

## TABLE OF CONTENTS

	<u>Page</u>
Budget Summary .....	1
Confinement Systems Program .....	9
Tokamak Systems .....	9
1. Princeton Large Torus (PLT).....	10
2. Neutral Beam Lines for PLT .....	12
3. ORMAK .....	13
4. ORMAK-Upgrade .....	15
5. Alcator .....	16
6. Alcator C.....	17
7. Doublet III .....	18
8. Doublet IIA .....	19
9. Poloidal Divertor Experiment (and FM-1) .....	20
10. Adiabatic Toroidal Compressor (ATC) .....	22
11. Impurity Study Experiment (ISX) .....	23
12. Other Supporting Experiments .....	24
Mirror Systems .....	25
1. 2X-IIB and 2XB .....	26
2. 2XC .....	29
3. MX .....	30
4. BB-IIT .....	31
5. BB-MB (Baseball-multibeam).....	32
6. Mirror Q-enhancement .....	34
7. LITE .....	35
8. MRTX (Mirror Reactor Technology Experiment) .....	37
9. QX .....	39
10. EBT-I, EBT-S .....	40
11. EBT-II .....	42
12. Field-Reversal Theta Pinch (FRTP).....	43

	<u>Page</u>
High Density Systems .....	45
1. Scyllac .....	46
2. Staged Scyllac .....	48
3. Large Staged Scyllac (LSS) .....	49
4. Staged Theta Pinch .....	51
5. Toroidal Z-Pinch (ZT) Program .....	53
6. Scylla IV-P .....	55
7. Scylla IV-P/Gun Injection .....	57
8. Long Linear Experiment (LLX) .....	58
9. Conceptual Studies .....	59
Technical Projects Office .....	60
1. Tokamak Fusion Test Reactor (TFTR) .....	61
2. Rotating Target Neutron Source-II (RTNS-II).....	64
3. Intense Neutron Source (INS) .....	65
Development and Technology Program .....	66
Magnetic Systems .....	66
1. Superconducting Magnets .....	67
2. Base Program and unselected MDF.....	72
3. Large Coil Project (MDF) .....	74
4. High Field Test Facility (MDF) .....	76
5. Energy Storage and Transfer .....	78
6. Base Program and unselected MDF .....	80
7. Superconducting Homopolar Motor-Generators (MDF).....	82
Plasma Engineering .....	84
1. Neutral Beam Development - Base Program .....	85
2. 150 keV Test Stand (MDF) .....	89
3. 200 keV High Voltage Test Stand (MDF) .....	91
4. TFTR Prototype (MDF) .....	93
5. Advanced Beam Test Facility (ABTF) (MDF) .....	94
6. Alternate Heating .....	95
7. Direct Energy Conversion .....	98
8. Vacuum Component Development .....	100
9. Plasma Maintenance and Control .....	102

	<u>Page</u>
Fusion Reactor Materials .....	104
1. Alloy Development for Irradiation Performance .....	105
2. Plasma-Materials Interaction .....	107
3. Special Purpose Materials Development .....	108
4. Damage Analysis and Dosimetry .....	109
5. Radiation Source Development and Operation .....	111
6. d(Li,n) High Energy Neutron Source .....	113
7. Multi-Beam Radiation Facility (MBRF) .....	114
Fusion Systems Engineering .....	115
1. Advance Design .....	116
2. Systems Studies .....	118
3. Blanket and Shield .....	119
4. Tritium Processing and Control .....	121
5. Plasma Systems .....	123
6. Plant Systems .....	124
Environment and Safety .....	125
1. Environmental Assessment .....	126
2. Facility Safety Analysis .....	127
3. Fusion Reactor Safety Research .....	128
Applied Plasma Physics .....	129
Theory .....	127
1. Plasma Properties .....	130
2. Plasma Production and Heating .....	132
3. Computer Applications .....	134
4. Atomic, Molecular and Nuclear Physics .....	136
5. Exploratory Concepts .....	137
Experimental Plasma Research .....	138
1. Plasma Properties .....	139
2. Plasma Production and Heating .....	142
3. Measurements and Instrumentation .....	145
4. Atomic, Molecular and Nuclear Physics .....	147
5. Fusion Plasma Research Facility - FPRF .....	149
6. Exploratory Concepts .....	150

	<u>Page</u>
National Computer Network .....	152
1. Computer Services and Technology .....	153
Possible Future Experiments .....	154
1. LASL HBT .....	155
2. Fast Liner Experiment .....	156