in military-bed nights. The 2007–2008 decline stemmed from the following factors: later-than-normal LC-130 deployment; Christchurch-based New Zealand Defense Force (NZDF) accommodation transitioning to Antarctica New Zealand; and most C-17 crew and aircraft swap-outs occurring the same day, versus overnight in Christchurch.

Major Successes

During the non-operational period and after years of discussion and planning, the directorate modified the Administration Building and Air Post Office (APO) to meet the U.S. Department of State (DoS) security standard. The project management team—including the NSF/OPP, DoS, management staff from Christchurch and members of the Project Management Office (PMO)—contributed to the project's success.

During the same period and with no impact to ongoing operations, the Christchurch directorate upgraded the Christchurch Internet circuit from 2 Mbps to 10 Mbps, utilizing new fiber-delivered service. The new circuit improves the performance by five times and reduced annual costs by US$21,100 annually.

Customer Satisfaction

The NSF/OPP accepted the directorate's proposal to reduce the requirement for extreme cold weather (ECW) clothing worn or carried on flights to McMurdo Station. In concert with the change, Christchurch Area Directorate introduced a 'boomerang' bag, immediately available to passengers in the event a flight aborted. The bag will likely reduce the size of the carry-on bags required by passengers.

Value Engineering

Accomplishment: The Christchurch travel staff eliminated its meet-and-greet function as a cost saving measure. Related to the decision, RPSC established a process to electronically distribute information to participants prior to departure, rather than on site in Christchurch. The electronic information provides the traveler with accommodation detail, contact numbers and information relevant to the Christchurch stay. Responding to initial negative feedback, RPSC

subsequently offered a vehicle to assist grantees in transporting equipment to the CDC.

Benefit: Based on customer satisfaction survey data, elimination of the meet-and-greet function was effective and allowed RPSC to reduce seasonal staff from four to two, saving approximately NZ$30K.

Accomplishment: In previous years, the directorate returned unserviceable 463L aircraft cargo pallets to the United States for repair. After discussion with the SFA Command, Christchurch Terminal Operations transitioned such repairs in-house.

Benefit: The initiative proved successful and saved the program approximately US$12K, largely attributable to negating the shipping and return of the pallets.

B. Program Integration

Coordination with Other Divisions

The RPSC Medical Department identified a need for prompt return of critical MedEvac equipment to McMurdo Station. In response, Christchurch Terminal Operations produced a dedicated shipping container, held at Christchurch, specifically for return of MedEvac-related items. The directorate also created a policy that MedEvac equipment will receive priority handling for return on the next available flight, even if the flight is not scheduled to transfer cargo.

After six, consecutive days of weather delay, Christchurch Area Directorate coordinated with the USAF to fly four, quick-turn-around C-17 missions between 10 to 12 November 2007 to get back on schedule. The unprecedented flight tempo transported 179 passengers and 318,127 pounds of cargo from Christchurch to McMurdo Station.

C. Innovation & Process Improvement

Technical Solutions

Solution: When it became necessary to replace an LC-130 external fuel tank, Christchurch Terminal Operations recommended and utilized a pre-scheduled, USAF-funded, C-17 flight to transport the tank from the United States to Christchurch.

Benefit: The initiative successfully delivered the tank free of charge, saving the USAP approximately US$20K.

Visionary Management

Accomplishment: By utilizing NZDF personnel deployed as part of Antarctica New Zealand's contribution, Christchurch Terminal Operations reduced its seasonal staff in the Christchurch air cargo yard by one position.

Benefit: The staff reduction saved US$12K, with zero operational impact. In fact, nearly 10 million pounds of cargo moved to and from Christchurch during the 2007–2008 cargo year, an increase depicted on the graphs below.

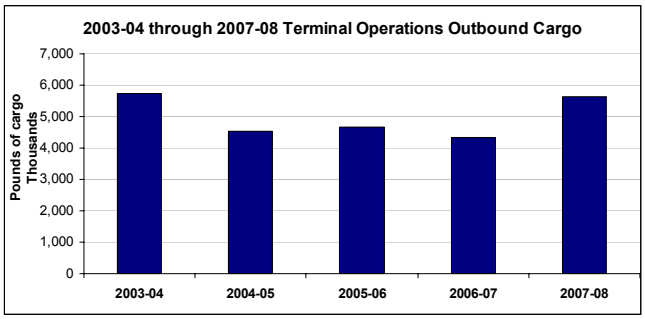


Figure CHC - 39: 2007-2008 Christchurch Outbound Cargo

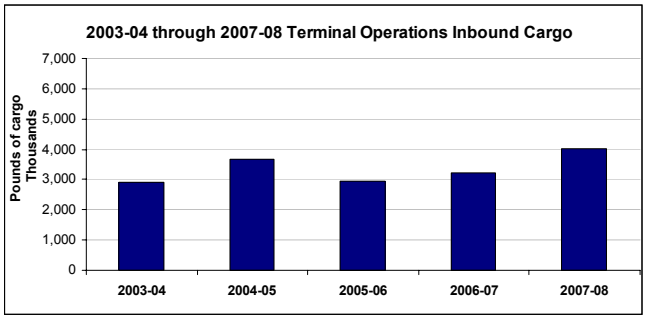


Figure CHC - 40: 2007-2008 Christchurch Inbound Cargo

Accomplishment: Related to its restructuring, the directorate reduced its administrative staff by one position and instead hired a seasonal employee for administration and reception functions.

Benefit: The staff cut saved approximately US$17K.

Accomplishment: Eliminating the meet-and-greet function minimized the travel office staff.

Benefit: Reducing two, seasonal staff positions saved US$22,700.

Responsiveness to Challenges

Issue: The Christchurch directorate saw an increased requirement to transship genetically modified organisms (GMOs).

Response: The directorate developed a procedure to facilitate GMO transshipment. Clear communication with both grantees and the New Zealand Environmental Risk Management Authority resulted in all consignments permitted prior to the grantees' deployment. The number of science samples transiting New Zealand remains constant; however, due to the consolidation of permit requests, the total number of Ministry of Agriculture and Forestry (MAF) permits has declined.

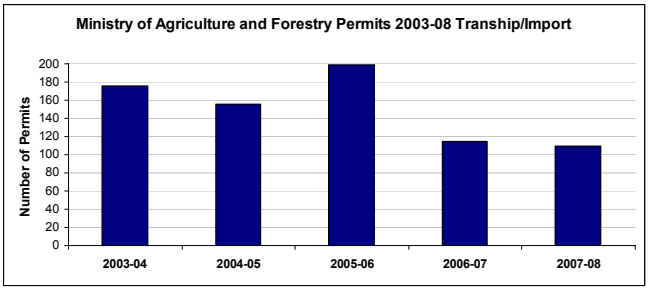


Figure CHC - 41: 2003 Through 2008 MAF Permits

SCIENCE SUPPORT

KY08 PERFORMANCE REPORT

Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Sci		*Sci*	*TOTALS*	[redacted]	[redacted]	[redacted]%	[redacted]
1	Assessment of currently allocated resources for McMurdo-based groups to NSF by 30-Sept (or following Monday if the 30-Sept falls on a weekend), of the Contract Year.	Resource assessment / allocations delivered per schedule. 30-Sept due date may be modified by mutual agreement with the NSF.	[redacted]				
2	Timely delivery of Research Support Plan (RSP) to Grantee.	Zero RSPs not electronically available at least 6 weeks prior to deployment.	[redacted]				[redacted]
3	Delivery of Draft Operations Review Memos to the NSF	2 weeks after the RPSC Lead Planning Support Manager (or designee) receives a request from the NSF Research Support Manager to provide the draft Ops Review Memo for the funded project.	[redacted]				[redacted]
4	Develop the South Pole LHe Winter Support Plan with LHe Working Group (LHeWG)	Develop and post the South Pole Winter plan no later than 15-Septmember of the contract[redacted]	[redacted]				
5	Develop the South Pole LHe Summer Support Plan with LHe Working Group (LHeWG)	Develop and post the South Pole Summer plan no later than 1-August of the contract[redacted]	[redacted]				
6	Develop the Air Operations Planning Summary	Develop and convey the summary to NSF no later than 1 Oct of the contract[redacted]	[redacted]				
7	Management of Laboratory and Observatory Space at McMurdo (3 pts.), Palmer (2 pts.), and Pole (2 pts.).	100% availability of lab space.	[redacted]				[redacted]
8	Management of Critical Lab Equipment and Instruments McMurdo (5 pts.), Pole (3 pts.), and Palmer (4 pts.).	99% availability of critical lab equipment and [redacted]	[redacted]				
9	Management of Cryogenic Services at: South Pole (Summer only: 1 Nov thru 15 Feb).	<= 5 unproductive science days.	[redacted]				
10	Management of Cryogenic Services at: South Pole (Winter only: 16 Feb thru 31 Oct).	<=3 unproductive science days (normalized for weather and airplane delays).	[redacted]				
11	Management of BFC critical equipment.	>=99% of equipment issued.	[redacted]				
12	Management of MEC critical equipment.	>=95% of equipment issued.	[redacted]				
13	Science Construction's timely construction, opening and closing of all science support facilities in the field (including those near and within existing Stations), normalized for days lost to bad weather and unavailability of aircraft.	100% of projects completed on schedule.	[redacted]				
14	Availability of mission critical material and equipment for use on research cruises during the contract years.	3 or less PIs rate less than Good or Excellent.	[redacted]				
15	Cruise departures on-time.	5 or fewer days of late departures during contract year for LMG and NBP (combined)	[redacted]				
16	Customer Satisfaction	RPSC scores 95% or better with ratings of Satisfactory or better.	[redacted]				

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure Science - 42: Division Metrics

PLANNING GROUP

A. PROJECT MANAGEMENT

General Management

The Science Planning Group experienced a successful year that included support for the first season of IPY projects, a second IPY proposal review, and notable changes to the operational review process. The group supported 142 deploying science, technical, and artist and writer events as follows: 124 science events, 11 technical events, and seven artists and writers. McMurdo Station hosted 106 of the events, South Pole Station 24, and Palmer Station 25, with the artists and writers supported across multiple locations.

Note: *Groups supported at multiple sites are included once for each site. Therefore the station totals exceed the number of events. The graph below illustrates the breakdown of projects by discipline. Also, the 2007–2008 project total represents a new baseline that does not include vessel-based projects.*

The planning group supported several large projects including ANDRILL, WAIS Divide drilling, CReSIS, the Biology Training Class (B-301-M/Manahan), and the McMurdo Long-Term Ecological Research (LTER) site review. The group supported three, LDB projects: ATIC (A-143-M/ Wefel), BESS (A-140-M/Mitchell), and Cosmic Ray Energetics And Mass (CREAM) (A-137-M/Eun-Suk Seo). The group also supported the first IPY projects, including the AGAP initiative, POLENET, and the Polar Night Extended Season research.

Working closely with the NSF/OPP, the planning group made significant progress to improve the operations review process. The group created a new Operational Request Worksheet (ORW) summary and posted resource availability information at www.usap.gov to assist researchers in completing ORWs.

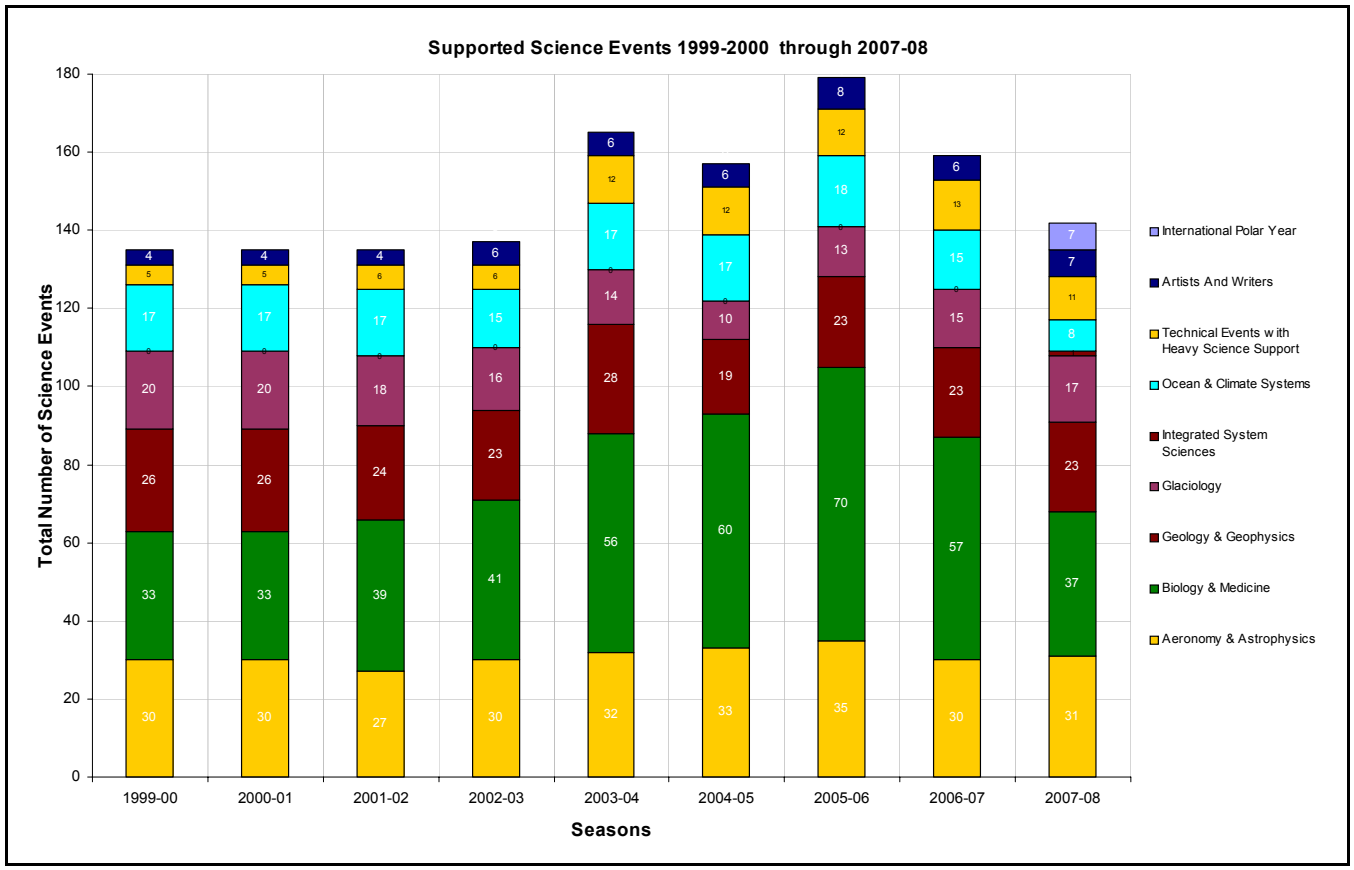


Figure Science - 43: Supported Science Events 1999-2008

Major Successes

Despite NSF/OPP funding in late September 2007, the AGAP Project was managed successfully and achieved the planned installation of 10 seismometers in East Antarctica for G-055-M research. Further, four field camp structures were completed at the AGAP S field camp site, which forms the foundation of the field camp required to support FY09 research.

The planning group worked with Marine Operations to complete full reviews of all Priority 1 IPY proposals on an accelerated timeline during July 2007.

The review constituted an additional proposal review for the year, and occurred at the same time the group supported a full suite of projects for the upcoming field season. The group also worked closely with the NSF/OPP to refine the process of writing operational reviews and receiving principal investigator (PI) concurrence for funded science projects. As part of this process, the planning group implemented a system to request incremental funding for new projects so each project is funded to a level agreed upon by the PI, NSF/OPP, and RPSC.

The Science Planning Group developed a new ORW summary report from POLAR ICE and resource availability charts on www.usap.gov to encourage researchers to take ownership of the project's operational costs and logistics. Working with South Pole Area Directorate staff, the group developed a concept of "South Pole core science" that defines the support level available to small projects, ensuring that related resources are not consumed by very large projects at the station. This concept outlines the level of support available each season to science that does not require major construction. By defining this baseline, the group is able to support a rotating portfolio of small science projects concurrent with the large projects, like IceCube and SPT.

Major Issues

Defining the process and language of the operational reviews constituted a key challenge for the planning group in KY08. The NSF/OPP views the operational review as an authoritative document that clearly allocates available resources and identifies the incremental funding needed to support a project. To that end, the group defined a standard operational review template with directions for definitive wording that leaves no room for interpretation regarding intended support.

The continuing resolution for FY07 prevented the Antarctic Science Division program officers from making funding decisions as early in the calendar year as usual. The delay caused the group to enter the planning season without a full suite of NSF/OPP-funded projects. The group accommodated the delay by starting the SIP process with all top-priority projects, in anticipation of eventual funding. The approach was effective and resulted in most projects completing SIPs according to the normal planning schedule.

Customer Satisfaction

Two Science Support employees and one employee from Marine Operations, including the planning group lead, rotated to the NSF/OPP for a total of six weeks ending the first week of August 2007. The three rotators assisted the NSF Antarctic Infrastructure and Logistics (AIL) and Antarctic Science with SIPs, operational reviews, and a variety of other tasks.

The group coordinated a site review for the LTER project. Based on outbrief comments, the PIs were satisfied with the support for the site visit and the review outcome. The review panel was impressed with the support, especially when considering the difficulty of providing such support in a remote environment.

In project outbriefs, the efforts of the Science Planning Group were recognized as excellent by most scientists.

B. Program Integration

Coordination with Other Divisions

The Science Planning Group coordinated with South Pole Area Directorate staff to develop a concept of "South Pole core science" as described under *Major Successes* above.

The ANDRILL project successfully completed its second year of ocean drilling, reaching 1138.54 m below sea floor, exceeding all expectations according to the co-chief scientists. ANDRILL represents the successful coordination of several RPSC divisions to erect and fuel the drill camp, recover the core for analysis at McMurdo Station (in the Crary Lab and associated ANDRILL lab structures), and prepare the core for shipment to Florida State University on the M/V *American Tern* in February 2008.

Planning Group continued to refine the process for publishing the Science Planning Summary. The group improved the process by which POLAR ICE exports text directly from the SIPs. The group also collaborated successfully with the technical writers in the PMO to ensure quality editing. The web development team played a critical role in publishing the Science Planning Summary online, which has become the primary delivery medium to save publishing and shipping costs.

C. Innovation & Process Improvement

Technical Solutions

Solution: The planning group worked with the POLAR ICE development team to develop an ORW summary report for proposing researchers to submit as part of the NSF/OPP science proposal.

Benefit: The ORW summary provides a succinct report of major logistics requests for the NSF/OPP proposal review panels to assess the full scope of each proposal. The feature allows a peer review of total project support, not only the science aspect.

Solution: The group completed a summary of major-resource availability for researchers to reference on www.usap.gov during the proposal submission process.
Benefit: Proposing researchers can see general availability of major resources for the next several seasons, mitigating the potential for resource conflicts.

Visionary Management

Accomplishment: The group met with the NSF/OPP in early November, resulting in several initiatives to improve the resource assessment process of the science proposals. Two of the initiatives are outlined above under *Technical Solutions*: an ORW summary report from POLAR ICE and resource availability charts at www.usap.gov. Additionally, the group revised the ORW to better capture the true costs of a project, including instruments, equipment, and laboratory supplies.
Benefit: The changes support the NSF/OPP initiative to promote PI accountability for managing the logistics and operational resources allocated to their projects.

Accomplishment: The Science Planning Group developed an out-year science support concerns report to capture the largest issues facing upcoming science projects. This report consolidates outstanding issues into a single repository. The group presented a weekly update to the NSF/OPP.
Benefit: Tracking concerns in a single location will keep the issues visible to stakeholders, assist the group in making decisions earlier in the planning season, and prevent last-minute surprises.

Responsiveness to Challenges

Issue: The group received POLENET project funding two months prior to the start of the field season, delaying the purchase of critical equipment and execution of a subcontract with Antarctic Logistics and Expeditions (ALE) at Patriot Hills.

Response: Science Support worked with the NSF/OPP and VECO to obtain several Weatherhaven tents in advance of the long lead-time delivery of Polarhaven tents. The group coordinated in advance with ALE to execute the subcontract immediately upon release of funds. The POLENET group was ultimately very successful in its work from Patriot Hills.

Lessons Learned

RPSC was not funded for the AGAP project until September 2007, with an expectation that the project would deploy in November 2007. While the original project intent was to provide incremental funds for a planning season, the new process of providing funding only upon concurrence of an operational review hindered the group's ability to formally request the funds.

The group learned that if a project will require a planning phase for long lead-time procurements, engineering and design work, or other advance items, it must develop a matching pre-approval operational review to request release of the funds before developing all project plans.

Future Plans and Visions

The Science Planning Group anticipates that field support will continue to grow rapidly in the future. The total number of grantees deploying during the 2008–2009 season is slightly less than in the 2007–2008 season. However, the number of person-days in the field may increase by up to 2,000 days.

The planning group is currently working on plans to support a helicopter camp at the Pine Island Glacier, a new hub in West Antarctica, and a drilling camp at Roosevelt Island. The group is also working with South Pole Area Directorate to determine support options for deep-field projects moving through South Pole Station. In the future, the group sees the science community's desire to support another helicopter camp in the Transantarctic Mountains and is working with the NSF/OPP to determine when such an effort is supportable. The group plans to work closely with Field Science Support and FEMC Science Construction to determine a realistic growth rate that allows resources to keep pace with demand.

LAB OPERATIONS — MCMURDO

A. PROJECT MANAGEMENT

General Management

Laboratory Operations at the CSEC experienced no turnover of fulltime staff during KY08. And while 40% of the contract staff were new to CSEC, only 20% were new to the USAP. Such continuity helped Lab Operations provide a smooth transition to the WinFly and Mainbody seasons.

For the majority of the summer season, labs and office space were filled to capacity. More than 80 science groups—500-plus grantees—passed through the labs. Despite the many weather delays and aircraft issues, the available lab space accommodated all users.

Both the CSEC Phase 3 aquarium and old aquarium experienced heavy use during WinFly and the first part of Mainbody, with the cold storage areas also allocated to capacity.

WinFly activities in support of B-005-M/DeVries required the early start up of the seawater system in the Phase 3 aquarium. Although cold temperatures during WinFly can sometimes cause the seawater pumps to freeze, there were no problems and all scientists were pleased with the aquaria operations.

During Mainbody, CSEC supported two large, lab-support-intensive projects: G-091-M/ANDRILL and B-301-M/Bio Class. Both were high-priority international field teams with specific time constraints. The CSEC staff assisted the ANDRILL team in presenting an open house on 17 November 2007, familiarizing the McMurdo Station community with the project's goals and discoveries.

Figure Science - 44: ANDRILL Open House

Removal of the O-316-M/Dempsey ice press from an environmental room posed another significant event, requiring the walls and ceiling to be removed and a false floor installed in the lab hallway to support the size and weight of the ice press.

Each Sunday, Laboratory Operations staff offered tours of the laboratory facilities, also making special arrangements for those groups and individuals unable to attend the Sunday tours. Lab personnel offered tours to distinguished visitors, the media, and a single tour ship.

Grantees presented 36 science lectures to the McMurdo Station community, including a new morning science lecture each month for night shift workers. All lectures saw good attendance, with some at standing room only. The library conference room in Phase 1 was booked nightly for a variety of talks, lectures, and classes.

Additionally, members of various departments at McMurdo Station formed a panel to solicit ideas and input for future community outreach possibilities.

Customer Satisfaction

Outbrief reports for several projects included positive feedback regarding laboratory support. The CSEC staff received many appreciative e-mail from researchers and other RPSC departments. In particular, both grantees and support personnel praised the work of the CSEC electronics technician.

Value Engineering

Accomplishment: CSEC Laboratory Operations conducted a major microscope inventory and assessment project and created a comprehensive document of inventory, support needs, troubleshooting suggestions, and life-cycle replacement plans.
Benefit: The document simplifies what is otherwise a complicated and often overlooked aspect of lab support, allowing lab personnel to provide more knowledgeable service to grantees.

Accomplishment: Lab Operations created a document describing all CSEC emergency alarm systems and necessary responses for the night shift janitorial staff, often the only occupants of the lab during night hours.
Benefit: Night janitorial staff are typically the first to notice something amiss with lab. As they are often unfamiliar with the lab's daily operations, the emergency alarm document indicates those issues requiring immediate attention. The document educates those who might be the first responders to a major laboratory incident.

Accomplishment: Lab Operations upgraded and updated the Grantee Radioisotope Logbook for all three stations, both research vessels, and field camps.
Benefit: The logbook ensures consistency across the USAP; defines related roles and responsibilities for RPSC, the NSF/OPP and grantee personnel; and makes the complex tracking requirements more user-friendly.

Accomplishment: Laboratory Operations removed large quantities of unused consumable materials, instruments, and equipment from the radioisotope laboratory and disposed of unclaimed radioisotopes and obsolete boxes of swipe tests. Uncontaminated consumable materials were returned to laboratory inventory for reissue to scientists. Contaminated consumable materials were disposed of as radioactive waste.
Benefit: Clearing out the many unused pieces frees space for laboratory users and decreases the chance of contaminating personnel, laboratory space, equipment, or experiments. With fewer items in the radioisotope laboratory, it is safer and easier to maintain the space, track chemicals, and prevent contamination.

B. Program Integration

Coordination with Other Divisions

Lab personnel coordinated with FEMC to mitigate impact to grantees when the division brought the new power plant online. Similarly, the implementation of the NPOESS project required lab coordination with IT to ensure that outages and tests would not compromise science-related data transfers, intercontinental teleconferences, and outreach programs.

Two new inter-divisional procedures, developed during the previous austral summer, went into effect the KY08 summer season: the RPSC McMurdo Science Lecture Standard Operating Procedure (SOP) and the NSF McMurdo On-Ice Storage Policy. Both documents required input from the NSF/OPP, Science Support, IT, Logistics Supply, and NANA Services, LLC.

A variety of smaller projects throughout the season presented further opportunities for coordination with other divisions:

- Worked with Marine Operations to provide space, equipment and supplies for I/B *Oden* and NBP grantees and support staff.
- Coordinated with McMurdo Area Operations to remove ice buildup under CSEC Phase 3. See the *Area Directorate–McMurdo* section for more detail.
- Reviewed laboratory chemical inventory processes and safety with EH&S staff.
- Provided laboratory space, liquid nitrogen, and equipment to Antarctica New Zealand's Scott Base scientists upon request of the Scott Base station manager.

C. Innovation & Process Improvement

Visionary Management

Accomplishment: The CSEC staff expanded the science outreach at McMurdo Station. Science posters are distributed and regularly rotated in the main hallway of Building 155. Two display cabinets in Building 155 feature information on current scientific research conducted in and around the station. Laboratory Operations populated the Science Support network drive with detailed information about Antarctic science and global climate change, and added a monthly morning science lecture to accommodate night shift workers.

Figure Science - 45: Science Project Display Case in B-155

Benefit: Such information familiarizes the general station community with the scientific research conducted at McMurdo Station and across the continent. Such efforts promote better integration and understanding between the science and support communities.

Accomplishment: The lab hired a [redacted] research associate to support A-131-M/Deshler during the KY08 winter season.
Benefit: The research associate assisted the Deshler group's participation in an IPY multi-national ozone sonde "Match" campaign and continued on staff through WinFly to assist with the intensive measurement activity that occurs during that period.

Accomplishment: Laboratory Operations organized and hosted a grantee and Science Support social at the start of Mainbody to introduce the scientists and support personnel in an informal setting.
Benefit: The social created an opportunity for scientists from different disciplines to meet and discuss their work in a comfortable setting.

Responsiveness to Challenges

Issue: Over-winter, on-Ice storage for grantees is a limited resource, and space is fast disappearing. Materials from groups no longer funded consume much of the space, as do items no longer in use by current grantees and equipment that should be returned to stock.
Response: To ensure space is available and fairly allocated for new and returning grantees, the lab developed an NSF/OPP-endorsed McMurdo On-Ice Storage Policy. The policy was implemented during the KY08 austral summer and established a uniform policy for on-ice storage and the return of USAP materials and equipment at McMurdo Station.

Issue: A boiler problem prevented the labs from being humidified for the majority of Mainbody.
Response: CSEC staff monitored all static-sensitive instruments and equipment, with no damage to equipment.

Issue: CSEC experienced a problem with the voltage regulator for all the Phase 1 power receptacles.
Response: The lab worked with FEMC and grantees to remove certain receptacles from service and routinely monitor others until a replacement regulator was installed.

Issue: Due to upgrades and improvements to the McMurdo Station infrastructure, many planned power, phone, Internet connectivity, and water outages occurred throughout the Mainbody period.
Response: The lab coordinated the phone and connectivity outages with the grantees to mitigate impact to any large data transfers.

LAB OPERATIONS — PALMER

A. PROJECT MANAGEMENT

Major Successes

Palmer Science Support began the contract year with the successful support of the first IPY project B-022-P/Amsler.

Another success manifested in the early-season support of the Amsler, Baker, and McClintock project during the LTER cruise—support well beyond what was originally intended. The group was able to push its sample collection and processing early into the year and thereby investigate different questions.

Palmer Science Support pre-ordered consumable items to decouple basic science support from SIP submittals. The department also established a more efficient storage system that reduces the possibility of emergency procurements for standard stocked items. The increased purchasing earlier in the contract year allowed for a major push of ordering at the end of the fiscal year for much-needed laboratory items.

Palmer Science Support also improved aspects of the geophysical projects—for example, the VLF grounding-cable replacement—as the department continued to settle in to the Terra Lab Building.

The department reinstalled the Keeling Air Mast at the start of the KY08 summer. The project was the last to be officially moved into the new building. For the next year, Palmer Science Support will operate both the new and old system to ensure the new system collects quality data.

Figure Science - 46: Keeling Air Mast Installation

Major Issues

Replacement of the chemical storage facility posed a significant challenge for Palmer Science Support in KY08. By collaborating with Marine Operations, the department safely stored all hazardous chemicals longer than anticipated to accommodate the ongoing project. The science community was relatively unaffected and the chemicals are safely stored in appropriate locations.

The department has received chemicals on station that were not maintained at proper storage temperature. This resulted in several emergency procurements during KY08 to mitigate impacts to affected science groups.

Customer Satisfaction

Overall customer satisfaction ratings during KY08 reflected Palmer Science Support's successful season. The science community positively rated the department via its outbrief process and more formal customer satisfaction surveys.

Value Engineering

Accomplishment: The Palmer Station research associate now provides visual imagery for the LMG during all cruises where the data might prove useful.
Benefit: The small increase to tasking yielded a significant increase of available data, often to groups that do not realize the information is readily available. The imagery is also provided to the ship's captain for navigational use.

B. Program Integration

Coordination with Other Divisions

The department successfully collaborated with Marine Operations to support LTER. Unique to the season, several LTER groups were not present on station to complete pre-cruise activities. Science Support stepped in to assist.

Palmer Science Support and Marine Operations also collaborated to use the chemical storage van to provide safe, convenient, and economical storage during the Palmer Station chemical locker rebuilding project.

Palmer Station Logistics and Science Support worked toward a common goal to reduce the foot print at the Punta Arenas warehouse. The effort reduced the number of small and cumbersome boxes at the warehouse.

C. Innovation & Process Improvement

Technical Solutions

Solution: The department implemented a new winch system in the Palmer Station boathouse to move the outboard motors. The previous system using the Skytrak was inefficient and potentially dangerous.

Benefit: One person may now safely do a job that previously required two people and relied on the availability of a skilled Skytrak operator.

Figure Science - 47: Palmer Boathouse New Winch System

Solution: The department implemented a new stern line on rollers to allow for better maneuverability and safer operations during port calls.
Benefit: The LMG stern line was a hazard both during line handling and station Zodiac boat operations. The LMG can now dock without requiring an individual in a Zodiac to guide the heavy and awkward LMG stern line over (or under, depending on tide level) the Zodiac stern line. The solution reduces the potential for injury.

Visionary Management

Accomplishment: Palmer Science Support implemented a new warehouse management solution that uses reusable and stackable fish totes appropriate for both transport and storage in the Punta Arenas warehouse.

Figure Science - 48: Reusable and Stackable Fish Totes

Benefit: Contents are easily identified when using the stackable containers. The solution to use the fish totes as both storage and transportation containers increases department storage and minimizes the storage footprint.

Responsiveness to Challenges

Issue: Early sea ice melting resulted in earlier boat deployments and frozen carburetors on the Yamaha motors within the Zodiac fleet. This increased the potential for fuel spills and motor failures.
Response: RPSC now encourages users to warm the motors before driving and implemented new water separation pre-filters to reduce moisture in the motor. Winter IPY users will be advised to periodically run the motors to reduce condensation.

Issue: Palmer Station saw an increase in fuel consumption this season due to increased Zodiac usage, greater travel distances, and the use of Herman Nelson portable commercial heaters for the Bollard installation.
Response: The department implemented a new gasoline inventory management plan that takes into account the impact of large fuel orders on Marine Operations. The station will now maintain a larger back stock of gasoline, replenished with smaller, more regular ordering to reduce reliance on the LMG. The concept also lessens the impact to Marine Operations.

Issue: As recommended during this year's Palmer Area User's Committee (PAUC) meeting, Palmer Station should upgrade basic equipment (pH meters, balances, camera equipment) at Palmer Station.
Response: Through bulk purchases, rebates, and other cost-saving measures, Palmer Science Support used its existing budget to update critical equipment, providing participants with a reliable, updated science laboratory.

Issue: The aging Zodiac fleet requires more maintenance, and consequently more downtime, than newer boats.
Response: By increasing the training for the boating coordinators, the department can repair most critical issues instead of returning the boats to the vendor for repair. The shift toward Zodiac repair allowed Palmer Science Support to shoulder increased fuel costs (due to increased cost, exchange rates, and usage) without undue impact to other, budgeted items.

South Pole Science Support

A. Project Management

General Management

South Pole Science Support received requests from 25 experiments during KY08. Core science was managed as a coordinated effort between the Science Planning Group and South Pole Science Support. Two science projects were managed under PMO guidelines: IceCube and SPT. The former project planned for a standard drill and string deployment season, while the latter project's remaining construction objectives were deferred. South Pole Science Support also assisted two, unplanned field-science projects: AGAP (G-055-M/Nyblade) and Low Power Magnetometer (LPM) (A-112-M/Lessard).

Implementation of the actions items from the St. Michaels II (Optimization of South Pole Operations) Conference commenced in mid-April 2007. Action items goals from St. Michaels II included timely sunset and decommissioning of projects, strategic management of science facilities, grant proposal guidance aligned with station support variables, and project turnover managed effectively to benefit new science.

Grantee deployments fluctuated the science population between a minimum of 60 and peak of just under 90 individuals during January 2008. The numbers were collected from mid-November 2007 to early February 2008 and include the two largest science projects on station: IceCube and SPT, which maintained populations of 50 and 10, respectively.

South Pole Science Support built a resource-loaded schedule dependant on grantee deployment, requests for resources outside the Science Support Division, and Science Construction.

The Dark Sector commanded the majority of station resources, with IceCube and SPT maintaining a steady pace throughout the summer. The IceCube drilling team successfully completed its goals for the season and managed to consolidate materials within the IceCube Lab, thus reducing its footprint in the B2 science lab. SPT project construction goals for FY08 were deferred in light of overall station constraints and priorities set forth by the NSF/OPP during the planning season.

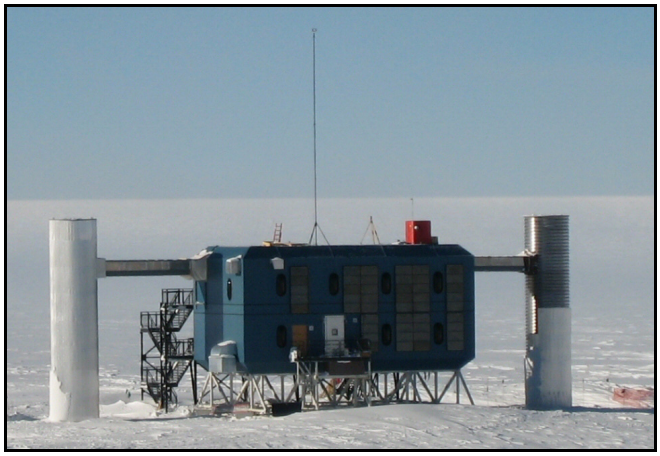


Figure Science - 49: SPT Holographic Calibration Mast on the ICL Roof

Major Successes

The Aurora and CUSP science projects received visits from seven different universities that sent field technicians and graduate students to the field in support of their experiments. The RPSC research associate assisted field-team members as needed and was occasionally dedicated for the total deployment. Due to station population limits, only one PI deployed for the group of experiments.

South Pole Science Support successfully responded to unexpected IPY science project requests, while maintaining a zero-injury record for the KY08 period.

Major Issues

Tasks to reprocess ancillary science buildings and retrograde science equipment from the South Pole berms carried over from previous seasons. Out-year strategies for the tasks are included in the 2007–08 outlook.

The increased number of traverse and rescue-related activities adjacent to Clean Air Sector (CAS) impacted the sector's profile. All stakeholders should review the 2008–2009 U.S./Norwegian traverse route to prevent additional impact to the CAS.

The primary activities in the Quiet Sector were excavation and examination of the power and fiber cables between the site and the station. Survey data over the last several years indicate an elongation of the snow surface oriented parallel with the cable trench. To create a baseline stress/strain data set, some half-dozen sites were measured to extrapolate potential failure modes for the cables under question.

B. Program Integration

Coordination with Other Divisions

Starting in FY08, RPSC transferred Science Construction from Science Support to its FEMC Division. However, Science Support continued to manage related labor and materials, as FEMC integrated the construction department into its organization.

During the KY08 summer, the joint operation between FEMC and Science Support successfully provided transitional support to the A-379-S South Pole 10-meter telescope by managing operations and maintenance, SIP-driven requests within the FEMC Science Construction team. The department managed delivery of labor and equipment resources without impacting SPSM or other schedules. The tasking was essential to preparing the 10-meter telescope for the winter observation season.

C. Innovation & Process Improvement

Technical Solutions

Solution: South Pole Science Support organized and managed the resource requirements for five experiments. The effort included providing direct labor for absent grantees when necessary.
Benefit: The department assumed the support of five experiments, a scenario that negated the potential cost and population impact of deploying five field teams.

Solution: The new cryogenics facility served as a staging platform for visiting AGAP field science personnel during the austral summer. This occurred without impact to the cryogenics program or its end users.

Figure Science - 50: Warm Staging in the New Cryogenics Facility

Benefit: Without the innovation, the department could not have supported such field science projects as A-115-S/Jefferies Solar Observatory and A-112/Lessard (low-powered magnetometer project).

Visionary Management

Accomplishment: The FY08 austral summer season commenced with a Basler-supported opening of South Pole Station on 15 October 2007.
Benefit: This allowed station winter-over staff to complete the critical turnover with their replacements with minimal distractions. The science community benefited from more stable and consistent station operation.

Field Science

A. Project Management

General Management

The Field Science Support team overcame the challenge of a reduced winter staff—including 33% cuts to the BFC and MEC labor force—to accomplish its winter tasking and meet most grantee equipment requests for the KY08 austral summer.

Field Science Support managed two sizeable and labor-intensive deep-field camps. WAIS Divide camp, staffed by 15 RPSC personnel, opened on 25 October 2007. While the camp primarily supported the I-477-M/Taylor deep-drilling operations, it also hosted projects like I-205-M/Anandakrishnan, I-189-M/Gogineni (CReSIS), C-407-M/Bindschadler and the IPY outreach media group Y-601/Hochman.

The department established a new AGAP South camp, situated at more than 11,000 feet (~3,500 m) on the East Antarctic Plateau. The camp will support the multi-year AGAP science project in East Antarctica. Field Science started construction of the camp infrastructure by creating an LC-130 usable runway, delivering a majority of the camp materials, and erecting four camp buildings for use in the coming seasons. The camp supported refueling Twin Otter aircraft that deployed 10 seismic stations for G-055-M/Nyblade.

The department also supported the extended season science work at three field camps in the Taylor Valley. RPSC Field Science Support provided technical assistance and support personnel to the science groups during the very cold time of year. Two MEC employees were positioned in the Taylor Valley, at Lake Bonney and Lake Hoare, to maintain mechanical equipment and ensure camp power. The department provided an overall Taylor Valley Camp supervisor at Lake Hoare to supply logistical support and Dry Valleys infrastructure management, allowing grantees to focus on science objectives.

Customer Satisfaction

As relayed in numerous science outbriefs and in feedback from the department's other USAP customers, the Field Science Support leadership team excelled in the face of various atypical working situations, including employee absence due to illness and family emergencies, and a non-deploying work center supervisor. Despite such challenges, Field Science Support performed effectively.

The NSF/OPP expressed concern about BFC equipment allocation for McMurdo Station projects. The department met all science project requirements at the levels detailed in the Research Support Plans (RSP). Field Science Support also planned procurements to upgrade critical items in the BFC inventory to levels necessary to safely support all FY08 science projects. In early November 2007, the department sent a letter to those PIs whose projects had not yet deployed, updating BFC allocations detailed originally in the RSP distributed several weeks prior.

Value Engineering

Accomplishment: During KY08, the department optimized two field-safety training courses: Refresher and Snow Craft 1.
Benefit: Reducing the Refresher Course from 6.5 to four hours minimized field instructor labor, while still maintaining the integrity of the course. Likewise, the Snow Craft 1 course improved consistency among sessions.

Accomplishment: RPSC transferred Helicopter Operations government-furnished equipment to contract-furnished equipment. All inventories used specifically for Helicopter Operations will be transferred to PHI, Inc.
Benefit: The action brought RPSC Helicopter Operations into government compliance by transferring the property to the proper custodian.

Accomplishment: The BFC supervisor researched and procured a replacement Ensolite sleeping pad to replace a product that is no longer available.
Benefit: The new Ensolite pad features the same material, but is purchased in bulk rolls instead of individual sheets. The change saved the Program $50 per sleeping pad, for a total savings of more than $10K.

B. Program Integration

Coordination with Other Divisions

The BFC staff worked with EH&S, Hazardous Waste and Central Supply personnel to distribute the spill kits and fuel containment berms required for groups deploying into the field. The BFC placed the equipment in the grantee BFC cage alongside the group's associated gear, or delivered it directly to the requesting work center. The improved service decreases confusion and the potential for non-compliance.

Helicopter Operations, McMurdo Area Directorate Operations, and FEMC collaborated to upgrade the Marble Point helicopter fuel system. While the Marble Point aspect of the overall helicopter fuel filter upgrade project was delayed, Helicopter Operations mitigated any adverse impact through effective planning and cooperation. See the *Area Directorate-McMurdo* and *Facilities, Engineering, Maintenance and Construction* sections for related detail about this project.

RPSC completed the NPOESS project at Black Island using regular helicopter flights, a situation that required considerable coordination between Helicopter Operations and IT.

The BFC worked with Waste Management and the Carpenter Shop to obtain three, refurbished Conex boxes for the outdoor storage area. The increased, outdoor weatherproof storage capacity will help preserve the life span of gear for which there is no indoor storage room. BFC personnel also configured one Conex box with shelving units to serve as storage for field-camp kitchen supplies. The kitchen supply storage arrangement proved more accessible and efficient when allocating BFC gear.

Science Support coordinated with the McMurdo Area Directorate, FEMC, and Logistics to assess two, versus three, LDB balloon launches during the KY08 season. Three LDB payloads launched successfully from Williams Field, marking the first time three balloons were simultaneously aloft and circumnavigating Antarctica. The successful launches reflect the successful coordination by RPSC, the science projects, Columbia Scientific Balloon Facility, and other USAP agencies.

To support IPY 2007, McMurdo Science Support coordinated with A-131-M/Deshler and various station departments to launch four balloon payloads during the 2007 austral winter. The project studied the role of polar stratospheric clouds in Antarctic ozone depletion.

C. Innovation & Process Improvement

Technical Solutions

Solution: On a visit to Palmer Station in November 2007, the Field Science Support manager discovered the glacier rescue team was in short supply of current industry-standard equipment. By using a small amount of unspent funds from the McMurdo SAR teams, Field Science delivered SAR equipment to the Palmer Station Glacier rescue team.
Benefit: The new SAR equipment improved the Palmer Station team's equipment cache to industry standards.

Visionary Management

Accomplishment: Field Science Support, in conjunction with RPSC EH&S and the NSF/OPP, developed a USAP snowmobile and all-terrain vehicle (ATV) helmet policy, effective KY09.
Benefit: Such protection will reduce the incident of head injuries.

Accomplishment: Science Support established an internal SIP (iSIP) process. Science Support work centers previously collected support requirements using a variety of informal methods.
Benefit: RPSC departments now complete an iSIP to request support from Science Support work centers, providing for more efficient distribution of limited resources.

Accomplishment: The department standardized the contents and location of local field camp survival caches.
Benefit: The improvement gives camp personnel a greater understanding and confidence in availability of survival gear in times of need. The change will also increase the accuracy of survival cache contents.

Accomplishment: Field Science formalized a collaborative Joint Antarctic Search and Rescue Team (JASART) training plan and presented it for approval by both the NSF/OPP and Antarctica New Zealand.
Benefit: The JASART focuses the leadership, training and response of joint team members, including a pre-approved training plan to replace various individual plans.

Accomplishment: The BFC procured custom-made, lightweight flooring for the 8 x 16-foot, 8 x 21-foot, and 10 x 20-foot tents.
Benefit: The new floors are lighter and more compact than the previous style. The flooring improves the efficiency of each group's fixed-wing flights, especially for the lower allowable-cabin-load aircraft like the Twin Otter and Basler.

Responsiveness to Challenges

Issue: The Basler aircraft experienced a hard landing after takeoff in mid-December 2007, triggering a loss of 50-plus days of planned operations for the unique airframe.
Response: The Fixed Wing department reorganized the airlift schedule with the available Twin Otter airframes and coordinated with Kenn Borek Air Ltd., to deploy another Twin Otter from Canada.

Issue: The BFC incurred equipment shortages stemming from an incomplete winter inventory.
Response: The NSF/OPP authorized RPSC to reprogram funds to expedite procurement of items required for the season. The BFC used volunteers and general assistants during Mainbody to prepare high-demand gear for issue. Winter 2008 staffing reflects a return to the standard level and the BFC received two "positions-of-opportunity" during the extended season to complete the center's inventory.

Issue: Field Science sent survival bags to Christchurch prior to winter 2007 to test the concept of off-site maintenance. Due to weight concerns on southbound flights to McMurdo Station, flight operations personnel in Christchurch removed the survival bags from several flights. Some 500 pounds of survival bags were not returned until the second week of Mainbody, straining RPSC's ability to perform bag maintenance at McMurdo Station for summer issue.
Response: The BFC will perform bag maintenance on site as a 2008 winter and WinFly task.

Issue: The NYANG requested RPSC participate in an open-field landing workshop, to discuss that high-resolution DoD imagery is no longer available for use at South Pole Station and open-field landings are likely to increase as major, South Pole construction activities conclude.
Response: The RPSC Field Science Support and IT Science Support, Stations and Vessels, (IT/SSSV) sent three personnel to the workshop. RPSC contributed discussion of fixed wing scheduling and support, field camp scheduling and operations, and provision of imagery for planning aircraft missions.

Issue: The ITASE project requested a planning meeting with RPSC and the NSF/OPP to improve the support plan for the FY08 traverse.
Response: RPSC Field Science Support coordinated with the ITASE PI and the NSF/OPP to meet in early May 2007. Decisions from the meeting permitted the project to accurately complete its SIP. RPSC was able to proceed with its planning and tracking of progress. Monthly telephone conferences tracked progress for action items and new issues.

Issue: The USAF requested the return of its pallets, used for a variety of deep-field camp applications.
Response: Field Science discovered an alternate pallet system for use in deep-field camps. The Program will return most USAF pallets at the close of each season.

Issue: When the fulltime Fixed Wing coordinator departed prior to the FY07 field season, Field Science Support hired a contract Fixed Wing coordinator. Although the contract coordinator telecommuted effectively during the planning season, the position is approved by the NSF as fulltime. Field Science Support was challenged to either fill the position with a fulltime employee or to change the paradigm of structure and function for aviation support.
Response: Field Science Support proposed to create an overarching Aviation Operations (AO) to oversee USAP helicopter and fixed wing resources within the department. Under the concept, a fulltime AO supervisor, based at the Denver RPSC office, would lead the work center. The supervisor would be well versed in either helicopter or fixed wing operations, with the desire and ability to learn the other discipline. Department leadership will review the proposal with the NSF/OPP in early KY09, for potential implementation during the KY09 planning season.

DIVE SERVICES

A. PROJECT MANAGEMENT

General Management

Seven dive groups, totalling 17 divers, deployed to McMurdo Station. One group of six divers deployed to Palmer Station. Dive Services supported 400 dives, including 154 RPSC dives.

The RPSC dive supervisor deployed to McMurdo Station from WinFly through mid-December 2007. Two RPSC contract divers deployed for 10 weeks to McMurdo Station, primarily to repair the McMurdo Station outflow pipe and to sample the contaminated water zone for the offshore portion of the B-518-M/ Kennicutt McMurdo Station anthropogenic impacts study.

Members of the NSF/OPP Scientific Diving Control Board visited McMurdo Station in October 2007 and met with the divers to discuss any pending issues.

Major Successes

When the flotation used to control riser down pressure for the ANDRILL project drill string was damaged during installation, Dive Services inspected and adjusted the flotation so drilling operations could continue without interruption.

Dive Services cleaned the McMurdo Station outfall pipe of marine growth and installed lateral extensions to the support stanchions to stabilize the pipe. The outfall pipe was damaged during the 2006 winter when high current toppled the pipe from its four outboard stanchions. Dive Services made temporary repairs in 2006–2007 and completed the work during the reporting period.

The Dive Services supervisor was invited to the International Polar Diving Workshop, Ny Alysund, Svalbard, Norway, to present a paper on USAP scientific diving. The March 2007 workshop also included presentations by the U.S. Navy Experimental Diving Unit, British Antarctic Survey, Antarctic New Zealand, Norwegian Polar Program, Finnish Polar Program, USAP scientists and several commercial operations.

The Dive Services supervisor provided underwater video footage to both CBS and NBC news operations.

The footage was used during two episodes of the *CBS Nightly News* and several *Today Show* episodes.

Customer Satisfaction

During out-briefs, all McMurdo Station science diving groups recognized Dive Services for its excellent customer service.

B. Program Integration

Coordination with Other Divisions

Dive Services worked with McMurdo Area Operations to inspect the McMurdo Station ice pier and pier/shore interface prior to ship operations. The inspections helped ensure the pier was safe for ship offload.

C. Innovation & Process Improvement

Technical Solutions

Solution: Dive Services replumbed the built-in-breathing system (BIBS) on the McMurdo recompression chamber. New BIBS valves were installed during KY07. Piping changes this season completed the BIBS upgrade.
Benefit: Sub-optimal plumbing on the BIBS system allowed operators to select multiple gases at one time. The new system makes it impossible to select more than one treatment gas, which increases the safety of chamber operations.

Responsiveness to Challenges

Issue: On 29 October 2007, a science diver with B-005-M/DeVries developed symptoms of decompression illness after a Cape Evans Wall dive within the no-decompression limits of the dive computer.
Response: Dive Services worked with McMurdo Station Medical personnel to diagnose and treat the diver, who recovered following treatment.

Future Plans and Visions

Dive Services continues to examine succession planning as a method to provide uninterrupted world-class dive support to the science community.

Cryogenics

A. Project Management

General Management

The liquid nitrogen plant at South Pole Station supported requirements of 30 liters per day during KY08 summer, with no interruption of service.

Cryogenics staff moved all cryogens, cryogenic dewars, transports, and ancillary equipment to the new cryogenics facility. For the first time in USAP history, the equipment is being stored and operated in a warm, protected environment, factors that will increase its reliability and life span.

Figure Science - 51: Two Liquid Helium Dewars Inside the South Pole Cryogenics Facility

RPSC and the cryogenic team continue to deliver a continuous supply of liquid helium to South Pole researchers, an effort that began in November 2004.

For the first time, the USAP also provided 60 liters of liquid nitrogen to the French National Antarctic Program. The USAP continues to provide liquid nitrogen to Antarctic New Zealand, whose use varies from week to week based on its scientific research requirements.

Customer Satisfaction

Science projects A-033-S and B-301-M praised the team for reliable supply of cryogens and expert assistance.

Value Engineering

Accomplishment: Because RPSC could not locate a helium ISO module for lease or rent to support the O-363-M/Concordiasi group during WinFly 2008, Cryogenics reviewed helium ISO module use at McMurdo and South Pole stations and found that RPSC could reallocate an available module to McMurdo Station.
Benefit: The solution still provides enough gaseous helium to support users at South Pole Station and weather and A-131-M at McMurdo Station, while also proving the two required ISO modules for Concordiasi to be staged using the cargo vessel for transport to McMurdo Station. The solution saved the USAP $113K, the cost to purchase a new helium module.

Accomplishment: RPSC did not lease any liquid helium containers for the 2008 winter.
Benefit: There is no need for the Program to track containers from suppliers, reducing labor hours and saving the cost to lease an added liquid helium transport, $171K.

B. Program Integration

Coordination with Other Divisions

To house 29,000 liters of liquid helium in the new cryogenics facility, the group required the combined support of Operations, Logistics, FEMC, SPSM, and Science Support. Operations and Logistics provided the heavy equipment and infrastructure that connects Port Hueneme, McMurdo Station and South Pole Station to both the commercial shipping and military aircraft movement of several large dewars between the continental United States and Antarctica. FEMC and SPSM completed punch list items for the new cryogenics facility following conditional occupancy the previous season, while also helping science support maintain consistent and uninterrupted cryogenic support to the grantees.

C. Innovation & Process Improvement

Technical Solutions

Solution: Waste heat from the refrigeration unit compressors and liquid nitrogen plant are heating the new cryogenics facility and the Martin A. Pomerantz Observatory, respectively.
Benefit: The heat source reduces the overall reliance on station fuel. The waste heat will eventually heat the Balloon Inflation Facility (BIF).

Solution: Evaporated gas from the storage dewars is being plumbed directly into the BIF to fill Meteorology Department and NOAA balloons.
Benefit: The reuse saves energy, fuel, and other resources.

Solution: All pulse tube cold heads are operating above expectations. Evaporated helium gas boiling off from the liquid helium transport and Wessington storage dewars is plumbed into a manifold feeding the refrigeration units.
Benefit: The volume of liquid helium in the Wessington storage dewars is increasing over time as the helium gas boil-off is condensed into liquid helium in these containers.

Figure Science - 52: Pulse Tube Cold Heads Atop Liquid Helium Dewars

Responsiveness to Challenges

Issue: The South Pole science technician identified unexpected problems with the Alcatel vacuum pumps during leak tests conducted on cryogenics equipment.
Response: Cryogenics received critical spare parts on station for the vacuum pump equipment and repaired all pumps. The group sent a fourth pump to the cryogenic technician at McMurdo Station for further evaluation.

Issue: Two, 3,000-gallon liquid-helium transport dewars were rejected for COMSUR shipment in October 2007, threatening provision of liquid helium to A-140-M/BESS/Mitchell and austral summer resupply of liquid helium to South Pole Station.
Response: Logistics and Science Support collaborated to resolve the issue. Logistics requested the help of the SFA commander to fly the two, 3,000-gallon liquid-helium transport dewars in a tail-swap C-17 mission from McChord Air Force Base to McMurdo Station. The South Pole Science Support manager escorted the dewars from McChord to Christchurch, New Zealand. The cryogenics technician escorted the dewars from Christchurch to McMurdo Station. The solution minimized delays to the science project and ensured continuous liquid helium supply at South Pole Station for the austral summer. The effort represented a total cost avoidance of $115K, the cost of commercial surface transport plus the added Christchurch C-17 mission.

Figure Science - 53: Loading Dewars in the Tail-Swap C-17 at McChord Air Force Base

METEOROLOGY

A. PROJECT MANAGEMENT

Major Issues

During the June 2007 APC Executive Management Board Session, attendees discussed the poor quality of deep-field weather observing data. In response, Meteorology developed and co-instructed with SPAWAR a new weather-observing training program in Denver over a five-day period in late September 2007. Nineteen USAP personnel and grantees attended the class.

Figure Science - 54: Weather Obs Field Training - Denver HQ

Figure Science - 55: Weather Obs Classroom Training

Customer Satisfaction

SPAWAR personnel lauded the season as the best yet for Meteorology support.

Value Engineering

Accomplishment: Meteorology used the DRMS to acquire equipment for the Meteorology Department. The DRMS catalogs usable items available to government agencies at no cost.
Benefit: Meteorology saved $10K-plus by using the DRMS to acquire related equipment and instruments.

B. Program Integration

Coordination with Other Divisions

The department continues to receive an increasing number of weather data and analysis requests. Meteorology provided analyses internally to Area Directorate and Logistics personnel in support of equipment scheduling efforts; to FEMC for development and procurement of equipment for the under-station wind study; and to Medical personnel for safety studies.

As part of a study to reevaluate the design of the worm gear on the South Pole communications satellite dish, Raytheon engineers requested a weather-data analysis. Other scientific institutions requesting South Pole weather data included IceCube, Antarctic Muon And Neutrino Detector Array (AMANDA) and the Mayo Clinic.

Meteorology provided the Raytheon program manager and Northrop Grumman engineers with balloon launch data to support the NPOESS satellite operational acceptance. The department also worked with the Science Planning Group and the CReSIS project to evaluate and plan weather support for upcoming unmanned aerial vehicle flights from WAIS Divide next season.

C. Innovation & Process Improvement

Technical Solutions

Solution: Meteorology personnel coordinated with radiosonde manufacturer, Vaisala, Inc., regarding a correction to the current algorithm used at the South Pole. The data were in error since February 2005 due to a production defect.
Benefit: Data are now correct and reliable for use in future science projects.

Solution: The department developed a mounting system and moved the South Pole sun recorder to the roof of the main station.
Benefit: The move allows a timely collection of data and minimized the walk to the old recorder location.

Visionary Management

Accomplishment: As part of the new observer training program, SPAWAR instructed the students on the proper use of its portable polar meteorological kit (PPMK).
Benefit: SPAWAR participated in the instruction, allowing students to directly interact with the agency that will receive the meteorological observation data—an improvement that streamlines the data reporting process.

Accomplishment: The meteorological coordinator made a presentation at the Antarctic Meteorological Observation, Modeling, and Forecasting Workshop held at the Italian National Research Council in Rome.
Benefit: The presentation further exposed the international science community to the USAP meteorology.

Responsiveness to Challenges

Issue: Meteorological data were lost due to multiple power failures at South Pole Station during KY07.
Response: While the first solution (a solar-powered battery backup PPMK meteorological system) proved unreliable, Meteorology obtained portable Kestrel 4000 sensors, recognized by the USAF for use in aircraft. The sensors allow Meteorology to provide uninterrupted support to South Pole Station aviation. The instrument was also helpful as a backup for the field camp and grantee weather observers.

Issue: Due to snow accumulation at the base of the tower, the skiway meteorology tower wind and data sensors no longer met federal standard for height from surface.
Response: Meteorology scheduled SPAWAR rigging personnel to attach a 10-foot extension to the tower and relocate the sensors at the correct height.

Issue: The BIF is 14 feet below the grade level established for the new cryogenics facility, causing significant and problematic drifting around the building's entry and exit. In addition, the location of the launch deck below grade level makes it difficult for radiosondes to lock on to satellite signals prior to launching.

Figure Science - 56: Snow Drifted to the Balloon Inflation Facility Entrance

Response: Meteorology worked with FEMC and Operations personnel to develop a snow removal plan to clear the entry door, balloon launch deck, and stairways each day. In collaboration with FEMC, Operations, and the PMO, Meteorology proposed a project to correct the building placement and alleviate future snow buildup.

AGAP

A. Project Management

General Management

Despite many challenges during KY08, the AGAP project successfully met all science objectives for the 2007–2008 field season.

Installation of 10 passive seismic stations in the Dome A region was planned for the first season of the project. An alternate support plan was created after funding delays, subsequent late procurements and deliveries of long lead-time items, and inadequate materials and equipment at McMurdo Station.

The initial plan to use the AGAP S field camp to support science became impossible given that initial camp put-in flights were delayed until mid-December 2007, with camp construction commencing in January 2008.

In lieu of using AGAP S as a science camp to install the 10 seismic systems, South Pole Station instead served as a base of operations. The AGAP scientists G-055-M/Nyblade and the Kenn Borek Air Ltd. crew were housed at South Pole Station for acclimation and equipment setup and test. The parties made day trips to the Dome A region to install the seismic systems. The revised support plan met all science objectives. See the *Area Directorate - South Pole* section for additional detail.

Major Successes

Although the AGAP project received late NSF funding approval, the project met all science objectives for the 2007–2008 field season. This included installation of 10 seismic stations for G-055-M/Nyblade, completion of the LC-130-capable skiway, and LC-130 support and construction of the initial four field-camp structures.

Major Issues

Late NSF funding delayed the procurement, shipping, and arrival of field camp equipment and materials to McMurdo Station. RPSC procured Polarhaven tents, but the long-lead time for manufacturing the tents by the supplier delayed the arrival of the tents at McMurdo Station to late austral summer.

The late funding also impacted overall staffing and support planning. The various work centers providing support to the AGAP project had to integrate project work at the last minute. The scenario stressed the systems and labor that support science at McMurdo and South Pole stations.

On-time funding, methodical support planning and a longer timeline would better serve the AGAP project, including clear Go/No-Go dates.

Colder-than-expected temperatures and high-altitude considerations delayed the AGAP S construction tempo, with only the initial four field-camp structures completed. The project team is revising the field camp planning to complete the AGAP S construction in FY09.

B. Program Integration

Coordination with Other Divisions

Science Support and FEMC coordinated last-minute housing and workspace at South Pole for the grantees and Kenn Borek Air Ltd. staff. The Fixed Wing office coordinated aircraft and fuel movements to support revised support plans and updated flight plans in real-time to create a workable model.

C. Innovation & Process Improvement

Visionary Management

Accomplishment: The project identified a medical risk to personnel working at the AGAP S camp and higher elevations. A consultant developed field medical operating guidelines, implemented during the project execution.
Benefit: There were no medical evacuations from the AGAP S camp. Scientists working in the Dome A region experienced no serious medical problems and the project did not sustain a recordable injury.

Responsiveness to Challenges

Issue: The AGAP project was put at significant risk due to late funding approval, long lead times for delivery of procured field camp infrastructure, and slow delivery of procured material to McMurdo Station.
Response: Science Support's work to obtain Weatherhaven tents in advance of the long lead-time delivery of Polarhaven tents also assisted the AGAP project, as well as others. Science Support and Science Construction also coordinated with the NSF/OPP and PIs to uncouple the science seismic station missions from the construction of field camps at AGO 1 and AGAP S. The revised plan used the South Pole Station to acclimate the AGAP participants to altitude prior to day flights to install the 10 seismic stations targeted by the scientists.

Future Plans and Visions

The AGAP Project still faces very serious challenges. The AGAP S camp is only partially constructed and must be completed in a short time frame to be available for science support during the 2008–2009 field season.

Altitude acclimation must be performed at an intermediate altitude prior to arrival at AGAP S. The requirement determines the need for a rapidly deployed altitude acclimation camp at the AGO 1 location. Currently there is no camp infrastructure at the AGO 1 site.

In late January 2008, the grantees determined that the size of the planned aerial geophysical survey will require that USAP Twin Otter and the BAS Twin Otter begin survey flying much earlier in the season. The requirement will force the AGAP project to utilize the planned altitude acclimation camp at AGO 1 as a base to fly survey lines in the area between AGO 1 and AGAP S. The camp infrastructure requires timely procurements and development of a rapid deployment camp. Technical problems with rapidly deploying a camp at high elevations remain and must be addressed with all stakeholders.

CReSIS

A. Project Management

General Management

After receiving NSF/OPP funding approval for the CReSIS project in May 2007, the RPSC project manager and PMO developed an integrated schedule for the various components of the support project. The schedule included the design and procurement activities required for the WAIS Divide camp infrastructure additions and the procurements required for the CReSIS ground traverse. Throughout the contract year, the RPSC project manager worked with stakeholders across multiple organizations to confirm requirements, finalize designs, and plan field activities.

B. Program Integration

Coordination with Other Divisions

The CReSIS project consistently partners with all RPSC divisions. Such coordination includes the collaboration with EH&S to develop the Initial Environmental Evaluation that covers both the planned science and the support components of the CReSIS project.

The CReSIS project team and the PMO worked closely to develop the project schedule and integrated cost/schedule baseline. The CReSIS project has also enlisted the support of Performance Excellence/Quality Assurance (PE/QA) to review project SOWs and facility design submittals. The CReSIS project team continues to work closely with FEMC on the design and construction plan for the WAIS Divide infrastructure additions required to support the CReSIS aerial radar program. The CReSIS project coordinated with Finance to develop the project budget and prepare monthly project estimate-at-complete reports.

C. Innovation & Process Improvement

Technical Solutions

Solution: The RPSC project manager worked with a new subcontractor, Probe Research, to design and fabricate a new cargo sled for the CReSIS traverse. This sled is made of half-inch UHMWP and features a 25,000-pound load capacity.

Figure Science - 57: CReSIS Low Towing Resistance Sleds

Benefit: The sleds have a very low towing resistance compared to the ski-equipped sleds previously used by the USAP; and offer more structural integrity compared to previous UHMWP sleds used in the USAP. As a result, the CReSIS traverse can tow heavier cargo loads using smaller and more cost- and fuel-efficient tractors.

Responsiveness to Challenges

Issue: There was a schedule variance for the engineering and design activities associated with the WAIS Divide camp infrastructure additions. The CReSIS project requires these infrastructure additions to support the CReSIS airborne radar program, which will be flown on an unmanned aerial vehicle (UAV) and Twin Otter aircraft in FY09 and FY10.
Response: The CReSIS project team developed an engineering corrective action plan, which included reorganizing the start dependency for the acquisition activities for the design and manufacture of the UAV hangar. The design activities for the WAIS Divide infrastructure additions are now meeting the new milestones that were outlined in a corrective action plan and are scheduled for completion by June 2008.

ICECUBE

A. PROJECT MANAGEMENT

General Management

The RPSC IceCube project team supported the University of Wisconsin (UW) IceCube project as it exceeded the goal set for holes/sensor strings in the KY08 season: 18 holes drilled/sensor strings deployed, versus 16 planned. The progress largely stemmed from extensive project planning with the UW IceCube project prior to the season, executing the plan to schedule, and addressing the unplanned challenges at South Pole Station.

Major Successes

RPSC support of the UW project throughout KY08 contributed to the project's most successful season to date, with the deployment of a record 18 sensor strings and associated IceTop stations. UW researchers were encouraged by the achievement and wish to increase the FY09 goal from 18 holes and strings to 20.

Customer Satisfaction

UW complimented RPSC efforts and the success of the season. Per discussion with UW in KY07, the drill camp was relocated to the KY08 season's location at the end of the 2006–2007 summer season. UW grantees identified the action as a key success.

B. PROGRAM INTEGRATION

Coordination with Other Divisions

Coordination among RPSC divisions during planning and execution contributed significantly to successful support of the UW plan. The success of the KY08 season is proof that such coordination efforts were effective. Examples include: the use of South Pole Area Directorate surveyors and heavy equipment to prepare hole sites and future drill camp locations, and the matrixed use of FEMC fire technicians and carpenters to execute improvements and repairs at the IceCube Laboratory.

C. INNOVATION & PROCESS IMPROVEMENT

Visionary Management

Accomplishment: The project drilled the planned number of detector strings during KY08.
Benefit: The accomplishment gives the IceCube team the ability to increase the total number of holes and the overall size of the detector in future seasons. The project now plans to drill up to 80 holes, instead of the previous goal of 74. Based on performance to date, IceCube has received funding for additional add-on detectors, which may increase the number of holes to 86.

Responsiveness to Challenges

Issue: Installation of duct work and conduit compromised the planned location of the fire suppression system in the IceCube Laboratory.
Response: The project proposed an alternate installation location. Installing the fire suppression system in the new location will reduce the hydraulic pressure drop in the fire suppression piping, providing better performance. In addition, it will allow for simplified installation in KY09.

Issue: In previous seasons, IceCube operations relied on a pool of shared resources, which decreased efficiency due to the steep learning curve inherent to project tasks.
Response: During KY08, a core team of resources was hired specifically for the IceCube project, reducing the amount of day-to-day training. On rare occasions when the complete team was not needed, individual resources were matrixed to other divisions.

WAIS

Figure Science - 58: WAIS Field Camp Arch Facility

A. Project Management

Major Successes

After three years of planning, fabrication, and arch construction, the project team successfully implemented the Deep Ice Sheet Coring drill and core processing equipment during KY08. With equipment and arch systems functioning as designed, ice coring operations reached a depth of 580 meters in January 2008, producing very high quality ice-core samples during this first year of drilling operations.

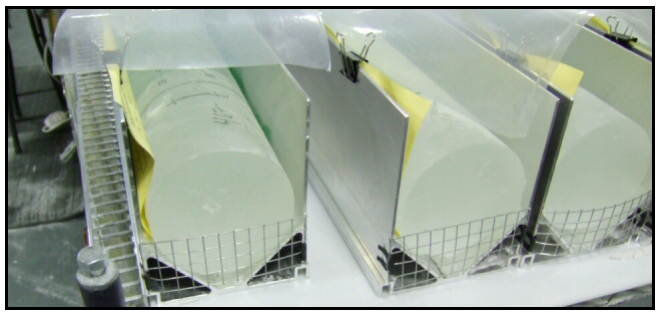


Figure Science - 59: First Ice Core Samples Collected

Major Issues

The camp's higher-than-anticipated population, along with multiple simultaneous science projects, negatively impacted the capabilities of the camp infrastructure and general quality of camp support. The WAIS project team recommends limiting science activities and population to a total of 50 persons. The impact from over-taxing camp resources includes over-allocated heavy equipment, over-crowded facilities, and extended periods of long work days for camp personnel. Camp staff and grantee morale noticeably slipped due to such factors, especially during high-population periods.

Customer Satisfaction

The August 2007 Quarterly Update for the WAIS Divide Ice Core Project included praise for logistics support, core handling, and other services. The WAIS project chief scientist (I-477-M) commented in his outbrief that the level of support from RPSC was excellent and his best at the field site.

Value Engineering

Accomplishment: The project manager and FEMC engineers applied a practical approach to the theoretical challenges of the arch facility's ventilation systems, required for proper venting of drill fluid vapors. The original design by FEMC was oversized, complex, and expensive to implement given the work environment and logistics considerations. The final design proposed and installed by RPSC reduced the size of the ventilation system by two-thirds.

Benefit: The smaller ventilation system design and installation significantly saved equipment, labor, and transportation costs. The reduced ventilation system design effectively evacuated drilling fluid vapors to safe levels as indicated in the manufacturers' material safety data sheets.

Figure Science - 60: Ice Core Storage Facility Displaying Part of the Ventilation System

B. Program Integration

Coordination with Other Divisions

After the project identified the need for a low-ground-pressure (LGP) bulldozer for the WAIS camp, the project manager located an LGP bulldozer used in McMurdo Station for dirt operations. With NSF/OPP funding approval, the WAIS project purchased a new bulldozer suited for dirt operations and exchanged it for the McMurdo Area Directorate Operations LGP bulldozer. The exchange benefitted each party by supplying the appropriate tractor type for the intended uses and field conditions. In addition, WAIS field camp personnel realized immediate benefit from the LGP bulldozer through its increased snow-handling capability and efficiency. The new bulldozer relieved the tracked forklift from blade duty, so that it could be used for cargo and aircraft operations.

C. Innovation & Process Improvement

Technical Solutions

Solution: One of the many challenges of transporting ice-core samples is the multiple handling and transportation stages of the insulated shipping containers (ISC) and ice-core tubes. For the KY08 field season, the project purchased 200 ISC boxes and 800 ice-core tubes for the National Ice Core Laboratory (NICL) for shipment to McMurdo Station on the 2007 resupply vessel. To minimize shipping container space required onboard the resupply vessel and at McMurdo Station, the project manager and one NICL contact traveled to Port Hueneme to consolidate ISC boxes and core tubes.

Benefit: The project eliminated the need for one, 20-foot shipping container and its associated 2007 winter storage space at McMurdo Station. In addition, by consolidating the shipment at Port Hueneme instead of at McMurdo Station, NICL did not require six people to deploy early and spend a week in November 2007 consolidating the core handling equipment before traveling to the field.

Visionary Management

Accomplishment: To minimize the risks of shipping ice core samples to the NICL in Denver, redundant-cooling refrigerated MilVans and temperature-monitoring devices were researched, identified, and are being procured by the SafeCore project, funded by the NSF/OPP as a new project in FY08.

Benefit: The new equipment will greatly reduce the risk of damaging or destroying samples during all stages of transportation. In addition, the temperature loggers are equipped with transmitters, so temperature data can be read from the logger without opening the containers. The new loggers will reduce the amount of handling required during shipment and will eliminate the risks caused by temperature fluctuations when containers are repeatedly opened to retrieve the loggers to downloading the temperature data. The WAIS Drilling project team expects the SafeCore project shipping protocols to become the sample shipment standard for the USAP in the near future.

Responsiveness to Challenges

Issue: Major weather and material delays incurred during December 2007 impacted the project's ability to build two power modules and install switch gear and generators required to support the arch facility and coring operations as scheduled.

Response: As weather conditions improved, the Science Construction team fast tracked the power module project to meet the science startup schedule. However, the installation delays were too great to complete and commission the paralleling switch gear and large generators before the start of the DISC drill test and coring operations in January 2008. The construction crew revised the generator installations to accommodate and safely supply temporary power to the entire arch facility and DISC drill in time for testing and ice-coring operations.

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
FEMC		*FEMC TOTALS*		[redacted]	[redacted]	[redacted]	[redacted]
48	Project rework shall be kept at or below the RPSC target value of 4%.	<=4% rework hours (compared to the total hours worked on the project during the contract year.		[redacted]			
49	Projects shall be executed in a timely and cost effective manner.	New Projects: Schedule and Cost Performance indices of .9 or greater Existing Projects: Schedule and Cost Performance indices equal to or greater than those generated at the end of the previous contract year or .9, whichever is less.		[redacted]			
50	FEMC work order audits.	>=94% work orders audited were completed with quality work.		[redacted]			
51	Facility Maintenance.	>=92% PM and emergency work orders completed per Element Definition.		[redacted]			
52	Provide reliable electrical power at all 3 stations.	99.97% power availability.		[redacted]			
53	Provide safe, potable water at McMurdo, South Pole and Palmer.	Zero failures (100% availability) of safe, potable water at all 3 stations.		[redacted]			[redacted]
			TOTALS	[redacted]	[redacted]	8[redacted]	[redacted]

[redacted] 100 .00 - 96.00% Satisfactory = 95.99 - 90.00%
Unsatisfactory = 89.99% and lower Performance Not Reported

Figure FEMC - 61: Division Metrics

A. PROJECT MANAGEMENT

General Management

FEMC met with its NSF/OPP ABM at Palmer Station in December 2007 to review completed projects, the International Monitoring Station and to tour the station facility infrastructure. The meeting resulted in the following actions and improvements:

- The group reviewed the status of the Palmer Station Naval Facilities Engineering Command (NAVFAC) Inspection and Punch List Update; original document, 2002.
- FEMC scheduled a site visit by division personnel in May 2008 to access the station's condition. The assessment will include review of existing Configuration Change Requests (CCR), minor projects and to identify any major project proposals necessary to resolve station issues.
- The division appointed a project manager to resolve concerns with fuel storage and delivery systems.

Palmer Station

Palmer FEMC continued its support of station science projects, buildings and peripheral infrastructure. Maintenance staff started installing the chemical storage lockers during KY08 and will continue into the next reporting period.

South Pole Station Power Improvements

Phase I of power improvements scheduled for KY08 summer included installing a transformer in the new SPT feeder sub-station room.

Figure FEMC - 62: Transformer in Feeder Sub-station Room

FEMC staff also installed arch ventilation, insulation over the generator exhaust pipes in the power plant arch, and flow and power meters.

Figure FEMC - 63: Insulation Wrap, Generator Exhaust Pipes

South Pole Telescope

The SPT Project deferred most FY08 summer construction to FY09. The project installed the sliding-roof door seals and trim pieces. All other scheduled activities, including change requests, were either deferred or deleted. The project will submit change requests for funding consideration.

RPSC also recommended continuing the Shield Engineering Peer Review. The NSF/OPP requested further clarification.

South Pole Station Modernization

The SPSM project team met its goals for KY08, despite replacement of its project manager. Both of the MREFC projects at RPSC—SPSM and IceCube—are managed together to increase productivity and maximize synergy from support organizations.

McMurdo Station Fire Suppression Project

Summer construction for the Building 174 Fire Suppression Project was deferred to the FY09 winter season. Fire suppression cabinets are installed to store the flammable and combustible materials.

McMurdo Station Helicopter Fuel Upgrade

The Helicopter Fuel Filter Upgrades McMurdo and Marble Point Project was a fast-track effort dependent on materials availability and timely, incremental funding. Stakeholders collaborated with the NSF/OPP to define clear requirements. The project was required to finish in time for the opening of the helicopter operations season. The project met that deadline for the McMurdo Station component, with the filters installed by October 2007. The design, by an Alaskan firm, used custom components manufactured in New Mexico and shipped to Port Hueneme in time for the first WinFly flight. The project design, component procurement, fabrication, and delivery constituted four months.

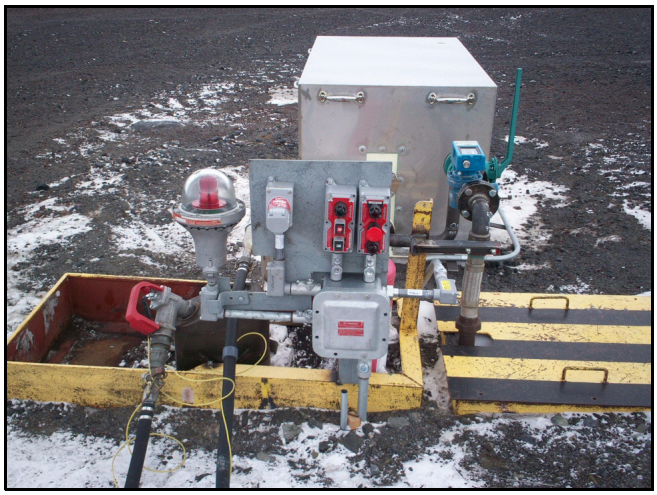


Figure FEMC - 64: Helicopter Fuel Dispensing Unit

The filter and pump for Marble Point arrived mid-October and were quickly installed. Weather delays and design changes delayed the completion of the Marble Point portion of the project by 30 days. By utilizing procedures identified through risk mitigation planning, the delay did not adversely affect helicopter operations.

McMurdo Station MoGas

The MoGas Project plan was amended after consultation with the NSF/OPP, posing a significant change to the project design. The new approach saves cost and will allow the project to complete in a timely manner. NSF/OPP consulting engineers were an integral part of the concept design process.

McMurdo Station Wind Turbine

RPSC is coordinating with Antarctica New Zealand to install a wind turbine farm on Ross Island. Stage 1 of the Ross Island Wind Turbine Farm includes three, 330-kilowatt turbines located on Crater Hill. There is potential for additional wind turbines at other locations on the island. Coordination continued this contract season regarding the design of power distribution to McMurdo Station, road access, and resource availability.

McMurdo Station Bulk Fuel Storage Tank

Additional collaboration with the NSF ABM clarified the requirement for the 2Million Gallon Fuel Tank Project, substantially changing the project plan and design. The new design placed the bulk fuel tanks in use once each is complete, rather than at the completion of the overall project. The new design also integrated a JP5 dispensing system due to the scale back of the MoGas Project.

Figure FEMC - 65: Bulk Fuel Storage Tank Under Construction

McMurdo Station Power and Water Plant Upgrade

The McMurdo Power and Water Plant Project readied for inspection in KY08, with all drawings, approved submittals, and manuals available on site before the inspection.

Figure FEMC - 66: New Water Plant Generator

McMurdo Station Office Modules

All Building 136 and Building 191 office modules were set and welded to the foundations. The double-wide trailers are connected and trimmed. Interior electrical rough-in is underway in the Building 136 offices.

Figure FEMC - 67: Office Module B-191 Interior

Lunar Habitat

The Lunar Habitat Module Project is a joint venture involving the National Aeronautics and Space Administration (NASA), ILC Dover, and the NSF/OPP. The project constitutes the first attempt to deploy a prototype lunar structure that can be quickly inflated to

provide a life supporting dwelling. RPSC was charged to find a suitable location for the project; develop and install the proper tie-downs; and provide power for heat, lighting, cameras, sensors and computers.

RPSC Operations prepared the site and installed the tie-downs. FEMC ran conduit, installed devices, pulled wire and terminated the power. IT provided connectivity to NASA's Johnson Space Center (JSC) in Houston. The work was complete prior to the habitat arrival 10 January 2008. The habitat, subsequently deployed and inflated without incident, is fully operational and transmitting data and images to JSC.

Figure FEMC - 68: Lunar Habitat

Major Successes

Fire Protection Systems

[redacted] manufactures a majority of the fire protection equipment at the three stations. As an authorized company representative, RPSC may direct-purchase fire protection equipment, which saves money and reduces shipping time. The arrangement provides the company with direct access to the manufacturer's technical assistance, product training, and certification.

RPSC also contracted with several other fire-protection companies that specialize in protection engineering, preparation of shop drawings, and the design of fire alarm, special hazard and sprinkler systems. This solution provided niche expertise and saved cost through efficiency.

Palmer Station Bollard Replacement

Related to when the three mooring pins broke at Palmer Station (see the *Area Directorate-Palmer* and *Logistics* sections for detail), FEMC cooperated with the NSF/OPP, NAVFAC, and other RPSC divisions to select, procure and install new bollards by 9 November 2007.

Figure FEMC - 69: New Palmer Station 750-pound Bollard

South Pole Station Modernization

South Pole Station modernization efforts continued in KY08, ending the season 1,350 hours ahead of schedule. Repairs are complete on the chamfer panels in the elevated station. FEMC crews installed 82% of the wind barrier and exterior clad siding.

Completion of the backup high frequency (HF) antenna improved emergency communications. Improvements to the controls system by the Station Controls Correction (SCC) subproject increased stability, demonstrated by the lack of power outages during the summer season.

The NSF/OPP granted conditional occupancy of Rodwell #3 on 27 January 27 2008.

Work completed on the Vehicle Fueling Module (VFM) and made it available for use during winter.

Construction commenced on the Logistics facility and continued during winter.

Life Cycle Replacement

As part of the FY07 APP, FEMC presented a life cycle replacement (LCR) request with provisions of $5 million. The division developed systems-level facilities, fleet, and science support equipment replacement analyses to justify the extensive budget required to replace the aging facility and its science equipment infrastructure.

FEMC developed equipment LCR estimates within a reliable framework that accurately forecasts the cost of equipment replacements coupled with a corresponding 10-year timeline. Retrograde schedules for equipment that is obsolete or scheduled for LCR became effective during the FY07 austral summer season, removing 11,200 pounds and 100 cubic feet of retrograde equipment from McMurdo Station.

The Dorm 201 boiler failed during end of season maintenance as the building was being winterized. Fortunately, FEMC LCR funding was available for boiler replacement. Division staff ordered the equipment for delivery via vessel. The boiler failure alerted FEMC to initiate a replacement project, reviewed in Denver by engineering and construction experts. Trade staffing replaced the boiler in time for use before the October Mainbody deployment.

McMurdo Station Power and Water Plant Upgrade

The McMurdo Power and Water Plant Phase I achieved a certificate of occupancy during KY08, with the inspection completed ahead of schedule. All 22 Priority 1 items on the punch list were closed ahead of schedule. The transition from the old power plant to the new Water Plant Phase I generators was successful, with minimal power outages.

Configuration Change Requests

CCR program performance improved to 121.79% over averages in previous years.

New Zealand Defense Forces

The NZDF Light Engineer Team arrived in early January 2008 to assist with FEMC tasking. RPSC adjusted the task list to match the trades provided. The team completed several projects, including:

- Re-sided the MLS structures
- Constructed a new footbridge
- Demolished a small, sledded structure
- Installed a 50-foot section of retaining wall
- Patched seams on Building 63
- Rebuilt the Coffee House roof
- Assisted with town maintenance

Major Issues

Fire protection systems at the three stations have reached life expectancy. The aging systems are costly to maintain and risk becoming unreliable.

South Pole Station Modernization

The Structural Insulated Panels (SIPs) on the Cargo facility presented two issues resolved through the RFI process. First, panels arrived without fiber cement board on the interior surface and required purchasing additional material in New Zealand. Second, the vapor barrier on the interior surface of the SIP was changed based on the configuration of panels as provided by the manufacturer.

The division reduced the scope of winter work due to the difficulty in hiring qualified trade crafts personnel. Specifically, positions for certified welders and pipefitters remained open for the winter season.

Land Mobile Radio System

The land mobile radio system at South Pole continues to have problems interfacing between the dispatch console and the trunking radio system. RPSC is working with the manufacturer Zetron to either identify a technician or engineer to troubleshoot the system on site in FY09.

McMurdo Station Power & Water Plant Upgrade

The challenge to recruit qualified trades personnel and to fill the quantity of positions necessary to maintain the project schedule has caused cost overruns and schedule adjustments.

Configuration Change Requests

McMurdo Station suffered operation and maintenance issues requiring considerable effort by FEMC crafts personnel not associated with the CCR implementation. Examples include glycol spills and down electrical power lines.

Implementing the McMurdo Station CCR requires a combination of highly skilled crafts personnel and increased staffing.

Customer Satisfaction

South Pole Station Feeder Sub-station

Completion of the South Pole feeder sub-station provides several support improvements: an ability to support more science in the Dark Sector; provides the SPT with a secure power source;

and provides backup power to the BiCEP telescope. Installation of the power meter and waste-heat flow meter allows for better resource allocation and creates an ability to forecast resource usage.

Increased ventilation in the arches and better insulation on the power plant exhaust reduces trapped heat, eliminating melting snow.

McMurdo Station Helicopter Fuel Upgrade

Given the aggressive schedule for the Helicopter Fuel Filter Upgrades McMurdo and Marble Point Project, FEMC identified project risks and implemented contingencies to mitigate impact to helicopter operations. At completion, the project did not adversely impact the helicopter schedule or ongoing science support.

McMurdo Station MoGas

The dispensing requirements of the MoGas and bulk fuel storage tank projects are clearly defined.

Palmer Station Bollard Replacement

Palmer FEMC received commendations from NSF/OPP Marine and the Facilities Engineering project manager regarding the bollard replacement.

South Pole Station Modernization

FEMC participated at the April 2007 St. Michaels II (Optimization of South Pole Operations) Conference, which provided an opportunity to consider the project progress compared to its original scope. SPSM met a constrained, critical path schedule during KY08.

McMurdo Station Power and Water Plant Upgrade

The NSF/OPP praised the McMurdo Power and Water Plant Phase I inspection as among the Program's best. FEMC also participated in a project review with the client in May, yielding similar positive feedback for the Phase II planning effort.

Christchurch Security Upgrade Project

Working with outsourced New Zealand architects and constructors, RPSC designed and built the Christchurch security upgrade within a single year to meet U.S. Department of State requirements. The project was completed prior to summer deployment, within budget and ahead of schedule.

Value Engineering

Accomplishment: From 13 to 16 February 2008, FEMC conducted a test build of a face section of the SPT shield at McMurdo Station. The test build sought to determine:

- Panel fit on a section
- Panel joint flashing fit
- Time required to install panels and flashing on one section

Benefit: The test build yielded the following benefits:

- Beam placement at the elevation of 69 feet, 6 inches was incorrect and prevented installation of the fourth row of panels. Each section consists of five rows. RPSC and the shield fabricator are investigating a corrective action.
- The University of Chicago was able to measure the flashing fit.
- Due to the incorrect beam location, the third objective was not met.
- Use of pre-manufactured components dropped the on-Ice construction time and improved quality control.

Accomplishment: The MoGas dispensing system was redesigned to use pre-fabricated components where possible.
Benefit: Such components minimize construction time and improve quality control.

Accomplishment: FEMC completed a Fire Protection Shop Analysis at McMurdo Station, an effort to identify effective procedures.
Benefit: The analysis caused the division to draft new procedures to reduce labor hours and increase equipment efficiency at all three stations.

Accomplishment: Palmer FEMC purchased more tools and materials in Chile, using an electronic catalog for simplicity.
Benefit: The delivery was faster and shipping costs less when using a Chilean vendor.

Accomplishment: RPSC determined the current design of the fire suppression system in Building 174 at McMurdo Station is not applicable to the current building configuration. RPSC recommended suspending project construction until a new engineering design is completed.

The NSF/OPP approved the approach, which allows RPSC to access the inventory of current and anticipated materials and existing fire suppression equipment.
Benefit: The approach will reduce material and labor costs.

Accomplishment: FEMC redesigned the 2Million Gallon Fuel Tank Project to use pre-fabricated dispensing components whenever possible. RPSC will lift design concepts from the MoGas Project.
Benefit: Sharing system design concepts and components between projects reduces re-work time and maximizes division resources.

Accomplishment: FEMC flushed and cleaned the dead legs and side loops on the South Pole waste heat loop. The effort removed trapped motor oil that could break loose and re-contaminate equipment and instrumentation.
Benefit: The flushing and cleaning will extend the life and reliability of the equipment and instrumentation on the waste heat loop system.

Accomplishment: The division constructed and installed a glycol filter assembly unit to filter the South Pole waste heat loop system, removing motor oil that may be still be present in the glycol stream either as particulate matter or dissolved in solution.
Benefit: The new filtration unit reduces the potential for equipment and instrumentation failures resulting from motor oil contamination.

Accomplishment: FEMC installed the direct digital control (DDC) system in the VFM without deploying a subcontractor as part of SPSM.
Benefit: Division staff installed the DDC system, saving $24K in subcontractor costs.

Accomplishment: FEMC entered all power plant, water plant and waste water treatment plant equipment to the MAPCON preventive maintenance system.
Benefit: Adding the equipment to the PM system improves the consistency of preventive maintenance work orders and helps track costs for the three utility plants. Material usage records are now available in MAPCON, providing data necessary to reduce orders and minimize resupply costs.

Accomplishment: FEMC identified a method to monitor fuel, electric, and water usage at McMurdo and South Pole stations.
Benefit: The USAP can now measure the effectiveness of energy conservation initiatives.

Accomplishment: The division installed 20 energy meters and 15 fuel meters at McMurdo Station.
Benefit: FEMC can measure electric consumption at key facilities and the fuel used to heat buildings.

Accomplishment: FEMC installed 20 programmable, set-back thermostats in McMurdo Station buildings.
Benefit: The Program can save energy by lowering building temperatures during non-working hours.

Accomplishment: FEMC installed 14 clothes lines at McMurdo Station.
Benefit: The clothes lines reduced clothes dryer usage.

Accomplishment: The division installed a smart load bank on the white elephant generator building that powers the ice runway and Williams Field.
Benefit: The generator operates at the manufacturer's recommended range of 60% to 80% of full-load, regardless of the runway load. The change improves the long-term functionality of the generator engine.

Accomplishment: FEMC identified several value engineering options for the Power and Water Plant Upgrade Project, including resale of the old Caterpillar generators from the water plant and the portable backup generator.
Benefit: The resale saves the Program some $620K.

Accomplishment: FEMC will use heating stoves in place of the over-sized, oil-fired forced-air furnaces in the office modules at McMurdo Station.
Benefit: The change will save cost due to a more efficient operation, reduced install time, and less furnace maintenance.

Accomplishment: The Energy Team addressed 95, Priority 1 DDC system corrections as part of the South Pole Station System Controls Corrections effort. The team resolved 87 corrections.
Benefit: Such repairs save energy and provide a foundation to baseline a facility's energy record.

B. Program Integration

Coordination with Other Divisions

FEMC consulted station Operations regarding each design aspect of both the 2Million Gallon Fuel Tank and helicopter fuel upgrade projects. In turn, Operations personnel supported all related construction work.

The Marine Division helped size and specify the bollards for Palmer Station.

Palmer FEMC assisted science grantees in patching the Avian Island Hut, an effort that occurred on the LTER cruise.

With the recent assignment of a dedicated, Life Cycle Replacement Program (LCRP) project manager, RPSC created a central point of contact to apply a standard life cycle methodology across company operations.

Transition from the old generators at the power plant to new generators at the water plant posed some impact across company divisions. FEMC communicated its transition plan each week, describing each planned power outage and its duration. The resulting impact to McMurdo Station operations and personnel was minimal.

FEMC and Science Support continued to integrate Science Construction into the FEMC structure. Science construction comprises *25%* of the summer workload at McMurdo Station. In KY08, 33 field sites were constructed or maintained, including the WAIS Divide field site, located 1,118 miles from McMurdo Station and with a population last season of 62 residents.

Such field sites enable a significant amount of science in remote locations and require considerable inter-division and inter-agency cooperations.

The Christchurch Security Upgrade Project required that FEMC coordinate with the U.S. Department of State, Christchurch Airport Authority, Christchurch Operations, and Denver-based scheduling, purchasing, and administrative support.

C. Innovation & Process Improvement

Technical Solutions

Solution: The filter design used in the helicopter fuel upgrade project called for a filter vessel not available to meet the project schedule. Division staff altered the design to accommodate an alternate filter.
Benefit: Filters were installed in time for the start of the season.

Solution: Fuel off-load through the four-inch pipeline on the MoGas Project required a booster pump to fill the bulk storage tanks. Changing to a six-inch pipeline allowed filling the bulk storage tanks directly from the tanker.
Benefit: Eliminating the booster pump minimized the equipment and reduced labor necessary to monitor the fuel off-load.

Solution: The Denver-based fire protection supervisor assumed responsibility for maintenance of all fire-protection systems. FEMC developed a related Operating Procedure Manual. An Installation, Testing and Inspections Manual is under development to standardize fire-protection installations, tests, and inspections.
Benefit: The solution reduces cost in both labor hours and equipment.

Solution: Palmer FEMC replaced six electric heaters with glycol hydronic heaters. The glycol heaters were installed as part of the Glycol Expansion Project.
Benefit: The change removes electrical load from the generators and increases the overall efficiency of converting fuel oil to building heat.

Solution: The lights in the Garage, Warehouse and Recreation Building second-floor hallway were too bright. Occupants frequently left the lights turned off, creating a safety hazard and code violation. Palmer FEMC added non-switched source lighting.
Benefit: The change resolved a safety hazard and code violation.

Solution: Piping in the sea water intake pump house at Palmer Station was failing. Sea water supply is a primary utility on station, feeding both the aquarium and reverse osmosis systems. FEMC replaced the piping and added vibration isolation connections to the pumps.

This occurred with only minor station interruption.
Benefit: A constant sea water supply is now available for the aquarium and reverse osmosis systems.

Solution: Antarctica New Zealand is reviewing a series of options to interface the wind turbine farm to McMurdo Station. RPSC proposed two options:

- Install a new feeder between the wind turbine site and the power plant sized to carry the maximum expected current and to limit voltage drop on the line.
- Allow the use of the existing "D" feeder at some reduced power level not greater than 80 amps until the new feeder is installed.

Benefit: The excess power from the Antarctica New Zealand wind turbine farm will reduce the fuel required to develop electricity for McMurdo Station.

Solution: The existing equipment in the pumping facility (Building 150) at McMurdo Station is scheduled for life cycle replacement. The design of the 2Million Gallon Fuel Tank Project includes a new pumping facility.
Benefit: The new facility will reduce life cycle cost.

Solution: Air in the elevated station's waste heat loop reduced the pressure that could shutdown the station's waste heat loop system. The bladder in expansion tank B was found to have a hole that released air into the waste heat loop. FEMC replaced the bladder to correct the problem.
Benefit: The repair increased the reliability and efficiency of the waste heat loop system, reducing fuel consumption and cost.

Solution: FEMC changed specification for the uninterruptible power supply in the South Pole Station Operations Center from four hours to one-half hour.
Benefit: This saved approximately $70K in materials and $12K in labor.

Solution: FEMC designed a spill containment berm around the VFM at South Pole Station.
Benefit: The berm protects the environment and prevents damage from possible spills.

Solution: FEMC's electrical crew traced a short in a wire on Generator #3 in the power plant, resolving a three-year reliability issue.
Benefit: Generator #3 runs dependably.

Solution: FEMC replaced the main boiler in McMurdo Station Building 201 dorm after the unit failed. Without immediate LCR, the dormitory facility could not be occupied during the summer season and would displace 54 station personnel and significantly limit the McMurdo Station population.
Benefit: With the immediate replacement of the failed boiler, the dorm opened on time.

Solution: FEMC performed a life cycle replacement of both fire suppression system air compressors in McMurdo Station Building 209 and the Palmer Biolab. The original compressors did not comply with National Fire Protection Association (NFPA) standards and were not certified by the American Society for Testing & Materials. For the past five years, the air compressors had failed all inspections relating to an annual independent hazardous equipment inspection. LCR of both fire suppression system air compressors was required.
Benefit: The new air compressors will be certified and are NFPA code compliant, increasing the safety of the combined 200 occupants through reliable and certifiable fire-protection systems. The new units are oil-less units, which feature lower maintenance costs and increased environmental gain.

Solution: Failure of the main voltage regulator in CSEC, Building 001, required life cycle replacement.
Benefit: The new voltage regulator eliminated all voltage and current transients on the main Building 001, CSEC, electrical supply circuit. Critical scientific testing equipment is protected from harmful voltage and amperage spikes. The new regulator is maintenance-free, digitally controlled and has no moving parts.

Solution: Three diesel engines at the McMurdo Station power plant were rebuilt through a contract with the New Zealand Caterpillar representative, Goughs (of Gough, Gough & Hamer). Normal maintenance had been deferred due to slippage in the new power plant project schedule.
Benefit: Reliable back up power is now available for the duration of the winter season and should be available until the new power plant project is completed.

Solution: RPSC facility engineers collected data from operating manuals and plant designers and operators. The information resulted in a standard operating procedure for the entire plant. The plant was previously operated without such procecures.
Benefit: The procedures allow new contract operators to quickly grasp system operations upon arrival at McMurdo Station.

Solution: FEMC moved the schedule for the Power and Water Plant Upgrade Project off the Ice.
Benefit: The project team could more easily control and maintain schedule data.

Solution: FEMC conducted quality self-inspections for the Power and Water Plant Upgrade Project that were also tied to schedule activities.
Benefit: The concept resulted in a small punch list and labor cost savings of approximately $50K.

Visionary Management

Accomplishment: The division used plug-in components for the Helicopter Fuel Filter Upgrades McMurdo and Marble Point Project.
Benefit: The successful use of plug-in components reduced construction time and labor required each season and increased the quality control.

Accomplishment: The new dispensing design allows for dispensing other fuel types in the same area as MoGas without reworking the MoGas dispensing system.
Benefit: Adding other types of fuel dispensing without rework reduces cost, time and resources.

Accomplishment: Palmer FEMC continued to pitch energy-saving projects for NSF/OPP approval.
Benefit: Reducing energy consumption lowers costs, reduces the carbon foot print, and minimizes impact to the Antarctic environment.

Accomplishment: FEMC shifted SPSM resources between arch and panel crews to compensate for schedule shortfalls.
Benefit: The division met the baseline schedule. Both the arch and building were enclosed, making up earlier delays.

Accomplishment: FEMC completed the Phase II schedule for the Power and Water Plant Upgrade Project, including off-Ice activities.
Benefit: The project features a baseline schedule and management plan to measure progress.

Accomplishment: To better plan and execute timely engineering services, FEMC Engineering added new processes:

- The Engineering Design Schedule Form tracks the status of those projects requiring engineering support from conception through design and to final, stamped Approved For Construction documents. The form is updated weekly and sent to the NSF/OPP for discussion during the weekly station conference call.
- The Drafting, Engineering & Estimating Request Form is used by project managers to request project support. The form enables the Engineering Department to schedule its workload well in advance and to track schedule slips.
- FEMC now holds a weekly engineering review meeting with engineers and drafters to review current and advance projects. The forum provides management with a timely snapshot of current work, and monitors weekly charges to the general engineering budget.

Benefit: The above processes allow Engineering to forecast and allocate appropriate resources based on realistic priorities. These processes create accountability and result in timely design package submittals, with accurate, stamped Approved For Construction drawing sets available before construction commences.

Responsiveness to Challenges

Issue: FEMC was charged with providing new code-compliant fuel filters in time for the start of helicopter operations at McMurdo Station and Marble Point.
Response: The division completed the related project design, component procurement, fabrication, and delivery in four months.

Issue: Scope reductions in the MoGas Project regarding its dispensing component also affected the 2Million Gallon Fuel Tank Project.
Response: The division is integrating the design changes of the MoGas Project into the fuel tank project to coordinate design and eliminate rework.

Issue: FEMC is challenged to finding qualified, seasonal fire-protection contractors willing to deploy.
Response: The division grouped fire protection at all stations. The action has resulted in a 100% return of the 2007–2008 fire-protection personnel. Benefits of the consolidation include: opportunity to travel to all stations, ability to work under consistent policies and procedures, and the opportunity to become part of a recurring deployment team.

Issue: The main heating plant in Building 201 failed during FY07 building winterization.
Response: FEMC executed the LCR of the boiler system on short notice, with it completed by 1 October 2007.

Lessons Learned

Installation pre-assessments are critical to identify added install costs requiring funding outside the LCR budget.

LCR design engineering requirements exceeded the capacity of the general engineering budget, therefore must be funded as an independent line item in the LCR APP.

If LCR equipment on the Ice is to be installed prior to catastrophic failure, LCR installation labor should be funded in time to hire the requisite FEMC trades personnel. Only reactive LCR presently occurs.

Accurate as-built drawings are critical in the design process. Inaccurate or non-existent site drawings lead to faulty design and shortfall of necessary installation material.

To improve FEMC's estimating accuracy and provide the correct installation material, the estimating group must complete material-take-off (MTO). The lack of MTO resulted in depletion of general stock and material shortfalls.

LOGISTICS

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Log			*Log TOTALS*	[redacted]	[redacted]	[redacted]	[redacted]
60	Cargo ROS USAP	>=97.0% delivered on ROS.	[redacted]				
61	USAP COMSUR	>=87% cargo delivered by COMSUR.	[redacted]				
62	Minimize Loss or Damage to cargo in transportation	>=99.75% yield.	[redacted]				
63	Zero damage to science samples shipped to Grantee designated destinations	Zero instance of damage.	[redacted]				
64	USAP Air: RPSC Accurately Plan Christchurch to McMurdo Military Airlift: Realize cargo movement weight between 90-110% of RPSC allocated weight.	90-110% of allocated weight.	[redacted]				
65	Inventory accuracy (McMurdo).	>=87.00% inventory accuracy - McMurdo.	[redacted]				[redacted]
66	Inventory accuracy (Palmer).	>= 84.0% inventory accuracy - Palmer.	[redacted]				
67	Inventory accuracy (South Pole).	>= 74.0% inventory accuracy - South Pole.	[redacted]				
68	Implement supply chain initiative: Decouple South Pole from the Resupply Vessel.	Ship 100% South Pole vessel 2009 food, excluding "freshies", to McMurdo on the resupply vessel and provide required storage until it can be moved to South Pole in the Austral Summer 08-09. That is, 100% of the food received at PTH in time to load on the resupply vessel.	[redacted]				
69	Implement supply chain initiative: CMP Plan.	Increase scope of CMP managed items by 50% starting from a base line of 1,413 items procured in KY07. The KY08 target becomes 2,119 line items.	[redacted]				
70	Implement supply chain initiatives: McMurdo Inventory Reclamation.	Return 500 line items to Mapcon inventory control by the end of [redacted]	[redacted]				
71	Delayed aircraft launches due to passenger or cargo delays at Christchurch and McMurdo.	97%	[redacted]				
			TOTALS	[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

Figure LOG - 70: Division Metrics

A. PROJECT MANAGEMENT

General Management

In KY08, the Logistics Division realized a 46% reduction in recordable injuries—from [redacted]—and important operational improvements in the transportation and warehousing arenas.

Transportation

- South Pole Station dependence on resupply vessel cargo was effectively decoupled by reducing vessel cargo requirements by 92%, from 660,000 to 57,000 pounds.
- The division successfully responded to change, such as the reduced number of C-17 palletized seats from nine to five due to availability, and the resulting drop in the passenger load from 140 to 126 per mission. The Antarctic Terminal Operations (ATO) coordinated with USAP agencies to reschedule the movement of passengers and cargo to McMurdo Station.
- Through astute management of the C-17 airlift, C-17 missions were reduced from 55 to 52, saving the Program $200K in cost avoidance.
- Adding a NZDF-purchased C-17 mission, enlisted to replace lost C-130 missions, cleared the cargo backlog and shifted the cost from the USAP, a $100K value.
- The division removed .8 million pounds of retrograde from South Pole Station, while supporting an increase in field science cargo movement from 15,000 to 274,000 pounds.

- Logistics staff supported the Australian Airbus A319 aircraft with successful passenger and cargo operations.
- Efficient and effective management of the resupply vessel port calls shaved 1.5 charters days from the planned operation, saving a potential $94,500.

Warehousing

- Central Material Planning and Control Inventory (CMP) material transfers initiated in 2005 are complete, with CMP item management at 6,305.
- The McMurdo Retrograde Project removed 781,517 pounds of obsolete and excess material, reducing the material footprint by 8,000 square feet.
- A Just-in-Time Supply Chain (JIT SC) initiative was introduced to reduce the Antarctic material footprint.
- The division completed critical Supply Operations tasks with one-half the typical winter staff.
- Food warehouses operated seamlessly when transferred to NANA Services, LLC.
- The Palmer Logistics Operation achieved a 94% inventory accuracy rate.
- Division personnel corrected 6,634, or 9.6%, of the South Pole MAPCON records to prepare the database for determining what material will remain as stock on site, at other USAP locations, or be disposed. The cleanup is a critical component of the JIT SC initiative and preparation to move into the new Logistics Facility, once complete.

Major Successes

Timely delivery of critical materials often means success for a project or operation that would otherwise fail without such supplies. The following short-fused deliveries illustrate Logistics' responsiveness to emerging requirements.

- LDB: liquid helium dewars and lithium batteries necessary to support Nobel Prize-winning research.
- AGAP: Antarctic shelters, fuel hoses and Kuma stoves to support field science.
- Palmer Station: X-ray scanner to provide adequate level of medical care at the remote station.
- ITASE: fan and radiator to repair the Caterpillar Challenger 55 that broke down on a glacier during a traverse some 140 miles from McMurdo Station.
- ANDRILL: Just-in-time delivery of 26,000 pounds of drilling mud.

Supply Operations placed the CMP resupply order in the March to April 2007 time frame. By the end of May 2007, 85% of the line items (772 of 907) were received at Port Hueneme. The early delivery lessened the normally overwhelming port workload that occurs from October through December.

Customer Satisfaction

The USAP Cargo Supervisor personally intervened to prevent a USDA agent from further unpacking ice core samples en route from Antarctica. The agent had penetrated the packaging when the supervisor convinced the agent to stop and close the core packaging. Unwrapped, the cores would have been ruined. The supervisor’s hands-on customer service and immediate response, including driving from Port Hueneme to Los Angeles, saved the cores, the tremendous investment in their collection, and the continuity of the research record.

Value Engineering

Accomplishment: RPSC successfully decoupled South Pole Station from its dependency on the resupply vessel cargo. Prior to the decoupling, at least 26 LC-130 flights over a four-to-six-day period were required to deliver the resupply vessel cargo. The table below illustrates a 92% decrease in the amount of 2008 vessel cargo delivered before station close. The smaller cargo volume reduced the South Pole LC-130 flight schedule from six to three missions per day, enabling delivery well before season close.

Figure LOG - 71: South Pole Cargo Area Before And After

Benefit: The early completion of resupply vessel cargo operations contributed to the one-day-early station closure. Delivering critical cargo to South Pole Station prior to the arrival of the resupply vessel also dramatically reduced risk to air crews and cargo handlers, as well as to year-round operations and winter work. The early delivery also allows the 109th Air Wing to redeploy aircraft and crews sooner.

Accomplishment: In response to RPSC's Special Assignment Airlift Mission (SAAM) request, the USAF announced mid-September that it could accommodate only five of the nine pallets of passenger seats requested, reducing the maximum passenger load per mission from 140 to 126 passengers. The division collaborated with USAP agencies and RPSC work centers to quickly adjust personnel deployment dates for the first week of the austral summer season.

To balance the movement of passengers and cargo to McMurdo Station, the number of passengers on the first, three flights were reduced to 126, and to 70 on the fourth flight.

Benefit: The revised passenger and cargo schedule maximized the available airlift, delivering high-priority personnel and cargo on schedule despite the late change. The success of the first week provided a model for balancing competing airlift needs.

Accomplishment: The ATO successfully negotiated with the USAF to acquire an additional 120 Associated Intermodal Platforms (AIPs) for use in the deep field. The USAP obtained the units, valued at $108K for the cost of shipping, some $5K. The AIPs provide field camps with an alternative to holding the scarce 463L pallet as storage platforms.

Benefit: Using AIPs allowed for sufficient 463L pallets available to move cargo.

Accomplishment: New Zealand Terminal Operations proactively managed pre-arrival cargo planning with port authorities and Antarctic New Zealand—including the inspection, acceptance, and positioning of Antarctic New Zealand and RPSC cargo at the port prior to vessel arrival. As a result, the annual resupply vessel M/V *American Tern* completed its Port Lyttelton, New Zealand, port call within 48 hours of arrival—this despite changing berths three times instead of two, loading a record of 1.9 million pounds of cargo and taking on additional fuel for the Swedish ice breaker *Oden*. The *Oden* required the extra fuel to travel 1,000 unplanned miles to break the tanker, M/V *Lawrence H. Gianella*, from the ice pack.

Benefit: The efficient turnaround at Port Lyttelton—and earlier during load planning at Port Hueneme—allowed the M/V *American Tern* to minimize impacts to USAP operations, despite the vessel arriving in New Zealand two days behind schedule.

Accomplishment: Of the 1.8 million pounds of passengers, baggage and cargo retrograded from South Pole Station, 871,825 pounds constituted waste. The waste was shipped on 265 USAF pallets, averaging 3,290 pounds per pallet. Each pallet required an average 3.43 hours to prepare. Very little of the waste consisted of demolition or waste wood.

Benefit: The successful shipment of this waste material contributes to the high-priority task to eliminate the retrograde material backlog.

Accomplishment: The second successful C-17 airdrop mission to South Pole Station was completed on December 19, 2007, consisting of 20 Container Delivery System (CDS) bundles averaging 1,000 pounds each.
Benefit: Such bundles are easier to retrieve and were accurately dropped. The successful airdrop provides another mode for material delivery to South Pole Station and allows the USAF opportunity to train its crews for cold weather drops.

Accomplishment: Palmer-based Logistics personnel assisted re-deploying science groups with shipping science samples. This involved assigning transportation control numbers (TCNs), entering data in the cargo tracking system, preparing necessary documentation and labeling, and sending ice advisories to [redacted]. In light of the short port-call period, Logistics staff also assisted with packing temperature-sensitive samples in Punta Arenas.
Benefit: Twenty ThermoSafe, insulated boxes of keep-frozen samples were quickly packed according to established standards to clear the vessel in time for the next grantee group to embark.

Accomplishment: Peninsula-based Logistics staff helped plan and execute the effort to ship Palmer Station waste to Louisiana via the LMG. Effective collaboration by Peninsula Logistics, Procurement, Waste Management and Marine Operations resulted in a successful canal transit and United States entry. The vessel carried nine containers of cargo on the return transit, avoiding $70K in commercial surface transportation cost.
Benefit: Station waste was eliminated to remain in compliance with regulatory requirements. In turn, using available deck space to deliver southbound cargo reduces the Program's commercial surface-cargo costs.

B. Program Integration

Coordination with Other Divisions

Through advance planning and effective coordination, the resupply vessel operation at each port of call minimized operational costs. The McMurdo Station vessel operation, entailing the largest and most complex port call, succeeded through the cooperative efforts of the NZDF long shore, NAVCHAP, and various RPSC divisions.

The vessel discharged 11.8 million pounds of cargo and loaded 8.7 million for a total cargo movement weight of 20.7 million pounds. This well-orchestrated operation shaved 1.5 days from the eight-day estimate, avoiding $94,500 in charter cost.

The Supply Operations department transferred the McMurdo Station food warehousing operations and associated staffing from RPSC to NANA Services, LLC. Joint development of the statement of work enabled seamless outsourcing of this aspect of the warehouse function.

The coordinated efforts of FEMC, Procurement, Peninsula Logistics, Port Hueneme Operations and Palmer Station personnel enabled the broken mooring pins at Palmer Station to be procured, shipped and installed in an eight-week period. RPSC engineers and NSF/OPP staff reviewed the specifications for the new steel bollards, expedited from the vendor to meet the scheduled LMG sailing date in November.

The ATO assisted Airfield Operations in the recovery of Williams Field skiway and Pegasus Airfield following a January storm that dropped eight inches of heavy snow and rendered both runways unusable for the scheduled distinguished visitors' mission. Within 24 hours, RPSC personnel brought both runways to operable condition to support the LC-130 and C-17 aircraft missions. ATO assisted by wheel packing the runway surfaces with its equipment.

C. Innovation & Process Improvement

Technical Solutions

Solution: The ATO proposed to substitute its staff for the NZDF personnel who deploy to McMurdo Station. This was in response to a desire by the NZDF to eliminate extended deployment of its personnel. Through joint discussions with the NSF/OPP and NZDF, RPSC formulated a course of action for the NZDF to support the USAP on short-term activities, such as resupply vessel operations and building demolition. The proposal, subsequently approved and implemented, recommended that at least [redacted] NZDF personnel deploy to provide [redacted] for the resupply vessel operation. This would allow 11 RPSC employees to redeploy early and reduce the NAVCHAP requirement by [redacted]

The proposal also called for [redacted] additional personnel to deploy to support crane operations.
Benefit: The change yielded the following Program benefits:

- Replaced [redacted] NZDF personnel with [redacted] ATO employees to save five, seasonal bed spaces.
- Replaced [redacted] untrained RPSC drivers with [redacted] of the [redacted] NZDF drivers. The result was a safer resupply vessel operation and opportunity to either dismiss [redacted] RPSC personnel sooner or to employ them on other summer tasks.
- FEMC accomplished more summer tasks with the assistance of [redacted] NZDF personnel.
- The staff substitution concept realized a better skill set match for the Program. The effort also allowed the New Zealand government to fulfill its quid pro quo obligations. The NZDF provided [redacted] personnel to support summer operations.

Solution: The late arrival of the M/V *American Tern* contributed to a backlog of redeploying passengers, who stayed to support the vessel operation. Coupled with the request from the 109th Airlift Wing for seven to eight pallet positions on the C-17 missions, an additional C-17 flight was planned for 22 February 2008 to clear backlogged passengers and cargo. Working with the various agencies, the Passenger Services supervisor leveled the passenger load across the scheduled flights when the 109th AW reduced its pallet requirements to four positions.
Benefit: This action eliminated the need for another mission. The net gain was the cancellation of two of the planned C-17 missions for the season, avoiding $200K in mission costs.

Solution: At the end of KY07, inventory line items managed by CMP stood at 1,413. Of these, 941 line items required re-supply requisitions, while the remainder exhibited stock status positions requiring re-supply in FY08. During FY08, the implementation of CMP Phase II increased the inventory to 6,503 items. Supply Operations received funding transferred from other divisions to replenish the 1,341 line items to restock in FY08. The 2,461 other line items exhibited excessively large, on-hand quantities and the data was turned over to the Retrograde Project for stock level correction during the 2007–2008 extended season. The remaining 2,701 line items will not require replenishment until FY11.

Benefit: The effort centralized inventory planning, control, and requisitioning, producing both financial and physical plant efficiencies:

- Consolidation of multiple departmental demands into a single, annual requisition drives down purchase order generation and maintenance costs for the Procurement division.
- Delivery of a single, annual requisition line item to Port Hueneme drives down incoming receiving costs, as well as vendor delivery costs.
- The annual requisition line item usually requires only one packaging operation for transshipment to McMurdo Station, with commensurate cost reductions at Port Hueneme and packaging disposal reductions at McMurdo Station.
- Consolidation of multiple stock locations frees warehouse space for items not optimally located at McMurdo Station (for example, MilVans and Outside Storage Areas).
- Use of standardized re-supply planning doctrine ensures that CMP inventories are created and maintained based on need.

Solution: Supply Operations personnel coordinated during the austral summer with science construction and VMF staff to bring 1,022 line items of inventory material into the MAPCON inventory database. The items have MAPCON stock numbers, were requisitioned through MAPCON, and received into MAPCON upon arrival at McMurdo Station. However, immediately following the receipt process, each item was issued direct-to-owner and subsequently were no longer visible in MAPCON. In addition to returning the material to MAPCON inventory, Supply Operations also worked with the affected departments to establish physical stock locations that conform to USAP inventory control standards.
Benefit: When material is returned to MAPCON inventory control, the stock levels can be managed according to RPSC stocking objectives and the material becomes available to meet the needs of the entire station.

Solution: To improve the tracking of material en route between Punta Arenas and Port Hueneme, RPSC directed AGUNSA to work with the air carrier to include pieces and pallets, in addition to the weight of the shipment, on airway bills.

Benefit: The enhanced description of cargo quantities provides a more efficient method to track cargo. The effort will further reduce the administrative costs associated with cargo tracking.

Visionary Management

Accomplishment: The division selected nine areas of improvement for its JIT SC initiative, specifically focusing on efforts to "lean" McMurdo and South Pole stations. The JIT SC concept moves people and materials up the supply chain if not required on site. Highlights of JIT SC improvements include:

- The division implemented classifications to identify where the stocks will reside: A for South Pole, B for McMurdo and C for Christchurch. Prior to relocating the materials, the 74,000 MAPCON database records must be correct. Division personnel corrected approximately 7,124, or 9.6%, of the South Pole Station inventory records.
- To identify those materials classes appropriate to hold on station or moved off-continent, the division developed an RPSC Supply Strategy as definitive guideline. The strategy will reduce inventory levels by changing the stocking policy from a "just-in-case" to a "just-in-time" supply strategy, optimizing the stations' material and personnel footprints.
- To further “lean” McMurdo Station, RPSC received NSF/OPP approval to continue the McMurdo Retrograde Project into the extended season. Goals include preparing 1,523 items for relocation to Christchurch for stocking, an effort that marks the first inventory transfer as part of the JIT SC initiative to remove unneeded materials off the Antarctic continent. By 1 February 2008, the project had processed more than 3,198 line items of obsolete or excess material for disposal as waste or for resale; 688,288 pieces of material, weighing 781,517 pounds, was processed for shipment on the return voyage of the supply vessel. This action reduced the footprint by 8,000 square feet, or 64,821 cubic feet, including 29,000 cubic feet of outside storage. Some 90% of the material was removed from Building 87, which stands to be totally cleared. Once empty, the building can be demolished in accordance with the McMurdo Long Range Plan.
- To set up the Christchurch warehouse, the division obtained 700 linear feet of pallet racking from the U.S. General Services Administration’s excess material program, an amount equivalent to about 6,300 square feet of storage space with three tiers. The net cost benefit to the USAP is approximately $70K when considering transportation costs.

Benefit: The JIT SC initiatives will reduce the material footprint in Antarctica and correctly align the inventory size with operational need. Each achievement above marks a critical step in achieving the overall objective.

Responsiveness to Challenges

Issue: Delayed delivery of liquid helium (Lhe) dewars threatened to prevent the completion of Nobel Prize-winning research for anti-helium that was scheduled for December 2007. When the captain of the commercial surface vessel exercised his prerogative to refuse to carry the dewar, on-time delivery via commercial surface was no longer possible.

Response: Logistics personnel employed a unique, first-time solution to expedite delivery of the helium. The plan entailed shipping the helium via USAF C-17 aircraft from McChord Air Force Base to Christchurch, New Zealand. The following key actions allowed for an on-time delivery.

- Port Hueneme Operations personnel recalled the dewar from the commercial pier prior to the long shore cut-off date and time, confirming the USAF would carry the dewar and grant a hazardous cargo waiver to authorize transport from the United States.
- In collaboration with the SFA commander, the USAP Cargo work center received a timely hazardous cargo waiver and set a new USAP precedent whereby hazardous material—liquid helium—was allowed transport from the United States via C-17 aircraft. Hazardous waivers typically require several days. However, the commander's assistance reduced the wait to hours.
- Port Hueneme trucked the dewar to McChord Air Force Base to avoid the $204K cost to reposition the swap-out SAAM aircraft. Logistics then moved the dewar to McMurdo Station at the earliest opportunity using a banked C-17 mission and without disrupting other scheduled cargo and passenger movements.

Issue: RNZAF C-130 missions fell behind schedule due to weather and maintenance causing an airlift capability shortfall.
Response: The ATO recommended Antarctic New Zealand purchase a C-17 mission to make up the shortfall and to meet its quid pro quo commitment to the NSF/OPP. The effort avoided the NSF/OPP buying another C-17 mission to move the cargo backlog.

Issue: South Pole Logistics processed 269,000 pounds of unplanned cargo in support of field science, as support shifted from McMurdo to South Pole station.
Response: South Pole Logistics shifted its task priority from retrograde cargo processing to field science cargo to provide the necessary support for the planned science.

Issue: With a 50% reduction in Supply Operations winter staff, the division expected that receipt of 2007 vessel cargo would be severely impacted, both in terms of data processing accuracy and duration of the cargo evolution.
Response: After losing some [redacted] to the reduction, the remaining staff resources were dedicated 65% to general customer/community support and 45% to vessel receiving. The split in labor allocation is equal to past season. Labor hours required for customer/community support was proportionate with the reduced station population. Labor required to complete vessel receiving was 12% above the winter average, due to 22% increase in vessel line items from 14,000 to 17,311. Warehouses normally staffed for winter were reduced to "self help" to allocate more labor hours to vessel receiving. Despite this effort, only 50% of vessel cargo was correctly received by August. This resulted in Winfly and Mainbody personnel assigned to the task simultaneous to "normal" summer season tasking, as possible. On 24 January 2008, the last of the vessel cargo line items were physically received, data processed, and audited for final accuracy.

Issue: The 2007 resupply vessel order for aviation fuel drums included a batch of leaking drums. The division was required to determine how many of the drums in the shipment were usable to meet the season requirements and to mitigate any shortfalls.

Response: A joint effort by McMurdo Operations, Logistics, Quality Assurance and Contracts personnel identified the magnitude of the problem; short- and long-term mitigation possibilities; and possible reimbursement or remedy by the vendor. Supply Operations called forward 400 drums. The vessel 2008 order for aviation fuels drums was increased to cover unexpected needs during the extended season. The vendor provided 10 aviation fuel drums modified to eliminate condensation that builds up during shipping. If this change is effective, it will eliminate the need for Supply Operations to dry the drums in heated warehouses.

Issue: The Airbus A319 represented a new challenge for moving passengers and cargo on and off the aircraft, as the USAP is primarily equipped to support military aircraft.
Response: Terminal operations staff at Christchurch and McMurdo Station accomplished the timely changes necessary to effectively move passengers and cargo on this first flight of the Australian Airbus to McMurdo Station.

Issue: As fully described in the *Area Directorate - Palmer* and *Science Support* sections,
Response: The LMG was unable to tie up at the Palmer Stationn pier due to broken mooring pins and instead anchored offshore. This prevented use of the ship's crane to unload MilVans onto the pier.

Response: Palmer Logistics staff worked with Marine Operations and station personnel to unload MilVans on the ship and transport cargo from the vessel to shore via Zodiac boat. The teams successfully unloaded all science and essential station cargo via this method for two cruise rotations. Cargo arrived on time and the interim solution prevented impact to science.

INFORMATION TECHNOLOGY AND COMMUNICATIONS

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
IT/Comms			*IT/Com TOTALS*	[redacted]			[redacted]
17	IT/Comms system Intranet performance	>=99.5% Intranet availability.		[redacted]			
18	IT/Comms Internet system performance	>=99.5% Internet availability.		[redacted]			
19	IT/Comms South Pole TDRSS KU system performance	99.5% TDRSS KU availability.		[redacted]			[redacted]
20	Customer satisfaction for IT products and services supported through the Help Desk.	>=90% of all eligible Help Desk work orders sampled are rated as satisfactory.		[redacted]			

LEGEND Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTA [redacted]

Figure IT - 72: Division Metrics

ENGINEERING AND SYSTEMS DEVELOPMENT

A. PROJECT MANAGEMENT

General Management

A bi-weekly forum involving the NSF/OPP, RPSC and SPAWAR was established to review project integration and inter-agency support. RPSC and SPAWAR adopted a SOW integration methodology similar to that used on the SPTR-2 project to coordinate project efforts. The concept will also be applied to the McMurdo Operations Center Consolidation (MOCC) Project.

Major Successes

South Pole MARISAT/GOES Project personnel repaired and installed an antenna drive mechanism and heater control elements at South Pole Station. The satellite down-link returned to full operational status.

NPOESS The project reached a major milestone, increasing McMurdo Station bandwidth from 3 Mbps to 10 Mbps. The critical step kept NPOESS on schedule, and now provides more than three times the previous data throughput for science, data and operations traffic.

NASA, NOAA and the DoD recognized the NSF/OPP and RPSC for achievements related to the project.

Major Issues

Disaster Recovery IT presented the NSF/OPP with an NPP for Disaster Recovery Planning, under OIG finding 06.02. The preplanning effort will provide an analysis of scope and course of actions under the OPP, develop a budget, and a project management plan (PMP) for consideration as a capital improvement.

Value Engineering

Accomplishment: The division implemented Iridium Multi-Channel Traffic Shaping (IMCS) at the South Pole Station.
Benefit: The effort increased IMCS bandwidth to 28.8 kbps to handle a greater volume of data traffic. The traffic shaping provided additional e-mail capacity with other low-volume functions. Using Iridium extends the daily operational period when satellite service was not previously available. Station operations can manage users better and prioritize traffic.

Accomplishment: Division personnel completed Personnel Tracking System (PTS) Remediation to redesign, code, and test changes to remove Social Security Numbers (SSNs) as a data element.
Benefit: The improvement removes the potential for loss or inadvertent disclosure of Personal Identifiable Information (PII).

Accomplishment: IT completed the AREV Replacement (NPP 07.07.143) preplanning.

Benefit: The milestone provides a strategy to plan a replacement for AREV legacy applications with a business process reassessment before major reengineering, to meet Clinger-Cohen Act of 1996 requirements, and to meet industry best practices.

Accomplishment: NPOESS project engineers renovated and installed the 7.2 m Antenna upgrade ahead of schedule.
Benefit: Being ahead of schedule for the service cut-over allowed for thorough testing prior to the January project deadline. As a member of the NPOESS team for Raytheon IIS, RPSC improved service to McMurdo Station with 10 Mbps connectivity.

Accomplishment: IT encrypted company laptops (NPP 07.07.145).
Benefit: Encryption technology is present on USAP laptops (OMB 06-16), protecting equipment and data.

Accomplishment: The division released a minor upgrade of POLAR ICE one month early for I/B *Oden*-based ORWs. The release modified selection options and improved the integration between ORWs, SIPs, and other planning tools.
Benefit: The upgrade saves time and improves application accuracy for science planning.

Accomplishment: The division renegotiated and redesigned the Palmer Wide Area Network (WAN) link, selecting a new vendor and modulation scheme once the previous contract ended.
Benefit: The result is higher throughput for lower cost at Palmer Station.

Accomplishment: A Network Intrusion Detection System (NIDS) now monitors RPSC Denver office and McMurdo Station traffic for intrusion attempts.
Benefit: NIDS enhances security, identifying intruders or warning of intrusion attempts before any impact to USAP systems.

B. Program Integration

Coordination with Other Divisions

The division inventoried Raytheon and NSF/OPP finance systems and related interfaces, to support the response to the 2007 OIG financial audit. The inventory depicted all systems that could impact NSF/OPP financials, and provided a detailed understanding of interfaces.

C. Innovation & Process Improvement

Technical Solutions

Solution: IT redesigned use of MARISAT facilities for TDRSS back up.
Benefit: The effort increased the reliability of station communications.

Solution: The IT Engineering and System Development (IT/ESD) and Information Security deployed IDS sensors and network taps, and continue to monitor network activity from McMurdo Station, as well as incoming and outgoing traffic at the edge of the USAP enterprise network.
Benefit: The change allows RPSC and Raytheon Systems Management Center (SMC) to provide 24/7 intrusion monitoring for the USAP.

Visionary Management

Accomplishment: The division intends to develop an integration methodology between RPSC and SPAWAR for all NSF/OPP-funded projects, including an integrated project team for technology development.
Benefit: The result would minimize technology conflicts and advance the ease of information transfer throughout the Program.

Responsiveness to Challenges

Issue: The South Pole MARISAT/GOES satellite terminal (SPMGT) antenna drive mechanism failed. The mechanism is critical to moving the antenna to track the satellite as it transits the horizon.
Response: IT engineers immediately contacted the vendor to procure replacement components. As a result, the long lead-time items were available by mid-November and installed in December 2007.

Enterprise Architecture and Strategy

A. Project Management

General Management

The IT Enterprise Architecture and Strategy (IT/EAS) Department is involved in projects spanning the scope of technology use across the USAP. The department's role includes building strategy to apply to all future work. Working closely with the IT ABM, IT/EAS continued to migrate to a business-driven approach—a paradigm shift for the Program.

Major Successes

IT/EAS successfully led responses for two significant OIG NFRs, and an OMB directive. The federal findings lead to broad-scope Program improvements, such as AREV replacement planning, disaster recovery planning, and laptop encryption.

The IT/EAS department also assists all other IT departments to establish monitoring of USAP enterprise processes for proactive management, and facilitated NPPs for over 10 capital improvements for NSF/OPP consideration.

Customer Satisfaction

During KY08, IT/EAS implemented the IT Forum to improve communication between the key stakeholders RPSC, the NSF/OPP, and SPAWAR. The IT Forum encourages organizations to focus on strategic initiatives. IT/EAS also continues work on Long Range Planning (LRP) for the division, and developing proposals to best meet client priorities.

Value Engineering

Accomplishment: In response to NFR 06.01: The Advanced Revelation Application Suite Needs to be Replaced, IT/EAS developed a replacement planning strategy that meets Federal Information Security Management Act (FISMA) requirements.
Benefit: IT/EAS submitted an NPP to the NSF/OPP providing strategic direction to use a business-driven approach to plan the replacement of the applications. The initiative was funded and is underway.

Accomplishment: In response to NFR 06.02: Develop, Document and Implement a Disaster Recovery Plan, IT/EAS developed a planning proposal that also meets FISMA requirements.
Benefit: The proposal was funded and is underway to provide a strategic direction for IT disaster recovery.

Accomplishment: IT/EAS provided design and technical support for the McMurdo Bandwidth Optimization effort, offering several technical options for enterprise solutions. The department will continue to provide governance and develop planning for network baseline activity. The team is currently performing research analysis for tool set development.
Benefit: The work will provide the USAP with information necessary to establish effective technology solutions. Bandwidth optimization is a critical success factor for end-to-end service delivery and enterprise performance.

B. Program Integration

Coordination with Other Divisions

IT/EAS worked with business team members from other divisions, such as Logistics, Human Resources and the Deployment Specialist Group (DSG), to help refine related procedures, resolve technology issues, and meet statutory and regulatory requirements. With such cross-divisional collaboration, IT/EAS refined IT architecture and strategy to accommodate future opportunities, and advised regarding opportunities to leverage existing technology for future plans. One outcome is a recommendation for senior management to improve the USAP seasonal deployment and hiring process.

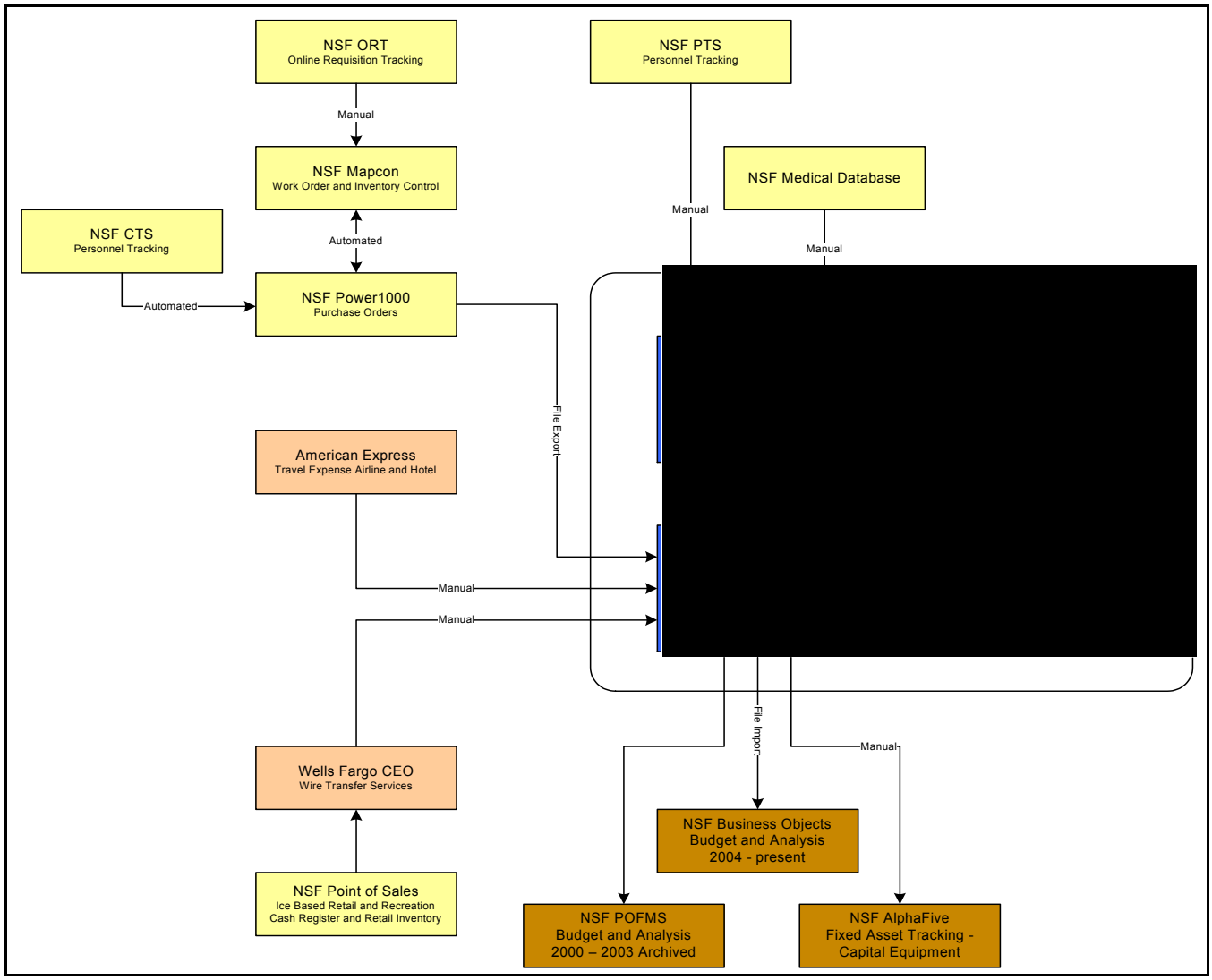


Figure IT - 73: Financial System Interface

C. Innovation & Process Improvement

Technical Solutions

Solution: In response to OMB 08-05, Trusted Internet Connection, IT developed and updated inventory for all current communications circuits.
Benefit: Along with OMB 08-05 regulatory compliance for the Federal Government Cyber Initiative, IT/EAS can identify unsecured external internet connection points as part of the ongoing effort.

Solution: To provide for OMB initiative 05-22, the IPv6 Transition Strategy, IT/EAS is performing current state discovery of the USAP infrastructure and developing a dual-stack transition strategy plan for co-existence of IPv4 and IPv6 environments.
Benefit: The effort positions the USAP network infrastructure to meet future computing needs and information flow.

Solution: IT/EAS provided support and conducted research for the McMurdo RF Optimization effort, originated by SPAWAR. The department investigated several technical options.
Benefit: The work will improve frequency bandwidth controls at McMurdo Station and surrounding environs.

Visionary Management

IT/EAS continues to evolve plans, methods and strategies to move the USAP forward into modern, efficient, scalable, adaptable and enabling technologies for the future.

When complete, the current and future architecture will depict a technology road map and align with business and mission imperatives.

Responsiveness to Challenges

Based on the enhanced NPP approach, IT/EAS allowed RPSC to respond more rapidly and with improved quality to changing client requirements.

Issue: The USAP requires a technical and process solution for segregating NSF/OPP network devices from non-NSF network devices (workstations, servers, switches). The requirement is driven by industry best practices and Information Security requirements, such as vulnerability management and standard configurations.
Within these requirements, a critical issue is the ability to segregate network devices managed by grantees and other USAP participants from the NSF-managed devices for accurate vulnerability management.

Response: An integrated product team comprised of IT/Technical Operations, Information Security, and IT/EAS established an accelerated project to design and implement the visitors network at the RPSC Denver office. The team conducted initial testing, developed requirements, and developed a Concept of Operations for the project. The division implemented the visitor network as the foundation for a Network Access Control (NAC) solution, a wireless LAN at the RPSC Denver office. IT/EAS planned the architecture to address NAC solutions on class-of-service for all participants: employees, partners, visitors, science and data. The initiative will achieve future compliance with OMB 07-19 following NIST SP800-97.

INFORMATION SECURITY

A. PROJECT MANAGEMENT

General Management

The Information Security department took great strides in maturing the implementation and governance of the USAP enterprise.

Major Successes

Enterprise Vulnerability Management The department established a Vulnerability Management (VM) program. Monthly scans of all equipment attached to the USAP network are evaluated for weakness and threats that may require action. Such actions decreased known threats and increased the department's ability to respond quickly in the event of an incident.

Network Intrusion Detection System Information Security revectored existing NIDS resources to better detect intrusions and quarantine threats throughout the enterprise network.

Plan of Action and Milestones (POA&Ms) An increased focus on governance of Plan of Action & Milestones (POA&M) mitigation led to closing 97 items during KY08. The POA&M manager worked closely with key USAP participants to ensure system weaknesses are remediated in a timely manner.

Further, responding to Virtual Private Network (VPN) intrusion, the department developed POA&M items to identify needed resources and implement preventive actions.

Central System Logging In conjunction with Technical Operations, Information Security implemented audit logging on USAP servers. The servers send the logs to Denver, where they are correlated and reviewed for compliance with federal guidelines. The information also builds a knowledge base to prevent security incidents.

Certification and Accreditation Information Security successfully completed the recertification effort for the USAP Enterprise Business System and Enterprise Operations System per three-year cycle.

Major Issues

Sensitive and Personally Identifiable Information (SI/PII)
The funding required to comply with the OMB memoranda 06-16 and 07-16, to address handling of SI/PII, presents challenges and foreseeable investments. As part of the privacy plan submitted to the Information Security ABM, preplanning efforts have developed a rough order-of-magnitude to protect USAP SI/PII. The plan includes professional services to implement encryption on desktops, mobile devices, and e-mail. Privacy and Sensitive Information Protection (Instruction 5000.7-1) addresses the protection and proper reporting of SI/PII incidents.

Customer Satisfaction

Information Security subcontracted for two independent vulnerability assessments by [redacted]

After the second evaluation in September 2007, CIBER, Inc. issued an opinion that Information Security performed well despite being short staffed and its challenges to resolve the existing work backlog.

An Independent Security Assessment (ISA) by SPAWAR in December 2007 reviewed overall IT status, focusing on Information Security. The ISA included process review and technical functions. Those results validated significant progress in the following areas:

- Vulnerability Management
- Standard Configuration Management
- POA&Ms

Information Security completed a series of contingency plan exercises as required by federal guidelines. The exercised included Technical Operations, Christchurch IT, and McMurdo Station and reviewed recovery actions for the Black Island Telecommunications Facility (BITF) satellite Maintenance & Control System, AREV application recovery, and Christchurch MedTech system recovery. The annual exercises required by FISMA assist in refining contingency plans on station to ensure that important data systems are recoverable following an emergency. The exercises also train recovery participants to ensure awareness of current procedures. The certification agent praised the department's effort.

As part of the annual FISMA requirement in 2007, the Information Security department hosted auditors from the NSF OIG. The independent evaluation considers agency-specific security performance. The 2007 audit focused on enterprise business systems and POA&M status. The department is remediating two NFRs:

- AREV replacement planning
- Disaster recovery planning

Along with several IT departments, Information Security committed several months of audit preparation toward the effort, and to responding to auditor requests. Inspectors lauded the POA&M effort as "phenomenal," crediting management for resolving the NFRs.

Value Engineering

Accomplishment: The USAP lacks a system inventory that documents critical aspects of applications, in accordance with Patch and Vulnerability Management (NIST 800-40).
Benefit: IT/ESD, Information Security, and Technical Operations initiated a joint project to identify, create and implement processes to create and maintain a systems inventory to meet federal requirements.

Accomplishment: Regarding Disaster Recovery Pre-Planning (NPP 07.07.144), the department conducted a business-impact analysis to define the maximum allowable outage for all identified systems.
Benefit: The project will define Contingency Planning for Information Technology Systems (NIST SP800-34), and provide long-term disaster recovery response options for the enterprise.

Accomplishment: The department prepared a new project proposal outlining resources and a schedule to deploy two-factor authentication throughout the USAP. The proposal was forwarded to the NSF/OPP to consider in its capital planning process.
Benefit: The [redacted] project seeks to bring the USAP into compliance with OMB M-06-16 & M-07-16, standards protecting government data.

B. Program Integration

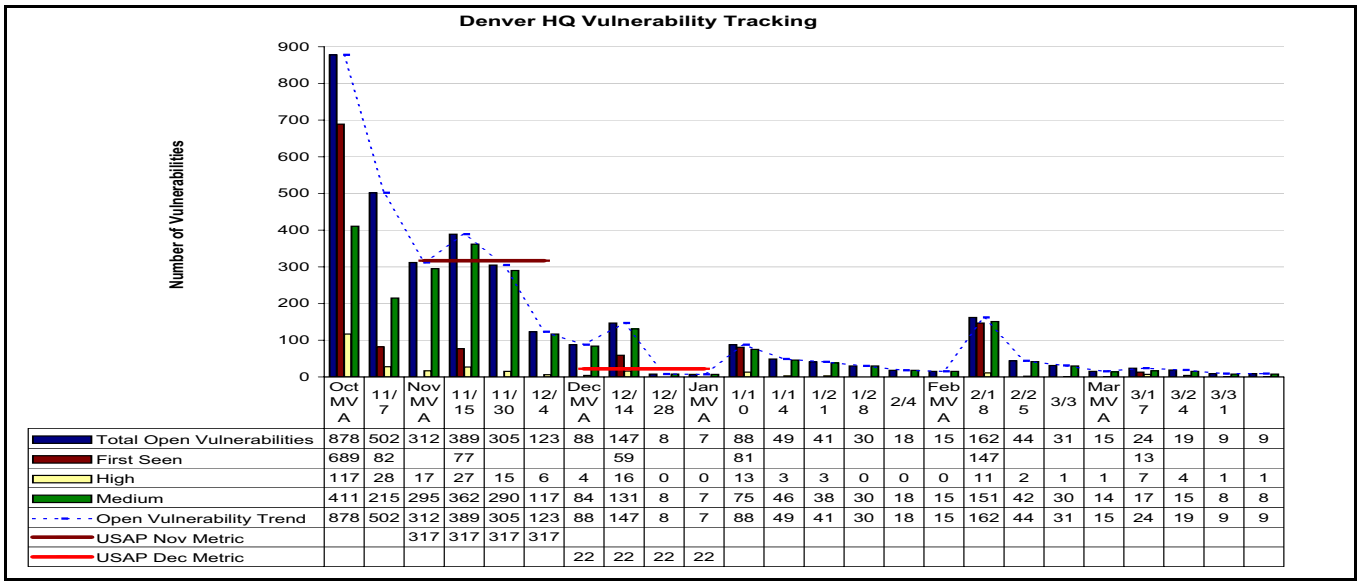
Coordination with Other Divisions

PTS Remediation A legacy application that displayed SSNs was updated to remove the numbers as a data element for tracking personnel through the physical qualification and deployment process.

C. Innovation & Process Improvement

Technical Solutions

Solution: The Information Security department validated that IT Technical Operations remediated 96% of all system and network vulnerabilities at RPSC Denver, in accordance with NSF guidelines, with focus to reduce vulnerabilities at McMurdo Station.
Benefit: Information Security governance and collaboration within the IT organization reduced the overall number of system and network vulnerabilities.



	Oct MVA	11/7	Nov MVA	11/15	11/30	12/4	Dec MVA	12/14	12/28	Jan MVA	1/10	1/14	1/21	1/28	2/4	Feb MVA	2/18	2/25	3/3	Mar MVA	3/17	3/24	3/31	
Total Open Vulnerabilities	878	502	312	389	305	123	88	147	8	7	88	49	41	30	18	15	162	44	31	15	24	19	9	9
First Seen	689	82		77				59			81						147				13			
High	117	28	17	27	15	6	4	16	0	0	13	3	3	0	0	0	11	2	1	1	7	4	1	1
Medium	411	215	295	362	290	117	84	131	8	7	75	46	38	30	18	15	151	42	30	14	17	15	8	8
Open Vulnerability Trend	878	502	312	389	305	123	88	147	8	7	88	49	41	30	18	15	162	44	31	15	24	19	9	9
USAP Nov Metric			317	317	317	317																		
USAP Dec Metric							22	22	22	22														

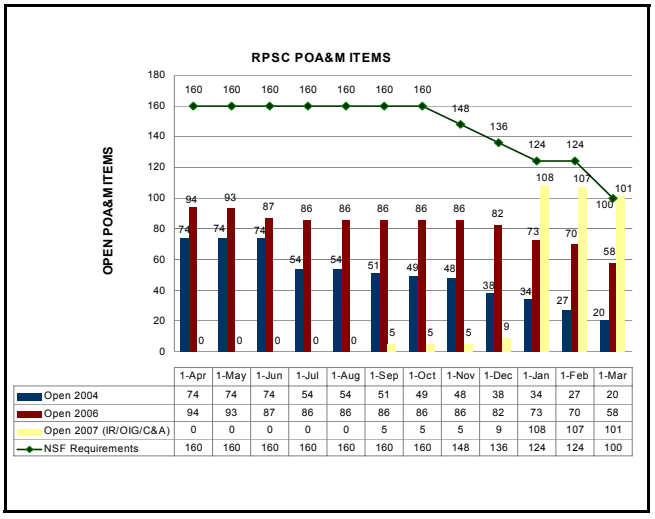
Figure IT - 74: DHQ Vulnerability Tracking

Solution: Information Security contracted with [redacted] for an Independent Vulnerability Assessment (IVA) of the entire USAP enterprise, to assess security controls and management of system vulnerabilities. The IVA, the first since the department implemented the VM program, was seen as an independent validation of new tools and procedures developed internally.

Benefit: [redacted] reported that Monthly Vulnerability Assessments (MVAs) have a positive effect, reflecting that RPSC has adequate security controls throughout the environment. The scan of 2,800-plus devices revealed that only 11% showed any medium or high vulnerability.

Solution: POA&M management has increased accountability for timely remediation.

Benefit: The department mitigated over 97 weaknesses in KY08.



	1-Apr	1-May	1-Jun	1-Jul	1-Aug	1-Sep	1-Oct	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar
Open 2004	74	74	74	54	54	51	49	48	38	34	27	20
Open 2006	94	93	87	86	86	86	86	86	82	73	70	58
Open 2007 (IR/OIG/C&A)	0	0	0	0	0	5	5	5	9	108	107	101
NSF Requirements	160	160	160	160	160	160	160	148	136	124	124	100

Figure IT - 75: POA&M Tracking

Visionary Management

Accomplishment: Information Security submitted the USAP Privacy and Sensitive Information Protection (5000.7-1) and the USAP Network Access Management for Grantee and Non-USAP Equipment (5000.17-1) instructions for USAP approval.
Benefit: Together, the instructions increase awareness for grantees and all participants of the requirement to protect USAP assets.

Accomplishment: The department initiated an R6s project to formally define Program VM needs.
Benefit: The R6s study completes a gap analysis between the local environment and National Institute of Standards & Technology (NIST) guidelines to implement, document, and institutionalize a VM program for the USAP.

Responsiveness to Challenges

Issue: The Information Security department hosted the NSF deputy chief information officer and staff to review key policies and procedures. Preparing for the annual OIG audit, the group identified shortcomings in VM, standard configurations, and patch management processes.
Response: RPSC had the opportunity to take corrective actions before the annual audit.

Issue: Remote access and privileged account policy and procedures must be updated and followed.
Response: The department updated management and oversight processes to better address the activity.

Issue: The NSF CIO notified the USAP that contracts with NetSec were being terminated. The action would eliminate network security monitoring for intrusions on the USAP external perimeter. The notification provided Information with 30 days to plan replacement capability.
Response: Information Security personnel and Technical Operations engineers developed and implemented an efficient and reliable tactical solution. In addition, Technical Operations requested the Raytheon SMC provide uninterrupted monitoring and direct notification of any security alerts. The support allowed a rapid response to initiate defensive actions for the USAP network.

Issue: FISMA and OMB Circular A-130, Appendix III, requires that federal agencies assess security controls annually. The security Certification and Accreditation occurs every three years unless a significant change to the network takes place. In addition, NSF requires that a full Security Test and Evaluation occurs annually.
Response: The Information Security department delivered the Enterprise Business Systems, and Enterprise Operations Systems on schedule. The effort included 3,718 tests to evaluate subsystems in the major applications. In addition, security control annual requirement included 1,859 tests to evaluate all sites within the general service system.

Issue: The USAP Information Security Manager (ISM) directed improvements to vulnerability management, citing an increasing number of vulnerabilities throughout the enterprise.
Response: Senior management restructured staffing within Technical Operations. By December 2007, the number of open vulnerabilities had dropped from 147 to seven. The 96% improvement achieved the milestone metric.

Lessons Learned

Incident Response Due to the unauthorized access incident, improvements are under development for the incident response program, remote VPN access, and intrusion detection.

IT Quality Assurance

A. Project Management

Major Successes

Teaming with other groups, IT wrote software test scripts to meet FISMA regulations. Where software testing was not possible, IT/QA helped manually test each device, achieving 96% compliance on Minimum Configuration Standards and Enhanced Configuration Standards.

Major Issues

The resources to achieve compliance for Information Security support were not allocated in advance.

Value Engineering

Accomplishment: The department implemented Concurrent Versions System (CVS) to manage design and engineering drawings across RPSC divisions. ***Benefit:*** CVS provides version control of drawings and eliminates the risk of multiple, edited copies. By controlling drawings, RPSC saves USAP network space.

B. Program Integration

Coordination with Other Divisions

Collaborating with FEMC, IT/QA moved AutoCADD drawings to the CVS application for increased version control. Together, the parties developed procedures to control document flow during development and not hinder required approvals.

C. Innovation & Process Improvement

Technical Solutions

The IT/QA Department investigated tools and implemented auditing software to assist Information Security in meeting federal requirements. The department its own test scripts for UNIX variants, and customized the Nessus network vulnerability scanner for more broad scope audits.

Despite fluctuating test requirements, the department completed the testing and met all requirements from the Center for Internet Security, while migrating to Federal Desktop Core Configurations requirements.

Responsiveness to Challenges

Issue: Per FISMA regulations, all NSF/OPP-controlled equipment connected to the USAP network must be tested to achieve NIST standard configurations, with each configuration unique to the platform type: Windows 2000, Windows 2003, Windows XP, Linux, Apple Macintosh, SUN Solaris, and Cisco. The devices required test and evaluation to meet milestones and goals:

- June 2007, achieve Minimum Configuration Standards
- August 2007, achieve Enhanced Configuration Standards
- April 2008, achieve benchmarks for standard configuration
- Monthly sampling reports for compliance with current benchmarks for standard configuration

Response: IT/QA teamed with Technical Operations and IT/SSSV to develop remediation and testing. The group validated and reported monthly progress. In less than two months, the team developed automated software test scripts for most identified platform types. Where test scripts could not be developed, each device was manually inspected.

For each platform type, all control elements in the standard configuration were processed through assessment, test, implementation, and validation activities.

Collaborating with IT Technical Operations and to reduce impact to on-Ice labor, IT/QA developed a procedure to move the function to Denver as the tool sets mature. The Windows, Linux, Microsoft SQL, and Sun Solaris validation functions already moved to RPSC Denver. See the *Technical Operations, Responsiveness to Challenges* section for additional detail.

Multimedia

A. Project Management

Major Successes

Portal Refresh IT Multimedia (IT/MM) delivered a beta version of the USAP.gov website to the NSF/OPP on 19 December 2007 for review and comment.

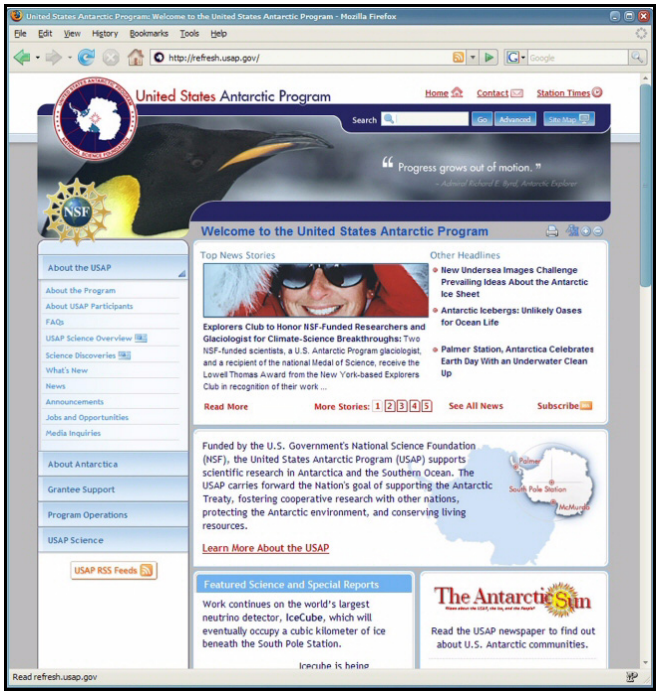


Figure IT - 76: Refreshed Beta Version USAP.gov Website

New Antarctic Sun Website Following an August kick-off, IT MM designed, engineered and deployed a web-based version of *The Antarctic Sun*. The project was completed in just over two months, and delivered on schedule in October to meet NSF requirements. See the *Communications* section for additional detail.

Figure IT - 77: New Antarctic Sun Home Page

South Pole Dedication Production With forward thinking collaboration between RPSC and NSF/OPP, Multimedia positioned itself to fully document and deliver timely video footage of the South Pole Dedication ceremony for public release.

Figure IT - 78: IT Multimedia tapes South Pole dedication

USAP.gov Usage Between January 2006 and December 2007, visits to www.usap.gov nearly doubled (up 87%) and held steady throughout all of 2007. There was a dramatic spike in December 2007. Web statistics show that some of the sustained increase was due to the popularity of the South Pole webcam. The spike in December 2007 is attributed to public awareness and interest in current events occurring at that time within the USAP.

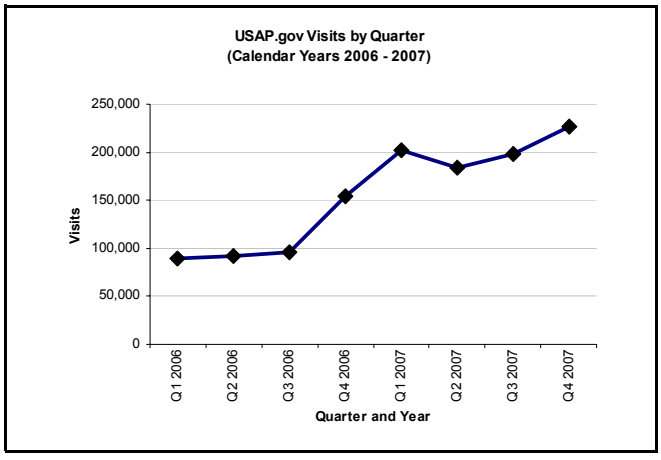


Figure IT - 79: USAP.gov Visits Jan 2006 to Dec 2007

Customer Satisfaction

Critical design in the USAP.gov Refresh Project was approved in June 2007. The build-out for the site proceeded on schedule. The iterative approach is being reviewed by NSF/OPP in stages.

Value Engineering

Accomplishment: A new antenna and radome were installed at the BITF for the Direct to Sailor (DTS) satellite television feeds from American Forces Radio and Television Services (AFRTS).
Benefit: The antenna will provide uninterrupted television service to McMurdo Station when the current antenna migrates to a new protocol and is no longer available for DTS (late 2008).

Figure IT - 80: New DTS Radome at the BITF

B. Program Integration

Coordination with Other Divisions

In November, staff on station and at RPSC Denver facilitated multiple live broadcasts of *The Today Show* from McMurdo Station. The team provided faultless technical support on station for such high-visibility public events.

Figure IT - 81: Ann Curry and Today Show Production Crew

C. Innovation & Process Improvement

Technical Solutions

Solution: IT/MM used the SPTR File Catalyst Store-and-forward system from the South Pole, originally designed to transport science data, to provide end-to-end delivery of large video files during the South Pole dedication ceremony.
Benefit: The OPP and NSF Office of Legislative & Public Affairs can now depend on a proven method to receive large broadcast-quality video within 24 hours of events at the South Pole. The proof of concept created the impetus to install the same capability at McMurdo Station.

Visionary Management

Accomplishment: Multimedia continued to update and utilize the portal road map to refine a strategic approach toward centralized operation and management of the complicated USAP web environment.
Benefit: The portal road map provides USAP participants with a clear and logical understanding of the challenges and opportunities involved when revising the USAP web environment, as well as potential benefits of web-based communication and business applications.

Responsiveness to Challenges

Issue: The NSF/OPP directed that IT develop a quick, low-cost web-cam presence for McMurdo Station.
Response: Multimedia worked with SPAWAR to utilize one of its existing cameras. Both the web cam and weather data file transfers were developed based on protocols used at South Pole to provide consistent and dependable live updates. Multimedia designed a new web page on USAP.gov to host the web cam and relevant station information.

SCIENCE SUPPORT, STATIONS AND VESSELS

A. PROJECT MANAGEMENT

General Management

The IT/SSSV department staff reviewed 132 SIPs submitted for the upcoming season.

Major Successes

The fire onboard the NBP required that all science systems were evaluated for operation and performance. In a collaborative effort with other RPSC and USAP parties, IT/SSSV repaired or replaced each system checked within a single week.

The effort restored critical systems, such as data acquisition, e-mail, and shared file areas, allowing the NBP to commence the next science cruise on schedule.

IT/SSSV staff packaged and shipped three systems from the Denver test lab to the NBP. The department quickly rebuilt and configured the equipment to perform the work of seven machines. The collective effort resurrected all core services, including log-in, data acquisition, e-mail, and shared file structure.

The department procured those systems that required replacement for slightly over $300K and installed the equipment during vessel repairs in a two-week period in November. Despite difficulties with LAN Cargo, Chile, delaying shipments, all equipment arrived and allowed rebuild of the computer infrastructure.

The vessel sailed one day earlier than planned, with all IT systems fully functional. See the *Area Directorate - Palmer* section for additional detail.

Major Issues

The NBP fire caused heavy soot damage, incapacitating all systems in the LAN office and electronics lab, as well as many systems in the Forward Dry Lab. IT/SSSV staff on-board taught science party members how to disassemble and clean electronics.

Customer Satisfaction

The IT exit surveys report that 96.7% of staff measures were rated Excellent or better for all RSPs.

Value Engineering

Accomplishment: The IT/SSSV department provided Perl scripting classes in-house.
Benefit: The training provided technical staff with new skills at no added cost to the USAP.

B. PROGRAM INTEGRATION

Coordination with Other Divisions

Coordinating with the Science Support Division, IT/SSSV installed new Windows XP configurations for all vessels to meet federal information security standards. During annual maintenance activities for the vessels, IT/SSSV completed configuration scans on all computing devices to support information security reporting requirements.

Following a SPAWAR contingency plan, IT/SSSV conducted joint testing to assure weather forecasting capability from RPSC Denver. The effort verifies a backup location, were SPAWAR in Charleston evacuated for a hurricane.

C. INNOVATION & PROCESS IMPROVEMENT

Technical Solutions

Solution: Prior to the USAP outsourcing its GIS support, RPSC provided 42 maps showing historic field-site data and line-of-sight analysis to each microwave repeater. The maps show frequency of use by location for field planning.

Benefit: The maps provided quantitative data on the historic use of field sites for the first time, improving future field planning activities.

Solution: The department provided Perl scripts for the SPTR-1 store-and-forward system to parse system logs and summarize file transfer information by science group.
Benefit: The scripts yielded important feedback regarding operating the store-and-forward system.

Solution: Using inherent WIKI capabilities in RedHat Linux, IT/SSSV provided an informal documentation area for provide notes and pointers that may be easily searched and retrieved.
Benefit: The solution provides a centralized site and sophisticated search capabilities for informal vessel documentation.

Responsiveness to Challenges

Issue: Information Security scans from NESSUS show only IP addresses, making system identification difficult.
Response: The department developed scripts to pull additional information and make scan results more usable.

Issue: The new vessel Fleet 77 installations failed to synchronize over ISDN signalling. The first installation was completed on the LMG. However, the vessel operator delayed a week, commissioning the unit only 24 hours prior to the ship's departure and leaving no time to troubleshoot the problem. The INMARSAT units were switched to a new European specification ISDN interface.
Response: The department hired a consultant, whose work with the modem manufacturer discovered a fault in the firmware. IT/SSSV implemented a work around installed proper modems. Both ships functioned over ISDN dial-up, as prior the Fleet 77 installation.

TECHNICAL OPERATIONS

A. PROJECT MANAGEMENT

General Management

IT Technical Operations began developing a framework for an IT Technical Operations Work Plan similar to the annual Information Security Work Plan. The year-long effort will conclude in FY09, parallel to the FY09 APP.

The department completed life cycle replacements for all major network switch functions and system servers between RPSC Denver, McMurdo Station, Christchurch and vessels. The upgrades to critical components were required to implement network security features.

Major Successes

Vulnerability Management Technical Operations support continued to expand during KY08 with monthly vulnerability scans and remediation processes. Prior to the NSF/OPP funding a commercial off-the-shelf vulnerability management tool, Technical Operations and Information Security engineers developed an in-house database and tracking system, with processes to identify and remediate vulnerabilities within the USAP enterprise. For Denver equipment, the effort reduced vulnerabilities from 878 in September to less than 22 by December 2007. A similar trend is developing for the stations.

The deployment of NSF/OPP-funded tools constitutes a significant enhancement to the VM program and will reduce the hours required to maintain the program. At one point, the program support consumed nearly 80% of Technical Operations Systems group resources.

NIST Standard Configuration The number of standard configuration control elements increased in KY08 by a factor of 10 for each of the nine operating systems in use by the USAP. Despite that the increased tasking created an enormous sustaining workload for Technical

Operations staff, the division successfully assessed, tested, and deployed the FY07 Enhanced Standard NIST configuration changes to the over 1,990 separate routers and switches, servers, and workstations. As the federal mandates continue into the next contract year, the USAP should consider supplemental sustaining staff.

Visitors Network In concert with IT/EAS and IT/ESD, network operations engineers developed and implemented a Visitors Network at RPSC Denver to segregate non-NSF/OPP users. The visitor network improves the security posture for its segment of the USAP network.

The solution automates both the remediation of vulnerabilities for NSF-managed devices and roll-out of standard configurations, reducing labor hours required for such tasks.

Bandwidth Management Network engineers implemented tools and processes to support sustaining bandwidth management over USAP-wide communications links.

The effort provides an ability to execute capacity-planning over limited bandwidth resources and a mechanism to identify and resolve bandwidth abusers. The improvement ensures that limited resources are available for mission-critical support and science operations.

Major Issues

Network Management System The USAP enterprise lacks a uniform Network Management System (NMS) tool to allow Technical Operations to proactively manage and respond to network events. The SPSM project fielded an NMS technical solution for that station. However, the solution was not expanded to an enterprise-wide technical standard. There are three NMS tools in use across the enterprise, complicating both enterprise management and the training of Technical Operations personnel.

WAIS Satellite Communications The GOES-3 satellite ground station deployed to WAIS divide science camp suffered from network saturation due to its limited bandwidth. The issue resulted from the rapid increase in the number of computers requesting connections, and the limited amount of available IP-addressed equipment. Due to its limited bandwidth, the system will never accommodate advanced internet services. In cooperation with the USAP Technology Development ABM, communications and SatCom engineers are reviewing options to improve the situation. Such improvements may include a wireless connection from the drilling arch to the science shelters.

Customer Satisfaction

Technical Operations achieved a 99.9% reliability rate for the USAP enterprise Internet and intranet during KY08. Customer satisfaction rates exceeded 98.7% for the more than 18,000 work orders opened and completed.

Technical Operations technical trainers instructed 1,020 individuals during 473 training sessions at RPSC Denver and McMurdo and South Pole stations. The training enhanced productivity for all divisions by improving computer skills and knowledge of software applications.

Value Engineering

Accomplishment: Technical Operations and Information Security hosted vendor representatives for McAfee FoundStone and Hercules vulnerability management software. The technical interchange meeting helped develop the architecture for deploying the products within the USAP.
Benefit: Both products were approved and funded for vulnerability management. The resulting technical architecture, once complete, will greatly enhance the security posture across the USAP network.

Accomplishment: Technical Operations engineers and Information Security executed a no-cost reconfiguration of existing NIDS equipment at RPSC Denver.
Benefit: The reconfiguration improves system monitoring and detection capabilities. Rapid detection allows the USAP Computer Incident Response Team to take action to minimize damage to the USAP enterprise and its business systems.

Accomplishment: Communications technicians on station designed and extended dial phone service to the pier area at McMurdo Station.
Benefit: The effort provided a single-point-of-entry data service to U.S.-flagged vessels docked at the McMurdo Station ice pier, improving communications with shore parties during vessel off-load and port operations.

Accomplishment: The communications antenna riggers installed and tested new emergency backup HF antennas at the South Pole Station.
Benefit: The sloping-V antennas provide better communications service to McMurdo and Palmer stations, also providing backup antenna capability.

Accomplishment: Technical Operations installed and tested a new DTS satellite antenna at the BITF for AFRTS.
Benefit: The antenna will provide C-band AFRTS services to the McMurdo Station population next season, when the existing 11 m antenna converts to Ku-band for the NPOESS project. The DTS installation allows uninterrupted broadcasts for morale.

B. Program Integration

Coordination with Other Divisions

Having remediated 96% of all system and network vulnerabilities at RPSC Denver, Technical Operations is collaborating with the McMurdo Area Directorate to reduce similar vulnerabilities on station.

IT infrastructure engineers and Technical Operations technicians on station teamed with FEMC to design and implement network, telecommunications, and close circuit TV systems to support the Water and Power Plant upgrade. On-time engineering of the infrastructure components allowed subcontract engineers to migrate DDC systems to an interim location in the renovated water plant. DDC components monitor station power, water, and waste heat.

Assisted by the RSPC Procurement Department, IT infrastructure engineers selected sources and awarded a contract for the Palmer Station Space Segment. The project identified potential vendors and negotiated contracts for 1.54 Mbps circuits from Palmer Station to RPSC Denver. The scope included:

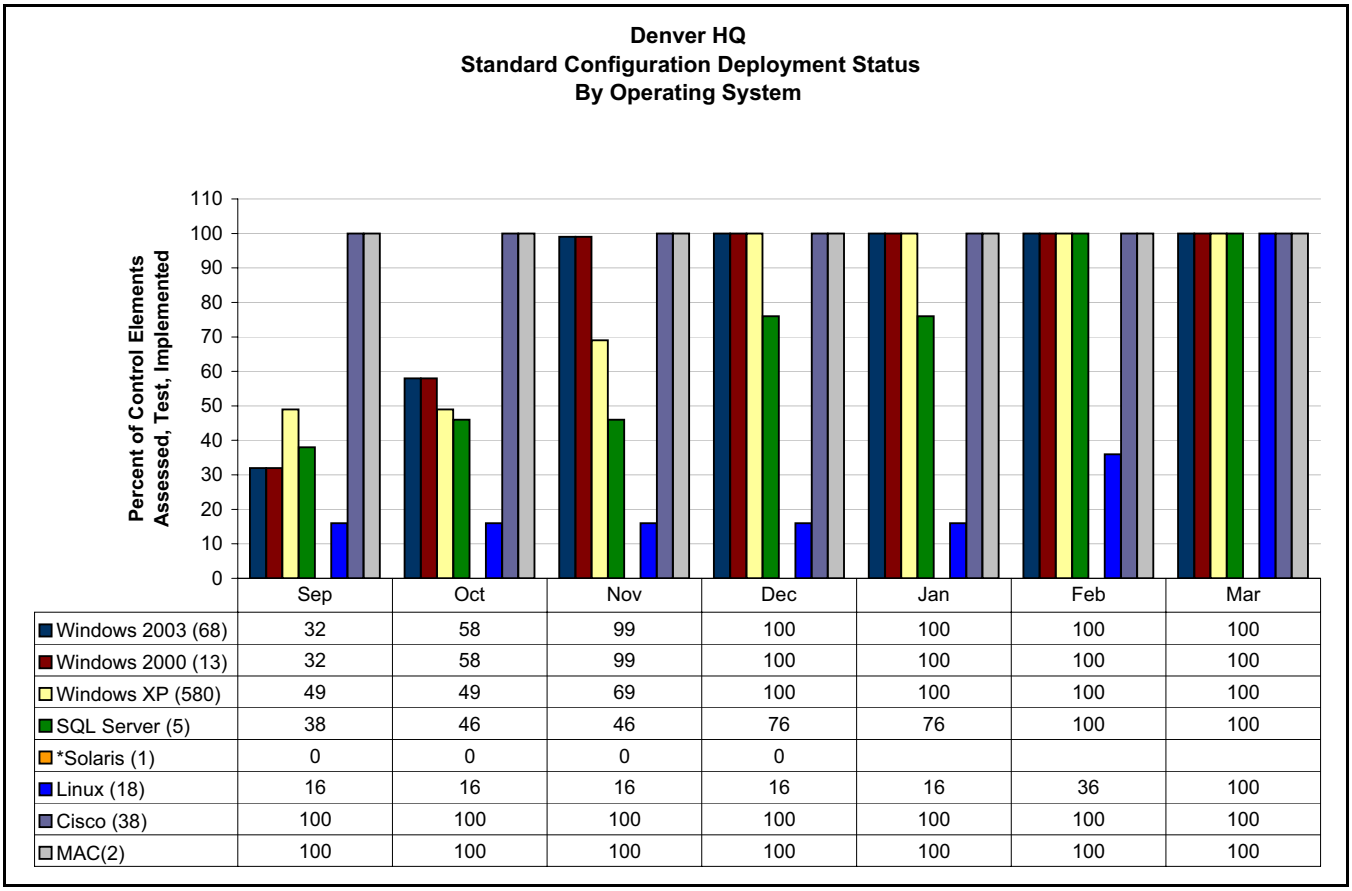
- Space segment from Palmer Station to a pending continental United States (CONUS) location
- Terrestrial backhaul circuit from a pending CONUS location to Denver
- Modification to the Palmer Station ground facility, and Denver infrastructure

AT&T received the contract and implemented new satellite and backhaul circuits, doubling the bandwidth to Palmer Station and saving $100K annually.

McMurdo Station IT technicians teamed with Science Support Division personnel and FEMC to establish winter season support for the NASA Lunar Habitat Project. Because NASA omitted an UPS in the equipment configuration, recurring power fluctuations during the McMurdo Station power plant upgrade impacted data collection equipment in the habitat, triggering a loss of study data. Technical Operations formed a special support team on station, in addition to all planned winter support, to allow the NASA project to proceed.

C. Innovation & Process Improvement

The department configured and implemented joint hardware and software for Foundstone/Hercules Vulnerability and Patch Management in Denver, before deploying it to the stations. The deployment provides automated tools for vulnerability management and standard configuration management, improving the security posture of the USAP enterprise.



	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Windows 2003 (68)	32	58	99	100	100	100	100
Windows 2000 (13)	32	58	99	100	100	100	100
Windows XP (580)	49	49	69	100	100	100	100
SQL Server (5)	38	46	46	76	76	100	100
*Solaris (1)	0	0	0	0			
Linux (18)	16	16	16	16	16	36	100
Cisco (38)	100	100	100	100	100	100	100
MAC(2)	100	100	100	100	100	100	100

Figure IT - 82: DHQ Standard Configuration Deployment.

Technical Solutions

Solution: The USAP VPN concentrator suffered an intrusion attack and was taken off line. The action interrupted service on a critical network function used by the USAP for remote access to essential resources and systems.

Benefit: The concentrator was rapidly reconfigured with assistance from the Network Operations group, and relocated to a secure location on the network. The department instituted interim-access protocols for critical VPN subscribers. Quick detection and response allowed senior USAP staff and vessels to regain network functionality.

Responsiveness to Challenges

Issue: The NSF required configurations for all USAP workstations, servers, routers, and switches by April 2008. Many of the nine different standard configurations include 250 separate control elements, each requiring assessment, test and implementation on 1,900 network devices.

Response: Technical Operations systems analysts conducted a tiered testing and implementation process, in a roll-forward concept. The team completed an on-schedule roll-out of the control elements at RPSC Denver, which included over 650 devices. The team remains on schedule for deployment enterprise-wide in April 2008.

Issue: Terascan system components failed multiple times during the winter season at McMurdo Station.

Response: Consulting with the manufacturer, Technical Operations engineers identified a potential

issue with line voltage to the equipment. The department installed a recording power monitor to study the situation.

Issue: The jack-screw drive on the South Pole MARISAT/GOES antenna failed late in the winter season. The antenna supports day-to-day mission communications. For several months, South Pole Station operated on reduced bidirectional capacity.
Response: With rapid-response engineering, IT/ESD contacted the vendor to arrange for the manufacture and delivery of a replacement jack-screw. The long lead-time component arrived in December 2007 and the antenna returned to regular operation by January.

Issue: OMB memo 05-22 mandates deployment of technical capabilities supporting an evolutionary migration to Internet Protocol Version 6 (IPv6).
Response: Success factors were established in consultation with respective ABMs. RPSC initiated activities to achieve the OMB milestones, starting with inventory and review to determine what components cannot support IPv6. Initial indications are that the core infrastructure will support IPv6.

Issue: The OMB released new federal standard configurations for Windows XP workstations, increasing the number of control elements. The new control elements are in addition to the elements mandated in August 2007 and which Technical Operations had recently deployed, ahead of schedule, across the USAP enterprise.
Response: Technical Operations completed a rapid assessment of the new control elements and developed a schedule for deployment. At the same time, IT/QA began modifying existing tools to validate that the new elements were deployed as required.

Lessons Learned

In KY08, approximately 80% of Systems Group labor was consumed by Information Security requirements, particularly in vulnerability management and standard configuration. The burden impacted seasonal station IT staff and other sustaining activities. It was only through an Herculean effort and special teams that support staff met the new mandates and continued an acceptable level of operations and maintenance. It is doubtful that such performance levels can be sustained without supplemental staffing to support the expanding OMB directives.

DEPLOYMENT SPECIALISTS GROUP

A. PROJECT MANAGEMENT

General Management

The DSG responded to challenges during KY08 that included airline contract negotiations, transition to a new credit card vendor, staffing shortages, and a change in corporate travel agency. The group improvised, adapted and eventually overcame each new obstacle.

The DSG supported in excess of 11,200 travel-related actions, ranging from the initial booking of air, car, and hotel arrangements; necessary itinerary changes; answering deployment- and travel-related questions; and developing estimates for meeting requests worldwide. In the process, the group implemented changes to benefit the traveler, such as transitioning to the more convenient electronic deployment packets, a solution that also reduced travel-related costs.

Major Successes

Raytheon's Corporate Travel Council extended the [redacted] contract twice due to negotiations and full re-bid of all airline carriers. To mitigate any impact to Program travel, DSG developed an RPSC-specific contract to support the USAP's unique traveler profile and program requirement. The new contract continues to deliver ticketing costs well below standard airline fees, waives penalties for ticketing changes, assesses excess baggage fees significantly below industry standards, and offers redeploying participants layover options at little or no cost to the traveler.

Raytheon transitioned its credit card contract from [redacted] following a full re-bid. The DSG defined monthly limits and reviewed card holder requirements prior to the transition, then created and implemented a transition plan for full-time staff. In addition, the group restructured its travel cards that support all programmatic travel costs (airlines, hotels, car rental agencies, Christchurch operations) to simplify WBS-level accounting and reconciliation efforts.

The DSG successfully facilitated the travel of 2,400 deploying participants, including grantees, RPSC, NANA Services, NAVCHAPS, and technical- and visitor-event personnel to Antarctic stations and vessels.

Major Issues

The group suffered several staffing challenges due to the departure of long-term personnel, serious illness, and family emergencies. While DSG received temporary assistance from within RPSC and external staffing agencies, the shortage adversely affected its ability to ticket and support travelers with the high performance typical of past seasons. The DSG successfully ticketed and deployed all participants, but not as effectively as it, or some of its customers, would have preferred.

Raytheon's Corporate Travel Council awarded a contract for travel agency services worldwide to [redacted]. RPSC transitioned from [redacted] to [redacted] on 3 December 2007, a major change that involved new hardware, software redesign, and staff turnover. The DSG developed and implemented a transition plan; however, numerous unforeseen issues resulted in delayed ticketing: connectivity problems, concurrent use of different airline ticketing structures (Sabre vs. Apollo), RPSC-specific [redacted] and [redacted] contracts not visible to the [redacted] infrastructure, and difficulties in releasing tickets to the RPSC Christchurch office. The DSG met its challenges head-on, communicated the situation to its customers, and identified and implemented corrections as quickly as possible to reduce impacts to travelers.

Value Engineering

Accomplishment: Instead of sending each participant a hard copy deployment packet with a lab kit and 60-plus pages of forms, the group recommended transitioning to direct service with LabCorp nationwide and an electronic deployment packet. The DSG coordinated with the Medical Department to e-mail each participant a link to the appropriate deployment packet on the USAP website.

Benefit: The solution and related transition from hard copy to electronic method eliminated much of the reproduction, postage, and administrative costs previously incurred by DSG and the Medical Department.

B. Program Integration

Coordination with Other Divisions

RPSC hosted the APC in May 2007 in Denver, Colorado. The DSG collaborated with IT to revise and update the APC website, providing the 120 participants with a registration application and information related to the annual planning event.

RPSC sponsored orientation sessions at its Denver headquarters for Raytheon and [redacted] employees. The sessions trained personnel and provided an opportunity to deliver safety boots and issue travel funds. The DGS booked participants' travel to Denver, participated in each orientation session, and developed a new process to create a custom orientation and training schedule for each participant.

Assisted by IT, the Christchurch travel office, and Medical personnel, the DSG fully reviewed the deployment packet for necessary update. The review included all physical qualification support documentation; travel, clothing, and housing forms; information security awareness documentation; and permit applications.

C. Innovation & Process Improvement

Visionary Management

Accomplishment: The DSG initiated short-term population projections—one week, real-time projection—for McMurdo Station.

Benefit: The existing Weekly Population Breakdown report uses a long-term, seasonal perspective to provide population estimates based on the APP and user agency plans. The group's new, short-term population projections more accurately reflect immediate changes relating to weather, flight modifications, personnel issues or other on-station fluctuations.

Responsiveness to Challenges

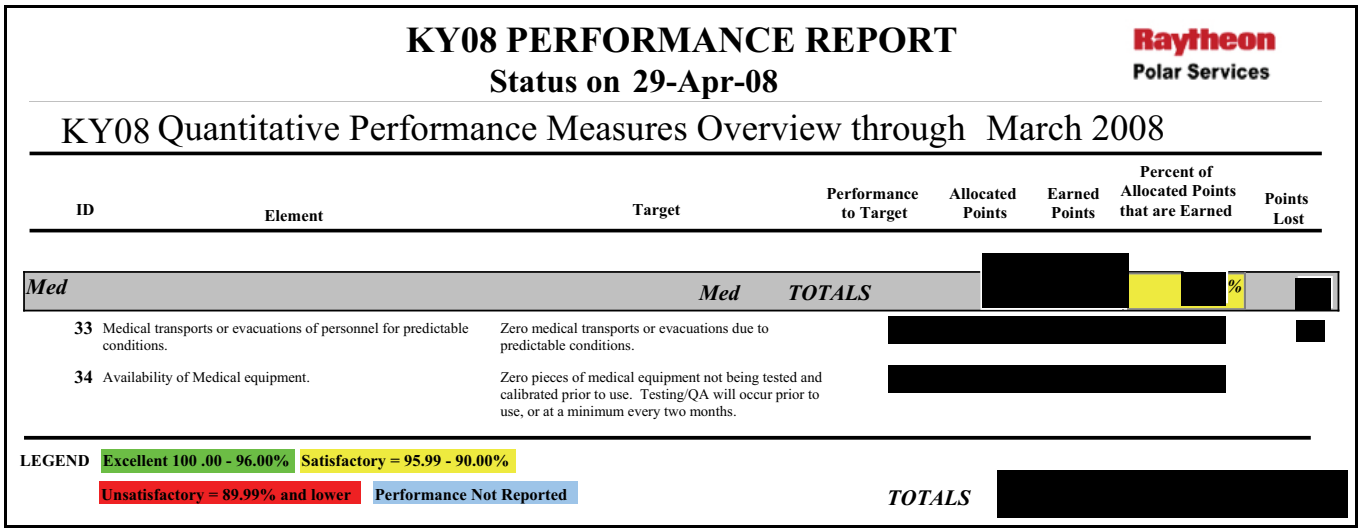
Issue: The incident of mishandled luggage jumped worldwide due to increased passenger movement, outsourced baggage handler services, weather- and mechanical-related flight delays, and aging equipment at the airports.

Response: The DSG met with all major airlines and airport hubs to re-educate them about the Program and the critical nature of its personnel movements. The group established new points of contact where necessary. When losses occurred, the DSG tracked the mishandled luggage to ensure its delivery as soon as possible. When luggage was a total loss, DSG assisted affected travelers in processing claims with the airlines, as needed.

Issue: The Democratic National Convention (DNC) is scheduled for 24 through 29 August 2008. Hotel costs for the period are double or triple the established per diem rates. All hotels in the immediate area are sold out.

Response: The DSG researched contingency options for hosting orientation in Los Angeles or Christchurch. However, the group does not anticipate a problem if WinFly operations follow the typical mid-August schedule for orientation and if flight dates are quickly identified. During the actual period of the DNC, temporary duty personnel scheduled for work in Denver may need to telecommute or work via video teleconference, if dates cannot be adjusted.

MEDICAL



KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Med		*Med*	*TOTALS*	[redacted]	[redacted]	[redacted]%	[redacted]
33	Medical transports or evacuations of personnel for predictable conditions.	Zero medical transports or evacuations due to predictable conditions.		[redacted]			[redacted]
34	Availability of Medical equipment.	Zero pieces of medical equipment not being tested and calibrated prior to use. Testing/QA will occur prior to use, or at a minimum every two months.		[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure MED - 83: Department Metrics

A. PROJECT MANAGEMENT

General Management

In August 2007, RPSC hired a full-time Medical director with a medical-management background and extensive experience in occupational health and clinical practice. The new director immediately immersed himself in the orientation of deploying Medical employees and also subsequently deployed to the Ice to become familiar with the Medical facilities and personnel at McMurdo and South Pole stations, field camps and the Christchurch office. The director also deployed to Palmer Station and the research vessels during March and April 2008.

The appointment of a management-level position responsible for Medical processing also significantly improved the overall function of the department.

The Medical director and manager of Health Services work together to improve departmental communication and develop orientation and training plans for both in-office and deploying Medical personnel.

- The director will determine appropriate clinical skills training for the deploying provider staff: hyperbaric, wilderness medicine, and occupational medicine, for example.
- The manager of Health Services will improve training in medical-practice management to fit RPSC requirements: reporting, internal processes and procedures, and the department's supply chain interface.

Major Successes

The Medical Department physically qualified (PQ) a total of 2,506 candidates during 2007–2008, compared to 2,308 in 2006–2007.

A total 152 candidates were found not physically qualified (NPQ) to deploy. That figure included 14 personnel who were initially physically qualified (PQ), but then switched to NPQ due to conditions discovered or that developed on the Ice following deployment. Of the total 152, 138 candidates were NPQ prior to deployment. Of that figure, 22 were subsequently found PQ after additional testing and 28 received waivers from the NSF/OPP, leaving 88 NPQ. One individual was retested and found PQ and one individual withdrew the waiver application. Of the remaining 86 NPQ, seven waivers were denied by the NSF/OPP, 24 were found NPQ due to psychological reasons, with a resulting 55 medically NPQ to deploy. The 55 candidates did not request a waiver, accepted the NPQ and did not deploy.

Major Issues

McMurdo Station experienced a severe outbreak of influenza during the austral summer season, with two peaks in both number and severity of illness. The peaks occurred in October/November and again in January/February.

The seasonal flu vaccine was not completely effective against the viral strains. There was considerable expense and loss of productivity related to the illnesses, as well as significant unexpected expense for patient medication.

In November, the RPSC Medical Director met with the chief of Epidemiology at the medical center in Christchurch to discuss the influenza outbreak at McMurdo Station. The epidemiology expert suggested the influenza virus responsible for the October/November outbreak likely originated in New Zealand. He agreed it would be useful to obtain the South Hemisphere Influenza vaccine next austral summer (July to August time frame) to immunize those scheduled for WinFly deployment. The vaccine used in the United States is not available prior to September. Department management reviewed the plan with the OPP Environment, Safety and Health section personnel, who agreed, but indicated the FDA approval may be required to import vaccines manufactured outside the United States.

The RPSC Medical director contacted the FDA Center for Biologics Evaluation and Research regarding importing the Southern Hemisphere Influenza vaccine and was advised that an Investigational New Drug Application is required to bring an unapproved product to the United States.

The Hearing Conservation Program (HCP) is another occupational area of concern. The EH&S Division recommended that a hearing booth with audiometer is installed at McMurdo Station to provide both baseline and end-of-season audiometry for those personnel assigned to work in identified, hazardous-noise areas.

The Medical director recommended that a hearing booth with Occupational Safety and Health Administration (OSHA)-approved audiometry equipment be procured and placed in a convenient location at McMurdo Station for the HCP.

Such an audiometry booth would require the following peripheral actions by Medical or EH&S personnel:

- Determine a convenient location for the booth, as the hospital does not have sufficient space available.
- Identify personnel working in posted, hazardous-noise areas.
- Schedule employees for exams.
- Identify an employee to obtain OSHA training in HCP audiometry to conduct the tests.

The concept would also require that a summer-season provider train and qualify in the OSHA HCP protocol to:

- Conduct pre-test exams, interpret audiograms to establish a baseline hearing level and to identify threshold shifts.
- Recommend intervals of noise-free periods before retesting.
- Identify those workers with significant threshold shifts requiring ear, nose and throat evaluation.
- Recommend an employee's removal from hazardous-noise work when appropriate.

The Medical department and EH&S would also need to publish a policy and procedure regarding the Antarctic Hearing Conversation Program.

Customer Satisfaction

The deployed community provided positive feedback regarding Medical services, acknowledging the department's timeliness of care, professional approach, and respectful interaction.

Value Engineering

Accomplishment: An increased number of deployed employees require Hepatitis A or B immunizations related to their occupations: Medical staff; food handlers; SAR and emergency medical services personnel; and those working with waste water, janitorial services, and hazardous material. Most require both A and B. Next season, the department will use Twinrix (combined Hepatitis A and B vaccine) for all employees requiring occupational immunizations.
Benefit: Using the combined vaccine provides expanded protection against both diseases at a slightly reduced cost and also minimizes the number of injections for the employee.

B. Program Integration

Coordination with Other Divisions

The Medical director continues to work with EH&S personnel to reduce lost work days. For employees with work restrictions, the EH&S manager will identify a safety contact at each station to match an employee on work restriction (but not requiring hospitalization or bed rest in quarters) to a compatible labor assignment that meets the restriction requirement. The department communicated this process to the station Medical providers, along with a caution to maintain patient confidentiality regarding the specifics of any medical problem.

C. Innovation & Process Improvement

Technical Solutions

Solution: During the Medical director's familiarization visit to Christchurch, air cargo representatives indicated that MedEvac equipment must be transported as cargo, packed in boxes up to a maximum 80 pounds and appropriately marked. The department is collaborating with Christchurch Terminal Operations to construct suitable crates to return MedEvac equipment. See the *Area Directorate - Christchurch* section of this report for more detail. Non-controlled drugs and drug kits will be packed with the equipment. Controlled drugs may stay with the flight nurse or are transferred via hand-receipt for shipment with the equipment.
Benefit: The boxes will be lined, insulated and dedicated for the return of MedEvac equipment to McMurdo Station. Any USAF equipment that remains in the custody of the crew aboard the USAF aircraft does not require cargo packing.

Solution: The department used teleconference technology to provide psychiatric tests and successfully qualify 18 individuals: 11 at McMurdo Station, five in Christchurch and two at South Pole Station.
Benefit: The ability to qualify the employees for winter via teleconference negates the potential expense of returning the candidates to the United States, or of deploying an evaluator to Antarctica to perform the required psychiatric testing.

Solution: The department used 30 telemedicine consults to treat on-Ice medical conditions.

- 24 consults by the University of Texas Medical Branch
- Two dental consults
- Four medical consults by doctors in New Zealand

Benefit: Telemedicine improves treatment by providing immediate consultation with a physician that specializes in the type of injury or illness sustained. This multifaceted knowledge base, which would be impossible to achieve on site at remote locations, reassures both patients and providers by linking them directly to the best possible source for diagnosis, prognosis and treatment.

Visionary Management

Accomplishment: The Medical department is developing a training plan to cover the orientation for deploying medical staff, as well as those providers that require specialized training. Once a provider accepts a job offer, the Medical director will interview each provider to craft a pre-deployment training plan.
Benefit: Health care providers arrive to the Program with varying levels of training and experience and may require additional Program-specific instruction regarding topics like wilderness medical training; ultrasound; hyperbaric; dental emergencies; Advanced Cardiac Life Support; Advanced Trauma Life Support; occupational medicine, high altitude physiology and related illnesses; and medical evacuation in the specific USAF Antarctic aircraft.

Accomplishment: The department is adjusting the primary focus of the on-Ice medical program from acute care to occupational medicine.
Benefit: Medicine on the Ice has traditionally functioned primarily as an employee acute-care practice, but with a need for an occupational medicine approach that focuses on prevention. It is increasingly important that deployed providers concentrate on preventing illness and injury in the workforce. The department encouraged the providers to conduct workplace surveys and job-specific surveillance physicals for the workforce.

Accomplishment: The department recommended the Program procure spirometry equipment that meets OSHA specifications for the McMurdo Station hospital; that a medical employee is trained in spirometry; and that a physician trained in interpretation of occupational pulmonary function testing is available on site at McMurdo Station.
Benefit: The requested spirometry equipment will allow the department to conduct pulmonary function tests for respirator wear according to OSHA Respiratory Protection guidelines.

Responsiveness to Challenges

Issue: Previously, NZ Customs and immigration authorities boarded USAF aircraft to clear MedEvac patients and medical attendants. As of this year, the NZ authorities no longer board the USAF aircraft. Patients not requiring immediate Emergency Medical Services (EMS) transport, as well as all attendants, must enter regular NZ customs lines.
Response: The department recommended that patients requiring ambulance transport are turned over to a NZ EMS crew at the aircraft. Ambulatory patients will enter through regular customs lines. Medical attendants will clean up medical debris and equipment and enter through regular customs. The USAF base medics do not have patient-care authority in New Zealand.

ENVIRONMENTAL, HEALTH, AND SAFETY

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
EHS			*EHS TOTALS*	[redacted]			
28	Ensure that an EIA has been performed for all projects that require such prior to beginning any activity that would require generation of such a document.	All required EIAs written and delivered to NSF EHS ABM one month prior to beginning of construction.		[redacted]			
32	Achieve a TRIR Rate of <= 5.4	<= 5.4		[redacted]			
			TOTALS	[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

Figure EH&S - 84: Division Metrics

ENVIRONMENTAL ENGINEERING

A. Project Management

General Management

The Environmental Engineering (EE) Department continues to improve its planning and efficiency. In KY07, the department developed an environmental work plan that includes four basic criteria to evaluate the merit of environmental projects and to establish priorities:

- Legal requirements/policy fulfillment
- Environmental protection and/or improvement
- Client priorities
- Efficient use of resources

The department completed all projects listed in the KY08 Environmental Work Plan with no health or safety incidents. EE will submit detailed project reports to the NSF/OPP in April 2008.

Environmental Impact Assessment

EE reviewed nearly 200 science, engineering, and operational projects during KY08 to ensure compliance with 45 Code of Federal Regulations (CFR) 641 and 40 CFR 1500, which mandate environmental review of all USAP program activities.

Environmental Impact Assessment requirements for science and construction projects increased 50% this season. EE responsiveness and efficiency increased accordingly and the department completed all records of environmental review and initial environmental evaluations in time for work to begin on schedule. In total, 36 projects required environmental assessment and documentation.

Environmental Education and Outreach

Under 45 CFR 671, environmental training is required for all deploying USAP participants, and such training is essential to protect the Antarctic environment. EE worked with IT Multimedia to produce new and updated videos that are now more targeted and relevant to the particular role of the USAP participant being trained. For more information on the videos, see the *Innovation and Process Improvement* section.

The department, with the assistance of the NSF Environmental Officer and NSF Policy Specialist, launched a new environmental education campaign to prevent introduction of non-native species to Antarctica. The intent of the outreach was to increase awareness of a topic of emerging concern within Antarctic Treaty nations. Professionally prepared brochures and stickers were printed and distributed to all USAP participants upon deployment.

Environmental Remediation

Environmental engineers conducted two, major remediation activities during the 2007–2008 austral summer: Odell Glacier Field Camp Recovery and Equipment Staging and the Mt. Patterson/Basler Crash Site Spill Response. Summaries of both activities will be included in the 2007–2008 Environmental Work Plan Summary.

Antarctic Specially Protected Area Plan Reviews

In accordance with Article 6.3 of Annex V to the Madrid Protocol *Protocol on Environmental Protection to the Antarctic Treaty*, a review of management plans is required on a periodic basis by the national program that proposed the protected area. Six Antarctic Specially Protected Areas (ASPA) under United States oversight are due for review this year. Updates to the ASPA management plans and maps will improve and enhance the protection of values important to scientific study and wildlife conservation within these areas.

The six ASPAs under U.S. review are:

- ASPA 106 Cape Hallett, Victoria Land
- ASPA 121 Cape Royds, Ross Island
- ASPA 123 Barwick and Balham Valleys, Victoria Land
- ASPA 124 Cape Crozier, Ross Island
- ASPA 137 Northwest White Island, McMurdo Sound
- ASPA 138 Linnaeus Terrace, Asgard Range, Victoria Land

Reviews of the ASPAs incorporate the following:

- gather up-to-date information on site status and on any installations or facilities that may be present;
- verify that the reasons for special protection remain valid;
- verify that the values being protected are being maintained;
- verify that the management measures in place are sufficient to provide protection; and
- recommend any management measures that may be necessary to maintain the values being protected.

Each ASPA Management Plan includes the following information:

- detailed definition of the values to be protected;
- management measures required to ensure the values are protected;
- description of the area, covering the important natural and human features based on available scientific literature;
- definition of the boundaries and management zones;
- guidelines for activities within the ASPA; and
- policies regarding access and movement, installations and collection of materials.

Plan revision takes into account any newly published literature relevant to the area. In addition, the department obtains reports of any ASPA visits from the relevant national programs for review. Beyond these documents, EE also consults with relevant scientists and program managers, given their first-hand experience in the practical implementation of the management plan, and often have specific observations based on site visits that do not appear in ASPA visit reports. In the context of the Ross Sea, these tasks continue to require consultation with both the United States and New Zealand Antarctic programs, and Italy where appropriate.

EE conducted field-site visits to ensure that important aspects of the plans are properly verified, especially those sites that are regularly visited or have on-site facilities that require periodic maintenance. Based on all of the information gathered, EE will submit the updated management plans and maps for the six ASPAs to the 2008 Antarctic Treaty Consultative Meeting (ATCM) for review and comment.

Update Facilities Zones Maps for Dry Valleys ASMA

Additionally, the USAP is beginning the audit process of the Dry Valleys Antarctic Specially Managed Area (ASMA No. 2) in 2008, for presentation to the treaty countries in 2009 for ratification. Many of the maps prepared in support of ASMA No. 2 required improvements to make them more useful for people in the field. While the existing maps are very detailed in some respects, there is a general lack of useful contextual information on surrounding features, such as lakes, glacial features, ice-free ground, hills, and other physical markers that aid in interpreting the map in its proper environmental context. The department plans to remedy this shortfall and improve the usefulness of the Dry Valleys ASMA Manual.

ASMA for Southwest Anvers Is. and Palmer Basin

The NSF/OPP and RPSC EE are working on the completion of the ASMA proposal for Southwest Anvers Island and Palmer Basin. Upon recommendation by the NSF/OPP, the ASMA was proposed at the 2007 ATCM. The plan is currently under review by other national programs and the USAP. The department expects the ASMA to be adopted during 2008 at the next ATCM meeting.

Spill Prevention Controls and Countermeasures

The department, with the assistance of EnviroGroup Ltd., has prepared updated spill prevention plans for both McMurdo and Palmer stations. EE completed the audit for McMurdo Station during January 2008, with the audit for Palmer scheduled for late March 2008 during station turnover. Each plan must be audited before signing.

Although the Environmental Protection Agency (EPA) regulations do not strictly apply in regard to spill prevention controls and countermeasures (SPCC) requirements, the NSF/OPP uses EPA regulations as a best-management practice for operations in Antarctica, and the requirements meet and/or exceed standards set forth by the Protocol on Environmental Protection. McMurdo and Palmer stations' SPCC Plans will be formatted in accordance with the EPA's Oil Pollution Prevention and Response; Non-Transportation-Related Onshore and Offshore Facilities; Final Rule (40 CFR 112).

Customer Satisfaction

Accomplishment: Although the amount of science project reviews increased by 50% from the previous year, the department met client needs by preparing all environmental impact assessment documents on time.
Benefit: All construction projects and IPY science projects started on schedule.

Accomplishment: The Colorado Department of Public Health and Environment awarded RPSC continuing status as a "Gold Star Leader" in the Colorado Environmental Leadership Program.
Benefit: This marks the second year the company was recognized as one the state's top leaders in applying the principles of an effective environmental health and safety management system.

Accomplishment: During KY08, EE personnel presented *Environmental Stewardship in the Antarctic* at a regional Water Environment Federation conference in Denver, and *Environmental Management in the Dry Valleys* at the Raytheon EH&S Conference in Austin, Texas.
Benefit: The presentations fostered professional development within the EE department and provided positive exposure for the USAP.

B. Program Integration

Coordination with Other Divisions

Recovery operations at Odell Glacier Field Camp succeeded due to advanced planning with Science Support, Fixed-Wing Operations, Fuels, and the BFC. RPSC completed all work with minimal impact to the environment.

The department made considerable progress in revising the Dry Valley's ASMA Management Plan this year, with the help of the RPSC surveying team. The survey team completed more accurate surveys of each facility zone within the ASMA in support of the revised plan presentation to ATCM in 2009.

C. Innovation & Process Improvement

Technical Solutions

Solution: EE engineers planned, screened, and organized secondary containment requirements for science field camps. The project is now in the implementation phase, with most secondary containment needs met. The department will continue to coordinate with Science Support and the BFC to further refine the process.
Benefit: Secondary containment decreases the risk of a release to the environment, thereby protecting sensitive areas.

Solution: EE engineers completed Phase II of the Reverse Osmosis Membrane Performance Data Normalization Project during 2007 by capturing one year's data to evaluate potential membrane replacement options that yield higher production capacity and reduce energy consumption.

Benefit: The project's newly installed software normalizes data, detects trends in membrane performance, and provides a baseline for benchmarking different system configurations and membrane types. By combining normalized data and additional membrane performance probing tests conducted by the water operator last winter, the department developed a recommendation for new membrane types. A pilot test of the new membranes will be conducted during winter 2008.

Visionary Management

Accomplishment: The Environmental Education & Compliance specialist, RPSC Communications, and IT Multimedia updated the Dry Valley Environmental Education videos, including *Protecting Antarctica's Environment*, *Living and Working From a Fixed Facility*, and *Tent Camping in the Dry Valley's ASMA*. The videos communicated environmental stewardship policies and procedures for researchers and other personnel operating in the field.
Benefit: RPSC made these videos available online to researchers via www.usap.gov before their deployment, with 75% of researchers using the pre-deployment training, freeing up valuable on-Ice time. Also, based on researcher comments and environmental field audit findings, the videos noticeably increased the awareness of, and consideration for, environmental issues, especially in the McMurdo Dry Valleys.

Response to Challenges

Issue: Because of additional projects starting during IPY, the work load for SIP review increased 50%.
Response: Traditionally, the environmental engineering manager assumed responsibility for all environmental reviews. Due to the increased workload, the department realized the traditional approach would not be possible. Additionally, there was no increase in staffing for the department to handle the workload. Instead, the department developed a way to use subject matter experts within the department requesting the review, and to use temporary duty personnel to review Marine Operations and Palmer Station projects.

HEALTH AND SAFETY

A. Project Management

General Management

The Health and Safety (H&S) staff provided 24-hour, seven-day-per-week support to lead and manage a variety of USAP-wide health and safety initiatives, processes, programs, investigations and risk reduction activities. Such support included Marine Operations and also covered the full spectrum of health and safety management systems for grantees and NSF and RPSC personnel, impacting the range of operations and industrial activities at containment areas at McMurdo, South Pole and Palmer stations, as well as field sites.

The department assisted with the mitigation of emerging issues and incidents, and also managed pre-planned events, projects and tasks. H&S personnel contributed to an ongoing effort to reduce recordable injuries, and to monitor and analyze fluctuations in the Program's cultural and institutional drivers of safety.

Safety Training and Program Revisions

Safety training and procedural revisions are among activities attributed with reducing the overall injury and incident rate. The department evaluated the past season's performance and implemented corrective action and improvement plans. H&S addressed training improvements to the Denver-based deployment orientation and analyzed increased incidents from prior seasons, supervisor safety training, management-level root-cause analysis and on-ice standardization of training programs related to OSHA requirements. Those RPSC personnel not attending Denver orientation were provided the same training once they arrived on the Ice. The department also assisted RPSC divisions with constructive changes to internal training programs, such as vehicle operations.

The department utilized Raytheon reach-back to schedule a qualified RTSC instructor to conduct electrical safety training in the Denver office. An in-house electrical engineer followed up with subsequent additional sessions.

Injury Analysis

The H&S Department investigated more than 120 injuries, near accidents, incidents of fire and property damage and high-level occurrences of significant injury or property loss. The department assisted station management with the incident review boards conducted regularly during the austral summer and as needed during winter. Updates to the supervisor training yielded improved root-cause analysis, providing an opportunity to institute mitigation measures that focused on prevention of incident re-occurrence, rather than short-term fixes.

The 2007 year-end injury analysis indicated a continued downward trend in recordable injury rates. While work-related incidents showed modest declines, off-duty incidents remained high with little change. The department recorded an increase in near-miss reports, a positive indication that employees reported potentially serious incidents. Such reporting results in greater investigation and root-cause analysis to reduce reoccurrence.

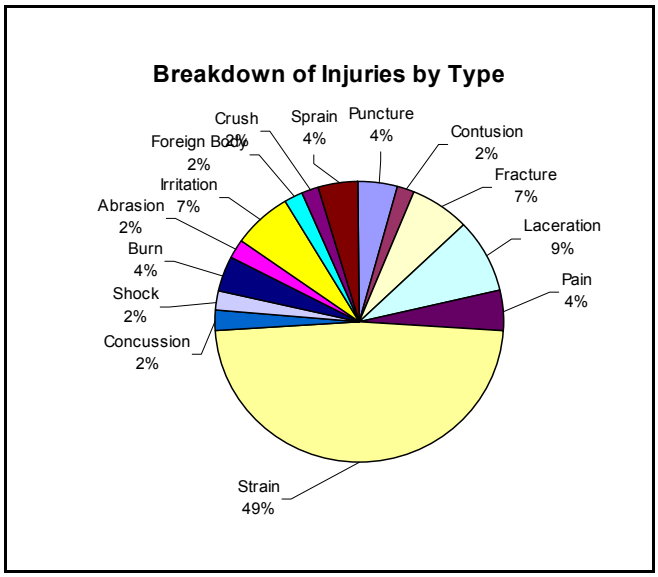


Figure EH&S - 85: Reported Incidents By Type

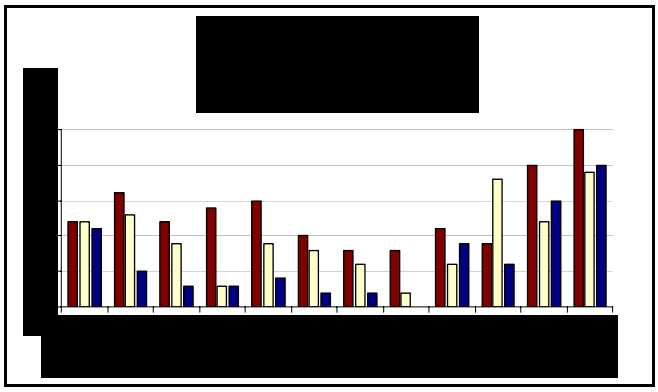


Figure EH&S - 86: Total Injuries By Month

The 2007 work-related injuries totaled 80 (recordable and first aid), a 31% reduction from [redacted] injuries in 2006. The department attributes the drop to increased training and safety commitment by the supervisors.

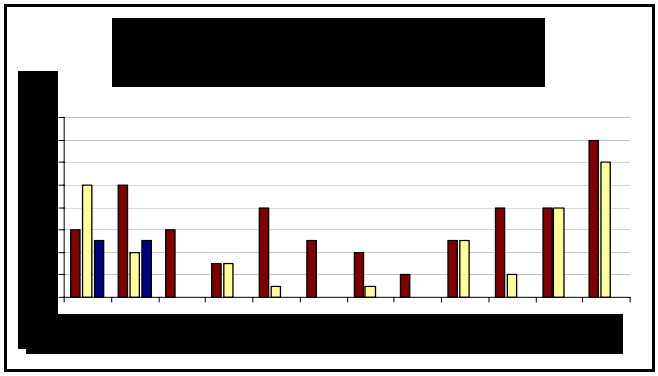


Figure EH&S - 87: OSHA Recordable Injuries By Month

The Program's OSHA-recordable injuries in 2007 dropped 41% from 2006, to [redacted] injuries. Supervisors' increased commitment to safety is trickling down to the employee population.

RPSC again met the Health and Safety metrics for a reduced TRIR, a benchmark that measures incident rates based on man-hours worked per incident. The overall TRIR for 2007 was [redacted] versus the [redacted] RTSC goal. RPSC exceeded the NSF/OPP metric of a [redacted] TRIR.

The number of lost work days per 100 employees was elevated in 2007 ([redacted] compared to 2006 ([redacted]. Though the number of work related incidents dropped, injury severity rose, triggering lost work days. The department analyzed the incidents and developed corrective actions to mitigate severity, also working with the medical director to provide occupational health training for on-Ice medical staff.

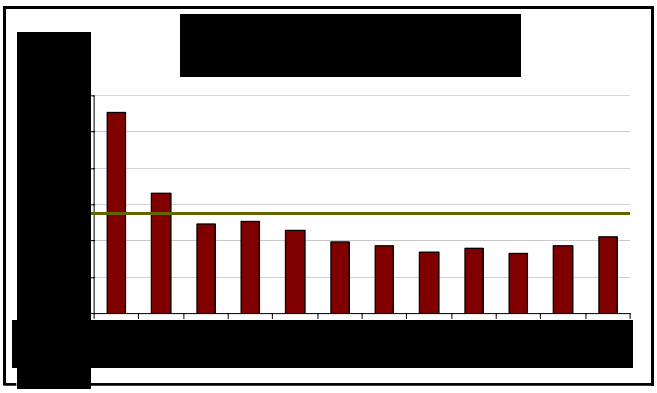


Figure EH&S - 88: Cumulative TRIR 4.22 vs. RTSC 5.48 Goal

Further analysis indicated that nearly one-half of all Program injuries resulted from strains and sprains—basic ergonomic movements. Through the years, the department eliminated obvious causes and began to focus on employee behavior. Improper movement during tasking and employee complacency remain the leading causes of such injuries, primarily improper lifting and exposure to long-term, static positions such as sitting. The department continued to train personnel and coordinate with the on-site medical staff, specifically the physical therapist.

Figure EH&S - 89: TRIR by station for KY08

Further analysis indicated that nearly one-half of all Program injuries resulted from strains and sprains—basic ergonomic movements. Through the years, the department eliminated obvious causes and began to focus on employee behavior. Improper movement during tasking and employee complacency remain the leading causes of such injuries, primarily improper lifting and exposure to long-term, static positions such as sitting. The department continued to train personnel and coordinate with the on-site medical staff, specifically the physical therapist.

Industrial Hygiene Assessments

The department performed a number of industrial hygiene (IH) assessments and continued to replace inadequate equipment. H&S personnel developed an industrial hygiene sampling plan and provided the fire house with a four-gas monitor to aid in its response scenario assessments. The department sampled and evaluated the following:

- Carbon monoxide levels in vehicles during operations
- Noise surveys for identified at-risk positions
- JP-8 fuel exposure and facility ventilation for Fuels employees
- Ventilation during daily fuel testing and JP-8 levels in the office area of the building
- Asbestos content in a number of questionable areas not included in the Asbestos Management Plan

Major Successes

Raytheon Corporate conducted an EH&S management audit of the RPSC Denver headquarters during KY08. Facility safety and EH&S management scored 98.5%, one of the highest scores awarded to a Raytheon location. The RPSC facilities management personnel played a key role, resolving prior findings in preparation for the final inspection.

Major Issues

The incident of off-duty injury (remained high in KY08. While not work-related, the off-duty injuries nonetheless impacted overall performance, given the resulting employee work restrictions. The injuries affected the labor schedule, as other workers covered for injured personnel. This lowered morale and increased risk of injury to the remaining labor force.

In evaluating office ergonomics and other work processes at McMurdo Station this contract year, the department responded to complaints of repetitive stress impact due to long hours at computer workstations with insufficient adjustment. While few resulted in recordable injuries, the department recommended a series of ergonomic countermeasures, including operator body mechanics and posture, as well as updated chairs and desks. The department also identified a further need for ergonomic safety tools, such as adjustable keyboard trays and wrist and foot rests. The department recommended the product type and placement for such items, with intermediate measures suggested to alleviate the risk pending purchase and arrival of the new equipment. Department staff followed up to assist in installation and use of ergonomic items.

EH&S audited buildings to identify outstanding safety hazards and code issues for FEMC attention. Examples included the myriad of concerns with Building 174; lack of suitable exhaust systems in the fuel testing lab at McMurdo Station and Marble Point; lack of adequate ventilation for the VMF, Fire House and paint barn; and the need to incorporate engineering controls to reduce noise exposures in the power plant engine rooms. The department also identified a number of issues at Palmer Station. RPSC working groups are developing recommendations and options for NSF/OPP to consider.

Customer Satisfaction

H&S increased its focus on ergonomics in locations like the McMurdo Station galley, tracking the long-term solutions identified during previous audits.

Ergonomic and safety recommendations related to the NANA Services contractor for galley operations reduced ergonomic-related injuries and complaints by almost 50%, compared to KY06. RPSC increased its interaction with NANA Services to further improve upon this success. Related examples included ongoing training for galley workers, collective goals, and greater analysis and faster feedback for ergonomic-related incidents.

The department conducted 121 office-environment ergonomic evaluations to reduce injury exposure. Most corrections were minor, though some will require a CCR.

H&S expanded its contact with the Program community through a variety of methods, yielding an estimated 50% increase in the number of personnel visits and contacts with department staff. Such methods included relocating its McMurdo Station Safety Office to a more central location, conducting industrial hygiene sampling in several at-risk occupational environments, and increasing its staff rotation to address workload at McMurdo and South Pole stations.

On an internal evaluation, EH&S received highest marks with RPSC for improvements to customer service.

B. Program Integration

Coordination with Other Divisions

To limit inspection traffic in work centers, H&S staff partnered with the Fire Department to conduct safety and fire audits at McMurdo Station and field camps, allowing both departments to maximize helicopter hours to access remote facilities.

The department partnered with Science Support's MEC to draft an ATV and snow machine helmet-use policy and update the equipment training program to include mandatory helmet use. The helmet policy takes effect in KY09.

The department collaborated with the various Program safety entities, including the NSF/OPP and SFA safety officers, IceCube personnel, and WAIS camp safety contact.

C. Innovation & Process Improvement

Technical Solutions

Solution: H&S conducted formal industrial hygiene assessments of fuel contaminants and air quality within Fuels Building 140.
Benefit: The department learned that, while fuel contamination and exposure was below recommended limits, it could be improved through proper fuel sampling vapor containment and building ventilation source and output.

Solution: The South Pole Station safety engineer identified specific sampling equipment for fuel-tank-cleaning vapor exposure.

Benefit: The specific fuel-vapor monitor will greatly reduce the risk of fuel-vapor exposure to personnel working in the confined spaces of the USAP fuel tanks. H&S will procure the monitor during the 2008 austral winter season.

Solution: To help alleviate the increased work load at South Pole Station—primarily related to increased operations and requirements related to the IceCube Project—McMurdo Station-based safety personnel rotated through South Pole Station on a space-available basis for an additional 20 augmented days.
Benefit: Extra personnel assisted in the daily operations and season-long tasking, allowing the on-site safety engineer to focus on immediate needs paramount to community safety.

Solution: H&S conducted a McMurdo Station ergonomic computer workstation review.
Benefit: The extensive review identified and evaluated the overall adjustable nature of computer workstations at McMurdo Station. The effort will reduce obscure sources of repetitive stress and muscular-skeletal injuries.

Solution: Resulting from safety-related findings and observations following the NBP fire, the department implemented hazardous materials management procedures, related training, lab inspections, and installation of safety-related hardware.
Benefit: The measures reduced risk and improved the efficiency of operations aboard ship.

Solution: RPSC implemented a Program director-level Safety Leadership Award program.
Benefit: The program recognizes significant Program-level contributions related to improving safety.

Solution: The company implemented a return-to-work program.
Benefit: The program reduced work time absences due to injuries and promoted greater overall employee productivity.

Visionary Management

Accomplishment: H&S created an Employee Safety Committee at RPSC Denver headquarters to help employees execute safety initiatives and provide a forum for feedback and concern.
Benefit: The committee allows employees to participate in improving the health and safety aspects of the Program and Centennial facility.

Responsiveness to Challenges

Issue: In 2006, supervisors who required a work-ready labor force upon immediate arrival on station criticized that classroom-based safety training adversely impacted the work schedule. They suggested that training be held during the deployment orientation in Denver.
Response: EH&S accepted the recommendation and offered general safety awareness and OSHA classes during the deployment orientation. The practical aspects of the OSHA training continued to be offered on-Ice, along with job-specific training provided by the work center supervisors.

Issue: The early half of KY08 saw more than 50% of the available industrial hygiene equipment returned as irreparable or unreliable in holding calibration.
Response: The department procured replacement equipment and split the inventory between McMurdo and South Pole stations, placing the material on a calibration rotation schedule to ensure ongoing accuracy.

Issue: There were numerous instances where medical staff did not relay injury information in timely manner.
Response: Assisted by the medical director, H&S is reorganizing and simplifying the incident-reporting timeline during the 2008 austral winter. The effort will ensure timely and accurate incident reporting, information used to improve return-to-work initiatives. As of February 2008, RPSC implemented an interim reporting process that involves Medical staff providing the on-Ice Safety representative with an immediate notification when a work-related injury is reported to the Medical Clinic. The system will continue pending a permanent solution.

Issue: Several incidents that caused vehicle damage suggested critical gaps in the vehicle training program.
Response: H&S collaborated with various departments to update the vehicle training program.

Issue: Other than the Safety and Health Incident Event Log Database, there is no clearing house for reporting USAP incidents that require a higher level of investigation and review by RPSC, RTSC and NSF/OPP.
Response: RPSC management, NSF/OPP and H&S are reviewing a common reporting method format for such incidents.

Future Plans and Visions

The department continues to strive to reduce the TRIR to achieve “World Class" status, defined as a TRIR of 1.0 or less. Efforts include a continued campaign stressing the importance of early hazard detection and mitigation of identified hazards.

The department’s goal is to build a climate of behavioral safety where all USAP participants conduct themselves in a manner to avoid risk to person and property.

FINANCE

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Fin			*Fin*	*TOTALS*	[redacted]		
37	Timely and accurate reporting of all costs.	All monthly cost reports submitted within 3 business days of contract due date.		[redacted]			
38	Timely reporting of all property.	Property reports submitted within 2 business days of date mutually agreed to by NSF and RPSC.		[redacted]			
39	Accurate reporting of all property.	>=97% accuracy for all property reports.		[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure FIN - 90: Department Metrics

A. PROJECT MANAGEMENT

General Management

The Finance Department leveraged its enhanced systems with a seasoned staff to improve the overall quality, quantity and timeliness of its deliverables to the NSF/OPP.

Business Objects Enhancements The department improved its processes by refining its application of tools and concepts introduced the previous year.

Timely Delivery Finance minimized its response time for key deliverables, such as the Financial Property Report, Quarterly Expenditure Report and monthly financial information.

Major Successes

FY08 Annual Program Plan The department delivered the APP by its contractual deadline of 15 September 2007, a considerable accomplishment given the multitude of factors that routinely jeopardize on-time delivery of the plan.

Budget Reductions The Finance Department successfully reduced the budget to meet goals set forth in an emergency request from the client.

Business Objects Upon request of the NSF/OPP, the department provided new reports in KY08 generated from the Business Objects application: incurred cost-to-date by category and by sub-WBS report; and project versioning reports.

The department can now also facilitate sensitivity analyses at the project level, an improvement that aids in comparing impacts of various head-count issues and cost assumptions.

Customer Satisfaction

Following a specific request from the Contract Officer Technical Representative (COTR), RPSC improved its Finance-related reporting methodology.

Value Engineering

Accomplishment: The department initiated development of dashboard functionality in the Business Objects application.
Benefit: The interface provides a user-friendly presentation that may be customized to accommodate a variety of financial metrics for internal and external customers.

Accomplishment: Using the Business Objects software, Finance began developing functionality for the Estimate at Complete (EAC) data elements.
Benefit: The use of EAC allows the analyst to provide a more meaningful analysis, rather than merely compiling data elements.

B. Program Integration

Coordination with Other Divisions

The department partnered with other RPSC divisions in KY08 to add value to the Program. One example is its coordination with the PMO to re-engineer financial data inputs to the Project Status Report (PSR). The change ensures the NSF/OPP receives consistent and standardized financial information on each PSR, regardless the division.

Freight Cost Model Finance and the PMO collectively prepared and submitted a study regarding how to revise the Property Accounting Freight Cost Model to use cost estimating rate tables as a primary data source.

Budget Reductions The department led other RPSC divisions to identify, justify, and propose over $8 million in FY08 budget cuts—a prime example of Finance staff effectively working across all divisions to deliver a quality, on-time product. The upgrade to the Business Objects application aided the effort.

C. Innovation & Process Improvement

Technical Solutions

Solution: The department coordinated with IT to roll out updates to the Business Objects software across the technology enterprise.
Benefit: The updated version of the budget software enhances its functionality at all sites and locations.

Solution: Finance identified the issues that had prevented adding NYANG and SPAWAR financial information to the Business Objects application.
Benefit: The software upgrade facilitated a change in methodology to add NYANG and SPAWAR financial information for more complete and consistent reporting.

Visionary Management

Accomplishment: The department introduced quarterly, ground-up financial reports and sales forecasting.
Benefit: The change in methodology allows for a more detailed analysis of RPSC sales pace, no longer dependant on any prior forecast. The ground-up effort incorporates the most current knowledge of upcoming events into future-period sales projections.

Responsiveness to Challenges

Issue: There was no Finance schedule for the SPSM project.
Response: The department analyzed and defined a capital depreciation schedule for the new South Pole Station.

Leveraging Corporate Credit Card Vendor

Issue: In 2007, the company changed its corporate credit card vendor from [redacted]. Accounting personnel saw an opportunity to bring material efficiencies to the group. The Accounts Payable group found that six WBS numbers accounted for 90% of the transaction lines charged monthly by the DSG.
Response: The department proposed a one-for-one relationship between major travel WBS numbers and individual credit cards. The proposal was adopted, and Accounts Payable reallocated 20 hours per week—1,040 hours annually—to other tasking, including:

- internal audits of travel authorizations
- actual freight cost reallocation and analysis
- document internal controls
- improved lab support for deployment orientations
- more timely resolution of vendor payment issues
- improved internal expense-report service

The finetuned process will improve the accuracy of communication between Accounts Payable and DSG.

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Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
PMO			*PMO TOTALS*	[redacted]			
35	All major projects, defined and selected by mutual agreement due to their cost, schedule, risk, priority and/or complexity, will monitor and report on overall cost and schedule performance.	All Major Project Performance Reporting will be provided on a quarterly basis as a part of the RPSC Quarterly Performance Review.		[redacted]			
36	All requests for cost estimates and schedule support to the PMO will be reviewed and responded to within 5 working days of the request. Requests for support approved by the appropriate PMO Manager (Cost Estimating, Planning & Control) will be initiated and completed within the assigned schedule as defined when the request is approved. The delivery schedule will be developed based upon request need and other factors included in the Standard Table of Delivery maintained by the PMO. The Standard Table of Delivery can be found in the PMO On-Line Project Management Manual.	100%. All requests for service will be reviewed and dispositioned within 5 working days of submittal and all approved requests will be completed within the assigned schedule.		[redacted]			
40	All major projects, defined and selected by mutual agreement due to their cost, schedule, risk, priority and/or complexity, will submit a detailed spending plan	All Spending Plans, based on the project cost estimate will be submitted before initiation of the Procurement /Implementation Phase of each major project and will be updated only by approval of Change Orders through the project change management process.		[redacted]			
41	All major projects, defined and selected by mutual agreement due to their cost, schedule, risk, priority and/or complexity, will submit a final detailed Cost and Schedule Performance Report.	All final Cost and Schedule Performance Reports will be submitted as a part of the project final acceptance documentation package for each project.		[redacted]			
47	Station Schedules	All seasonal base lined project schedules will be submitted to the NSF two weeks before the beginning of each season.		[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure PMO - 91: Department Metrics

A. PROJECT MANAGEMENT

General Management

Continued standardization of processes and performance management improvements dominated PMO efforts in its second year since inception. The PMO again served as a conduit for improvement, driving delivery of internal and external training; greater inputs to the IMS; and development of new processes and tools, including an on-line Project Management manual, risk analysis tools, change management, integrated cost and schedule baseline, and new project proposals.

A number of "firsts" occurred this contract year. For the first time in Program history, the APP labor requirements for all three research stations were uploaded entirely from the IMS.

This milestone marks both important progress in overall Program planning and realization of the IMS as an accepted component of the USAP planning culture.

The PMO also trained and encouraged PMI Professional Project Manager Certification of company project managers and specialists, resulting in a total of 28 PMP-certified staff—significantly more than any other RTSC division. The PMO participated in and provided key support resources to the April 2007 St. Michaels II (Optimization of South Pole Operations) Conference.

To improve project performance and reporting methods, the PMO delivered a comprehensive corrective action plan, retooled project performance report format, and accelerated training for Earned Value Management (EVM) tools and techniques, among other enhancements.

The department drove development of peripheral

processes and initiated, with Finance, the shift to a more timely current-cost performance reporting method.

A continuing effort is in progress to "cost load" all active projects in the IMS, many of which currently reflect only resources. That process and its anticipated result of consistent cost configuration will greatly improve the quality of project performance management and reporting.

Major Successes

The PMO actively improved operations and management planning through several key efforts. As indicated, by implementing IMS labor resource planning for all resources at all stations, the PMO ensured the FY08 APP reflected all on-Ice operations and maintenance resources requirements. [redacted] The online Project Management Reference Manual, developed by the PMO and debuted early in the contract year, provides a convenient, thorough reference for project managers. The manual offers a one-stop-shop for both internal and industry standard project-management-related resources and topics.

Major Issues

The client requested changes to the existing project reporting method. To meet the expanded project data requested by the NSF/OPP for monthly review, the PMO implemented a new Project Performance Report (PPR) for all NSF/OPP-funded projects over $500K. The previous project reporting format was retooled to provide for new data collection. This resulted in a redesign of the existing PSR format, including the addition of a single-page summary, performance graphs and additional data fields. The PMO quickly trained affected personnel and developed an updated instruction set to ensure an expedited and effective transition to the new format. The NSF/OPP has indicated that the resultant format is too large and complex; so the PMO is again retooling, simplifying the report to provide a summary approach and tightening the production schedule to ensure timely data delivery.

Customer Satisfaction

During the previous contract year, departmental technical writers were consolidated under PMO oversight. The working result is a higher-performance, customer-oriented service group that managed over 170 document assignments in KY08. From its user-friendly online request form to the three-day initial response standard, the new process expanded writing assistance company wide, improving both the quality and on-time delivery of company reports, manuals and procedures.

Value Engineering

Accomplishment: A department-sponsored R6s project yielded a new risk management identification process, based on the same methodology utilized in the Raytheon Risk Management system. The process features an easy-to-use workbook and instruction set.
Benefit: Identifying and mitigating risk early in the project timeline saves the Program both in funding and labor. Project efficiency and momentum is needlessly lost from risks that can be mitigated or effectively managed earlier in the project.

Accomplishment: The PMO hosted a three-day PMP certification class for 15 project managers and specialists eligible to sit for the professional certification exam.
Benefit: The course strengthened the related skills of all participants and resulted in five project managers and two senior project specialists successfully earning PMP certification.

Accomplishment: The PMO assumed oversight and responsibility for all remaining project specialists.
Benefit: Consolidation of project specialists under the PMO umbrella has led to streamlined use of the resource—reflecting a common mission, improved standard of performance expectations and oversight, simplified communication structure, and more efficient leveling of tasking.

Accomplishment: The PMO collaborated with Finance to transition to a current-cost performance base. From when data is entered into the financial system to its inclusion in the project performance reporting to the NSF/OPP, the new method reduced the maximum reporting processing time from six to three weeks.
Benefit: The current-cost performance method improves the timeliness of financial data reported by projects.

B. Program Integration

Coordination with Other Divisions

The PMO built upon the effectiveness of the Project Management Weekly Forum concept, initiated in KY07. The department hosted 35-plus forums this contract year to provide project managers from all divisions with an ongoing opportunity to review and discuss common challenges, process improvements and industry innovations. The forum ensures a constant transfer of critical Program information and a quick ramp-up and mentoring resource for new project managers.

C. Innovation & Process Improvement

Technical Solutions

Solution: The online Project Management Reference Manual and its collection of convenient resources files, as well as internal and external hyperlinks, provide project managers with a single, consolidated source for all related references: ranging from PMO procedures and forms to in-house training packages and industry best practices material.
Benefit: By consolidating position-related material into a single source, project managers save critical time in researching requirements, formulas, best practices and necessary deliverables. The tool ensures a consistent doctrinal approach company wide and is an essential tool in training new project managers.

Solution: The PMO technical writers collectively developed and implemented a highly successful task-request process and automated management tool.
Benefit: The affiliated procedure, online request form and task-management process centralizes documentation support. The method allows managers an easy form to request writing assistance and provides the PMO with a quantitative method to effectively schedule and balance its labor. More personnel are now able to take advantage of available writing services, improving the overall quality of company documentation deliverables.

Solution: The cost estimators continued development of a series of external and internal rate tables, designed to itemize commodity and peripheral costs in detail for key Program components: deployment, cargo transport, on-Ice support and fuels, the latter of which was completed during the prior contract year.
Benefit: The rate table quantifies in a standard and traceable method the cost estimate for each incremental step in project development, improving the overall cost estimating methodology.

Solution: The PMO introduced a new training class for Variance Analysis Reporting (VAR), also developing a Program-specific curriculum and convenient session schedule for related personnel.
Benefit: This training is designed to improve the quality and consistency of the VAR, which represents a significant portion of monthly project reporting.

Responsiveness to Challenges

Issue: Several projects, operated by divisional project managers, failed to provide information necessary for acceptable performance reports. This included a lack of EVM data, failure to properly baseline project activity, inconsistent reporting, and a general failure to load and update data to the IMS, as required for proper planning.
Response: The PMO is working with senior and divisional management and the NSF/OPP to define and implement concrete methods to improve reporting and to cost-load all project schedules in a uniform fashion to meet performance management requirements. The complete monthly project report submittal was minimized in November to only those reports identified as fully accurate and of highest quality. The working group identified a list of specific trouble areas and requested a corrective action plan. The PMO is leading development through a comprehensive company corrective action plan, with inter-departmental components already showing improvement.

Issue: The department operated under some level of labor shortage for the entire year. Employee attrition vacated several critical positions, some of which were then filled via internal promotions. As of the end of the year, four positions remained open, including the cost estimating manager, senior project specialist and two project specialists positions.
Response: To address labor losses, the department leveled existing tasking across the staff, promoted from within to fill several key positions, trained internal personnel and recruited additional personnel. The department also subcontracted resources to satisfy immediate, critical project specialist work; and continues to work with HR to identify candidates.

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Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
PE/QA			*PE/QA TOTALS*	[redacted]			
45	Effectiveness of the Corrective and Preventive Action Response System Program (CAPARS).	All major nonconformances effectively resolved within allocated time period (per CAPARS Procedure, 6 months or as amended).		[redacted]			[redacted]
46	Effectiveness of Supplier Surveillance Program.	100% of all projects over $100K requiring fabricated material will be inspected at the supplier facility (if travel funds are available).		[redacted]			
			TOTALS	[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

Figure PE/QA - 92: Department Metrics

A. PROJECT MANAGEMENT

General Management

In KY08, the PE/QA staff provided quality engineering to projects requiring vendor inspections; audited the Quality Management System and KY08 performance metrics data collection, compilation and reporting; and delivered on-Ice support to both projects and maintenance work-order efforts.

Major Successes

A certified welding/building inspector identified welding problems at McMurdo Station and shut down related operations. The inspector worked with the welders to identify concerns with the welding procedure and coordinated subsequent process changes with PE/QA to ensure code compliance. The improvement was evident in the quality of the welds when x-rayed for final inspection. The inspector's diligence avoided the risk of a large amount of rework.

Major Issues

The process of developing and approving Quantitative Performance Measures is traditionally a lengthy process. To resolve such delay, PE/QA will work closely with all RPSC divisions and the NSF/OPP to ensure the measures are approved early in KY09.

Value Engineering

Accomplishment: PE/QA staff simplified the Government Performance and Results Act survey form and transitioned it to function as a web-based form available on the USAP website. Grantees complete the form, an important tool for documenting the effectiveness of USAP operations, to provide feedback about the number of productive observing days.
Benefit: The move to an online, simplified form more than doubled the grantee response rate. The larger sample size provides greater confidence in the survey's validity.

Department Metrics

Performance metric # 45 measures the timely closures of major non-conformities. PE/QA staff closed all but four non-conformities during the contract year. Performance metric #46 measures the number of inspections performed at supplier facilities for projects with fabrication costs over $100K. Twelve inspections occurred during the reporting period.

B. Program Integration

Coordination with Other Divisions

The PE/QA Department worked with [redacted], [redacted], and RPSC Logistics, Contracts and Procurement personnel to develop a food inspection process, later successfully implemented by NANA Services.

C. Innovation & Process Improvement

Future Plans and Visions

In March 2008, PE/QA will kick off an R6s project, estimated for completion by WinFly 2008, to assess the current self-inspection processes and implement needed improvements.

A separate R6s project, initiated in March and estimated for completion by 31 May 2008, will investigate issues associated with the recruitment, testing, retention, and attrition of the certified welder labor force.

PROCUREMENT

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Procure		*Procure TOTALS*		[redacted]			
57	Transportation Utilization.	78% shipping with preferred shippers.		[redacted]			
58	Suppliers on-time delivery to negotiated delivery date.	>=90.0% deliveries on or before negotiated delivery date.		[redacted]			[redacted]
59	Corporate agreement utilization.	6.0% of material dollars are placed on Corporate Agreement.		[redacted]			

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure PRO - 93: Department Metrics

A. PROJECT MANAGEMENT

General Management

Procurement personnel completed training regarding contract file maintenance, recommended file structure, and contract close-out to ensure Defense Contract Audit Agency audit compliance; and ethics training to fulfill corporate requirements. The department also worked with the RPSC Internal Controls Manager to review and update its procedures and documentation to reflect industry best practices.

Major Successes

Among its successes, the Procurement Department ordered and delivered Caterpillar-brand tractors for the South Pole traverse; procured and delivered material needed for the 2Million Gallon Fuel Tank Project; and implemented a new subcontract with [redacted], [redacted] to capture total best value and pricing and to reconcile concerns with past food delivery, among other issues.

Procurement activities reflecting materials and subcontracts for the KY08 reporting period include:

- Purchase orders placed: 7,250
- Total purchase order line items: 34,670
- Total spend: $55,577,866

The department also negotiated and issued a subcontract to hire an RPSC Medical Director, utilizing the broad Raytheon reachback potential for discounts and use of the terms and conditions of an existing Raytheon Corporate Master Agreement for Medical Services.

Procurement sought to more efficiently integrate its operation with that of the PMO and FEMC, an effort that included training stakeholders during the regular PM Forum. To assist project managers in procurement-related planning, the presenters focused on related processes, timelines and compliance thresholds. The department also implemented a plan to include major supply chain stakeholders in front-end project planning.

Major Issues

Toward its goal of seamless materials movement and receipt, Procurement continued its follow-through requirements to improve interaction between the Denver-based department and Port Hueneme-based Logistics arm.

When an AARF vehicle on station malfunctioned and required warranty work, Procurement personnel notified the supplier, outlining actions necessary to correct the issue and maintain the warranty.

When the Administrative Contracting Officer requested changes in peer review procedures for packages requiring NSF/OPP consent, the Procurement staff and Contracts manager reviewed Federal Acquisition Regulation (FAR) Part 44 and revised the current Peer Review Checklist. The process now complies with all key elements.

Increased requirements for RPSC staffing are directed to Procurement in the form of outsourcing requests and subcontracts, adding to the department's workload. The Procurement manager pursued contract labor to supplement current staff, and may seek in-house assistance for specific needs.

The Subcontract administrator, Contracts manager, Internal Control manager, and Procurement manager conducted surveillance trips to the research vessel and Palmer Station Port Services provider in Chile (AGUNSA), to review existing operations, AGUNSA procedures, and to negotiate contract improvements necessary to clarify cost allocation and identify all allowable items.

Customer Satisfaction

The Procurement manager, Contracts manager, and Marine Services group met with [redacted] to discuss dry dock activities for both research vessels. The meeting finalized plans for dry dock, confirmed labor availability, and assigned action items for follow up. The Contracts manager, senior subcontract administrator, and Marine Science Support group similarly met with [redacted] (Chile) to discuss dry dock activities for the NBP.

With assistance from FEMC, the Subcontracts group successfully contracted the requirements for helicopter fueling filter modules, and expedited materials to arrive by WinFly.

Procurement staff finalized the contract to [redacted]

The department assisted in replacing the radiator for a Caterpillar Challenger 55 tractor on the ITASE traverse. The expedited procurement delivered the product with minimal impact to the ITASE schedule.

The department sourced, procured, and delivered a unique replacement military-specification fuel hose for the AGAP field project. Quick action by Supply Chain Management allowed the AGAP Project to proceed with scheduled, field start dates.

Subcontracts personnel worked with Area Directorate to rebid and award the [redacted] hazardous waste contract. The team's expedited procurement resulted in minimal impact to the hazardous waste requirements. Staff helped identify and ship all retrograde material.

Value Engineering

Accomplishment: The Procurement and Contracts managers negotiated with [redacted] on a claim for equitable adjustment.
Benefit: The result allows for completing contract option requirements for on-site equipment commission and test at the McMurdo Power Plant.

B. Program Integration

Coordination with Other Divisions

Procurement expanded its research for potential turnkey subcontractors for medical, waste management, food services and architecture and engineering services.

- [redacted]

The department conducted a pre-proposal bidders conference regarding the RFP for a new research vessel. The conference provided a question and answer session for prospective bidders during the requirements phase.

Department staff coordinated with IT Multimedia personnel to update the Procurement website. The revised site lists related procedures, frequently asked questions, points of contact and purchase order status.

With IT assistance, the department configured MAPCON in Port Hueneme to assist with receiving.

The department supported all divisions with life cycle replacements for life-safety and mission-critical procurements. Procurement coordinated with the Logistics Division to hire an expediter for Port Hueneme cargo receiving and deployed personnel on site to ensure receiving was complete.

C. Innovation & Process Improvement

Technical Solutions

Solution: The department implemented a blanket agreement for heavy use commodities.
Benefit: Procurement issued a master agreement with [redacted] for price leverage and quantity discounts on Caterpillar parts.

Solution: The department implemented a blanket agreement for high-volume commodities.
Benefit: Procurement dropped [redacted] as the approved vendor and is researching other sources for lab materials and scientific supplies.

Solution: The Contracts manager, Subcontracts, and FEMC collaborated to standardize the SOW template. The template is available on the Procurement website and includes variations for typical activities.
Benefit: A standardized SOW reduces ambiguity, lessens the risk of missed requirements, and ensures a quality work product.

Solution: To standardize freight billing, the department implemented the corporate Power Track payment system.
Benefit: The Power Track system eliminates invoices and allows corporate carriers to be paid according to contract terms.

Visionary Management

Solution: To resolve issues with last year's food procurement—food supplies that missed the vessel, incorrect product shipped, payment concerns—the department sponsored a lessons-learned session to improve its coordination with the vendor. Process improvements include:

- Verify receiving and packing slip at the warehouse prior to shipment to Pt. Hueneme
- Separate food crates by location
- Create dry-food delivery schedule
- Create frozen-food delivery schedule
- Verify the purchase order matches the invoice

Benefit: Such improvements increase accuracy, timely delivery and payment, and reduce administrative requirements.

Responsiveness to Challenges

Issue: The client requested that RPSC investigate methods to cut cost and add benefit.
Response: Procurement discovered a supplier for extended-shelf-life meals for intracontinental flights and those to and from New Zealand. The change reduced flight meal costs, labor to prepare meals, and reduced waste.

Issue: The client requested that RPSC release the balance of FY07 funds to procure life-cycle material and equipment.
Response: Procurement prepared for the surge by closing its backlog and tracking all incoming requisitions to level the work load across the department.

Issue: The department faces a constant challenge from new requirements to expedite material and equipment.
Response: The department and Subcontract group rearranged priorities to effectively function as a team and to level the workload across the department.

Issue: Procurement was tasked to supply materials and equipment to expedite the Helicopter Fuel Filter Upgrades McMurdo and Marble Point Project.
Response: The department and Subcontracts group successfully placed all subcontracts and purchase orders to track requirements for an on-time delivery to the project.

Lessons Learned

To identify future contract improvements, Procurement sponsored a series of meetings with Program participants and vendors, including [redacted] and the Caterpillar parts supplier. The department used the information to plan for future contracts and to ensure sufficient oversight.

Future Plans and Visions

Procurement sees itself as a significant contributor to lead project transition teams for future outsourcing.

The department worked with all divisions to move procurements forward, leveling the work load for buyers and subcontract administrators and the delivery schedule for Port Hueneme.

The Procurement manager approved personnel memberships to the National Association of Purchasing Management. The organization offers its members professional training and exposure to recognized certification processes.

HUMAN RESOURCES

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
HR		*HR*	*TOTALS*	[redacted]	[redacted]	[redacted]%	[redacted]
21	Cumulative voluntary turnover in full-time staff.	<=15%					
22	Voluntary Turnover of Active Deploying Contract Employees.	<=1.5%					
23	Involuntary Turnover of Active Deploying Contract Employees	<=0.6% Involuntary Turnover.					
24	Diversity - People of Color	>=8% of population is people of color.					
25	Diversity - Females	>=33.0% of population is female.					
26	Staffing: Deploying Positions filled 8 weeks prior to need date (excludes Vessels).	>=95%positions filled 8 weeks prior to need date.					
27	*** NOTE: RPSC HR requests NSF's approval to delete this metric. One point re-allocated to each Metric #22 and #23.	*** NOTE: RPSC HR requests NSF's approval to delete this metric.		0.00			
	Staffing: Leadership Positions filled with qualified Internal Employees.	>=65% Leadership Positions filled with qualified Internal Employees					

LEGEND: Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure HR - 94: Department Metrics

A. PROJECT MANAGEMENT

General Management

The HR organization rolled out streamlined hiring processes that are compliant with Office of Federal Contract Compliance Programs fair hiring practices. The department also took a more active role in recommending compensation rates for new and returning contract employees, as well as new full-time hires. Despite its ongoing emphasis on efficient hiring, HR had difficulty meeting its hiring goals this contract year.

Utilizing services available through the company's insurance provider, HR staff launched a series of leadership and employee training sessions at no cost to the Program.

Major Successes

The department filled several key leadership positions, including the Finance manager, EH&S director, PE/QA manager, McMurdo Area director and Medical director.

HR staff expedited the on-Ice job fairs for an early start to the hiring process.

By moving the job fairs to January 2008, HR secured commitments from returning candidates earlier, providing the recruiters with a clear understanding of vacant positions left to fill.

To recognize and compensate for the rigorous working environment at South Pole Station, HR rolled out a South Pole pay differential, structured as an add-on incentive, rather than a change to base pay. The differential is designed to promote greater retention and allows the department to move an employee between stations on an "as required" basis without altering the employee's contract.

Major Issues

Throughout the reporting period, HR had difficulty in staffing the FEMC director position, a key leadership slot.

The department also failed to meet its overall hiring objectives, as well as to fill all WinFly, summer, and winter positions. RPSC used approximately 186 requisitions during the 2007–08 staffing season to fill deploying contract positions.

Though HR received 15,000-plus resumes and maximized recruitment resources—including the Raytheon website, various Internet sites, and the annual Denver RPSC job fair—such volume failed to produce both the quantity and quality necessary for viable candidates. HR staff also found it difficult to staff a number of trade positions, as the work is somewhat exclusive to a union environment. KY08 staffing statistics follow, by location:

- Winfly– [redacted] positions staffed
- Summer– [redacted] positions staffed (McMurdo Station, [redacted] South Pole Station, [redacted]
- Winter– [redacted] positions staffed (McMurdo Station, [redacted] and South Pole Station, [redacted]

The USAP Personnel Tracking (UPT) tool continued to pose concern regarding its efficiency, privacy and reporting capability. Only one user may enter the tool at once, which is inefficient as several divisions must utilize UPT data. The tool also poses concern regarding adequate privacy of personnel PQ status and contact information. Finally, it is technically difficult to extract data reports from the UPT. See the *Technical Solutions* section below for additional detail.

B. Program Integration

Coordination with Other Divisions

The HR team initiated weekly meetings to update hiring managers regarding deployment staffing. The group reviewed and resolved critical issues related both to staffing and use of the position-tracking tools. The regular communication improved inter-departmental relationships and enhanced the group's collective understanding of hiring-related expectations and processes.

C. Innovation & Process Improvement

Technical Solutions

Solution: The department worked with IT to develop a SharePoint tool to streamline and enhance employee processing for training.
Benefit: The tool will improve the department's efficiency and eliminate its need to track paper related to the training process.

Solution: HR staff are also working with IT programmers to develop an interim solution to improve the UPT people stream processing, which tracks candidates from job offer through deployment.
Benefit: Pending replacement of the AREV software, an interim tool will increase overall efficiency by allowing multiple users to simultaneously work in the software. It will also ensure the department's ability to track each candidate in a manner that meets privacy standards.

Visionary Management

Accomplishment: The department gained significant experience from the deployments of several HR personnel, who also assisted with the on-Ice job fairs.
Benefit: The first-hand experience gained through an Antarctic deployment translates into an improved ability by HR personnel to describe on-Ice working and living conditions to potential candidates. The ability to knowledgeably respond to candidate questions builds credibility with the potential employees.

Responsiveness to Challenges

Issue: Training dollars are tight for general skill building or enhancement. HR personnel recognized the need for employee and management training, but could not budget funds for such training.
Response: HR personnel discovered that training regarding the following topics is available through the company's insurance provider, [redacted] at no cost to the Program: Managing Change, Emotional IQ, Conflict Management and Leadership Communications. The department sponsored the training at the RPSC Denver office throughout the year to benefit organization performance.

COMMUNICATIONS

A. PROJECT MANAGEMENT

General Management

During KY08, the Communications Department overhauled the production and distribution method of one of its key products, *The Antarctic Sun*—hiring a full-time journalist and transitioning to a year-round, electronic format. The department added 1,000 images to its USAP Digital Photo Library, adjusted the *PSNews* publishing schedule to alternate months, and collected edits for the *2008-2010 USAP Participant Guide*.

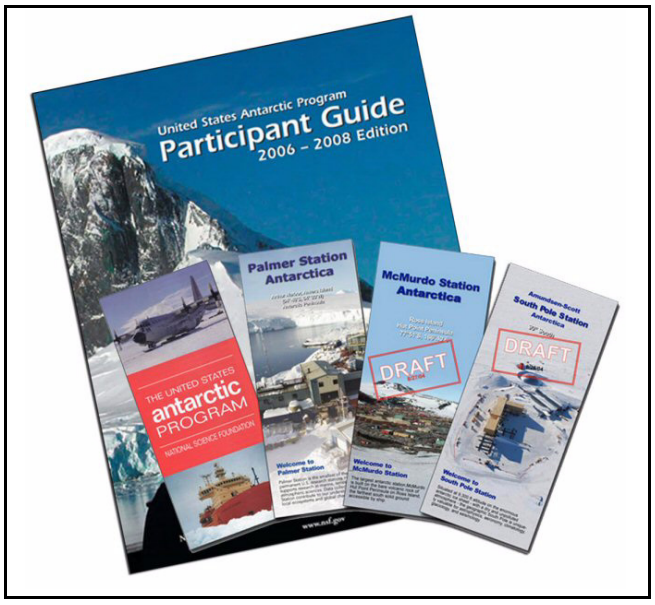


Figure Comm - 95: Participant Guide & Draft Brochures

The *Sun* journalist deployed to McMurdo Station to report on the austral summer science season and community activities. The reporter was on hand at South Pole Station for dedication of the new facility, chronicling the landmark event with over a dozen stories and a multitude of photographs.

Throughout the contract year, Communications staff led a series of initiatives at RPSC's Denver office:

- Arranged monthly company All-Hands meetings.
- Sponsored a learning-lunch presentation series.
- Hosted an ongoing series of voluntary blood drives.
- Assisted with RPSC Morale Committee event planning.
- Maintained an Ice News bulletin board.
- Photographed company events.

Department staff also created the artwork for USAP promotional items, developed presentation and education materials, assisted with IPY projects, and trained personnel regarding company branding and the corporate Vision-Strategy-Goals-Values campaign.

Figure Comm - 96: Safety Recognition Items

The USAP Digital Photo Library grew in volume and number of users. The library featured another 1,000 captioned and credited images this contract year, offering some 3,500 photos total. Sources worldwide access the image library for uses ranging from presentations and media coverage to textbooks.

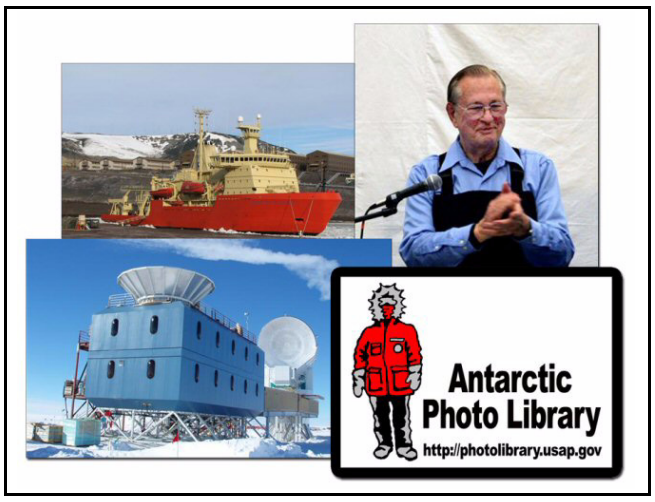


Figure Comm - 97: USAP Digital Photo Library

Major Successes

Beyond its transition to an electronic *Antarctic Sun*, detailed in the *Customer Satisfaction* section below, Communications also coordinated 60-plus, USAP-related presentations to some 5,000 audience members.

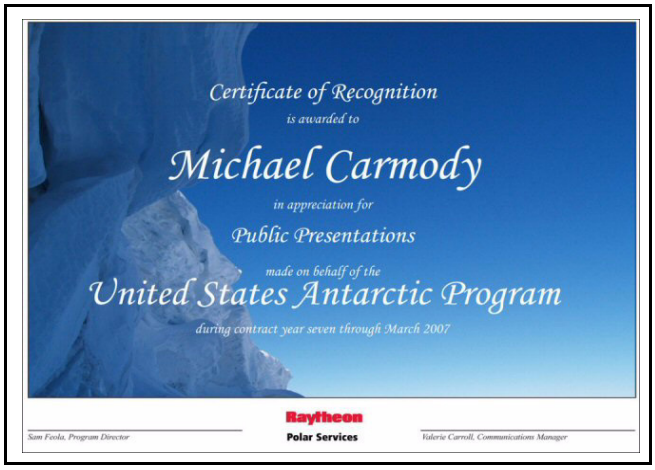


Figure Comm - 98: Public Presentation Certificate

The department shipped ECW gear and Program-related materials to over 25 locations around the world, promoting the USAP to some 6,000 audience members.

Communications assisted the ANDRILL project with its outreach effort, supported NSF/OPP IPY initiatives and supplied exhibit materials for museums.

Major Issues

The department continued to work with IT to implement a search function for *The Antarctic Sun* stories and to upgrade the photo library search function. Such improvements enhance access to outreach materials.

Customer Satisfaction

In September, the department overhauled the publishing process and reporting structure for the *The Antarctic Sun*. Staff revamped the existing website, replacing the longstanding print version with an online delivery method. The *Sun* also shifted to a year-round publication schedule.

By hiring a f[redacted] journalist, the department eliminated [redacted] contract positions. The revamped operation met all publication deadlines, despite that each story needed approval by the content provider and NSF/OPP—a process streamlined by the new approach.

The greatest challenge came in communicating the departure of the print version. The department's intent is for readers to view the *Sun* online and, if they wish, print a story or two. To ease the transition to electronic format, the staff utilized e-mail to announce subscription options and explain Really Simple Syndication feed options.

Figure Comm - 99: The Antarctic Sun

Value Engineering

Accomplishment: The department worked to refine the NSF/OPP objective to provide *The Antarctic Sun* in html-format only. This included investigating various content approval methods and print options, reviewing the opportunity for advertising and determining the support role provided by IT Multimedia personnel.

Benefit: Though the change did not largely impact the production cost, it did reduce the number of support staff, vacated McMurdo Station office space, expanded the production to year-round, and maintained the *Sun* as the USAP's primary outreach tool.

Accomplishment: The department transitioned the publication schedule of the internal newsletter, *PSNews*, from monthly during one-half of year to alternate months year-round. Staff also improved the publication's graphics elements and features.
Benefit: The change results in a consistent schedule year-round.


Raytheon
PSnews
A Raytheon Polar Services publication
New South Pole Telescope Powered Up
Scientists seek big discoveries with new tool
INSIDE:
Sam Says
Human Resources
Station Updates
Navigation Aids
International Polar Year
New Faces
Profile: Chuck Watkins
* FACTOID *
March 2007 begins the International Polar Year (IPY). To learn more, read page 6 and visit: www.us-ipy.org.
Previous issues of PS News can be found on the intranet under Communications

Figure Comm - 100: The PSNews

B. Program Integration

Coordination with Other Divisions

By the very nature of its mission, the department is in constant communication with the public, Raytheon entities and the various USAP agencies.

The department coordinates public and media requests with representatives from each related agency. For example, a single request may include coordinating with the NSF/OPP, Raytheon Company, RTSC, other USAP agencies and internal RPSC divisions. When revising the *USAP Participant Guide*, department staff solicited input from all USAP agencies. The department's three primary outreach tools—*The Antarctic Sun, PSNews* and USAP Digital Photo Library—require an ongoing conversation with the NSF/OPP, science grantees, Program participants and the various USAP agencies and corporate divisions.

Department staff assisted HR in developing Program memorabilia, public forms and orientation materials. Staff assisted NANA Services LLC with its logo and artwork considerations for station store merchandise.

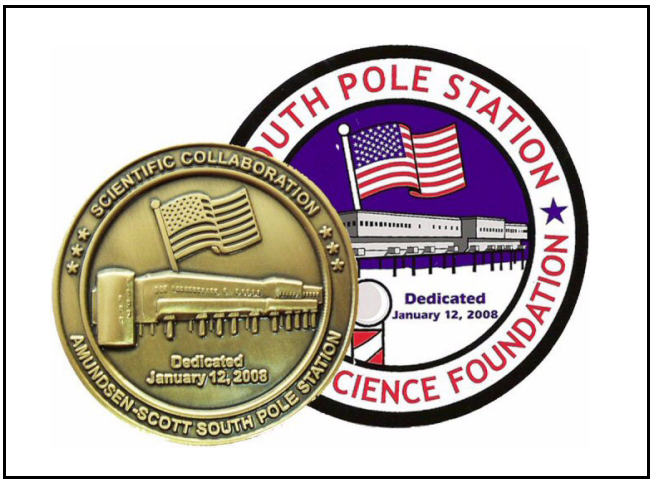


Figure Comm - 101: South Pole Dedication Memorabilia

C. Innovation & Process Improvement

Technical Solutions

Solution: Communications and IT Multimedia staff—including the newly hired full-time journalist—delivered an on-time launch of the redesigned electronic version of *The Antarctic Sun* on the USAP portal.
Benefit: Combining the company's publishing and technology resources allowed the team to meet its 26 October 2007 deadline, successfully transitioning the familiar print version to a web-based delivery. The online product can be remotely managed and updated, requires fewer staff and reduced the operational footprint at McMurdo Station.

Visionary Management

Accomplishment: The department continued to champion the benefit of professional brochures for each USAP station and vessel. Drafts were submitted in 2004.
Benefit: Such brochures would provide a consistent USAP message and consolidate the existing, different information pieces currently distributed for station and ship packets. The brochures could be added to the website and serve as souvenirs for visitors and participants.

Responsiveness to Challenges

Issue: Delays in the production of the South Pole Station dedication memorabilia risked on-time delivery of the coins, stickers, patches, envelopes and cachets.
Response: The department committed extra hours to the effort. The memorabilia arrived at South Pole Station just in time for the ceremonies and dignitaries.

Contracts

KY08 PERFORMANCE REPORT
Status on 29-Apr-08

Raytheon Polar Services

KY08 Quantitative Performance Measures Overview through March 2008

ID	Element	Target	Performance to Target	Allocated Points	Earned Points	Percent of Allocated Points that are Earned	Points Lost
Contr			*Contr*	*TOTALS*	[redacted]		
42	Compliance of Contract deliverables.	4 or less late for contract year		[redacted]			
43	Quality of Contract deliverables.	Average two iterations per deliverable.		[redacted]			
44	Responsiveness to Contract deliverables.	4 or less late for the contract year					

LEGEND Excellent 100 .00 - 96.00% | Satisfactory = 95.99 - 90.00% | Unsatisfactory = 89.99% and lower | Performance Not Reported

TOTALS [redacted]

Figure Contracts - 102: Department Metrics

A. Project Management

General Management

Beyond its role as primary communication interface with the NSF/OPP, the RPSC Contracts department also led vessel replacement planning, recouped insurance payments for fire and MedEvac costs, and sought to better align shipboard operations and science support. The Contracts manager provided critical support to ensure a successful food procurement and delivery, and trained company personnel on proper bid-related processes.

Major Issues

The RFP to replace the LMG figured prominently in department activity. The Contracts manager worked closely with Procurement and Marine staff to develop the request, ultimately succeeding in obtaining competition for the critical procurement. The effort involved seeking out sources and visiting potential bidders' shipyards. The Contracts manager also met with maritime attorneys to develop charter requirements and USAP-favorable terms. The Contracts department organized and conducted pre- and mid-proposal reviews to assist bidders in preparing a proposal. Following the upcoming proposal deadline, Raytheon personnel, industry experts and the science community will conduct an extensive proposal review and analysis to select the best replacement solution.

Value Engineering

Accomplishment: To improve services and support for science aboard the research vessels, the Contracts manager coordinated with the Procurement and Marine departments to review the current charters and operations for the LMG and NBP. The effort resulted in a detailed action-item list and corresponding assignments for each party. The Contracts manager is closely monitoring the actions for timely completion and success.

Benefit: The effort is cultivating a close working relationship between the vessel owner and Raytheon to enhance ship-board operations.

B. Program Integration

Coordination with Other Divisions

The Contracts manager worked closely with Procurement and Pt. Hueneme staff, [redacted]s to develop a successful food procurement program. Lessons learned from last year's procurement indicated that close coordination with the food distributor was required, with inspection at the source necessary prior to any food arriving in Pt. Hueneme. The parties collaborated to create a new inspection process and delivery schedule, resulting in a successful food procurement for the contract year.

C. Innovation & Process Improvement

Technical Solutions

Solution: In response to a complaint lodged with the NSF/OPP, the Contracts department developed a curriculum and trained Procurement personnel in the proper method to debrief unsuccessful bidders. The training featured mock debriefings and included an overview of the RTSC policy and appropriate method to notify unsuccessful bidders by letter.
Benefit: The training advanced the expertise of participants and sought to close a critical gap in the bid notification process. The effort mitigates potential legal challenges and seeks to improve relations with Program vendors and contractors.

Solution: The department developed additional training sessions for other contracts-related issues, including consent and advance notification approval packages.
Benefit: The training seeks to improve the quality of the procurement packages sent to the NSF/OPP for approval.

Responsiveness to Challenges

Issue: When the NBP caught fire and damaged NSF/OPP equipment, the Contracts manager responded by researching if Raytheon's additional insurance would cover the loss. Similarly, the department sought repayment by Raytheon Corporate Insurance of costs associated with the August 2007 MedEvac.
Response: For the equipment loss from fire, the Program will recoup $413K, minus the $25K deductible. For costs associated with the MedEvac, the Program received $76K from the insurance claim.

INTERNAL CONTROLS

A. PROJECT MANAGEMENT

General Management

Raytheon hired an Internal Controls manager in May 2007 to fill a position authorized by the NSF/OPP to support USAP implementation of OMB Circular A-123, *Management's Responsibility for Internal Control*, and the RPSC internal control program. The position serves as the prime resource to ensure RPSC operates under adequate and efficient internal controls. The individual selected contributes considerable audit knowledge and prior experience with the DoD OIG.

The OMB three-year implementation of Circular A-123, *Management's Responsibility for Internal Control*, program was extended in FY08 to allow sufficient review of the internal control environment at RPSC, prime contractor for the USAP. Under the program, NSF/OPP is responsible for the internal control for the USAP. By extension, NSF/OPP relies on RPSC, as prime contractor, to ensure that adequate and effective internal control activities are in place and followed.

Customer Satisfaction

The Internal Controls manager serves as a primary point of contact for RPSC implementation of OMB Circular A-123 within the USAP. This included mentoring both Program managers and front-line staff in designing improved processes and audit procedures. The manager also assisted NSF/OPP contracting officers in evaluating past audit report findings and assessing current contract concerns.

Value Engineering

Accomplishment: The Internal Controls manager implemented a review methodology to assess the inherent risk and internal control activities associated with existing RPSC policies and procedures.

Benefit: The review has yielded systematic improvement to RPSC policies and procedures. Internal control activities are being incorporated to mitigate the inherent risks associated with the three control objectives: 1) compliance with laws and regulations, 2) efficiency and effectiveness of operations, and 3) reliability of financial reporting.

B. PROGRAM INTEGRATION

Coordination with Other Divisions

The Internal Control manager worked closely with the offices of primary and corollary responsibility to ensure that 1) RPSC policies and procedures are properly and timely coordinated, 2) related internal control activities are agreed upon for efficient and effective implementation, and 3) that such processes and controls comply with applicable laws and regulations.

C. INNOVATION & PROCESS IMPROVEMENT

Technical Solutions

Solution: The Internal Controls manager implemented a systematic and progressive review of procedures to ensure the processes reflect adequate and effective internal control activities. Monitoring and oversight had been difficult, due to an absence of internal controls, such as proper segregation of duties, authorization, training, and supervisory review.
Benefit: The program contributes to USAP compliance with OMB Circular A-123 and allows managers greater oversight of related responsibilities. The improvement provides the NSF/OPP with reasonable assurance that operations are efficient and effective, that financial reporting is reliable and that procedures comply with applicable laws and regulations.

Raytheon

Polar Services

KY08 Q4

QUARTERLY TECHNICAL REPORT

(January 1 – March 31, 2008)

Contract PRSS-0000373
Clause F6.1

Table of Contents

90 Day Expectations
Area Directorate - McMurdo

Previous Quarters

- ***Expectation McM-KY08Q2-04:*** Review subcontract options for major overhauls of Power Plant gensets and heavy vehicle rehabs which will optimize McMurdo footprint and reduce downtime.
- ***Status***: **Complete**. The subcontract with [redacted] was extended to include overhaul of a third generator with a completion date of February 1, 2008. The use of [redacted] generator overhaul was a worthwhile investment. Logistical impact was minimal and consisted of [redacted] mechanics with tools and parts. The team of [redacted] mechanics was able to accomplish overhaul work on 3 vice 2 generators and allowed USAP Generator mechanics to focus their efforts on existing routine and unscheduled maintenance. South Pole Station is shipping north a Caterpillar D6D bulldozer to [redacted] on vessel 2008 for a complete overhaul at the [redacted] facilities in Christchurch, NZ. It is planned to return this key piece of equipment to South Pole early in the 2008-2009 season. The success of this overhaul and [redacted] performance will be evaluated for future proposed equipment overhauls from both South Pole and McMurdo Stations. A report of these activities along with RPSC's recommendations will be delivered once the equipment is returned to service at South Pole Station. Estimated completion date December 1, 2008

- ***Expectation McM-KY08Q3-02:*** Develop plan and provide basis for replacement of or exchange in kind of Foremost fleet to include Nodwells and Deltas. Estimated completion date June 15, 2008
- ***Status***: **OBE.** In collaborations with George Blaisdell, the proposal was found to be impractical and has been dropped.

Current Quarter (KY08 Q4)

- ***Expectation McM-KY08Q3-04:*** Establish method of tracking and reporting the status of Inter-Agency Support Requests (IASR). Estimated completion date: June 26, 2008
- ***Status***: **Expectation not met**. During the KY08Q4 period the Director of Operations and NSF ABM will explore options for tracking and reporting the status of IASR's.
    - **New estimated completion date:** Roll-out program June 26, 2008.

- ***Expectation McM-KY08Q3-05:*** Overhaul of AntNZ D8 dozer for USAP fleet. AntNZ has offered to donate a Caterpillar D8 bulldozer that they no long need to the USAP. Overhaul activities will be considered final at the AntNZ inspection of the equipment before it is loaded on the February 2009 vessel that will return it to Scott Base. The equipment was delivered to Port Lyttleton, NZ on board the M/V AMERICAN TERN in February 2008 and later to Gough, Gough, and Hammer's faculties in Christchurch, NZ where the overhaul activities have commenced. Estimated completion date of entire project: February 2009. Overhaul milestones will be listed quarterly
    - ***Status:*** In Process. Identification of overhaul scope. By the end of KY09 Q1 it is estimated a complete [redacted] identifying the scope of the overhaul will be complete, materials

necessary for the task will be procured, and disassembly of the equipment will begin.
Estimated completion date: June 30, 2008

- ***Expectation McM-KY08Q4-01:*** Award subcontract to build South Pole Station Aircraft Rescue and Fire Fighting (ARFF) equipment for delivery and the start of operations at the beginning of the 2008-2009 season. Estimated completion date: February 11 2008.
- ***Status:*** **Expectation Not Met**. This is a unique, one-off design for Aircraft Rescue and Fire Fighting equipment to operate in a harsh polar environment. Fifteen individual fire fighting apparatus manufacturers were invited to bid on this subcontract. Seven entered no bids, five did not respond, two said they could provide a portion of the equipment, but not the finished product as outlined in the statement of work, and one (Crash Rescue Equipment Service) submitted a complete bid package. The requirement to accommodate fire fighters inside of the equipment drove the cost higher than expected and options are being explored to modify the design in order to safely accommodate the fire fighters without compromising the operational capability of the equipment and keeping the costs reasonable. Based on delivery time constraints, and the bidder's responses, a partial subcontract was awarded to Crash Rescue on February 27, 2008 to allow the manufacturer to secure long lead-time components, and to permit for further collaboration on design modifications to the design.
    - **New estimated completion date**: April 25, 2008

- ***Expectation McM-KY08Q4-02:*** Deliver draft explosives policy for research events using explosives in the field. Presently explosives are issued to an event's licensed blasters without a formal review of the planned field activities and RPSC is seeking to formalize that process.
- ***Status: Complete.*** Delivered to Jim Karcher and George Blaisdell via email on March 31 2008.

- ***Expectation McM-KY08Q4-03:*** Deliver 2008 winter planning schedule for McMurdo Station to include extended season activities. This will be considered a "snapshot in time" using the data available at the time the report is generated.
- ***Status: Complete.*** The schedule was delivered to George Blaisdell on February 12, 2008.

Next Quarter (KY09 Q1)

- ***Expectation McM-KY09Q1-02:*** Develop and submit a New Project Proposal for single airfield concept planning. Once approval and funding are granted, the intention is to develop a 25 year operating plan addressing airfield development, maintenance, and operations; additional attention to minimize the environmental, carbon (energy), and personnel footprint for operating a single airfield at McMurdo Station. A parallel proposal addressing the transportation needs of a single airfield will be developed separately but in collaboration with the larger plan. Estimated completion date: June 2009.

- ***Expectation McM-KY09Q1-02:*** Develop and submit a New Project Proposal for single airfield concept planning. Once approval and funding are granted, the intention is to develop a 25 year operating plan addressing airfield development, maintenance, and operations; additional attention to minimize the environmental, carbon (energy), and personnel footprint for operating a single airfield at McMurdo Station. The plan will not include transportation; but will work concurrently with a transportation plan to be developed. Estimated completion date: June 2009.
- ***Expectation McM-KY09Q1-03:*** Complete 2008-2009 McMurdo and South Pole Station early season flight planning for presentation at 2008 Annual Planning Conference. Estimated completion date: May 19, 2008

90 Day Expectations
Area Directorate – South Pole

Previous Quarters

- ***Expectation SP-KY07Q3-02*:** Focus on energy management issues, to include 1) taking Jamesways out of service; 2) submittal of a preliminary load shedding plan; 3) continued conservation awareness on station; and 4) energy monitoring. Estimated completion date: December 31, 2007
- ***Status*:**

  1) **Complete**. Approved station population and final schedule resulted in all Jamesways being utilized for the FY07 summer season. Hypertats were left in place to minimize labor hours. All Jamesways are currently planned for use during the FY08 summer season. Completion N/A
  2) **Complete**. The Load Shedding plan was finalized and presented to the NSF Division Directors for Antarctic Infrastructure and Logistics, and Antarctic Sciences. The plan will be tested on site during the FY08 austral summer.
  3) **Complete.** Energy conservation was briefed to the winter staff prior to the start of winter operations. Energy performance will be discussed by the winter leadership team throughout the season. Weekly power statistics are provided to NSF for review.
  4) **Complete**. 26 electric meters and 23 waste heat glycol meters were installed in the FY07 and FY08 summers and are currently collecting data.

- ***Expectation SP-KY08Q2-01*:** Develop initial timeline and plan for elevation or removal of existing science structures, dependant on future use requirements. Estimated completion date: September 15, 2007.
- ***Status:* Expectation not met.** Items in current development are: science requirements for existing facilities, building installation timeline, quantification of additional concerns such as access and appendages added to structures, and investigation of engineering issues to be resolved for vertical lifts of existing structures. The tasking will be completed in increments and reviewed with NSF.

  - **Milestone #1**: Review of existing buildings and recommendations for remaining useful life. **Status: Complete** December 31, 2007. Draft forwarded NSF Operations Manager and NSF South Pole Representative for review and comment.

  - **Milestone #2**: Prioritization with NSF of buildings for raising, moving or demolition.
    - **New estimated completion date**: April 30, 2008.

  - **Milestone #3**: Develop engineering requirements for buildings which will be raised and/or moved.
    - **New estimated completion date:** September 30, 2008.

- ***Expectation SP-KY08Q3-01*:** Prepare after action report for Operational/Enhanced opening using alternative airframe. Estimated completion date: December 31, 2007.
- ***Status:* Complete**. Report forwarded to NSF December 23, 2007. RPSC recommendation is to continue the practice of a phased opening.

Current Quarter (KY08 Q4)

- ***Expectation SP-KY08Q4-01*:** Support IPY related activities, to include AGAP and various traverse arrivals. Estimated completion date: February 15, 2008.
- ***Status:* Complete**. The AGAP (G-055-M) project utilized South Pole Station as the staging area for the FY08 project deployments. Eleven personnel plus a supporting air crew operated from South Pole Station and successfully deployed ten instruments. RPSC personnel installed the low power magnetometer instrument for the A-112-M/S project at the AGAP South (AGAP S) field camp. The project met 100% of its planned season goals. Additionally, South Pole personnel supported the Norwegian-US joint traverse through housing, telecommunications support, DNF storage and cargo support for the shipment of approximately 14,000 pounds of cargo. We issued 2,200 gallons of fuel to the project to support flights for recovery of passengers and cargo.

- ***Expectation SP-KY08Q4-02*:** Support Dedication activities, providing local NSF Representative with full day schedule in advance for review.
- ***Status:* Complete**. We officially dedicated the new South Pole Elevated Station on January 12th, with a day of ceremony and visitors. The second station, dedicated January 9th, 1975, was decommissioned and the United States flag lowered for the final time from its place atop the Dome. Community members formed a line and transferred the flag, hand-to-hand, from old station to new, to honor the involvement of the people who have worked on the new station.

- ***Expectation SP-KY08Q4-03*:** Revise schedule for transition to winter activities to complete required tasking by February 15, 2008 so that summer personnel can be re-deployed with LC-130 support.
- ***Status:* Complete**. The Integrated Master Schedule (IMS) was reviewed and revised to include minor corrections moving tasking into the appropriate season. Summer activities were completed on schedule and all personnel were re-deployed.

- ***Expectation SP-KY08Q4-04*:** Review cargo/fuel requirements for winter season to identify areas of possible flight reductions.
- ***Status:* Complete**. We reviewed remaining cargo and fuel requirements during the month of January. South Pole Telescope shield components, a man-lift and top-off fuel were identified for deferment to next season. Deferments combined with lower than planned fuel use yielded a potential reduction of approximately 20 flights. In the end, the flights were already committed and we maximized airlift accordingly resulting in the above cargo and top off fuel being flown to Pole. The final result was 305 flights received vs. a plan of 319 with the decrease due to the lower than planned fuel use.

- ***Expectation SP-KY08Q4-05*:** Provide updates on South Pole optimization strategies. Estimated completion date: April 1, 2008.
- ***Status:* Expectation not met**. Strategies to achieve the optimization goals are currently being developed with NSF.
    - **New estimated completion date:** May 30, 2008.

Next Quarter (KY09 Q1)

- ***Expectation SP-KY09Q1-01*:** Provide the draft IMS for FY09 summer and winter tasking. Estimated completion date: May 2, 2008.

- ***Expectation SP-KY09Q1-02*:** Develop 1st draft of FY09 summer South Pole LC130 requirements and increase look ahead to span 5 years. Estimated completion date: May 23, 2008.

- ***Expectation SP-KY09Q1-03*:** Develop first draft of FY09 summer South Pole population. Estimated completion date: April 30, 2008.

- ***Expectation SP-KY09Q1-04*:** Develop communication system to report South Pole fuel and cargo requirements with a focus on early advisement of possible flight reductions and potential cost savings. Estimated completion date: June 30, 2008.

90 Day Expectations
Area Directorate - Palmer

Previous Quarters

- ***Expectation PAL-KY08Q1-04 (was: SCI-KY08Q1-05)**:* Evaluate administration and oversight of the vessel medical staff and hospitals, to include EMT recruiting, training, and scheduling as well as operational procedures and protocols. Estimated completion date: July 31, 2007
- ***Status**:* **Complete**. Palmer AD Marine staff met with the RPSC Medical Director three times this quarter to define the roles and responsibilities for vessel medical support. Marine Operations will continue to schedule EMT training and deployments and provide input to CHS on pharmacy inventories and other medical needs on the vessels. .

- ***Expectation PAL-KY08Q2-02***: Fully staff full-time Marine Operations department by filling Marine Manager, Marine Tech Supervisor, and Senior Assistant Marine Lab Supervisor positions which are currently vacant or being filled on an interim basis. Estimated completion date: July 31, 2007.
- ***Status**:* **Complete**. The above two positions were filled and a new action on staffing has been added to KY09 Q1 expectations.

Current Quarter (KY08 Q4)

- ***Expectation PAL-KY08Q4-01***: RPSC will meet with each prospective bidder for the ARSV contract in February to answer their questions. Estimated completion date: February 15, 2008
- ***Status**:* **Complete**. RPSC and NSF held meetings on February 12-13 with representatives from four companies expressing interest in the ARSV charter. The meetings were informative and productive for all parties.

- ***Expectation PAL-KY08Q4-02***: Following the ARSV Bidders' conference in February, RPSC will schedule and conduct site visits to each of the competing companies. Estimated completion date: March 31, 2008
- ***Status:*** **Expectation not met:** RPSC has extended the submittal deadline by 90 days and given the companies more time to identify which shipyard they will utilize. We expect to conduct the initial shipyard reviews in mid-May and are working with the respective schedules of the companies involved.
    - **New estimated completion date**: June 30, 2008

- ***Expectation PAL-KY08Q4-03***: Palmer Station staff will complete the erection of structural steel and install the new chemical storage vans. Estimated completion date: March 15, 2008
- ***Status:*** **Complete**. The new chemical storage lockers were set in place on March 14.

- ***Expectation PAL-KY08Q4-04***: Marine Operations group will recruit and hire a new Marine Superintendent to fill the current vacancy. Estimated completion date: March 15, 2008
- ***Status:*** **Expectation not met:** Recruiting continues for this position.
    - **New estimated completion date**: April 30, 2008

- ***Expectation PAL-KY08Q4-05***: RPSC Marine staff will meet with NSF to agree to a path forward regarding the PRV project. Estimated completion date: February 15 , 2008.
- ***Status:*** **Complete:** The meeting was held on 14 February with several options for paths forward discussed.

- ***Expectation PAL-KY08Q4-06***: Provide a response to Sandy Singer's Site Visit report, with corrective action plans for noted areas of concern.. Estimated completion date: March 14 , 2008.
- ***Status:*** **Complete:** The response document was sent to NSF on 2 April, 2008

Next Quarter (KY09 Q1)

- ***Expectation PAL-KY09Q1-01:*** Recruit and hire a new Planning Support Manager for the Marine group to replace the position vacated on 27 March. Estimated completion date: May 30, 2008

- ***Expectation PAL-KY09Q1-02:*** At Palmer Station, complete the wiring and finish work on the new chemical storage vans and move the stored chemicals into the new facility. Estimated completion date: May 30, 2008

- ***Expectation PAL-KY09Q1-03:*** RPSC Marine will develop and implement a comprehensive training program for vessel MPCs. The training is intended to provide more uniform understanding of expectations and resources for our deployed MPCs. Estimated completion date: June 30, 2008.

- ***Expectation PAL-KY09Q1-04:*** RPSC will provide day rate estimates for the possible extension of the NBP and LMG charters. Estimated completion date: April 30, 2008.

90 Day Expectations
Area Directorate – Christchurch

Previous Quarters

- ***Expectation CHC-KY08Q3-01***: USAF/NZDF aircrew feedback from the trial allowing passengers to carry their ECW onto aircraft from Christchurch will be collated and reviewed. RPSC's recommendations for any change as a result of the trial will be forwarded to NSF by October 30, 2007.
- ***Status:*** **Complete.** The 304th CC and Chief Loadmaster have advised that the new ECW policy does not impact on the safety of the operation and they are satisfied that the policy is workable from their perspective. It has been shown that when given the option to carry their ECW rather than wear it, passengers have in nearly all cases chosen to wear it.

- ***Expectation CHC-KY08Q3-02:*** Through an R6s project Christchurch staff will participate in a review of ECW inventory. The recommendations of the project team will be forwarded to NSF for review. Date to be assigned by Team Leader in Denver.
- ***Status:*** **Complete.** The ECW review has been accepted as presented with minor variations to the retail of deleted items at McMurdo. In accordance with the proposal the communications plan has been initiated with the CHCH office taking the lead for implementation.

- ***Expectation CHC-KY08Q3-03:*** Support a request from the 109th AW to store personal survival bags in Christchurch. To achieve this, RPSNZ will identify an area within Building 52 that can be secured and store the 200 survival bags. The 109th will be purchasing shelving and RPSNZ will coordinate with the vendor to have the shelves erected. Estimated completion date: October 20, 2007.
- ***Status:*** **Complete**

- ***Expectation CHC-KY08Q3-03:*** Christchurch has cleared an unused facility in preparation for potential warehousing as part of the 'Lean McMurdo' concept. RPSNZ will continue to provide information to support this initiative as required.
- ***Status: Complete.*** Christchurch has cleared an unused facility in preparation for potential warehousing as part of the 'Lean McMurdo' concept. RPSNZ will continue to provide information to support this initiative as required. RPSNZ has received costs to lease both covered and uncovered warehouse space if required. These prices are indicative at the time of the enquiry and with the ongoing increases in market rental these figures will need to be updated on a regular basis.

- ***Expectation CHC-KY08Q3-06:*** Work with NSF and the Regional and Post Security Officers to finalize and implement the Lock & Leave Access Control policy applicable to the Christchurch office. Estimated date of completion: November 30, 2007
- ***Status: Complete.*** The NSF Representative provided a revised Lock & Leave Access Control Policy to the Regional Security Office.

Current Quarter (KY08 Q4)

- ***Expectation CHC-KY08Q4-01:*** Provide support for extended season operations as required. Estimated completion date: March 31, 2008

- ***Status: In Process.*** The Christchurch office continues to provide assistance in preparation for the flight on April 17.

- ***Expectation CHC-KY08Q4-02:*** Support Engineering Security Officer (ESO) on periodic inspection of security systems and assist in the installation of the facility access software program. Estimated completion date: February 15, 2008
- ***Status: Complete.*** The inspection was completed by the ESO. Some minor adjustment to the alarm system was required and a review of the procedures was undertaken.

- ***Expectation CHC-KY08Q4-03:*** Provide support as directed from NSF for the Italian and Russian Antarctic Programs and swap out of *Oden* crew. Estimated completion date: February 15, 2008
- ***Status: Complete.***

Next Quarter (KY09 Q1)

- ***Expectation CHC-KY09Q1-01:*** Erect shelving as part of 'standing-up' the Christchurch warehouse as part of the JIT concept. Estimated completion date: May 9, 2008

- ***Expectation CHC-KY09Q1-02:*** Source and procure Velocity Software for security alarm system. The software will be installed by Engineering Security Officer on next inspection of the facility. Estimated completion date: June 30, 2008

90 Day Expectations
Science Support

Previous Quarters

- ***Expectation SCI-KY07Q1-03:*** Determine alternatives to USAF pallets for various uses at field camps for the 2006-07 season.
  Status: **Complete** February 2008. Final report completed by Field Science Support on January 30, 2008 and ATO submitted the final report to SFA, the NSF, and RPSC leadership on February 7, 2008.

- ***Expectation SCI-KY08Q1-01***: Identify the contractual requirements set forth by the NSF for a Search and Rescue team and establish a set training program that is congruent with the contract.
- ***Status*****: Complete** September 21, 2007. The Search and Rescue requirements as set forth in the NSF OPP contract 0000343 were identified and used in the JASART Training Plan submitted to the NSF for review and approval September 21, 2007.

- ***Expectation SCI-KY08Q1-02***: Identify the contractual requirements set forth by the NSF for Field Safety Training Program (FSTP) course requirements and develop a recommendation to the NSF for an improved FSTP. Areas to evaluate include, but are not limited to; attendance requirements, course curriculum, tracking course attendance, required clothing policy for airlift flights and who enforces the policy, international collaborations/transferable skills, private grantee "shack-down" courses, etc. Field Science Support presented a point paper on this subject at the 2007 USAP Annual Planning Conference (APC) in May 2007.

- ***Status*: Complete** in September 2007 when RPSC recommendations developed by Field Science Support were submitted to the NSF for review and approval.

- ***Expectation SCI-KY08Q2-07:*** Re-evaluate the Grantee Radioisotope Notebook and make it more user friendly. The content will remain the same, but the language and format will be updated to make our procedures, requirements and process more clear. Estimated completion date: July 31, 2007.
  ***Status:* Complete** February 16, 2008, when updates were submitted for posting on the RPSC Master List.

- ***Expectation SCI-KY08Q3-07:*** Complete the survey begun in KY08Q2 for South Pole Science Power requirements for FY08. These requirements are to be integrated into the overall South Pole Station power spreadsheet.
- ***Status:* Complete** October 2007. Requirements were provided in a spreadsheet for integration into the overall South Pole Station power spreadsheet.

  - ***Expectation SCI-KY08Q4-01***: Science Planning Group will complete a summary of major resource availability for proposing researchers to reference on ***www.usap.gov*** during the proposal submission process. Expected completion date: February 1, 2008.
  - ***Status***: **Complete** January 31, 2008. Resource summaries for LC-130, Basler, Twin Otter, South Pole population, and research vessel schedules for the next three seasons are available to proposing researchers at ***www.usap.gov***. They can use this information to provide informed resource requests to support new proposals.

  - ***Expectation SCI-KY08Q4-02***: Science Planning Group and POLAR ICE development team will complete an ORW summary report from POLAR ICE for proposing researchers to submit as part of their NSF science proposals. Expected completion date: February 1, 2008.
  - ***Status:* Complete** February 1, 2008. Proposing researchers can print an ORW Summary from POLAR ICE to submit with their proposals for the June 2008 proposal submission.

  - ***Expectation SCI-KY08Q4-06:*** Complete NSF WAIS Divide arch facility site inspection scheduled for 14 January 2008. Expected completion date: January 14, 2008.
    ***Status:* Complete**. RPSC completed a self-inspection on January 4, 2008. NSF completed a partial inspection on 17 January 08, yielding a prioritized punch list for completion during the 2008-09 season.

  - ***Expectation SCI-KY08Q4-10:*** RPSC Science Planning Group to develop the State of Out-year Science Support Report. Estimated completion date: February 1, 2008.
  - ***Status:* Complete** January 30, 2008. Science Planning developed a report that captures major concerns for funded science projects. It is updated weekly for discussion with the NSF and has evolved to capture major concerns for proposed research that must be resolved prior to funding.

Current Quarter (KY08 Q4)

- ***Expectation SCI-KY07Q4-02:*** The Berg Field Center, working closely with Environmental and Supply departments, should develop a more organized Fuel Secondary Containment allocation system for issue to and use in field camps.

- ***Status:*** **Expectation not met**. This issue will be re-addressed when the RPSC Environmental staff is available at RPSC Headquarters in KY09Q1. A kick-off meeting is scheduled for April 15, 2008 to write plan of action.
    - ***New estimated completion date***: May 31, 2008.

- ***Expectation SCI-KY07Q4-07:*** Move MEC Outside Storage Area from the McMurdo town logistics/operations area next to the Science Support Center.
- ***Status*****: Expectation not met**. Update: This action was delayed due to removal of the FEMC prefabricated office buildings (now removed) and temporary installation of the NASA Lunar Habitat structure.
    - ***New estimated completion date***: The MEC will re-approach this move next season with a new tentative completion date of December 31, 2008.

- ***Expectation SCI-KY08Q1-03***: Per the request of NSF EH&S, develop a comprehensive snowmobile program for the continental USAP addressing training and safety (to include head protection). Estimated completion date: July 31, 2007.
- ***Status*****: Expectation partially met**. Completed head protection portion of the program when the NSF PEHS approved the USAP Snowmobile and ATV Helmet Policy, January 28, 2008. The MEC submitted the snowmobile training program to a Tech Writer for formatting as an RPSC procedure, which will be submitted to the NSF for review and approval by May 1, 2008. Implementation of the new training program should begin Winfly 2008.
    - **New estimated completion date for implementation of training program:** August 31, 2008.

- ***Expectation SCI-KY08Q2-03:*** RPSC will evaluate previous guidelines for conducting work near the sea ice edge. From this investigation, recommendations will be made to the NSF to help establish an approved policy for sea ice edge work, taking into account snow machines, tracked vehicles and helicopter transport options.
- ***Status:*** **Expectation not met**. The NSF and RPSC will create a working group to address the establishing of guidelines for conducting work near the sea ice edge.
    - **New estimated completion date:** 2008 USAP Annual Planning Conference, May 2008.

- ***Expectation SCI-KY08Q2-06:*** Develop and distribute an NSF-approved letter to all McMurdo-based PIs explaining the purpose of the end-of-season out-brief. By informing the PIs of this requirement before the deployment of their project to Antarctica, allows them to think about likes, concerns, and suggestions throughout their field season. Estimated completion date: July 31, 2007.
- ***Status:*** **Expectation not met**. It was not possible to formally complete this expectation due to McMurdo Laboratory Services tasking at the end of the FY08 McMurdo season. This expectation will be completed early in the 2008-09 planning season for implementation in FY09.
    - **New estimated completion date:** June 30, 2008.

- ***Expectation SCI-KY08Q2-13***: Complete a New Project Proposal to address relocation of the McMurdo Gravity Base Station.
- ***Status:*** **Expectation not met.** RPSC FEMC identified a new Bally building in the McMurdo Station inventory, which may meet the requirements of the scientists. Siting of the Bally building at McMurdo Station is pending final review of locations surveyed in late February 2008.
    - **New estimated completion date**: June 30, 2008.

- ***Expectation SCI-KY08Q3-02:*** Transport and install the WAIS Power Modules to support the arch facility and coring operations. Temporary power will be utilized during arch construction and installation phases. Estimated completion date: December 22, 2007.
- ***Status:*** **Expectation not met**. Power module installation is not complete due to numerous weather and electrical distribution parts delays as of January, 2008. Modules are approximately 40% complete including the installment of the large generators and switchgear. Temporary power is being used while installations continue as the field camp remains open. Final installation will not be completed until next season prior to drilling operations commencing.
    - **New estimated completion date**: December 5, 2008 during FY09 austral summer operation of WAIS Divide Camp.

- ***Expectation SCI-KY08Q3-06:*** Complete 100% design packet on the snow-melter for WAIS Divide camp that includes a hydronic melting system. Estimated completion date: January 31, 2008.
- ***Status:*** **Expectation not met**. The 100% design packet is scheduled to be sent to the NSF by April 30, 2008. Installation is pending completion of the electrical system during the 2008-09 season.

- ***Expectation SCI-KY08Q4-03***: Meteorology will correct erroneous South Pole upper air data (1 Feb 05 – 6 Dec 07). The Meteorology Coordinator will initiate the project at RPSC Headquarters and turn the project over as a 2008 Winter project for the South Pole Meteorology Observers to complete. Expected completion date: June 30, 2008.
- ***Status***: In process. Meteorology Coordinator initiated project in KY08Q4. On track to complete June 30, 2008.

- ***Expectation SCI-KY08Q4-04***: Reorganize Palmer Station Science Warehouse materials into more easily manageable Fish Totes. This goal will reduce the foot print of Palmer Station science materials currently being stored in WH2. Expected completion date: June 1, 2008.
- ***Status***: In process. Fish totes have been procured and we are in the process of organizing the inventory. We have completed 4 out of 10 totes. Estimated completion date remains June 1, 2008.

- ***Expectation SCI-KY08Q4-05***: Replace grantee storage milvan at Palmer Station. This milvan is designed to provide dry staging space for Palmer Station Science events. Current milvan is in unacceptable condition due to leaks in the roof. Estimated completion date: March 31, 2008.
- ***Status***: **Expectation not met.** The old milvan has been removed from Palmer Station and items are securely packed for the winter. We are currently sourcing a replacement milvan from Chile.
- ***New estimated completion date:*** June 1, 2008.

- ***Expectation SCI-KY08Q4-07:*** Begin SafeCore final design reviews and RFPs for equipment in February 2008. Expected completion date: March 31, 2008.
- ***Status:*** **Expectation not met.** Project Manager requested NSF approval to proceed on project April 1, 2008.
    - ***New estimated completion date:*** June 30, 2008

- ***Expectation SCI-KY08Q4-08***: Identify South Pole Science retrograde materials currently located on the berms and implement a project plan for removal, cost responsibility, and final destination. Estimated completion date: June 30, 2008
    - **Milestone #1**: RPSC South Pole Science Support and NSF South Pole Representatives will establish a project team who would act as the POC's for this activity by March 31, 2008.

Status: Complete. Project team initiated by South Pole Logistics and Area Directorate. Science Support is a stakeholder on the team and will serve as a POC for the scientists.

- **Milestone #2:** In process. The project team is preparing a schedule timeline for the implementation, cost and completion of the project plan by June 30, 2008.

- ***Expectation SCI-KY08Q4-09:*** Develop a process for handling South Pole grantee excess luggage requests and approvals. Estimated completion date: June 30, 2008
  - **Milestone #1:** RPSC South Pole Science Support and NSF South Pole Representatives will establish a project team who would act as the POC's for this activity by March 31, 2008.
  - ***Status:*** Complete. Project team established.
  - **Milestone #2**: The project team is developing the procedure for grantee excess luggage requests and NSF approval by June 30, 2008.

Next Quarter (KY09 Q1)

- ***Expectation SCI-KY09Q1-01:*** RPSC Science Support: Science Planning, Field Science Support, WAIS Divide and CReSIS project management, and FEMC: Science Construction will partner with the NSF to develop a West Antarctica Presence Plan that will address immediate and outyear support plans for all groups funded to work in West Antarctica. Estimated completion date: Briefing to the NSF expected during the week ending May 9, 2008.

- ***Expectation SCI-KY09Q1-02:*** Re-evaluate the Field Safety Training recommendations presented at the 2007 APC. The focus should be on course optimization and renewed evaluation of course attendance requirements for all USAP participants, to include South Pole Station. Presentation of recommendations to be made at the USAP APC, May 2008.

- ***Expectation SCI-KY09Q1-03:*** RPSC will work with the NSF to develop an improved requirements gathering and planning process including POCs and sponsors for technical events. Rough draft of new process due to the NSF by June 30, 2008. NSF approved process due by September 30, 2008.

90 Day Expectations
FEMC

Previous Quarters

- All open expectations have moved to the current quarter.

Current Quarter (KY08 Q4)

- ***1) Expectation FE-KY07Q3-04(c):*** Present *Concept and Methodology for Comprehensive Energy Accounting System* to NSF ABMs. Work jointly in defining requirements for energy data gathering that equate to USAP energy goals and tracking. Publish progress report of joint concurrences. Previous estimated completion date: February 28, 2008.

- **Status**: **Expectation not met.** Preliminary progress report of joint concurrences will be presented to NSF ABM during the April 7-10 visit to RPSC. Continue to develop Energy Initiative through 1st Quarter 09. Began bi-weekly Facility & Utility Master Planning meetings between FEMC & NSF, started March 18, 2008.
    - **New estimated completion date**: June 30, 2008.

- ***2) Expectation FE-KY07Q3-04(b):*** Install initial inventory of 20 electrical energy meters and 16 fuel meters at McMurdo Station. Previous estimated completion date: February 28, 2008.
- ***Status:*** **Expectation not met**. All meters installed as of March 28, 2008. One meter is in repair. Overall energy accounting system expectation deadline date of February 16, 2009 will still be met.

- ***3) Expectation FE-KY07Q3-04(d):*** Begin reporting data from the 36 meters on a regular basis and develop baseline data. Estimated completion date: February 28, 2008.
- ***Status:*** **Expectation not met.** Data is being collected on 35 of 36 meters by manually reading the electric meters monthly and fuel meters weekly. The data is then e-mailed to Denver HQ. The February data is available, but incomplete. March will be the first full month of data, with report being published in April.
    - **New estimated completion date**: April 4, 2008.

- ***4) Expectation FE-KY07Q3-04(e):*** Include presentation of Energy Management concept to OPP and DOE representatives. Estimated completion date: March 31, 2008.
- ***Status:*** **Expectation not met.** Preliminary progress report of joint concurrences will be presented to NSF ABM during the April 7-10 visit to RPSC. From the April review, the Team will conduct session presentation and group discussion of Energy Initiative to all interested parties during the APC on May 19 – 21, 2008.
    - **New estimated completion date**: mid-late May 2008.

- ***Expectation FE-KY08Q3-03:*** Produce engineering stamped drawings for South Pole and McMurdo projects being built during the 2007 summer season.
- ***Status:*** **Expectation not met**. FEMC published engineer stamped drawings on Rodwell 3 and ANDRILL prior to December 31, 2007. FEMC published stamped drawings of Lunar Habitat and McMurdo Day Tanks in March, 2007. FEMC will continue to produce stamped drawings this summer on NPOESS, Modular Offices 136/191, and WAIS Divide in the coming months.
    - **New estimated completion date:** July 31, 2008.

- ***Expectation FE-KY08Q4-01:*** Implement Exception Reporting for South Pole construction progress, including labor performance.
- ***Status***: **Complete**. Exception Report is being published approximately every other week, including labor hours expended and forecasted labor to complete.

- ***Expectation FE-KY08Q4-02:*** Implement a transparent communication process to facilitate engineering and design status on a weekly basis to proactively identify and manage design process, including resource allocation. Review in weekly FEMC/NSF conference call.
- ***Status:*** **Complete.** Engineering design status is integrated into the weekly NSF conference call. Includes open discussion of hurdles, road blocks, bottle necks, and perceived difficulties regarding maintenance of design plan, with course of actions determined on a weekly basis. All projects are now being tracked and discussed for continuous review and improvement. The time spent to discuss and

solve problems is valued by the entire Team, allowing us to identify and overcome problems as they occur with minimal impact to schedule.

- ***Expectation FE-KY08Q4-03:*** Prepare and submit FEMC Business Plan to optimize strengths and illustrate the integration of internal processes and functions, and the interdependence with other RPS departments. Estimated completion date: March 31, 2008.
- ***Status:*** **Complete.** Draft Business Plan is dated March 31, 2008.

- ***Expectation FE-KY08Q4-04:*** Obtain Certificate of Acceptance for McMurdo Power Plant project, with minimal punch list items, from NSF Design Team during their annual visit and inspection. Estimated completion date: February 1, 2008.
- ***Status:*** **Complete.** Exceeded Expectations January 18, 2008.

- ***Expectation FE-KY08Q4-05:*** Obtain Certificate of Acceptance on Rodwell 3 project, with minimal punch list items, from NSF Design Team during their annual visit and inspection, with ability for immediate development of water bulb if necessary. Estimated completion date: February 28, 2008.
- ***Status:*** **Complete.** January 27, 2008**.**

- ***Expectation FE-KY08Q4-06: (Extended Season Part A)*** Maximize FEMC work of opportunity within the Extended Season tasking. Extended Season consists of approximately 2,000 total planned man hours. Expect 1,000 man hours to be expended with at least 50% of the tasking complete by March 31, 2008.
- ***Status:*** **Complete.** As of March 31, 2008, have expended over 900 man hours with over 70% of the extended season projects complete.

Next Quarter (KY09 Q1)

- ***Expectation FE-KY09Q1-01:*** Publish an outline for an integrated enterprise approach to Energy Conservation based upon input from the May APC discussions, incorporating what we know and identifying what we don't know. Create and submit a revised New Project Proposal that takes an integrated approach to the Energy monitoring system – an enterprising view integrating all 3 stations. The team will create and establish a vision for Enterprise wide energy monitoring and management. Estimated completion date: June 30, 2008.

- ***Expectation FE-KY09Q1-02: (Extended Season Part B)*** Successful completion of Extended Season projects. Those being 2-million gallon tank, galley floor, and modular office electrical. Estimated completion date: April, 27, 2008.

- ***Expectation FE-KY09Q1-03:*** Standardize FEMC Reporting for all three Stations' Situation Reports. Estimated completion date: May 31, 2008.

- ***Expectation FE-KY09Q1-04:*** Obtain Final Close out on T-Site, SSC, JSOC, and WWTP. Estimated completion date: June, 30, 2008.

- ***Expectation FE-KY09Q1-05:*** Fill at least 8 of the 17 full time FEMC vacancies. Estimated completion date: June, 30, 2008.

- ***Expectation FE-KY09Q1-06:*** Improve R6sigma Certification from 23 to 33 FEMC personnel (with 90% of department certified by calendar year end). Estimated completion date: June 30, 2008.

90 Day Expectations
Logistics

Previous Quarters

- ***Expectation: LG-KY08Q3-01***: Deliver the following to Christchurch to support season activities:
  - **South Pole Decouple Priority 1, 2 and 3 cargo** for further delivery to South Pole before the re-supply vessel arrives. Estimated completion date: November 3, 2007. The decoupling of South Pole cargo was an astounding success. In previous years, there was an average of 660,000 pounds of cargo moved to the South Pole from the re-supply vessel. In 2008, that quantity was reduced to 55,537 pounds, a 92 percent reduction. With only 55,537 pounds to move the flight tempo was reduced from seven to three flights per day and this represents a significant reduction in risk to continued station operations, flight operations and planned winter tasking.
    - ***Status***: **Complete**.
  - **Deliver South Pole dry food** to Christchurch to support planned South Pole Air Drop. Estimated completion date: December 1, 2007. The dry food was delivered to Christchurch in time to support the South Pole Air Drop Mission.
    - ***Status:*** **Complete.** The dry food was delivered to Christchurch in time to support the South Pole Air Drop Mission.

- ***Expectation: LG-KY08Q3-02:*** Complete McMurdo Re-supply Vessel 2007 inventory receipt into MAPCON by December 15 2007.
- ***Status***: **Complete.** The last receipt for this material was completed on January 24, 2008. During the Winter and Summer Seasons the task of supporting station operations was a higher priority than vessel receiving, e.g., material issues were processed before receipts unless the material had to be received to be issued. The 50% staff reduction created a labor deficit that could not be made up by the normal summer staffing level.

Current Quarter (KY08 Q4)

- ***Expectation: LG-KY06Q4-07:*** B-174 Safety & Medical Supplies Relocation.
  Report the completion of relocating all Safety and Medical inventories out of B-174 to reduce traffic to the hazardous and flammable goods storage.
- ***Status*****: Expectation not met.** Reduction of winter-over Logistics staffing caused this expectation to slip. All Safety and Environmental materiel has been re-located from B-174 but transfer of Medical items will have to be postponed until the 2008-09 Summer Season.
  - **New estimated completion date:** December 31, 2008. Behind Schedule**.**

- ***Expectation: LG-KY08Q4-01***: Reduce the time required to receive re-supply vessel cargo to a timeframe shorter than 10 months. This expectation cannot be met at the reduced staffing level imposed last winter and being continued in Winter 2008. The previous and normal winter Supply Operations staff of 28 people was just able to finish vessel receiving processes by the end of May or June each season. With the addition of three personnel during the Extended Season, the receiving can be completed by September 30, 2008. Milestones: Supply expects to receive:
  - **Milestone #1.** 22%, 2,430 line items of the approximately 11,000 line items ordered for vessel re-supply. Estimated completion date: March 31, 2008.
    - **Status: Complete**
  - **Milestone #2.** 40%, 4,400 line items. Estimated completion date: June 30, 2008
  - **Milestone #3.** Complete receiving. Estimated completion date: September 30, 2008.

- ***Expectation: LG-KY08Q4-02: South Pole Retrograde Removal***. Report the progress of removing South Pole Retrograde by measuring what has been removed from the Station and what remains on the berms. Provide current quarter accomplishments.
- ***Status:*** **Complete.** At the end of February 2008, 871,825 pounds of retrograde had been shipped to McMurdo. The backlog is estimated to be 264 US Air Force pallets. At a KY08 average weight of 3,290 pounds per pallet, this is approximately 869,000 pounds of backlogged material.

- ***Expectation: LG-KY08Q4-03: Airlift Backlog Management***. Provide airlift support summary. Estimated completion date: March 31, 2008
- ***Status*: Complete**. ATO reported airlift backlog twice weekly to the NSF representative and managed the backlog by working with end users to prioritize cargo when required.
  - No projects were adversely impacted as a result of late arriving cargo.
  - Weather delays caused a backlog of both cargo and fuel for South Pole, a deficit that became insurmountable with remaining airlift. Cargo movements were managed and South Pole worked to reduce fuel requirements. Although the ANG made a valiant effort to make up the fuel short fall, we still closed out the station with a 380,000 pound fuel deficit. South Pole reduced the requirement by deferring some activities and recalculating need based on reduced use through the season. Prior to the last week of summer operations, the tanks were all but full for winter use. At this time ATO recommended reducing flights down to three per day. South Pole station closed with all cargo and fuel required for full winter operations.
  - At season's end, two of the planned 55 C-17 missions were cancelled with resultant $200,000 cost avoidance.
  - Opportune airlift was used in January 2008 to deliver 186,000 pounds of vessel cargo Christchurch to McMurdo Station. This was done as a means to reduce vessel operations cost and move the material receipt processing work from winter to summer where there was more capacity to do the work.

- ***Expectation: LG-KY08Q4-04:*** Manage re-supply vessel charter to remain within the planned 78 days. Optimize the re-supply vessel operations at each port of call to safely reduce the vessel charter days, when possible. Estimated completion date (off charter): March 31, 2008.
  Milestone ports of call:
  - Port Hueneme load December 27, 2007 – January 5, 2008: 9 days. The load was completed ahead of schedule by one day—the vessel was ready to sail on January 4, 2008. Because of a mechanical delay, the ship departed January 7, 2008, two days later than planned and three days after the load was completed. The ship will arrive Christchurch one day later than

planned. However, the ship is scheduled to arrive at the ice edge and McMurdo Ice Pier on schedule, and February 1st and 2nd, respectively.

- Christchurch southbound January 23-25, 2008: 2 days. The port call started two days later than planned on January 25. The port time remained the same including taking on additional fuel for the ODEN. The port call was from January 25-27.
- McMurdo Discharge/Load February 2-10: 8 days. The vessel arrived McMurdo Pier 6 Feb, 4 days later than planned due to schedule slippage at Port Hueneme and time lost in transit between Port Hueneme and Christchurch and Christchurch and McMurdo due to weather and ice conditions. At McMurdo one and one-half days was shaved from the planned vessel evolution resulting in a cost avoidance opportunity of $94,000.
- Christchurch northbound February 17-19: 2 days. This operation was completed February 23-24, within the two days allotted. Two days were lost departing Port Hueneme and additional time was lost in transit to and from Antarctica due to weather conditions.
- Port Hueneme discharge March 7-10: 4 days. The vessel discharge was completed March 11-13, 2008. From the start of loading in Port Hueneme to the discharge in Port Hueneme is 78 days if the 3 days are excluded from the count. These are the two repair days lost upon departure Port Hueneme and the extra time taken to add fuel for the *Oden*. Not included in this accounting is the days charged by MSC for positioning and de-positioning and any adjustments do to mechanical delays at Port Hueneme in January.
  Status: Complete.

- ***Expectation: LG-KY08Q4-05: USAP Air Checkbook Management*:** A status report will be provided to the NSF ABM for Logistics to show how much of the approved cargo was moved by category, cargo and non-cargo, from Christchurch to McMurdo and the percent of the total cargo moved. The planned weight is the weight approved at the Air Cargo Priority Board (ACPB) in August and adjusted for NSF approved increases. Estimated completion date: March 31, 2008.
- ***Status***: **Complete**. The USAP airlift requirements were completed with two less C-17 missions than planned, 53 missions instead of 55. Excluding the affect of opportune airlift on the planned cargo movement, the season was completed at 104% of planned. Opportune airlift was used for early delivery of 469,000 pounds of vessel cargo to allow these materials to be received before the austral winter. The total with opportune lift is 3/7M pounds or 121% of plan.

AGENCY	PLAN WT	ACTUAL WT	DELTA	USED
NSF	570,534	831,778	-261,244	146%
RPSC	891,517	804,029	-377,350	90%
SOPP	12,208	18,276	-6,068	150%
SFA / ANG	174,197	93,448	80,749	54%
AntNZ	194,767	180,803	13,964	0.928304076
ITALIANS	0	1772	0	0%
SUB-TOTAL	**1,843,223**	**1,930,106**	**-86,883**	**1.047136679**
MAIL	105,000	86,977	18,023	83%
FRESHIES	169,000	157,148	11,852	93%
TDE	194,936	249,543	-54,607	128%
PASSENGERS	806,310	837,669	-31,359	104%
SUB-TOTAL	**1,275,246**	**1,331,337**	**-56,091**	**104%**

Total	**3,118,469**	**3,261,443**	**-469,114**	**105%**
Opportune Airlift	**0**	469,114	**0**	**0**
Total w/Opportune Airlift	**3,118,469**	**3,730,557**	**-612,088**	**120%**
Pre-positioning Operational Support Equipment	**0**	28,400	**0**	
Grand Total	**3,118,469**	**3,758,957**	**-640,488**	**121%**

USAP Airlift—Christchurch to McMurdo Station

- ***Expectation: LG-KY08Q4-06:*** Set-up Christchurch Warehouse in February 2008 to receive materials from McMurdo Station as part of the Lean McMurdo Concept. Estimated completion date: March 31, 2008.
- ***Status:*** **Expectation not met.** In view of the current budget climate, TDY personnel were not used to accomplish this task. Consequently, the task start was delayed until New Zealand Term Operations could schedule their staff to accomplish this work. Approximately, 700 linear feet of racking was obtained from GSA Excess and delivered via the re-supply vessel in January 2008. In late February 2008, the Christchurch staff began the task of assembling the pieces and erecting the racking with an estimated completion date of May 9, 2008. The retrograde Vehicle Maintenance Facility materials being pulled during the extended season are scheduled for shipment to Christchurch during the 2008-09 Austral Summer Season to stock the racks.
    - **New Estimated Completion Date*:*** May 9, 2008

Next Quarter (KY09 Q1)

- ***Expectation: LG-KY08Q4-01***: Reduce the time required to receive re-supply vessel cargo to a timeframe shorter than 10 months. This expectation cannot be met at the reduced staffing level imposed last winter and being continued in Winter 2008. The previous and normal winter Supply Operations staff of 28 people was just able to finish vessel receiving processes by the end of May or June each season. With the addition of three personnel during the Extended Season, the receiving can be completed by September 30, 2008. Milestones: Supply expects to receive:
    - Milestone #1. 22%, 2,430 line items of the approximately 11,000 line items ordered for vessel re-supply. Complete.
    - **Milestone #2.** 40%, 4,400 line items. Estimated completion date: June 30, 2008
    - Milestone #3. Complete receiving. Estimated completion date: September 30, 2008.

- ***Expectation: LG-KY09Q1-01.*** **Re-supply Vessel Science Sample Delivery**. Report the completion of science sample deliveries to include a summary of the deliveries by science group, destination, pieces and pounds. Estimated completion date: May 15, 2008

90 Day Expectations
IT/Comms

Previous Quarters

- ***Expectation IT-KY07Q4-09:*** TDRSS Back-Up Using MARISAT Gate 3 ATP to Design/Engineering. Estimated completion date: March 19, 2007
- ***Status:*** **Expectation not met. On hold**--project continuation/funding decision pending with NSF.

- ***Expectation IT-KY08Q1-08:*** Begin discussions with McMurdo Operations on the establishment of a Black Island Infrastructure Management Plan. New estimated completion date: December 31, 2007
- ***Status:*** **Expectation not met; however,** Black Island Management Plan and Service Level Agreement between IT, FEMC and Area Operations has been drafted; under review and coordination. Plan outlines operations and maintenance responsibilities for facilities, power production, HVAC and IT systems.
    - **New estimated completion date:** April 30, 2008

- ***Expectation: IT-KY08Q3-1:*** Develop plan and milestones for USAP.gov refresh. Need to identify the final gate and schedule for deployment. Estimated completion date: October 31, 2007
- ***Status:*** **Complete** (develop schedule). Test version of USAP.gov delivered to NSF for review/approval on December 19, 2007 for "first-review." Awaiting feedback to forecast level of effort required to produce final "go-live" version and deployment date.

- ***Expectation: IT-KY08Q3-2:*** Need a basic plan and new project proposal for 2-Factor authentication deployment across the USAP enterprise.
- ***Status:*** **Expectation not met due to higher priorities**.
    - **New estimated completion date:** Delivery date renegotiated with ABM to January 31, 2008

- ***Expectation: IT-KY08Q3-3:*** Develop an RPSC-SPAWAR integration methodology for all NSF funded projects. Goal to move to an integrated product team concept for technology development. Estimated completion date: December 31, 2007
- ***Status:*** **Expectation not met; however,** Technology Development Integrated Product Team management procedure has been drafted and forwarded to NSF and SPAWAR for review and comment. Procedure outlines system development models for RPSC and SPAWAR, their integration, a communications plan, and roles of USAP ABMs to ensure integration of RPSC and SPAWAR projects and development efforts; under review and coordination.
    - **New estimated completion date:** April 30, 2008

- ***Expectation: IT-KY08Q3-4:*** Develop POAM items in response to VPN Intrusion incident identifying resources and milestones required to implement Lessons Learned recommendations.
- ***Status:*** **Complete**. POAM items created:

    - 1544 Remote access and privileged account policy and procedures are not updated or followed.
    - 1545 Intrusion monitoring is not occurring on as frequent a basis as is needed.

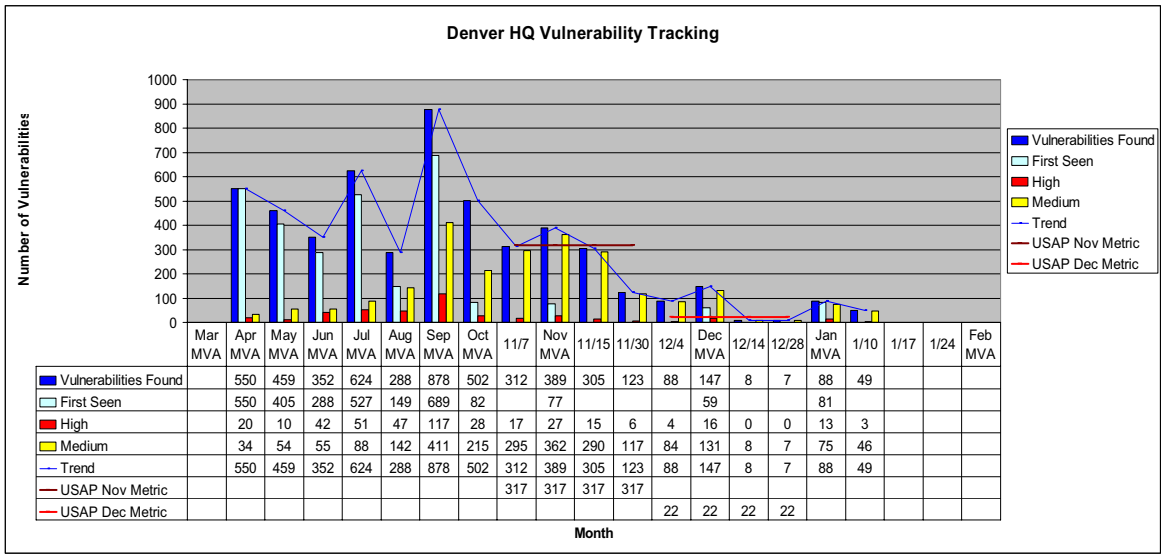
- 1548 There are not enough IDS Sensors in place.
- 1546 2-factor authentication is not in place for remote access.

Items 1544, 1545 are being documented for closure. Items 1546 and 1548 are being addressed by project activities.

- ***Expectation IT-KY08Q3-5:*** Begin development of a framework for a Technical Operations Work Plan similar to the annual Information Security Work Plan. This will be a year-long effort with the goal of implementation in FY09 in parallel with the FY09 APP. Estimated completion date: June 15, 2008 Target dates:
  - Establish functional Activity descriptions, Objectives and Deliverables: January 2008
  - Create actual time accounting to establish FY09 projections: February 2008
  - Draft Work Plan with Activity descriptions, Objectives and Deliverables: March 2008
  - Final Work Plan: April 2008
- ***Status:*** **Expectation not met; however expectation is OBE with proposed IT reorganization that is under development that dissolves Technical Operations.**

- ***Expectation IT-KY08Q3-6:*** Execute repair of the South Pole MARISAT/GOES terminal antenna drive mechanism and heater control elements.
- ***Status:*** **Complete.** Completed installation of new antenna drive mechanism and heater control elements. Antenna returned to full operational status. Integration of the heater controller with the M&C system is planned for winter season.

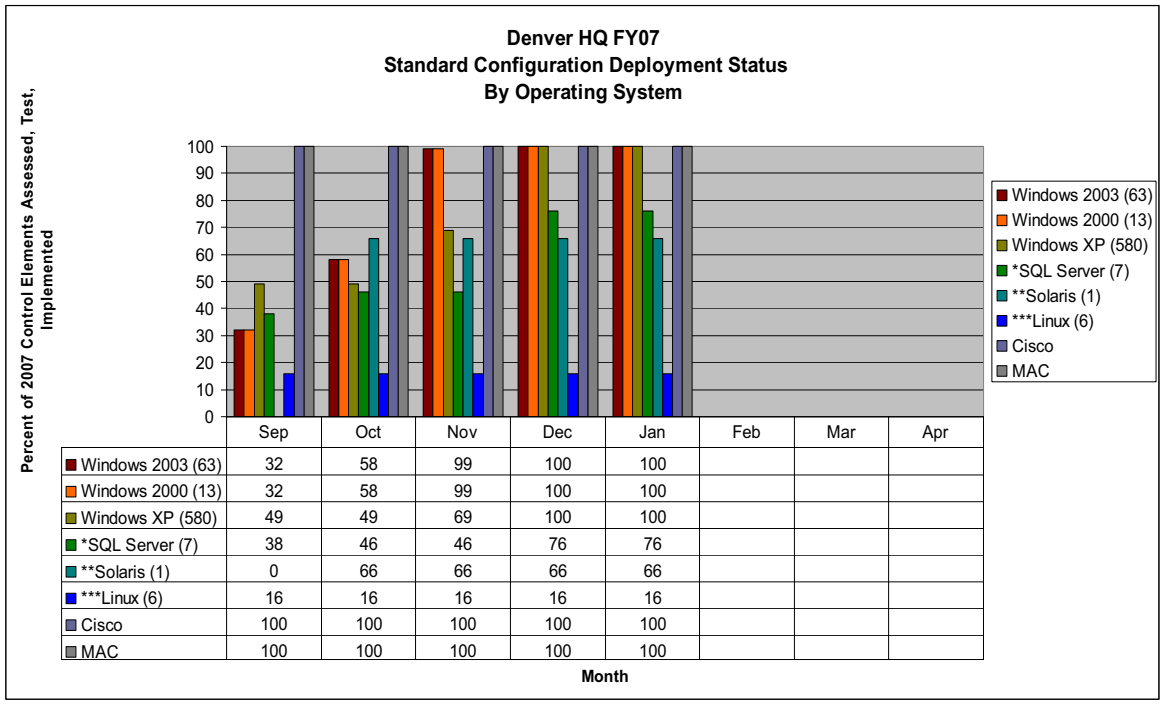
- ***Expectation: IT-KY08Q3-7 (Added):*** Reduce Denver HQ vulnerabilities to less than 22 (96% remediated) NLT December 31, 2007 in accordance with NSF guidelines.
- ***Status:*** **Complete**. Open vulnerabilities reduced to 8 on December 14, 2007. Tech Ops Security Operations focusing on reduction of vulnerabilities at McMurdo Station.



	Mar MVA	Apr MVA	May MVA	Jun MVA	Jul MVA	Aug MVA	Sep MVA	Oct MVA	11/7	Nov MVA	11/15	11/30	12/4	Dec MVA	12/14	12/28	Jan MVA	1/10	1/17	1/24	Feb MVA
Vulnerabilities Found		550	459	352	624	288	878	502	312	389	305	123	88	147	8	7	88	49			
First Seen		550	405	288	527	149	689	82		77				59			81				
High		20	10	42	51	47	117	28	17	27	15	6	4	16	0	0	13	3			
Medium		34	54	55	88	142	411	215	295	362	290	117	84	131	8	7	75	46			
Trend		550	459	352	624	288	878	502	312	389	305	123	88	147	8	7	88	49			
USAP Nov Metric									317	317	317	317									
USAP Dec Metric													22	22	22	22					

- ***Expectation IT-KY08Q3-8 (Added):*** Complete implementation of FY07 NIST Standard Configurations at DHQ IAW August 2007 Standard Configuration plan NLT December 31, 2007.

Status: **Complete**. Systems now deploying FDCC standard; interim FDCC report delivered March 25, 2008.



	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Windows 2003 (63)	32	58	99	100	100			
Windows 2000 (13)	32	58	99	100	100			
Windows XP (580)	49	49	69	100	100			
*SQL Server (7)	38	46	46	76	76			
**Solaris (1)	0	66	66	66	66			
***Linux (6)	16	16	16	16	16			
Cisco	100	100	100	100	100			
MAC	100	100	100	100	100			

Current Quarter (KY08 Q4)

- ***Expectation IT-KY08Q4-1:*** Deploy hardware and software for Foundstone/Hercules Vulnerability and Patch Management capability to DHQ and stations. Begin configuration implementation at DHQ prior to implementation at stations. Estimated completion date: March 31, 2008
- ***Status:*** **Complete**. Foundstone/Hercules hardware and software deployed to and installed at all stations. InfoSec and Tech Ops teams testing servers for operational use prior to implementation at stations.

- ***Expectation: IT-KY08Q4-2:*** Complete documentation of USAP Standard Configuration process in a RPSC procedure. Estimated completion date: March 31, 2008
- ***Status:*** **Complete.** Procedure released for posting to Master List on March 28, 2008.

- ***Expectation IT-KY08Q4-3:*** Complete documentation of USAP Patch and Vulnerability Group process in a RPSC procedure. Estimated completion date: March 7, 2008
- ***Status:*** **Complete**. Procedure released for posting to Master List on March 28, 2008.

- ***Expectation IT-KY08Q4-4:*** Establish monitoring and reporting of bandwidth utilization for USAP WAN links through the deployment of low cost tools and processes that facilitate proactive management action to ensure optimized utilization of these links in support of USAP mission and science requirements. Estimated completion date: March 31, 2008

- ***Status:*** **Complete**. Scrutinizer NetFlow Analyzer deployed to production network March 28, 2008. Technical Operations, Engineering and Architecture now able to view WAN bandwidth utilization data. Establishing enterprise baseline for future capacity planning and reporting.

- ***Expectation: IT-KY08Q4-5:*** Implement a Visitor Network at the DHQ. Estimated completion date: March 31, 2008.
- ***Status:*** **Complete**. Segmentation and DHQ Visitors Network turned on March 31, 2008.

- ***Expectation: IT-KY08Q4-6:*** Draft and submit a USAP 5000.07.01, Privacy & Sensitive Information Protection Instruction. Estimated completion date: March 31, 2008
- ***Status:*** **Complete**. Draft USAP 5000.07.01 submitted to USAP ISM on 30 January 2008.

Next Quarter (KY09 Q1)

- ***Expectation: IT-KY09Q1-1:*** Conduct IPv6 inventory of all existing routers, switches and hardware firewalls in accordance with OMB M-05-22, Attachment A. Estimated completion date: June 30, 2008.

- ***Expectation: IT-KY09Q1-2:*** Conduct a prototype effort to identify and test a low-cost, operationally supportable, web content filtering solution for the USAP enterprise. Estimated completion date: June 30, 2008.

- ***Expectation: IT-KY09Q1-3:*** Conduct an Information Technology/Communications support requirements review with Area Operations and Science Support to determine a proposed WAIS Divide camp IT/Comms architecture and support plan for next season in light of the planned camp growth and last season feedback. Estimated completion date: June 1, 2008.

- ***Expectation: IT-KY09Q1-4:*** Revise and prepare for presentation the annual InfoSec Audit In-brief presentation. Estimated completion date: May 15, 2008.

- ***Expectation: IT-KY09Q1-5:*** Complete and submit the NIST FY07 Standard Configuration Deployment/Final Report. Estimated completion date: April 30, 2008.

- ***Expectation: IT-KY09Q1-6:*** Conduct a technical feasibility study to allow remote access to MAPCON, CTS, P-1000 from outside USAP WAN perimeter – read-only, sandbox contained, with 2-factor control if possible. Depending on feasibility implement. Estimated completion date: May 15, 2008.

90 Day Expectations
DSG

Previous Quarters

- ***Expectation DSG-KY08Q2-02:*** Identify and contract a downtown Denver hotel property for the Annual Planning Conference 2008. Hotel properties are identified, but contracts have not been signed – this Conference is identified as a potential budget cut (savings of $100k). If a contract is signed, costs will be incurred even if cancellation occurs, therefore this has not been accomplished to date.
- ***Status*****: Complete.** Location was changed to Philadelphia, PA due to unavailability in the Denver area for the specific dates.

Current Quarter (KY08 Q4)

- ***Expectation DSG-KY08Q4-01:*** Purchase of Annual Planning Conference 2008 trinkets and review/edit of website in preparation of registration. Build APC timeline and schedule bi-weekly meetings to review meeting space, build menus, provide support documentation, etc. Estimated completion date: April 30, 2008

- ***Expectation DSG-KY08Q4-02:*** Full review of Deployment Packet, to include Physical Qualification support documentation, Travel and Housing forms, InfoSec Awareness documentation, etc. Estimated completion date: April 15, 2008

Next Quarter (KY09 Q1)

- ***Expectation DSG-KY09Q1-01:*** APC 2007-2008 in Philadelphia, PA. Estimated completion date: May 30, 2008

- ***Expectation DSG-KY09Q1-02***: Due to recent changes to the airline industry whereby only one checked piece of baggage is allowed at no additional cost (the second and any other pieces of checked baggage will incur additional costs), the question of Grantee excess baggage allowance, as well as the allowance of two checked bags for all other Participants was posed to the NSF. Several options were provided and DSG is awaiting NSF direction. If a plan is approved, DSG will make the appropriate changes to the Participant Guide, the Deployment Packet, and POLARICE, as well as send e-notices to all Grantees previously provided a Deployment Packet. Estimated completion date: Within one month of approval from NSF to proceed; hopefully June 30, 2008

90 Day Expectations
Medical

Previous Quarters

- ***Expectation Med -KY07Q2-01:*** Complete R6s project - Vessels Medical Support, Controlled Meds Processes, Shipment, and Storage. Estimated completion date: December 31, 2007
- ***Status:*** **Expectation not met.** The following deliverables, items 1–3, were completed prior to December 31, 2007. The remaining items, deliverables 4-7, have new estimated completion dates.

  1) Complete. Delivery of medical kits to remote sites was completed through the medical services at Palmer Station and McMurdo.

  2) Complete. The Divers Alert Network (DAN) is available for consultation to the dive programs at Palmer and McMurdo.

  3) Complete. New EMT protocols were delivered to the Ice clinics and EMS Services. These emergency protocols also apply to the vessel EMTs and all EMS personnel working under the medical license of the Medical Director.

  4) Complete. **Medical malpractice insurance.** The Medical Director was informed that medical malpractice insurance covering the vessel medical support is in place; according to Raytheon's Insurance/Risk Management office, "yes, the Medical Malpractice Policy in force for the Polar Services Operations provides coverage for the employees who are EMT's and the coverage would apply while they were on board our vessels. We do not list the EMT's individually or get specific applications from them as that is only required for Physicians."

  5) Complete. Formulary audits for control and construction. Formulary audits for the vessels were completed during visits to the Ice stations. Palmer to Palmer station and Gould to McMurdo Station completed in January and February, 2008.

  6) Complete. [redacted] PQ's of [redacted] personnel on vessel. [redacted]) PQ's of [redacted] personnel on vessels remains an ongoing issue. The contracts were reviewed on January 1, 2008; completed January 30, 2008.

  7) Complete. [redacted] **subcontract review**. Arrangements have been made to review the contract with the contracting office in January 2008. The contracts were reviewed on January 1, 2008; completed January 30, 2008.

- ***Expectation Med -KY08Q3-01:*** Field and Fire Department Emergency Medical Services Protocols have been reviewed. Updates are being written. Estimated completion date: October 31, 2007
- ***Status:*** **Complete**.

- ***Expectation Med -KY08Q3-02:*** Finalize purchase of life cycle medical equipment, funded by NSF in September, 2007. Estimated completion date: October 26, 2007
- ***Status:*** **Complete**.

- ***Expectation Med -KY08Q3-03:*** Medical Director will deploy to McMurdo and South Pole Stations. Estimated completion date: November 27, 2007

- ***Status:*** **Complete**. The medical director's visit to UTMB was very productive and included discussion of activities that may improve both service to and training of providers at the Ice stations.

- ***Expectation Med -KY08Q3-04:*** Medical Director will do a site visit and review of University of Texas medical Branch operations. Estimated completion date: October 31, 2007
- ***Status:*** **Complete**. Visit to UTMB was completed on March 13-14, 2008.

- ***Expectation Med -KY08Q3-05:*** Medical Director will review all medical subcontracts and meet with each subcontractor during Denver site visits. Completed to date: Dental Reviewer and Medical Reviewer. Remaining: Psychological Reviewer. Estimated completion date: December 31, 2007. The psychological reviewer has been busy out of town on each of the medical director's visits to the area.
- ***Status:*** **Complete**. The medical director met with the psychological reviewer on January 31, 2008. The discussions included a number of technical points related to the mental health PQ of employees for deployment.

Current Quarter (KY08 Q4)

- ***Expectation Med -KY08Q4-01:*** Medical Director will meet with the physician, dentist and [redacted] people in Punta Arenas to review the PQ process for the [redacted] crewmen. The review will include the current disposition of the PQ records.
  - ***Milestone 1:*** Meetings in Punta Arenas
    - ***Status: Complete***. The meeting with the physician, Dentist and [redacted] LMG Captain were cordial, informative, and provided a very complete description of the process followed for the [redacted] ships crewmen.
  - ***Milestone 2***: Determination of action items for NSF consideration
    - ***Status: In Process***. Estimated completion date April 15, 2008

- ***Expectation Med -KY08Q4-02:*** Medical Director will review the capability of the medical facilities in Punta Arenas for specialty care and staffing.
  - ***Milestone 1:*** Site review completed during March deployment in Punta Arenas
    - ***Status: Complete***. The tour of the clinic and hospital in Punta Arenas revealed a very modern facility with physician staffing capable of providing care in specialties, except for cardiothoracic surgery.
  - ***Milestone 2:*** Determination of action items for NSF consideration
    - ***Status:*** **In Process.** Estimated completion date April 15, 2008

- ***Expectation Med -KY08Q4-03:*** Medical Director will review the opportunities for medical evacuation of people from Palmer Station and report on the methods and time involved.
  - ***Milestone 1***: Review of opportunities completed by medical director during deployment to Palmer station in March.

- ***Status: Completed***. Emergency medical evacuation, under the best of circumstances, could not be accomplished quickly. Findings and recommendation are presented in the Medical director's Trip Report.

- ***Milestone 2:*** Determination of action items for NSF consideration
  - ***Status:*** **In Process.** Estimated completion date April 15, 2008

Next Quarter (KY09 Q1)

- ***Expectation Med -KY08Q4-01:*** Medical Director will meet with the physician, dentist and [redacted] people in Punta Arenas to review the PQ process for the [redacted] crewmen. The review will include the current disposition of the PQ records.
  - ***Milestone 2***: Determination of action items for NSF consideration. Estimated completion date: April 15, 2008

- ***Expectation Med -KY08Q4-02:*** Medical Director will review the capability of the medical facilities in Punta Arenas for specialty care and staffing.
  - ***Milestone 2:*** Determination of action items for NSF consideration**.** Estimated ***completion*** date: April 15, 2008

- ***Expectation Med -KY08Q4-03:*** Medical Director will review the opportunities for medical evacuation of people from Palmer Station and report on the methods and time involved.
  - ***Milestone 2:*** Determination of action items for NSF consideration. Estimated completion date: April 15, 2008

- ***Expectation Med-KY09Q1-01:*** During his visit in March-April 2008, the medical director will review the physical qualification processes taking place in Chile for the ECO boat and PRSC people. Estimated Completion Date: April 30, 2008

90 Day Expectations
E H & S

Previous Quarters

- ***Expectation*** **EHS-KY07Q1-01***:* Develop a General Safety Awareness Program that will ensure that Grantees and RPSC employees have sufficient knowledge of the hazards associated with the work or research environment. Estimated completion date: February 28, 2008
- ***Status*****: OBE**

  [Note: As discussed during the last quarterly review, NSF agreed that it was not reasonable to continue carrying these as quarterly expectations until NSF has established written, USAP level policies, and communicated a more clear

understanding of what the RPSC requirements are. Consequently, they have been removed.]

- ***Expectation*** **EHS-KY07Q2-02***:* Work with the NSF and other members of the USAP to develop a USAP Health and Safety Manual. Estimated completion date: October 30, 2007.
- ***Status****:* **OBE**

  [Note: As discussed during the last quarterly review, NSF agreed that it was not reasonable to continue carrying these as quarterly expectations until NSF has established written, USAP level policies, and communicated a more clear understanding of what the RPSC requirements are. Consequently, they have been removed.]

- **Expectation EHS-KY08Q3-02**: Provide field support for updating necessary components of the Dry Valley Antarctic Specially Managed Area (ASMA) Management Plan and six ASPA Management Plans for presentation to 2008 Antarctic Treaty Consultative Meeting (ATCM).
- ***Status*****: Complete**. RPSC Environmental provided field support necessary for updating components of the Dry Valley ASMA Management Plan by auditing special features and revising all Facility Zone maps.

- ***Expectation EHS-KY08Q3-03:*** Provide field support for updating necessary components of the Dry Valley Antarctic Specially Managed Area (ASMA) Management Plan and six ASPA Management Plans for presentation to 2008 Antarctic Treaty Consultative Meeting (ATCM).
- ***Status:*** **Complete.** RPSC Environmental provided field support necessary for updating components of the Dry Valley ASMA Management Plan by auditing special features and revising all Facility Zone maps. RPSC Environmental audited four out of the six ASPAs scheduled for this season. The remaining two ASPAs (Barwick Valley and Linnaeus Terrace) were not audited after guidance was issued from the NSF Environmental Officer that a site visit would not provide additional value to their respective management plan updates. The Dry Valley's ASMA special features and ASPA audits were conducted largely with representation from the British Antarctic Survey, Antarctic New Zealand, and the NSF. Working papers for presentation to the 2008 ATCM were drafted by the RPSC subcontractor and delivered to NSF in March 2008 in time for submission to 2008 ATCM.

Current Quarter (KY08 Q4)

- ***Expectation*** **EHS-KY08Q3-01**: Assist NSF with Scientific Committee on Antarctic Research (SCAR) IPY project, *Aliens in Antarctica*, by coordinating a sampling and monitoring schedule for McMurdo Station. The project will focus on preventing the introduction of non-native species to Antarctica. Estimated completion date: February 15, 2008.
- ***Status*****: Expectation not met.** This expectation was not met because the agreed upon planning date for completion, February 15th, 2008, set forth in the original tasking has changed. NSF has requested that this project remain open and the survey-collection end date for vessels and peninsula area has been extended to mid-May 2008
  - **New estimated completion date:** May 15, 2008.

- **Expectation EHS-KY08Q4-01:** Develop a punch list of FEMC related, and non-facility, Construction, and CCR related, life safety issues for forwarding to Jim so that he can risk prioritize the Issues, and provide guidance to the NSF staff on which ones should receive priority handling.

- **Status: Complete.** EH&S forwarded a comprehensive punch list of facilities to NSF in February. He is currently reviewing the list.

- **Expectation EHS-KY08Q4-02:** Investigate Means to Mitigate Vehicle Backing Hazards. Investigate ways to address vehicle backing risks due to blind spot exacerbated by large wheels, van body configuration, etc. Possible options are backing TV cameras and backing alarms. Estimated completion date: March 31, 2008
- **Status: Complete**. Discussion between ABM and RPSC staff indicated that inexpensive backing cameras was the most likely, cost effective and safety effective method for mitigating potential backing hazards as a result of blind spot issues. EH&S Director will provide NSF an initial cost analysis by April 10 and a recommendation to Jim which system seems most appropriate.

- **Expectation EHS-KY08Q4-03:** Develop and implement a Return-to-Work Policy, which places RPSC employees with temporary medical restrictions due to work related injuries in temporary jobs, which will accommodate those restrictions until they can return to their normally assigned work. Estimated completion date: March 31, 2008
- ***Status:*** **Complete.** A temporary return to work policy and program was placed into effect in February at all locations, which places RPSC employees with temporary medical restrictions due to work related injuries in temporary jobs, which will accommodate those restrictions until they can return to their normally assigned work. A transition phase to this new process will take place later in the year which will transfer responsibility of finding the temporary work assignment, to the HR or Site Manager.

- ***Expectation KY08Q4-04*** **-** Required Time Off for Winter-Over Policy**. :** Develop a new or review the current procedure on Required Time Off for Winter-Over personnel between summer and winter contracts.
- **Status: Complete.** EH&S Director coordinated with RPSC Director of Operations, Human Resource and the medical department to review the current procedure for required time off for winter-over personnel between summer and winter contracts. The current procedure appears to be adequate, but will wait for final review from NSF to make a further determination as to whether any written policy needs to be developed to cover this procedure.

- ***Expectation KY08Q4-05*****:** Communication with [redacted] Establish TRIR, lost work day goals and flow down of other safety polices.
- **Status: Complete**. EH&S Director and [redacted] discussed strategies and goals for [redacted] for TRIR and agreed that a 20% reduction in the 2008 [redacted] for [redacted] was reasonable. Also, [redacted] will accommodate restrictions if any [redacted] employees are injured to help reduce the LCWDIR and return-to-work program. RPSC EH&S will provide [redacted] with a monthly print-out of their recordable injuries and provide guidance on a monthly basis regarding the degree of attainment of the TRIR goal. Note that this goal will be reported and tracked as raw data as opposed to and actual rate, due to labor reporting variances.

Next Quarter (KY09 Q1)

- ***Expectation EHS-KY09Q1-01***: Establish a safety communications program which utilizes multiple vehicles to rapidly transmit safety awareness and hazard related data to the USAP community. Examples would be Safety Grams (Safety Alerts), inclusion of safety data and information into the

Polar Services newsletter, and electronic newsletters and alerts. Estimated completion date: June 30, 2008

- ***Expectation EHS-KY09Q1-02***: Revise and improve the ergonomic training program for new hire training, which specifically addresses our ergonomic injury exposures. Estimated completion date: is June 30, 2008.

- ***Expectation EHS-KY09Q1-03***: Refocus efforts on safety at all stations to reduce injuries. Initiatives will include increased Director, manager and supervisor level emphasis on safe work practices through weekly safety briefings, monthly one-on-one safety reviews between RPSC Safety Director and division Directors, shield reviews, weekly ergonomic safety communications, and development of the visual safety workplace which emphasizes ergonomic injury prevention. Estimated completion date: June 30, 2008

90 Day Expectations
Project Management Office (PMO)

Previous Quarters

- ***Expectation PMO-KY08Q3-01:*** Establish a Project Initiation process that specifically baselines projects upon NSF approval to precede. Close the gap between the project specified within the New Project Proposal and funding authorization to specifically identify Scope with Budget and Schedule.
- ***Status:*** **Complete.** - Expected completion date including procedure and training was December 31, 2007. Revised completion date was February 29, 2008. The procedure has been posted and is now being implemented for newly funded projects.

Current Quarter (KY08 Q4)

- ***Expectation PMO-KY07Q3-01: Develop and implement Integrated Master Schedule Change Management Procedure.***
- ***Status: Expectation not met.*** The expected completion date of December 31, 2007 was not met. Revised discussions began this quarter and a sample process with draft Change Management Form was passed for internal review and comment by the Project Management Implementation Team. The suggested change in operation to ensure tighter control of the schedules is broad reaching and requires a significant amount of integration prior to implementation. A revised date implementation of June 30 has been proposed to ensure the process may incorporate lessons learned from this prior season but be in place before training for the next summer season begins.
    - ***New*** **estimated completion date:** June 30, 2008

- ***Expectation PMO-KY08Q4-01:*** Cost-load all currently active project schedules in accordance with the NSF 2nd tier reporting structure. Reestablish monthly project reporting based on cost loaded IMS data. Monthly Project Reports will be reinitiated for each currently active project on a case by case basis as the IMS loaded schedule and performance report is validated and project specific personnel retrained on reporting methods and requirements.

- ***Status: Expectation not met..*** Expected Completion Date for all projects being reinitiated is no later than March 31, 2008. While very close at least 5 of the 30 projects currently in process still need completion.
    - **New estimated completion date:** June 30, 2008

Next Quarter (KY09 Q1)

Expectation PMO-KY09Q1-01: Cost estimating rate tables will be further developed, specifically to include cargo rates for materials sent to the Peninsula side of Antarctica. Currently developed rate tables will be vetted and back-up data used to develop the rates will be verified. Estimated completion date: June 16, 2008.

90 Day Expectations
PE / QA

Previous Quarters

- ***Expectation PE-KY08Q3-03***: Begin conducting monthly internal quality audits of the Quality Management System (QMS). Estimated completion date is March 31, 2008.
- ***Status*****: Complete.** The findings have been published and distributed for the majority of the audited areas. The remaining findings will be compiled, published and distributed within two (2) weeks.

Current Quarter (KY08 Q4)

- ***Expectation PE-KY08Q4-02:*** RPSC to review internal processes for QA on construction projects. Focus on analysis and corrective actions at high level and within each project. Sandy requested addition of a special hazards category suggested during her visit. (See Expectation PE-KY09Q1-01.)
- ***Status*****: Expectation not met..** A Raytheon Six Sigma™ project was kicked off on March 21, 2008.
    - ***New estimated completion date:*** June 30, 2008.
- ***Expectation PE-KY08Q4-04*****:** Internal Quality Audit of KY08 Quantitative Performance Measures data collection and reporting. Estimated completion date is March 31, 2008.
- ***Status*****: Complete.**

Next Quarter (KY09 Q1)

- ***Expectation PE-KY09Q1-01*****:** A Raytheon Six Sigma™ project was kicked off on March 21 to assess the current self inspection processes and make improvements where necessary. The estimated completion date will enable a roll out of the improved / new processes by WINFLY 2008. Estimated completion date: June 30, 2008.

- ***Expectation PE-KY09Q1-02***: A Raytheon Six Sigma™ project was kicked off on March 26 to address the recruitment, testing, retention and attrition of our certified welders. Milestones follow:
  - ***Milestone #1***: The project should be in the Characterize or Improve phase by 30 June 2008
  - ***Milestone #2***: Estimated project completion date of August 31, 2008.

- ***Expectation PE-KY09Q1-03***: We will complete the development of the KY09 Quantitative Performance Measures (QPMs) and obtain NSF concurrence prior to the end of the first quarter. Estimated completion date: June 30, 2008.

90 Day Expectations
Procurement

Previous Quarters

- ***All open expectations have been moved to the current quarter.***

Current Quarter (KY08 Q4)

- ***Expectation PRC-KY07Q4-04***: Research potential for additional Blanket Agreements for heavy use commodities.
- ***Status***: **Expectation not met** for all agreements anticipated. The following is the current status:
  - CAT Parts complete - Procurement has issued a Master Agreement with [redacted] for the supply of CAT parts.
  - Lab Supplies – Due to the inability to reach agreement on exceptions to Terms & Conditions and other problems associated with errors in order shipment, etc., Procurement has dropped [redacted] as the selected lab supply vendor, and is now looking at other potential suppliers for identified lab and scientific commodities.
    - **New estimated completion date** for award of a Blanket Agreement for Lab Supplies is end May 2008.

- ***Expectation PRC-KY08Q3-01***: Plan to review all current Procurement procedures and update as necessary. Estimated completion date: January 31, 2008.
- ***Status*****: Expectation not met.**
    - **New estimated completion date**: With current department work load, new realistic completion date now estimated as end March 2008.

Current Quarter (KY08 Q4)

- ***Expectation PRC-KY08Q4-01***: Conduct training for contract file maintenance, structure, and close-out to ensure DCAA audit compliance. Estimated completion date is March 31, 2008.
- ***Status*****: Complete –** Training complete, in-house audit performed, and close-out letters sent on all completed contracts.

- ***Expectation PRC-KY08Q4-02***: Conduct a Pre-proposal Bidders Conference for the formal ARSV RFP to allow for a question and answer session for all prospective bidders to the ARSV requirements. Current schedule is for the conference to be held February 12 & 13, 2008. Estimated completion date is February 13, 2008.
- ***Status*: Complete** – Conference held and completed on February 13, 2008.

Next Quarter (KY09 Q1)

- ***Expectation PRC-KY09Q1-01:*** Review, evaluate, and incorporate any needed modifications to the Agunsa Port Services Subcontract to add clarification for billing purposes, and to ensure compliance with Generally Accepted Accounting Practices (GAAP). Estimated completion April 18, 2008.

- ***Expectation PRC-KY09Q1-02:*** Review, evaluate, and incorporate any needed modifications to our standard Terms & Conditions, to verify that all FAR flow-downs and references are current and recent Raytheon up-dates have been incorporated. Estimated completion end June 2008.

- ***Expectation PRC-KY09Q1-03:*** Meet with the Raytheon Financial Shared Services group to review and discuss best practices for entering and tracking milestone payments, so as to ensure that system interface problems are mitigated. Estimated completion end June 2008.

90 Day Expectations
Human Resources

Previous Quarters

- ***Expectation HR-KY07Q4-05***: Develop plan and make recommendations for retention strategies with particular focus on our full-time deploying positions to address potential attrition issues for key positions/skill sets going forward. Estimated completion date August 15, 2007
- ***Status:*** **Complete.** The South Pole differential was approved and implemented for this season. Follow up Succession planning discussions are currently occurring to better assess key skill sets and retention risks. Additional strategies will be developed and reviewed going forward. We have developed and recommended alternative work arrangement structure. This will be an on-going action but will no longer be reported quarterly.

- ***Expectation HR-KY08Q1-01***: Fill key positions open on Program Managers staff – FEMC Director, Finance Manager, EH&S Director, and Performance Excellence Manager. Continue to put focus on other key full-time openings; Information Security Manager, Marine Science Manager and Senior Facilities Engineer.
- ***Status***: **Complete**. Plan submitted to Contracts and approved to move forward.

Current Quarter (KY08 Q4)

- ***Expectation HR-KY08Q3-02:*** Prepare more clearly defined recruiting strategy for the approved international locations. Expected completion date: December 28, 2007.
- ***Status:*** **Expectation not met.** An insurance coverage gap was discovered when hiring in certain approved international locations. We are in process of reviewing our coverage options to ensure all appropriate coverage when hiring in these locations. We have completed the market data gathering in these locations and will continue to focus in this area when the insurance coverage issue has been resolved. **New estimated completion date**: July 31, 2008

- ***Expectation HR-KY08Q3-04:*** Hire Full winter-over staff. Estimated completion date: January 30, 2008
- ***Status:*** **Expectation not met.** Finished winter staffing at 93% filled. 3 additional winter-over candidates will deploy during April 2008. **New estimated completion date**: June 30, 2008

- ***Expectation HR-KY08Q4-01***: Hire all required extended season personnel. Estimated completion date: February 15, 2008
- ***Status:*** **Complete**.

- ***Expectation HR-KY08Q4-02***: Drive the establishment of hiring milestones for the 2008-2009 hiring season in conjunction with divisional hiring managers. Estimated completion date: March 31, 2008
- ***Status:*** **Complete**. Hiring milestones have been established in conjunction with hiring managers. First Milestone exceeded.

Next Quarter (KY09 Q1)

- ***Expectation HR-KY09Q1-01***: Meet established Winfly and Summer hiring milestones for the 2008-2009 hiring season. Expected completion date: June 30, 2008

- ***Expectation HR-KY09Q1-02****:* Provide opportunities for leadership skill development for Managers and Supervisors in the organization. Expected completion date: Milestones follow:
  - ***Milestone #1:*** Have a minimum of 50 participates attend a revised Polar Management training and a leadership development course. ***Estimated completion date:*** June 30, 2008
  - ***Milestone #2:*** Have minimum of 25 additional leadership development participants. ***Estimated completion date:*** September 30, 2008

- ***Expectation HR-KY09Q1-03:*** Ensure strategy is in place to address the multiple outstanding full-time requisitions. Estimated completion date: June 30, 2008

90 Day Expectations
Finance

Previous Quarters

- ***All Previous quarter expectations are complete..***

Current Quarter (KY08 Q4)

- ***Expectation FIN-KY08Q4-01:*** Develop a revised USAP Freight cost model and implementation development plan. Milestones follow:
  - ***Milestone #1***: Decommissioned existing Freight Model in favor of working with the Project Management Group (PMO) to review estimating rate tables, and adopt those rate tables as the basis for providing future transportation cost estimates. KY08 Q4 deliverable was to initiate the review and correction of data elements in the rate tables. This review and correction of these data elements was successfully initiated by the PMO in KY08 Q4 as planned, and will continue into KY09 Q1.
    - ***Status:*** **Complete**
  - ***Milestone #2***: Completion of all rate tables and use of these rate tables in the compilation of the June 2008 Property Reports are deliverables to be provided in KY09 Q1. Estimated completion date: June 30, 2008.

- ***Expectation FIN-KY08Q4-02:*** Maintain Financial Statement Audit Compliance. Milestones follow:
  - ***Milestone #1:*** In preparation for the upcoming A-123 Audit, provide a comprehensive list of RPSC procedural documentation to NSF and the A-123 Audit Team for review and comment.
    - ***Status:*** **Complete.** Documentation provided on March 25, 2008.
  - ***Milestone #2***: Hose the 3-day meeting in Centennial, CO in April 2008 to begin the scope definition and process flow review of the Property, Plant & Equipment process with NSF and external audit attendees. Subsequent, as yet unscheduled meetings will be conducted in KY09 Q1 to further the A-123 review process. Estimated completion date: May 1, 2008

Next Quarter (KY09 Q1)

- ***Expectation FIN-KY08Q4-01:*** Develop a revised USAP Freight cost model and implementation development plan. Milestones follow:
  - ***Milestone #2***: Completion of all rate tables and use of these rate tables in the compilation of the June 2008 Property Reports are deliverables to be provided in KY09 Q1. Estimated completion date: June 30, 2008.

- ***Expectation FIN-KY08Q4-02:*** Maintain Financial Statement Audit Compliance. Milestones follow:
  - ***Milestone #2***: Hose the 3-day meeting in Centennial, CO in April 2008 to begin the scope definition and process flow review of the Property, Plant & Equipment process with NSF and external audit attendees. Subsequent, as yet unscheduled meetings will be conducted in KY09 Q1 to further the A-123 review process. Estimated completion date: May 1, 2008

- ***Expectation FIN-KY09Q1-01***: Add external agency financials to the Business Objects application. Estimated completion date: June 30, 2008

90 Day Expectations
GM

Previous Quarters

- ***Expectation GM-KY08Q1-05:*** Work with NSF to update the contract to reflect current requirements for the AOR and Performance Metrics. Estimated completion date: December 31, 2007
- ***Status:*** **OBE.** It was mutually decided by the NSF and RPSC Contracting Officers to close this expectation as stated. In the alternative, modifications to the contract will be issued to address individual corrections, changes and issues as they are raised during the performance of the contract.

- ***Expectation GM-KY08Q2-06:*** Obtain documentation and coordinate explanation to NSF of DCAA questioned charges, DCAA Reports 2000 through 2002. Gather high level background information on the overall management structure, field of operations, contract terms and conditions, information systems and policies and procedures. Estimated completion date: September 30, 2007.
- ***Status*****: Complete.** Completed review of DCAA questioned incurred cost charges and submitted additional documentation for NSF review. Prepared a response and provided document support for fringe rate adjustments for fiscal years 2000 through 2002. RTSC is reviewing NSF response.

- ***Expectation GM-KY08Q2-07***: Prepare a risk assessment program related to prime subcontractor operations. This high level assessment will review major subcontractor contract terms and conditions, administrative plans, risk assessment guidelines, and supporting RPSC procedures. Estimated completion date: NLT August 31, 2007.
- ***Status*****: Complete.** Closure recommended at end of 3rd quarter. NSF briefed, without comment.

- ***Expectation GM-KY08Q3-02***: Review and improve upon the internal control environment related to subcontract policies and procedures and surveillance of sub-contactor performance. This initiative is applicable to AGUNSA, NANA, ECO, and Best Recycling. The NSF contracting officer had previously asked for a review of subcontractor policies and procedures. Preliminary results indicate improvements can be made in this area. Estimated completion date: November 30, 2007
- ***Status***: **OBE**. In late November 2007, I asked NSF COTR if I could remove the expectation as it extended to subcontractors other than AGUNSA. Closure recommended at end of 3rd quarter. NSF briefed, without comment.

Current Quarter (KY08 Q4)

- ***Expectation GM-KY08Q4-01***: Coordinate the AGUNSA risk assessment plan with NSF contracting officer and perform control sample tests of the procurement (requisition), accounts payable and disbursement accounting cycle. Transaction testing of internal control environment related to the costs incurred (reasonableness, allocability, and allowability) to be performed and reported.

- **Milestone #1 -** During Q4, the control sample testing will be completed and documented. Estimated completion date: March 31, 2008
  - ***Status: Complete***. The control sample testing is completed and the test results documented.
- **Milestone #2 -** A report will then be prepared and submitted to NSF on the overall risk assessment and will include recommendations. Estimated completion date: June 30, 2008.

Next Quarter (KY09 Q1)

- ***Expectation GM-KY08Q4-01***: Coordinate the [redacted] risk assessment plan with NSF contracting officer and perform control sample tests of the procurement (requisition), accounts payable and disbursement accounting cycle. Transaction testing of internal control environment related to the costs incurred (reasonableness, allocability, and allowability) to be performed and reported.
  - **Milestone #2 -** A report will then be prepared and submitted to NSF on the overall risk assessment and will include recommendations. Estimated completion date: June 30, 2008.

- ***Expectation GM-KY09Q1-01:*** Conduct an RPSC Leadership Team Off Site meeting in lieu of cancelled NSF Station Optimization meetings to strategize and plan for next season. Estimated completion date: May 1, 2008

- ***Expectation GM-KY09Q1-02:*** Complete and submit the Contractual F10 deliverable After Operations Report (which includes the KY08 Q4 Quarterly Report) to NSF. Estimated completion date: April 30, 2008

- ***Expectation GM-KY09Q1-03***: Complete the Annual Planning Conference (APC) in Philadelphia, PA. Estimated completion date: June 1, 2008

Lessons Learned

Logistics

- ***Issue:*** South Pole Logistics was staffed to support the planned field science cargo volume. Of the 274,000 pounds of field science cargo processed this season, only 15,600 pounds was planned, i.e., 5,240 pounds of ITASE (I-153) ice cores and 10,573 pounds of I-155 ice cores.
- ***Response:*** With the large increase in field science cargo at South Pole, labor was diverted from retrograde processing to support field science because research support has a higher priority. To illustrate the impact to retrograde processing, 375 labor hours were provided for Twin Otter cargo operations. With this labor, an additional 130,000 pounds of retrograde cargo could have been processed.

Program Director

- Medical produced an influenza analysis of the McMurdo Station population. Results indicated that flu vaccines absolutely help prevent personnel from getting the flu, which cause significant lost work days and added workload to those remaining healthy. The average lost days for a person with the flu was 7-9 days. Many required 10-12 days to recover. The lesson learned is to attempt to purchase and import flu vaccine from New Zealand in July, so early season deploying personnel can get vaccinated. Additionally, RPSC will promote a "Get a flu shot" campaign with all full-time and contract personnel in hopes of increasing participation, thereby mitigating the number of flu cases and the loss of productive work that results.

Open Action Items

McMurdo and South Pole Optimization Planning Conferences

Source	Title	Assigned To
Optimzation Sessions*	Optimization Session PMO Initiatives - USAP Projects Website	[redacted]
Optimzation Sessions*	Partner Session, PMO Discussion regarding Direction from ABM's	[redacted]
Optimzation Sessions*	Optimization Session PMO Improvement Areas	[redacted]
Optimzation Sessions*	Optimization Session, PMO Discussion - Project Review Verification Procedure	[redacted]
Optimzation Sessions*	Session Item # 13b - Strategic Planning Goals-Science	[redacted]

Annual Planning Conference

Source	Title	Assigned To
APC*	APC06, Item 13 - Printer Replacement in 109th buildings	[redacted]
APC*	APC EMB Topic 3 - SFA/Airfield Manager Structure	[redacted]
APC*	APC 07-19 Ice Edge Operations Policy	[redacted]
APC*	APC 07 EMB Topic 1 - USAP Smoking Policy	[redacted]

NSF Assistance Needed

- ***None at this time.***

KY08 Q4
Quarterly Technical Report

Contract PRSS-0000373, Clause F6.1
(October 1, 2007 – December 31, 2007)

Top Projects – Schedule & Cost Summary

KY08 Q4 Projects Report

as of February 2008

Raytheon Polar Services

Performance Overview

Major Projects	Phase	Technical	Schedule	Budget
IceCube	Execution	Green	Green	Green
S. Pole Telescope	Execution	Yellow	Yellow	Yellow
WAIS	Design	Green	Green	Green
ANDRILL	Execution	Green	Green	Green
CReSIS	Design	Green	Yellow	Green
AGAP	Planning	Red	Red	Red
SPSM	Execution	Green	Green	Yellow
SP Power Improvements	Execution	Yellow	Yellow	Yellow
McM Power Plant	Execution	Green	Green	Green
McM Mogas Tanks	Execution	Yellow	Yellow	Yellow
McM New Fuel Storage	Execution	Green	Yellow	Yellow
AREV Replacement Planning	Planning	Green	Red	Green
McM Bandwidth	Execution	Green	Green	Green
NPOESS	Design	Green	Green	Green
MLS	Execution	Yellow	Yellow	Green

Projects	Phase	Technical	Schedule	Budget
Replace Vessel Acoustic Windows - Replacement	Acceptance	Green	Yellow	Green
New ARSV	Procurement	Green	Green	Green
SuperDARN	Planning	Green	Green	Green
McM Day Tank Upgrades	Design	Green	Red	Yellow
Secondary Containment	Execution	Green	Green	Green
Building 174 Upgrade	Planning	Green	Green	Green
Helo Fuel Filtering Upgrade	Execution	Green	Yellow	Yellow
McM Modular Office Buildings 136/191	Execution	Yellow	Yellow	Yellow
Palmer Chem Lockers	Execution	Green	Green	Green
SPTR-2	Planning	Green	Red	Yellow
Disaster Recovery Planning	Planning	Green	Yellow	Green
Laptop Encryption	Planning	Green	Green	Green
Vulnerability Management	Planning	Green	Green	Yellow
SP Traverse - Equipment	Execution	Green	Green	Green
McMurdo Retrograde	Execution	Green	Green	Green

Submittal Date: February 2008

Legend:	
Green	Satifactory
Yellow	Conditional
Red	Unsatisfactory

- ***Individual Project Status Reports provided under separate cover.***

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: IceCube

Description: Support IceCube Drilling Camp operations and construction, on-ice and in Denver

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Jack Lightbody

Performance Variance / Corrective Actions

Technical	Green	No technical variances at this time.
Schedule (SPI)	Green	No schedule variances at this time.
Budget (CPI)	Green	Budget variance is due to lower than expected on-ice labor and open positions. There is no corrective action required. Labor cost underruns will be identified to IceCube for return to IceCube contingency. Any FY07 cost underrun will be returned to IceCube contingency with Rev 7 of the RPSC IceCube Rebaseline.

Activities Report / Risk Predictions & Mitigations

Current Period	• FY08 Season on ice work completed per schedule • FY08 Season deployments completed per schedule • 18 holes have been deployed at end of season. • FY08 camp shutdown and season close out completed per schedule
Planned Activities	• FY11 retro plan and costs to be completed - Q2/2008 • Because of ANG rate uncertainty, Rev 6a Rebaseline will not be issued. Rev 7 Rebaseline will be completed in Q2/2008 • FY08 post season meeting and FY09 pre-planning meeting will be combined this year - scheduled for March 11th & 12th, 2008, at the University of Wisconsin (UW). Retro plan discussions will be added as a third day to this meeting.
Risks & Mitigations	Caution - UW has requested that RPSC remove the IceCube retro costs (FY-11) from the FY08 - FY11 budget estimate and identify the retro as a project risk. RPSC has complied with this request, however, this results in a significant risk to RPSC and NSF. The magnitude of risk was identified concurrent with FY08 - FY11 budget estimate [redacted] IceCube has added the [redacted] retro cost to contingency. Discussions are currently underway within NSF to resolve the issue of including retro cost in the budget vs. retro cost remaining in contingency.
Actions & Assistance	Assistance will be required from NSF and IceCube once final retro numbers are identified to provide for equipment disposition.
Notes	• The IceCube budget is tracked, by UW, on a project year basis (April to April) rather than a FY basis. • The RPSC IceCube Sr. Construction Coordinator position is now open. The position will be posted. • EAC includes ANG costs, FY Budget (APP) does not.

Contractor Comments

RPSC Project Manager	The FY08 South Pole summer season has been a complete success. In the opinion of this Project Manager, the use of the Basler aircraft to open South Pole Station early contributed to this success. The RPSC IceCube EAC is projected to be [redacted] fully burdened and inflated including FY11 retro costs [redacted] FY11 retro activities will be handled as a separate change control action as requested by the UW IceCube management.
RPSC Sr. Manager / Director	This project has been an outstanding success during the FY08 austral summer at South Pole Station. Based on the FY08 success, IceCube plans for more than 18 holes for the FY09 season. Continuation of excellent RPSC project management will ensure accomplishments of IceCube goals within NSF approved scope, schedule, and cost.

Project Status Report

Raytheon Polar Services

Executive Summary March-08

Project Title: South Pole Telescope

Description: This is a 10m diameter submm-wave telescope and boometer receiver to conduct astronomical observations.
RPS work scope includes procurement, fabrication and installation of a telescope support structure (SPT Shield), power and support services (Control Room addition to the Dark Sector Lab Building), participation at Test Builds for the telescope and shield, and shipment and assembly of all components.
University of Chicago (U of C) is to provide the telescope, instrumentation, telescope power panels and power conditioning. The telescope test build in Kilgore Texas was to be performed by the University of Chicago. The responsibility for this test build was changed to RPS to gain knowledge how best to erect the telescope and to develop a estimate of labor required to install it at the south Pole. The shield test build was conducted in Vancouver Washington. Both test builds were completed prior to final shipment and scheduled assembly at the South Pole by RPSC.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Sandy Singer

Performance Variance / Corrective Actions

Technical	Yellow	The Citadel siding for the SPT control room and walkway should be installed prior to the installation of the SPT shield to avoid constricted work area. The SPT scaffolding is required to install this siding. Labor installation of the siding after shield installation is estimated to increase by 100%. The following two CRs represent approved RFIs that address materials yet to be procured. • CR12 (Citadel Siding) dated 7-26-08 – value $[redacted] and CR15 (SPT Scaffolding) dated 8-24-07 – value $[redacted] These CRs sent to the NSF for review and approvals on July 26 2007 were rescinded on January 29, 2009 due to deferment of South Pole Telescope tasking to address overall Polar Program funding shortfalls. These CRs will be re-issued with updated pricing when the revised SPT schedule is known. The projected value of these CRs are $209,689.
Schedule (SPI)	Yellow	The SPT project has deferred all FY08 construction. It is unknown at this time what Fiscal Year construction will resume. Resumption of construction is dependent upon the SPSM project meeting it's goal of completion in FY10. It is anticipated to learn from the SPSM audit scheduled in April 2008 when this project can resume construction.
Budget (CPI)	Red	These five CRs have been pending approval since August 2007 and have now been deferred to FY09. CRs #7, #10 and #13 identify cost incurred in FY07 and addressed in approved RFIs. CRs #12 and #15 represent approved RFIs. These three CRs total $[redacted] • CR07 (Travel & TDY for Construction Coordinator) dated 8-24-07 – value $[redacted] • CR10 (Logistics Cost for Telescope) dated 7-26-08 – value $[redacted] • CR13 (Crane Move to Pole) dated 7-26-08 – value $[redacted] • CR12 (Citadel Siding) dated 7-26-08 – value $[redacted] • CR15 (SPT Scaffolding) dated 8-24-07 – value [redacted] Change requests have been written to cover the delta between the project budget and the revised estimate (EAC). A complete review of budget variances for all fiscal years is being conducted. Once complete, CR's will be written to explain all budget variances. A revised budget has been established with the completion of the final estimate. CR17 SPT Shield Engineering was identified on our deferment of FY08 funding to proceed in FY08. RPS has requested a verification that this CR is approved.

Activities Report / Risk Predictions & Mitigations

Current Period	CR17 (SPT Shield) is pending formal approval. RPS completed the test build of a face section of the shield and found a beam was fabricated at the wrong elevation. RPS has contacted the shield manufacture (Thompson Metal Fabricators) and advised them of their error. They are designing a fix for this. RPS is completing the test build report of the shield section test build at McMurdo in February 2008.
Planned Activities	No construction is scheduled. Receipt of formal approval of CR17 (SPT Shield). RPS will proceed with the contract to have an Shield Engineering Review done. Write CR18 to cover the deferment of the SPT project from FY08 to FY09. Write CRs for "Replacement of the Damaged Shield Panels" and "Sliding Roof Door Rope Pulley System". Submit the test report for the shield section panel and flashing test build at McMurdo in February 2008.
Risks & Mitigations	• RISK – Citadel siding should be installed prior to the erection of the shield super structure (does not include base steel foundation). If it is installed after the installation of the shield it is estimated to increase the installation labor by 100%. This siding has not been ordered. MITIGATION PLAN #1 – Order the siding and scaffolding 1 year prior to installation of the Shield and ship on the annual resupply vessel. MITIGATION PLAN #2 – Order the siding and scaffolding in time to ship ComSur with receipt at Pole prior to installation of the Shield. MITIGATION PLAN #3 – Order the siding and scaffolding in time to ship ComAir with receipt at Pole prior to installation of the Shield. STATUS – Pending end of season status on SPSM projects. • RISK - The SPT project proposed schedule for FY09, FY10 and FY11 are no longer valid due to the deferment of FY08 activities to FY09. MITIGATION PLAN – RPS will evaluate future tasking requirements and propose a revised schedule for FY09, FY10, FY11 and FY12. STATUS – Pending end of season status review. • RISK - Issues with the SPT control room requiring more heat have been identified to be caused by four 2' by 3' openings in the control room allowing heated air to go up into the SPT telescope to heat the Yoke arm assembly area. Two of these openings are within the telescope pedestal and two are directly below the yoke arms and rotate around with the telescope. MITIGATION PLAN – 1) Install the original HVAC designed four Lytron cabinet unit heaters. These cabinet unit heaters will be provided by the University of Chicago for this summer for FY08 winter installation. 2) Investigate if unit heaters can be installed below the rotating Yoke arm openings to separate the Yoke are heating requirements from the control room. A circular suspended ceiling area around the pedestal is being looked into. 3) Investigate if a second backup boiler can be installed and/or heating coils installed. STATUS – This work is deferred to FY09.
Actions & Assistance	Advise as soon as possible what the South Pole Schedule will be for FY09 and what can SPT plan for. Need formal direction from the NSF on CRs #7, #10, 12, 13, 15 and 17.
Notes	Delay in direction from the NSF regarding CRs #12 and #15 could cause the completion of the installation of the shield to take 3 years.

Contractor Comments

RPSC Project Manager	No FY08 winter activities are scheduled. It is not know what activities may be allowed to be scheduled in FY09. CR17 (SPT Shield Engineering Peer Review) is pending approval. This will allow for errors and omissions to be identified and addressed prior to the erections of the shield. Deferred from FY08 to FY09 is installation of 1) steel egress stairs from the SPT walkway, 2) roof hatch hinge replacement, 3) removal of a 4'-0" freezer door in the SPT walkway, replacement with a 3'-0" freezer door from the DNF facility and installation of the 4'-0" freezer door in DNF, 4) sliding roof door bearing grease. Deleted or deferred from the project 1) sliding roof door heat trace and 2) roof hatch heat trace. All FY08 winter activities were deleted. RPS SPT will revise our proposed schedule after FY08 end of season status review.
RPSC Sr. Manager / Director	Construction has been progressing well and our test builds have proven invaluable in uncovering assembly problems that could cause serious issues at the pole. There are a substantial number of CR's on this project that the PM has been attempting to close out for the past year.

Project Status Report

Raytheon Polar Services

Executive Summary February-08		
Project Title:	West Antarctic Ice Sheet Divide Ice Coring Project (WAIS Divide)	
Description:	Deep Field Camp and Ice Coring Facilities and Operations. Infrastructure scope is the baseline for the drilling project and associated science activities only.	

Project Team / Stakeholders					
Project Mgr:	[redacted]	**Stakehold Dir:**	[redacted]	**Executing Dir:**	[redacted]
NSF Sponsor:	Alex Isern				

Pe ariance / Corrective Actions		
Technical	Green	No technical variances at this time.
Schedule (SPI)	Green	Power modules will be completed in November 2008 due to delays incurred this past season. Cost and schedule impacts will be reviewed by the Construction Coordinator and FEMC engineers during TDY periods.
Budget (CPI)	Green	FY08 project budget APP reduced by $100,000 (transformers and cables). Changes to the camp layout and planning are being considered, however, it is not expected to negatively impact the project.

Activities Report / Risk Predictions & Mitigations	
Current Period	WAIS Divide field camp infrastructure was winterized and closed on 05 February 2008. Approximately 460 meters of ice core samples were loaded in refrigerated milvans on the American Tern resupply vessel for an early April 2008 delivery to the National Ice Core Laboratory in Denver Colorado. Project drawing packets are being reviewed by FEMC engineers for 100% submittal to the NSF scheduled for mid-April 2008. TDY contracts for the Construction Coordinator and Electrician Foreman planning support have been confirmed for end of March and early April 2008 periods. Continue procurement of materials and equipment per FY08 APP and End of Season field notes. Continue to support all WAIS Divide Science Coordination Office and stakeholder requests and requirements. Preparing Ice Core Working Group meeting presentation and requests for 25-27 March 2008 meetings.
Planned Activities	Continue to develop 100% design packets for NSF review. Build tentative field construction schedule for arch facility punchlist and power modules with Construction Coordinator. Integrate schedule with Field Science Support schedule and IMS. Plan SafeCore Project kickoff meeting for first week in April 2008.
Risks & Mitigations	None to report
Actions & Assistance	NSF design reviews for arch facility and power modules. NSF design review of power distribution layout and equipment. NSF guidance on project and population management for next field season.
Notes	NSF/AIC facilities oversight by Sandy Singer and the NSF Design Team, NSF/AIC Research Support ABM oversight by Alex Isern, NSF/ANT oversight by Julie Palais. NICL annual budget administered by RPSC, NICL is solely responsible for managing their annual budget funding levels and purchasing requirements.

Contractor Comments	
RPSC Project Manager	Field camp and ice coring project operations concluded with great success despite major weather and aircraft delays. Focus will shift to engineering and general planning for the 08-09 field season.
RPSC Sr. Manager / Director	This project has preliminary punchlist items to address from the short NSF site visit in January 2008 and completion of 100% design reviews/AFC drawings for completion of the arch facility and power module/distribution in FY09. Completion of these milestones will be coordinated with the ice core drilling efforts to ensure successful accomplishments of both activities.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: ANDRILL

Description:

ANDRILL is an international geologic drilling project that will drill two holes and recover ocean sediment core from beneath the NW portion of the Ross Ice Shelf and the sea ice over two summer seasons. USAP is coordinating all science support and some logistics in support of drilling operations. Antarctica New Zealand is managing the drill site operations and drilling personnel.

RPSC support included within this project scope and cost: deployment processing, travel, housing, shift change shuttles, cargo movement to drill site, compaction and maintenance of snow roads and drill pad, core splitting facility utility design and construction, laboratory space and support, sample transport, field support for core context field trips, and other general science and operations support.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Di	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Alexandra Isern

Performance Variance / Corrective Actions

Technical	Green	Nothing to Report.
Schedule (SPI)	Green	• The overall SPI of 1.05 and the FY08 SPI of 1.44 in October 2007 is because [redacted] of COMSUR shipping planned for November 2007 occurred in October 2007. It is anticipated SPI for both FY08 and overall will approach 1.0 with the next financial reporting when these planned costs are realized.
Budget (CPI)	Green	CPI for FY08 is [redacted] due to actual cargo weights shipped to and from McMurdo being less than estimated. Overall CPI is [redacted] due to the cargo weights mentioned above, as well as unused Travel, Materials and ODC's dollars in FY07. Project management will complete a change request to rebaseline the project by 31 March 2008. • Project management estimated FY08 northbound COMAIR cargo at 6,500 pounds. Actual cargo is expected to be closer to 4,500 pounds. This change will save the project an estimated $6,000. This savings is anticipated to continue throughout the rest of FY08. • FY08 southbound COMAIR costs will be less than estimated because almost 2,000 pounds of cargo was flown on a SAAM mission rather than via COMAIR. This will save the project an estimated $5,000 in cargo costs. This savings is anticipated to continue throughout the rest of FY08. • Project management estimated total FY08 southbound cargo at 24,000 pounds. Actual cargo is closer to 4,500 pounds. This will save the project an estimated $32,600. This savings is anticipated to continue throughout the rest of FY08. • Project management estimated $8,000 for on-ice bonuses for work completed during FY07. To date, these bonuses have not been allocated to the project. Project management is using an estimated actual of [redacted] in FY07. Finance has been unable to commit to a date that these costs will be posted. • Labor was not reported for the last two weeks of fiscal month October 2008. Project management is using estimated actual labor costs of [redacted] based on an average rate of $15.90/hour. Fringe is estimated at [redacted] using a rate of [redacted] Bonuses for all labor, actual and estimated, are estimated at [redacted] using a rate of 23%. These costs were posted in fiscal November 2008 and will appear in the project report the next time financials are reported. • FY07 CPI of [redacted] is a result of under runs in Travel (~ [redacted] Materials ([redacted] and ODC's [redacted] These under runs have been offset in part by higher than expected costs in FY07 Labor and Fringe ([redacted] Acct. Prop [redacted] and Subcontracts [redacted] Although there may be a few lagging FY07 costs, these are anticipated to be minimal. It is anticipated the overall cost savings of approx. $18K will continue through [redacted] f the project. There are no long-term impacts to these net cost savings to the project.

Activities Report / Risk Predictions & Mitigations

Current Period	• ANDRILL core and cargo from the 2007-2008 season was loaded on the M/V TERN for shipment to the U.S. • Steve Kottmeier is initiating a SHIELD incident report detailing the circumstances of the German radioactive sealed-source instrument arriving in McMurdo. • Project management expected to complete a change request to rebaseline the project. The project manager will not have the opportunity to discuss financial status with Finance until mid-March 2008.
Planned Activities	• Project Manager will complete a change request to rebaseline the project based on an estimated $50,000 underrun as discussed above. Expected completion is by the end of March 2008, after review of most recent project financial reports. • Project Manager will begin to compile 2007-2008 support costs for submission to NSF. The final cost summary is expected no earlier than the end of April 2008, following receipt of the invoice for core shipment to Florida State University.
Risks & Mitigations	Nothing to report.
Actions & Assistance	Nothing to report.
Notes	• 3 March 2008: During the 2007-2008 season, ANZ project management requested airlift for an additional 11,000 kg of drilling fluid. Because USAP did not add airlift to support this request, NSF will consider this support as resource-in-kind for the project. • 25 February 2008: Alexandra Isern took over ABM responsibility on the project from George Blaisdell. • On 30 November 2007, ANDRILL completed drilling the SMS hole with a final depth of 1,138.54 meters below sea floor. • On 25 December 2006, ANDRILL completed drilling the MIS hole with a final depth of 1,284.87 meters below sea floor. • On 17 December 2006, ANDRILL cored to 1,020.3 meters below sea floor with 100% recovery; this exceeds the previous record of 999.1 metres for rock core drilling in Antarctica set in 2000 by the Ocean Drilling Program's drill ship the Joides Resolution in Prydz Bay. • During the 2006-2007 season, ANZ project management requested airlift for an additional 17 tonnes of drilling fluid materials to replace fluid lost during the early phase of drilling. ANZ made this request directly to NSF. This is noted only as information. • Stakeholders include the following that may not be listed above or are further explained here: ANDRILL Operations Management Group (AOMG), Antarctica New Zealand (ANZ), Programma Nazionale di Ricerche in Antartide (PNRA) [Italian National Antarctic Program], Alfred Wegener Institute for Polar and Marine Research (AWI) [German National Antarctic Program], McMurdo-ANDRILL Science Implementation Committee (MASIC), ANDRILL Science Management Office (SMO), Florida State University (FSU), Dr. George Blaisdell, NSF/OPP Antarctic Infrastructure & Logistics Division, and Drs. Tom Wagner and Scott Borg NSF/OPP Antarctic Sciences Division.

Contractor Comments

RPSC Project Manager	ANDRILL has successfully completed both planned field seasons. Outstanding project tasks include delivering the core to Florida State University, writing a change request to rebaseline the project to account for underruns, and compiling 2007-2008 project support costs for NSF. There are no outstanding issues and the project is on track to close out on schedule.
RPSC Sr. Manager / Director	This project successfully supported two years of ANDRILL ocean drilling and is in the close out phase. The science objectives were exceeded to the delight of the ANDRILL science team.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: CReSIS Antarctic Support

Description: This project will provide Antarctic support to the CReSIS (Center for Remote Sensing of Ice Sheets) Science and Technology Center (STC) project. Planned support includes the following:
1. Provide seismic survey / mobile field camp platform and support staff
2. Provide infrastructure necessary to support project at West Antarctic Ice Sheet (WAIS) Divide camp
3. Provide project management for CReSIS Antarctic support project

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Alex Isern

Performance Variance / Corrective Actions

Technical	Green	• Change Request CR001 has been submitted to NSF for review and approval of the following scope changes for the CReSIS UAV hangar: additional square footage (to meet requirements for hazardous classified areas), color of fabric (yellow instead of white for safety), monorail (with chain hoist for UAV maintenance), and skylight (to illuminate interior in event power is not available). Scope changes tota[redacted] NSF approval of CR001 is pending as of 11 MAR 08.
Schedule (SPI)	Yellow	• The RPSC PM leaves the schedule variance status at yellow. A corrective action plan was implemented during the previous two reporting periods to address the schedule variance associated with the WAIS Divide infrastructure additions design. This corrective action plan has been partially successful. Design work is back on schedule. Progress towards awarding the subcontract for the design and manufacture of the UAV hangar has stalled due pending approval of Change Request CR001. This change request was submitted to NSF for review and approval on 25 FEB 08. • Procurements dependent upon the design completion ([redacted]are also behind schedule. RPSC PM expects recovery of these scheduled activities when the design package is complete and approved. Design activities are currently scheduled to be completed by June, 2008.
Budget (CPI)	Green	• Current EAC for FY07 is showing a projected underrun of [redacted] The EAC was updated to reflect the following: 1) awarding fire protection engineering services subcontract. 2) submitting order for six Nansen sleds for the CReSIS seismic survey / mobile field camp platform. Disposition of unused funds will be determined when the project is re-estimated when design phase completes the AFC (approved for construction) milestone.

Activities Report / Risk Predictions & Mitigations

Current Period	• External design review comments, except NAVFAC FPE, for the CReSIS 90% design submittal were received by 25 FEB 08. NAVFAC FPE comments were received on 11 MAR 08, twelve working days pass the due date. • Completed technical review for submitted proposals for the design and manufacture of the CReSIS UAV hangar on 21 FEB 08 • Submitted Change Request CR001 to cover cost increase over initial estimate for the design and manufacture of the CReSIS UAV hangar. Change Request submitted to NSF for review and approval on 25 FEB 08.
Planned Activities	• Complete the CReSIS 100% design submittal and RPSC internal review for the WAIS Divide Infrastructure Additions by 28 MAR 08 • Submit the 100% design submittal to NSF for external review by 31 MAR 08 • Award subcontract for the design and manufacture of the CReSIS UAV hangar. Expected date is TBD, pending NSF approval of Change Request CR001.
Risks & Mitigations	• Risk: Engineering design review process may take longer than planned duration in schedule due to lack of staff and/or multiple simultaneous priorities, causing schedule delays in procurement and logistics. This may limit the utilization of the resupply vessel for material deliveries, however COMAIR and COMSUR were originally planned due to anticipated timing of logistics. Mitigation: Facilitate clear and timely communications and status updates among project stakeholders and RPSC departments. • Risk: Inclement Antarctic weather may cause schedule delays for field program and possibly limit data collection window. Mitigation: If issues arise, seek guidance from NSF AIL and ANT Representatives at McMurdo Station to resolve issues and determine priorities among science events at the time of the delay; as it is impractical to try to predict weather delays. • Risk: Mobile field camp may encounter physical hazards while traversing causing schedule delays and possible damage to equipment. Mitigation: Proper route planning will be responsibility of science team. RPSC will provide guidance as appropriate. • Risk: Resource availability at WAIS Divide camp may impact CReSIS or other science project supportability. Mitigation: Facilitate clear and timely communications and status updates among project stakeholders; seek guidance from NSF AIL and ANT Representatives at McMurdo Station to resolve issues and determine priorities among science events. Review CReSIS, WAIS and other applicable schedules to ensure required resources on site do not exceed maximum recommended population established for the camp (60 persons). • Risk: Procurements may be delayed, causing either schedule delays or the need to ship items via USAP airlift. Mitigation: Prioritize purchase requests and place orders for long-lead time and high weight/cube items first.
Actions & Assistance	As of 11 MAR 08 RPSC Change Request (CR001) is pending. Change Request was submitted to NSF on 25 FEB 08. RPSC Financial Officer is tracking status with the NSF COTR.
Notes	None

Contractor Comments

RPSC Project Manager	The RPSC PM is concerned about the tight project schedule and leaves the schedule variance status at yellow. A corrective action plan was implemented during the previous two reporting periods to address the schedule variance associated with the design work. Although design activities have met adjusted milestones, progress towards awarding the subcontract for the design and manufacture of the UAV hangar has stalled due to pending approval of Change Request CR001.
RPSC Sr. Manager / Director	The project schedule status is currently stated as yellow. Timely review, comment, and approval of designs and RFIs/CRs are required for schedule to be maintained for the FY09 season. The PM and Director plan to address this issue with key stakeholders in the next month.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: AGAP (Antarctica's Gamburtsev Province)

Description: International Polar Year (IPY) Science project to support multiple grants studying geology in East Antarctica.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Alex Isern

Performance Variance / Corrective Actions

Technical	Red	Requirements definition incomplete due to late funding. 2007-08 requirements were defined in parallel with execution. 2008-10 seasons requirements will be further defined during the 2008 summer planning season. 2007-2008 execution was revised. Ten seismometers were installed via Pole rather than AGAP S. field camp. The camp at AGO 1 was not established, so all acclimatization was done via bunkhouse at Pole. 25% of AGAP S. camp was completed, this was less than hoped for due to late procurements and slow deliveries driven by late funding, poor weather, low ACLs, and less than expected labor productivity due to difficulty working in the cold and dry well above 13,000-feet pressure altitude on most days.
Schedule (SPI)	Red	SPI reflects spending ahead of plan and will correct itself in subsequent reporting periods, after re-baseline due to changing con-op. The baseline schedule was untenable due to late funding, procurement and logistics delays, and ensuing construction delays. To partially counter this, we changed the con-op to decouple science from construction, and we acclimated people and deployed science from South Pole, bypassing AGAP S. camp which was under construction.
Budget (CPI)	Red	Final budget numbers are still pending completion of formal estimate. Estimate is awaiting FEMC staff returning to RPSC from post-deployment leave.

Activities Report / Risk Predictions & Mitigations

Current Period	AGAP/GAMBIT planning meeting at Lamont Doherty. Field season review and incorporation of lessons learned.
Planned Activities	Camp planning for 2008/2009 field season is underway. Camp plans for AGAP S., AGAP N., and AGO 1 are being revised with a more rapidly deployable model as the goal.
Risks & Mitigations	The project faces significant schedule risk due to the ambitious schedule of the science and the limiting nature of the environment. The limits on how much physical work a person can perform at altitude requires a revised camp model and construction schedule. Possible mitigation strategies include modifying camp structures and concepts for a more rapidly deployable camp as well as splitting the aerial geophysical survey into two seasons to accomplish all the science objectives.
Actions & Assistance	NSF and International partners need to reach agreement on support plan for AGAP N. Camp. The AGAP N. Camp will need staffed fuel cache to support Twin Otter operations on site. Most likely support scenario is to plan airdrop of fuel and light camp infrastructure in November 2008.
Notes	Procurement support for SIP shortfalls were identified as critical to project success for this season. The initial science scope for the 2007/08 field season was not supportable as planned but was nonetheless successfully completed via South Pole (decoupling seismic station installation from the AGAP S. field camp).

Contractor Comments

RPSC Project Manager	The AGAP Project has serious support challenges to overcome. The aerial survey plan requires the AGAP S. Camp and AGAP N. Camp to be operational in early December 2008 and continue operations until mid-January 2009. There is very little room for delay for weather, equipment, or otherwise. As such, revising the camp infrastructure plan and schedule is inevitable. Probable compromise may include dividing the aerial survey work across two seasons in order to accomplish scientific objectives.
RPSC Sr. Manager / Director	The AGAP Project has serious issues for the FY08 planning season and FY09 execution of the plan, including requirements re-definition to properly scope, schedule, and re-baseline the budget. An NSF, PI, and RPSC stakeholder agreed to plan must be finalized with sufficient NSF funding in-time for engineering and 100% design to be NSF approved for construction and procurement by RPSC of materials and equipment for field structures at one to several camps in East Antarctica.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: South Pole Station Modernization

Description: Construct a new, elevated station; upgrade outlying buildings and demolition of old station facilities at Amundsen-Scott Station, South Pole, Antarctica.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Sandy Singer

Performance Variance / Corrective Actions

Technical	Green	There are no specific technical variations at this time.
Schedule (SPI)	Green	Although there are no discussions required, Wing B siding was completed this FY08 season. There is no corrective action since rescheduling to FY09 will have net zero or posative impact due to other work that was moved up and completed.
Budget (CPI)	Yellow	Current project Cost at Completion is [redacted] contingency for a total project Estimate at Complete of $[redacted] This is the same as last month and an overall increase of [redacted] An additional increase due to labor resources being added to the Cargo Facility electrical and decking tasks is being evaluated by RPSC. This would result in an increase of [redacted] to the Cost at Completion [redacted] and a contingency of $[redacted] Project is currently 93.59% spent with remaining cost of [redacted] and $[redacted] Remaining major costs include construction of Cargo Facility, Demolition & Retrograde, Elevated Station Siding, Punchlist, DHQ Project Support, Equipment procurement and other agency costs. The budget variance is kept at yellow due to FY08 season on-ice labor overruns and missing authorizations for SPTR-1, the DDC activities and the purchase of the manlift. Corrective actions are: 1) CR submitted to reprogram prior year underrun authorizations into FY07 (requires a contract modification) and 2) CR submitted to formalize (add) the SPTR-1, DDC and manlift approved activities to the FY07 authorization. These have not been approved by NSF yet. The project team is currently working to verify and validate all actual costs for the project. Overall corrective action for the total project cost will likely include scope reductions.

Activities Report / Risk Predictions & Mitigations

Current Period

Logistics Facility (LO Facility) – LO Facility was enclosed and the scheduled work completed on 1/31/08. Internal work per the winter schedule has started.
Arch Move – Scheduled Arch Raise worked was completed 1/30/08. There is a section of arch which was removed to allow access of equipment for construction of the LO Facility deck. This section will be closed during the early winter season. Arch defects and the appropriate repair methodologies are discussed in the Materials Issue section below.
Rod Well # 3 – Priority 1 punch list items are complete. The Conditional Occupancy date for Rod Well # 3 has been identified as 1/27/2008, but an action is required from NavFac approving the fire detection system before this can be completed.
Station Siding and Chamfer – Chamfer panel repair work is 100% complete. Siding work finished behind schedule with approximately 4200 sq. ft. (82%) of siding (out of 5100 sq. ft. scheduled) completed. Siding work was completed behind the FY08 schedule because of completing work that was, in fact, scheduled for FY09 and FY10 and installation of the wind deflector (for Station Dedication) which required 692 more man-hours than budgeted. Out-year work (FY09 and FY10) that was accomplished this season includes all of the chamfer panels and installing siding on the column caps on the upwind side of A2, A3, B2 and B3, and skiway side of B3 and B4. Finishing these tasks this season will result in a net gain of approximately 1350 man-hours in the siding overall schedule.
Vehicle Fueling Module (VFM) – The VFM is operational at the end of season, however, there is still one Priority 1 item that needs to be addressed. As soon as the Priority 1 item is completed, the Design Team will approve Temporary Occupancy until such time that an onsite inspection will allow Conditional Occupancy. The two missing components that were determined to be necessary for operation (fuel fusible link valve and the stainless steel braided dispensing hose) were both received at the South Pole. The VFM activities were unplanned for the FY08 summer season.

Planned Activities

Denver Headquarters:
• Complete effort to verify and validate actual project costs.
• Preparation of a report on dome demolition options and costs.
• Continue pursuing resolution of Cargo Facility, Rod Well and VFM design issues.
• Complete evaluation of impact on winter schedule due to unfilled craft positions.
• Continue evaluation of SPSM punch list priorities.
• Evaluation of South Pole retrograde planning.
South Pole SPSM Activities:
• Continue winter construction activities.
• Continue punch list for Rod Well #3.
• Complete punch list for VFM

Risks & Mitigations

The project team is currently working to verify and validate all actual costs for the project. Overall corrective action for the total project cost will likely include scope reductions.

Actions & Assistance

Request approval of CRs discussed in Budget variance discussion [FY07 Authorization Administrative Adjustment (SPSM 07 Admin CRxxx.doc) and FY07 Authorization Reprogram Adjustment (SPSM 07 CRxxx2.doc)].

Notes

• The Senior Project Specialist position has gone unfilled for 4 months. Though the position has been hired, the personnel will not be in the office until March 10.
• A subcontract position is being considered in order to assist with the validation process.
• The SPSM Project Engineer position is open and has been posted.

Contractor Comments

RPSC Project Manager

The FY08 season has been a complete success. In the opinion of this Project Manager, the use of the Baslers contributed to this success. This RPSC Project Manager is very concerned that the actuals for SPSM shown in Expedition may be incorrect. This is the reason for the verification and validation activity that is underway.

RPSC Sr. Manager / Director

The summer season has gone well. All major expectations have been met and some have been exceeded. There were some craft shortages for the winter season. The impact of this is currently being addressed.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: Power Improvements Phase I

Description: Phase one of the Power Improvements Project will consist of increased electrical and heat loop monitoring, development of a load shedding program, installation of a new duct system with a DDC controlled temperature sensor, a new feeder to the South Pole Telescope, an exhaust gas heat exchanger, and looking into alternative energy sources to lessen the stations dependence on fuel.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Sandy Singer

Performance Variance / Corrective Actions

Technical	Yellow	The original NPP Scope called for 10 subprojects. The arch cooling thimbles have been added to this project while the subprojects "Reduce Peaks From Ancillary Equipment," and "Reduce Ops Requirements for Continuous Demand" have been removed from the current schedule. This was verbally directed by the NSF ABM. A CR will be written to reflect these changes in the overall project scope and, when approved, the color will be changed to green. The exhaust gas heat exchanger has been moved to FY09 summer.
Schedule (SPI)	Yellow	By NSF verbal direction, part of the schedule was moved from winter FY08 to summer FY09. A CR will be written and the color will go to green.
Budget (CPI)	Yellow	A CR will be written to reflect a reduction in scope, extension of the project duration, and financial impacts. The project end date was extended due to a lack of resources for the FY08 winter and tasking had to be moved to summer FY09.

Activities Report / Risk Predictions & Mitigations

Current Period	• Completed 4 of the 5 planned flow meters. • Received all of the material for the installation of the new exhaust gas heat exchanger. • Completed the installation of the Power Plant Arch exhaust fan.
Planned Activities	• Change requests to reflect scope, cost, and schedule change. • Close out documentation for completed sub projects and any remaining submittals will be submitted to document control.
Risks & Mitigations	Acquiring qualified skilled trades continues to be an issue. This hiring season we will again utilize RPSC sourcing and hopefully this year increased incentives to work at RPSC will improve on our ability to secure qualified installation personnel including alternates.
Actions & Assistance	None
Notes	None

Contractor Comments

RPSC Project Manager	During FY08 we closed out several of the projects that were a part of the Power Improvements Project. RPSC was again forced to postpone a part of the project due to a lack of resources. This will now be moved into FY09 for completion during the Austral summer. One flow meter will also get moved into the Austral summer
RPSC Sr. Manager / Director	Field work is progressing with some delays due to resource restrictions at the Pole. This was not the #1 priority for the FY08 summer season. The PM is currently working on the CRs to reflect changes and delays that have occurred.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: McMurdo Station Power and Water Plant Upgrade Project

Description: This project upgrades the existing McMurdo Station Power Plant and Water Plant to modernize the existing power generation system, improve power system reliability, establish emergency power generation and water production systems, and improve station fuel efficiency through increased waste heat recovery. This project is scheduled in two major phases. Phase one is the Water Plant Power Generator System Installation. This includes the installation of outdoor switch cabinets, conduit and cable, constructing Water Plant building additions, installing two generators, switchgear cabinets, and associated piping and electric wiring and devices. Phase two is the Power Plant Power Generation System Installation. This includes constructing Power Plant building additions, installing four generators, switchgear cabinets, and associated piping and electric wiring and devices.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Sandy Singer

Performance Variance / Corrective Actions

Technical	Green	There are not current technical issues.
Schedule (SPI)	Green	The schedule currently reflects an SPI of .85. This will be the baseline measurement for Phase II. The SPI reflects both Phase I and II procurement costs and the installation of Phase I equipment. Phase II construction to start October 2008.
Budget (CPI)	Green	Actual cost and budget/estimate at complete are now on track with the approval of change order FY08-02. This was reviewed and approved February 2008 at NSF.

Activities Report / Risk Predictions & Mitigations

Current Period	A detailed review of the phase II construction schedule and the out year spending plan was completed with the NSF.
Planned Activities	On Ice: Working on the remaining insulation activities in Phase I of the water plant, and punchlist items. Denver: Start filling resource requirements for next season. Start placing TCN numbers in the schedule.
Risks & Mitigations	Resources: Meeting project requirements with qualified workforce and quantity required to maintain schedule. Working with the Human Resource department. Materials: On site materials need to be inventoried: Working with Logistics to have this work complete by the end of 2008.
Actions & Assistance	RPSC has received verbal approval of FY08-02, waiting for formal approval from NSF.
Notes	None

Contractor Comments

RPSC Project Manager	Phase I of the project is complete except for a few punchlist items. We have a small crew in the field working to close these out. Phase II is moving per plan. The team has started the planning for next season. We will be focusing on filling the required positions with the human resource department. The team is working with logistics to ensure all the remaining material is inventoried and a location.
RPSC Sr. Manager / Director	Phase 1 is complete and planning for Phase II is progressing as planned.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: MOGAS

Description: New Vehicle Fueling Station, Bulk Gasoline Storage Tanks, System for filling 55 gallon drums with AN-8 and diesel, area for filling day tank refilling vehicle (fuel mule), 1 mile of new gasoline pipeline, overall system upgrades to industry standards and environmental standards. **REVISED** ; New Vehicle Fueling Station, Bulk Gasoline Storage Tanks, 1 mile of new gasoline pipeline, overall system upgrades to industry standards and environmental standards

Project Team / Stakeholders

Project Mgr	Stakehold Dir	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	George Blaisdell

Performance Variance / Corrective Actions

Technical	Green	●NSF requested the Mogas project be brought to a close as soon as possible and at a reduced cost, a revised NPP redefining project scope was drafted and submitted in October 2006. ●Subsequent meetings including the NSF ABM,Design Team, RPSC operations and environmental departments have been held to refine the scope and estimate to complete. It has been determined by NSF that the scope of this project is be reduced to include the completion of the MOGAS tank modifications, pipeline and a dispensing system for MOGAS fuel only. ●A change request to complete the dispensing station and bring the project to a logical stopping point per NSF request has been submitted and is pending NSF approval. ●**Conceptual design has been clearly identified with NSF representative Dick Armstrong** ●An RFP for design only has been issued
Schedule (SPI)	Green	●The FY08 SPI of .10 reflects delayed work on road crossings , running pipe in the berms around the tank, and a design subcontract and vendor visits that were planned to have started. The pipeline and tank work will have to be completed next summer These tasks have slipped and are scheduled to take place FY09. Currently these delays do not affect any major milestones, and as the approved scope is decreased the SPI will catch up. These tasks are not part of the dispensing and are not part of the descope.
Budget (CPI)	Yellow	●FY 08 Procurement and construction related to dispensing was stopped pending re-scoping of the project at NSF request. This is reflected in the FY 08 budget and will reduce the overall project budget to complete. The budget to complete will be revised when we have an approved dispensing design and estimate based on the approved design.

Activities Report / Risk Predictions & Mitigations

Current Period	●Revise on ice schedule for completion of pipeline and tank modifications ●Work with NSF to complete SOW for design
Planned Activities	●Issue RFP for dispensing design ●Complete Swanson Rink design ●Complete on ice schedule
Risks & Mitigations	●Resource availability for on ice construction FY09 ●Project not meeting NSF cost expectations will be controlled through cost estimates being submitted with each design submission
Actions & Assistance	●The budgeted amount for the dispensing design is $[redacted] the lowest bid is $[redacted] we need a decision on weather to reprogram funds or request a change order
Notes	None

Contractor Comments

RPSC Project Manager	●The project scope of work has been clearly identified, NSF will be actively involved in the design process
RPSC Sr. Manager / Director	The re-design of the dispensing system will meet NSF expectations for the project and facilitate the completion of the project

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: New Bulk Tanks

Description: 5 Two million gallon bulk storage tanks for AN8 and JP5 to replace existing noncompliant bulk storage tanks and provide increased storage capacity.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	George Blaisdell

Performance Variance / Corrective Actions

Technical	Green	●The project will have to undergo a re-design to meet NSF requirements to bring the tanks on line as they are completed and reflect the changes made to the Redundant tank berm reconfiguration ● The current design contract with Swanson Rink will be closed out and the re-design will be competitively bid ●Dispensing for JP5 was to be in the Mogas Project, due to the de-scope of dispensing the complete design for the project will have to include dispensing. ●The Helicopter fuel filter upgrade project has negated the need for AN8 filtering included in the current design and will be removed from the project in the revised design
Schedule (SPI)	Green	●The schedule for this project has changed due to late notification to the subcontractor for two erection crews to install two tanks during the extended season. One tank only will be installed this season rather than the two originally planned. The schedule will be revised to reflect this change - RPSC was only able to obtain a partial delivery of the tank steel scheduled for the 08 vessel, the balance of material to complete the next two tanks will be stored at Port Hueneme and delivered on the 09 vessel. This will be taken into account in the rescheduling of the project. ●The Tank erection subcontractor is issuing daily reports, the redundant tank erection is at 75% as of 3/18/08 this is ahead of schedule.
Budget (CPI)	Green	●We are within budget.

Activities Report / Risk Predictions & Mitigations

Current Period	●Tank construction ●Review Swanson Rink 90% design
Planned Activities	●Continue redundant tank construction ●Complete Swanson Rink design
Risks & Mitigations	●Cost of total design completion higher than anticipated **Contract with Swanson Rink will be closed out and project design completion competitively bid** ● Dedicated crane will be required to erect the next tank FY09, if a dedicated crane is unavailable there may be significant down time charges from the tank erection subcontractor and possibility of not completing tank construction FY09 **Working with operations to ensure dedicated crane for project**
Actions & Assistance	None at this time.
Notes	None.

Contractor Comments

RPSC Project Manager	Currently working with NSF ABM to align the construction schedule with NSF fuel management schedule.
RPSC Sr. Manager / Director	Current installation of the first tank is progressing well and ahead of schedule. Redesignd scope will need to be resolved with the NSF prior to next summer season.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: AREV Replacement Planning

Description: A strategic direction to replace the suite of AREV applications in direct response to the OIG Finding No. 06.01.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	All RPS Directors	[redacted]	Pat Smith

Performance Summary

Charge #:	Project ID#:	Cost Estimate:	Review Month:	Cost as of EOM:
R-PS87-256G03	256-07-12	Class 5 : +50 to -20 %	Feb-2008	Feb-2008

Finance	Authorized Funds	Budget At Completion	Estimate At Completion	Planned Value	Actual Cost	Perf % Complete	Sched % Complete	Cost % Complete	Earned Value	CPI	SPI
[redacted]											

Performance Variance / Corrective Actions

Technical	Green	Project scope remains consistent.
Schedule (SPI)	Red	Delay in briging the consulting team on to perform certain activities is causing the schedule performance to be down against what was planned. Will shorten consultant review times and focus on priority activites to bring schedule back on-track.
Budget (CPI)	Green	Current budget is consistent with project budget.

Activities Report / Risk Predictions & Mitigations

Current Period	Planned: Risk Reduction activities, Continue Business Impact Assessment, Start "To-Be" Business Processes, Continue Classification of Data Elements Completed: AREV System Inventory, First Step in Defining Longevity Issue Continued: People Stream and Supply Chain Management documentation, Risk Reduction activities, Evaluate vendor market space based on current requirements, Business Impact Assessment, Classification of Data Elements and Creation of Data Dictionary Started: "To-Be" Business Processes Placed on Hold: None
Planned Activities	Planned for March: Complete Risk Reduction activities, Continue Business Impact Accessment, Continue "To-Be" Business Processes, Continue Classification of Data Elements and Data Dictionary, Conduct Level Setting Meeting w/ NSF, Have Process Ownership Discussion w/ NSF, Determine NSF Business Processes (if still in scope).
Risks & Mitigations	None
Actions & Assistance	None
Notes	None

Contractor Comments

RPSC Project Manager	The project has had a minor set back regarding 'AS-IS' process data loss due to a hard drive failure. This information had to be re-created delaying the review cycle. This has been made up by adding more resources to solve the issue. Delay in bringing the consulting team later than planned due to the changes from the NSF kick-off meeting is causing the schedule performance to be low as they are high dollar resources. It's necessary to ensure they are managed appropriately to bring the schedule back into focus.
RPSC Sr. Manager / Director	The Project Manager ihas taken aggressive action to bring the schedule back on track following delays to bring the sub-contractor team on board. The project is forecasted to return to schedule within project authorized funding.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: McMurdo WAN Bandwidth Improvement (MWBI) Project 06/07

Description: This PSR is reporting on the FY08 extension of MWBI 06/07 project phase. The FY08 extension objectives are to process CRs, Acceptance Inspections, and project closure documentation. The 1st project phase (05/06) completed successfully on scope, on schedule, and under budget.
The MWBI 06/07 phase performed lifecycle upgrades on critical off-continent communication components by completing the design, procurement, and installation of the microwave and multiplexer systems between McMurdo and Black Island. These installations include set up and securing of concrete pads, commuications shelters, and associated utilidors.
The CRs being processed are primarily for Safety, Property Damage Avoidance, and Environmental reasons.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Pat Smith

Performance Variance / Corrective Actions

Technical	Green	• All functional, safety, and environmental project deliverables have been delivered. On station NSF inspections were not performed during last summer season. A RFI will be developed and submitted to NSF to discuss options to proceed with project closure.
Schedule (SPI)	Green	• PM has been detailed to NPOESS. This has delayed completion of RFI with options to close project and remaining project closure documentation.
Budget (CPI)	Green	• The project is under spent at this time due to lack of PM resources to complete the project closure tasks.

Activities Report / Risk Predictions & Mitigations

Current Period	• Complete the permanent installation of the fuel oil tank for NSF Berthing Bldg 125 (CR -02) • Complete the fabrication and installation of the Bldg 016 Footbridge (CR-03)
Planned Activities	• When PM and project control resource are available, develop RFI to NSF ABMs to present options for project closure or extension for on-station inspections to be performed next season.
Risks & Mitigations	None - All functional project deliverables have been delivered.
Actions & Assistance	• Once the project closure RFI is delivered to NSF ABMs, the PM will collaborate with the ABMs to plan a project closure solution.
Notes	None

Contractor Comments

RPSC Project Manager	The overall project technical scope has been completed within the planned season schedule. NSF Facilities Engineering Inspection team was not able to perform the on-ice inspections of the new communications shelters. The project can remain in a hold status for the inspections to be planned for next season with completing the project closure documentation to follow the inspections.
RPSC Sr. Manager / Director	All project deliverables are complete. Project is awaiting NSF acceptance.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: McMurdo Station NPOESS Program

Description: This report covers the scope of the McMurdo National Polar Orbiting Environmental Satellite System (NPOESS) program which includes planning, estimating, environmental & safety assessments, design, construction, test, implementation, operation, and maintenance for the following projects:
- Black Island 7.2m Satellite Antenna upgrade to Ku-band - Transition to new Satellite provider (OPTUS Australia) - new McMurdo T-Site 4m Satellite Receptor Antenna - new McMurdo Fines-Site 4m Satellite Receptor Antenna - Black Island 11m Satellite Antenna upgrade to Ku-band - McMurdo Network Infrastructure Upgrade - Utilidor upgrade to T-Site - Utilidor to Fines-Site - and the following three new additional projects soon to be estimated - new NASA McMurdo Groundstation 2 (MG2) Antenna - Black Island Infrastructure Power Upgrade - NASA MG1 Depot Level Maintenance
The NPOESS program requires Raytheon Polar Services collaboration with the following agencies:
Integrated Program Office (IPO) - NOAA - NSF - NASA - Raytheon IIS - OPTUS - and European Meterlogical Satellite (EUMETSAT)

Project Team / Stakeholders

Program Mgr:	Stakehold Dir:	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	Pat Smith

Performance Variance / Corrective Actions

Technical	Green	• The reporting PM is newly assigned to the program. The program's technical scope planned for the past season was achieved on schedule and on budget - or better. Percent complete will be reported after the IMS schedule is refined and rebaselined.
Schedule (SPI)	Green	• There are no significant schedule variance concerns for past performance. The program's schedule is being updated to extend through FY09 and the following out years with known delivery dates.
Budget (CPI)	Green	• The program's budget is under spent for FY08. The project schedule and budget are being updated and re-estimated for the remainder of the project (FY08 through completion). These changes are in response to new scope including support of the MG2 receptor reconstruction and the initial planning for Black Island Power Upgrade.

Activities Report / Risk Predictions & Mitigations

Current Period	• Worked to update the schedule with on-ice completions, to update the remainder of FY08 tasking, to extend the schedule into FY09 and beyond. • The PM worked to collaborate planning for the new scope to support NASA-EUMETSAT development of MG2. • Began development of the NSF-IPO Service Level Agreement.
Planned Activities	• Continue task planning/scheduling for next and follow-on seasons as specifications are available. • Once the schedule is solid for a baseline, the schedule will be submitted for formal estimation. • Continue to facilite NASA-IPO-NOAA specifications collection for MG2 & MG1. • Initiate Black Island Power upgrade specification effort. • Develop and submit RFIs/CRs based on the results of the new formal estimate, new MG2, and Black Island Power Upgrade specifications.
Risks & Mitigations	None.
Actions & Assistance	None.
Notes	At the request of IPO-RIIS, the schedule for the 4m Fines project was slipped one year into FY09 which has reduced spending requirements for FY08.

Contractor Comments

RPSC Program Manager	The project schedule is being re-baselined based on new information, deferrred tasks, and added scope. These changes are being estimated and will be presented to the NSF via the standard RFI/CR process. Design activities for next season's tasks under the original scope continue as scheduled and funded.
RPSC Sr. Manager / Director	The program's technical scope planned for the past season was achieved on schedule and on budget - or better. The project schedule and budget are being updated and re-estimated for the remainder of the project (FY08 through completion). These changes are in response to new scope including support of the MG2 receptor reconstruction and the initial planning for Black Island Power Upgrade.

Project Status Report

Raytheon Polar Services

Executive Summary February-08

Project Title: Microwave Landing System (MLS)

Description: The project is a Proof of Concept for co-located MLS components to successfully function in the Antarctic environment. This includes building a prototype that attains FAA certification and to construct/operate four systems for use at the following locations: Ice Runway main and crosswind, Williams Field main, and Pegasus Airfields.

Project Team / Stakeholders

Project Mgr:	Stakehold Dir	Executing Dir:	NSF Sponsor:
[redacted]	[redacted]	[redacted]	M. Sheuermann

Performance Variance / Corrective Actions

Technical	Yellow	The electrical and fuel connections for MLS-01 were not reinstalled by FEMC following installation of Citadel siding. This renders the system inoperable. While the unit is scheduled as a standby for next season, it must be operable for use as a backup. To mitigate, the project has requested this be resolved during Winfly 08 to ensure system availability, as planned, for Mainbody service.
Schedule (SPI)	Yellow	Delays to a variety of FEMC tasking for all units, scheduled in IMS for Mainbody 07-08, have minimized the available window for work completion in this fiscal year. Issues include: fire detection/HVAC modifications, reconnection of electrical and fuel connections, and aspects of the mechanical building upgrades. To mitigate, the project proposes that FEMC complete this work during Winfly to ensure system operability by Mainbody and the FAA certification schedule. Also, the project will utilize its FY09 contingency funding to satisfy a support request from SSCC/SOPP and to oversee completion of pending FEMC maintenance, originally scheduled for Mainbody 07-08.
Budget (CPI)	Green	The project remains under budget due to labor shortfalls related to scheduled FEMC maintenance. Two change requests, submitted in 2007, remain pending, skewing budget figures.

Activities Report / Risk Predictions & Mitigations

Current Period	MLS units 01, 02 and 03 were winterized. MLS-04 is winterized at Pegasus Airfield, ready for immediate Mainbody use. Project personnel redeployed.
Planned Activities	Documentation is being finalized in preparation for the April MLS Transition Meeting. TDY personnel arrive at Denver and Port Hueneme to finalize documentation and complete the parts test and inventory for transfer. Four additional units are scheduled for retrieval to add to spare parts.
Risks & Mitigations	Delays in the FEMC work schedule for MLS, scheduled in the IMS for completion during Mainbody 07-08, created two risks: 1) As electrical and fuel connections were not replaced following building maintenance, MLS-01 in its current state is not available as a backup unit for operation at beginning of season as required; 2) Other scheduled work, also not completed as planned, lessens the window of opportunity for timely completion prior to the open of Mainbody and scheduled FAA flight certification. To mitigate both issues, the project has requested that FEMC complete the work during Winfly.
Actions & Assistance	NSF has CR #9 and 11 submitted to them for review and approval. NSF approval of pending change requests will improve budget outlook. FAA approval of pending inter-agency support request will ensure unit retrieval can occur during available window. NSF approved supplemental [redacted]0 in FY05 which has not been transferred. (The budget analysis reflects that amount).
Notes	None

Contractor Comments

RPSC Project Manager	If the requested mitigation actions occur by FEMC, the project schedule for Mainbody 08-09 will be not compromised. In all other aspects, the project is on schedule and budget, following another successful certification and season of operability.
RPSC Sr. Manager / Director	Transfer of O&M of the MLS systems to SOPP will conditionally occur on 30 Apr 2008. Project will remain open to meet SOPP requested support for FAA Certification and system set up scheduled for WINFLY 08 and to complete FEMC building modifications.

FINANCIAL PERFORMANCE DATA DETAIL

This section reported under a separate cover.

Distribution:

National Science Foundation: 12

RPSC:
Program Director – 1
Director of Operations – 1
Executive Assistant - 2