

EXHIBIT 4
Deep Space Network Sample Work Breakdown Structure (WBS)

Total Program (Level 1)

1.0 Management (Level 2)

- 1.1 Contract Management
 - 1.1.1 Financial Management
 - 1.1.2 Procurement and Subcontracts Management
 - 1.1.3 Safety and Health Management
 - 1.1.4 System Safety Management
 - 1.1.5 Environmental Management
 - 1.1.6 Physical Security Management
 - 1.1.7 Information Technology Security Management
- 1.2 Facilities Management
- 1.3 Property Management
- 1.4 Administrative Infrastructure Support
 - 1.4.1 Office Support
 - 1.4.2 Computing Infrastructure
- 1.5 Program Integration
- 1.6 Risk Management
- 1.7 Training and Certification Program
- 1.8 Contract Performance Metrics

2.0 Goldstone Deep Space Communications Operations (Level 2)

- 2.1 Deep Space Communications Complex Management
 - 2.1.1 Radio Frequency Coordination
 - 2.1.2 GDSCC Site Security
 - 2.1.3 Safety and Health Compliance
 - 2.1.4 Environmental Compliance
 - 2.1.5 Energy and Water Management
 - 2.1.6 Intracomplex Communications
 - 2.1.7 Information Management
 - 2.1.8 Support Services
 - 2.1.8.1 Sanitation/Custodial Services
 - 2.1.8.2 Landscaping Services
 - 2.1.8.3 Food Services
 - 2.1.8.4 Transportation
 - 2.1.8.5 Heavy Equipment
 - 2.1.9 Outreach Program Activities and Products
 - 2.1.10 DOD Interface
 - 2.1.11 Air Space Coordination
- 2.2 Real-Time Operations
- 2.3 Antenna/Mechanical Maintenance
 - 2.3.1 Structural Assembly
 - 2.3.2 Mechanical Assembly
 - 2.3.3 Cassegrain Assembly
 - 2.3.4 Special Tooling and Instrumentation
- 2.4 Technical Systems Maintenance

- 2.4.1 Goldstone Technical Systems Maintenance
- 2.4.2 Network Maintenance Support
- 2.5 Facilities and Infrastructure Maintenance and Construction/Modification
 - 2.5.1 Technical Plant Maintenance
 - 2.5.1.1 Heating, Ventilation, and Air Conditioning
 - 2.5.1.2 Plumbing
 - 2.5.1.3 Electrical and Power Distribution System
 - 2.5.1.4 Power Plant
 - 2.5.1.5 Water Supply
 - 2.5.1.6 Airport
 - 2.5.1.7 Buildings
 - 2.5.1.8 Roads and Drainage Systems
 - 2.5.1.9 Septic System and Oxidation Ponds
 - 2.5.1.10 Landfill
 - 2.5.1.11 DSN Facilities Master Plan
 - 2.5.2 Heavy Equipment
- 2.6 Advanced Systems Operations and Maintenance
 - 2.6.1 GDSCC Technology and Science Support
 - 2.6.2 High-Power Transmitter Test Facility
- 2.7 Technical Services
 - 2.7.1 Workmanship Assurance
 - 2.7.2 Documentation
 - 2.7.3 Training and Certification
 - 2.7.4 Logistics
 - 2.7.5 Supply Disbursement
 - 2.7.6 GDSCC Procurements

3.0 Network Operations and Services (Level 2)

- 3.1 Network Operations
 - 3.1.1 Control Center Real-Time Operations
 - 3.1.1.1 Real-Time Operations Control and Monitoring
 - 3.1.1.2 Option to Relocate NOCC and Data Systems
Operations Monitor Functions
 - 3.1.1.3 Central Communications Terminal Operations
 - 3.1.2 Operations Support Services
 - 3.1.3 Control Center Maintenance
 - 3.1.3.1 DSOCC Maintenance
 - 3.1.3.2 Central Communications Terminal Maintenance
 - 3.1.4 Performance Analysis
 - 3.1.4.1 Performance Analysis
 - 3.1.4.2 Performance Metrics Generation
 - 3.1.5 Network Activities Planning and Scheduling
 - 3.1.5.1 Resource Analysis Team
 - 3.1.5.2 Network Activities Planning and Scheduling
 - 3.1.6 Mission-Specific Planning and Preparation
 - 3.1.7 Mission-Independent Products and Procedures (SOPs)
- 3.2 Network Support Services
 - 3.2.1 Development and Test Services
 - 3.2.2 Change Management Tools and Administration
 - 3.2.3 Network Documentation

- 3.2.4 Network Maintenance Support
- 3.2.5 Logistical Services

4.0 Network Engineering (Level 2)

- 4.1 DSN Engineering
 - 4.1.1 Facilities Implementation Planning
 - 4.1.2 Antenna-Mechanical Network Engineering
 - 4.1.2.1 Structural Engineering
 - 4.1.2.2 Mechanical Engineering
 - 4.1.2.3 Cassegrain Assembly
 - 4.1.2.4 Special Tooling and Instrumentation
 - 4.1.3 Microwave Network Engineering
 - 4.1.4 Data-Processing-Subsystems Network Engineering
 - 4.1.5 Communications System Network Engineering
 - 4.1.6 Test Engineering
- 4.2 Product Development and Sustaining Engineering
 - 4.2.1 Facilities Development and Sustaining
 - 4.2.1.1 Facilities Subsystem Engineering
 - 4.2.1.2 Facilities Design Engineering
 - 4.2.2 Test Product Development and Sustaining Engineering

5.0 Directed Efforts/Tasks (Level 2)

- 5.1 Product Development and Sustaining
- 5.2 Construction and Major Modifications to Existing Facilities
- 5.3 Short-Term Work
- 5.4 Changes to the TDD
- 5.5 Emergency Requirements