CDMS II Baseline Budget

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Contents

1. Introduction
    - 1.1. CDMS II funding history
    - 1.2. Revision History
2. CDMS Funding
    - 2.1 Overview
    - 2.2 Project funds
    - 2.3 Other funds
3. Baseline Budget : Summary Tables
    - 3.1 Work Breakdown Structure
    - 3.2 Budget: 6-yr cumulative
    - 3.3 Annual profiles (to WBS 3)
        - 3.3.1. All funds combined: Allocation years
        - 3.3.2. All funds combined: Project Reporting years
        - 3.3.3. NSF
        - 3.3.4. DOE
        - 3.3.5. FNAL
    - 3.4 Allocation to Institutions
    - 3.5 Personnel
    - 3.6 Contingency
4. Baseline Budget: Detailed Tables
    - *4.1. All Funds combined
    - 4.2. NSF
        - *4.2.1 CWRU
        - *4.2.2. PU
        - *4.2.3. SCU
        - *4.2.4 UCB
    - 4.3. DOE Project
        - *4.3.1 DOE Groups to WBS 4
    - 4.4. FNAL
        - *4.4.1 FNAL to WBS 4

Appendix: Parameters used

Notes:

**** Not included in summary version of this document***
All amounts shown in $K.
All costs fully loaded - overhead,benefits, tuition included.

1. Introduction

1.1. ***CDMS II funding history***

The CDMS II project is conducted by a collaboration of 10 groups at 7 universities and 3 National Laboratories. Funding for the project is provided by the Department of Energy and the National Science Foundation in a number of separate grants or allocations. Of these funds, three provide the primary project funds for the experiment's construction costs. These are: a major grant from the NSF, a project construction award from the DOE HEP University Program, and a project construction allocation from Fermilab. These funds are coordinated by the Project Managers.

There are in addition eight others funds used for the project, primarily providing support for scientific personnel. These are administered by the various university groups.

A proposal for the CDMS II project was submitted jointly to the NSF, DOE, and FNAL management in April 1999. This proposal included a bottom-up 5-year cost estimate. This was soon thereafter revised to contain a 6-year cost estimate in order the allow adequate operating time to reach the experiment's scientific goals. The proposal with the 6-year cost estimate was approved and Fermilab and the DOE provided the startup funding in 1999. The NSF grant started in January 2000.

With the funding in place, the Project Managers used the proposal cost estimate to establish the project budget. Some revisions were necessary to reflect the actual start date and also some actual costs for first year expenses were available. The project construction schedule was developed and we have attempted to coordinate this budget to be consistent with that.

This document provides a baseline budget for the major project funds. It includes a proposed allocation to the various institutions. Budgets are established to WBS level 3 and this is what is used for cost tracking. However, this document also includes estimates to WBS level 4 in order to provide justification for the level 3 numbers.

1.2. Revision History

June 2001 v 1.0 This document supercedes all budget-related documents for CDMS II.

For reference, previous budget information was provided in:

Oct 2000	CDMS II financial plan (preliminary version of v1. Baseline.)
June 1999	Budget book – details to WBS 5
April 1999	Proposal

2. CDMS II Funding

2.1. Overview

The funds used for the CDMS II project are:

Fund No.	Grant or Alloc.	Description	Agency	Lead Inst.	FY start	Approval Status
PROJECT FUNDS						
1	NSF	NSF main grant	NSF	UC Berkeley	1-Jan	Approved
2	DOE_Proj	Project Funds	DOE Univ	FNAL	1-Oct	Approved
3	FNAL_Proj	FNAL Eqpt & Operating	DOE Lab	FNAL	1-Oct	Approved
OTHER FUNDS						
3.1	FNAL_Base	FNAL Personnel	DOE Lab	FNAL	1-Oct	Annual App.
4	UCSB_Base	UCSB Base	DOE Univ	UC Santa Barbara	1-Apr	Annual App.
4.1	UCSB_Oper	UCSB Oper Supplement	DOE Univ	UC Santa Barbara	1-Apr	to be requested
5	SU_Base	SU Base	DOE Univ	Stanford	1-Jan	Annual App.
5.1	SU_Oper	SU Oper Supplement	DOE Univ	Stanford	1-Jan	to be requested
6	LBNL_Base	LBNL Base	DOE Lab	LBNL	1-Oct	Annual App.
6.1	LBNL_Oper	LBNL Oper Supplement	DOE Lab	LBNL	1-Oct	to be requested
7	NSF_Career	Career Grant	NSF	CWRU	1-Aug	Approved
8	NSF_ARI	ARI grant	NSF	Stanford	1-Sep	Approved in ’95

INSTITUTIONS

CWRU	Case Western Reserve University
FNAL	Fermilab
LBNL	Lawrence Berkeley National Laboratory
NIST	National Institute of Standards and Technology
PU	Princeton University
SCU	Santa Clara University
SU	Stanford University
UCB	Univ. of California, Berkeley
UColD	Univ. of Colorado, Denver
UCSB	Univ. of California, Santa Barbara

The intended coverage of these funds is as follows:

Fund No.	Grant or Allocation	Effort Supported
PROJECT FUNDS		
1	**NSF**	All effort at UCB,CWRU,PU,SCU: Scientist support (fac,phys,postdoc,grad). Salary & Travel Technical Staff (eng,tech,undergrads,admin.) Salary & Travel Project management and admin. at UCB Cold Hardware/Electronics Design, Procurement, Construction Warm Electronics: Design and testing Detector prep and testing Background MC studies and measurements Experiment operations
2	**DOE_Proj**	Project support at SU,UCSB,LBNL,NIST,UCol: Technical Staff (eng,tech,undergrads) Salary & Travel Detector production, preparation, and testing Cold Electronics: SQUIDs design, fab, testing Shield design, construction, installation DAQ design, procurement, commissioning
3	**FNAL**	Equipment and Operating Expenses Travel Soudan Infrastructure and enclosures setup: procurement, construction, and installation Cryo system: icebox procurement, construction, and installation Warm Electronics design, procurement, assembly, installation. DAQ design Experiment operations
OTHER FUNDS		
3.1	**FNAL_Base**	Scientific and Technical Personnel
4	**UCSB_Base**	Scientist salary & travel Technical Staff (eng,tech,undergrads) Salary & Travel Shield Design and assembly DAQ Design
4.1	**UCSB_Oper**	Experiment operations (years 4-6)
5	**SU_Base**	Scientist salary & travel Stanford Detector Development - K15
5.1	**SU_Oper**	Experiment operations (years 4-6)
6	**LBNL_Base**	Scientist salary & travel
6.1	**LBNL_Oper**	Experiment operations (years 4-6)
7	**NSF_Career**	Scientist salary & travel (at CWRU)
8	**ARI**	SUF facility setup

2.2. Project Funds

2.2.1. NSF Grant

This is a $9.3M 6-year grant from the NSF. UC Berkeley is the lead institution and Bernard Sadoulet is the PI. The grant covers from Jan 1, 2000 through December 31, 2005. It is awarded in performance periods as follows:

	Period 1	**Period 2**	**Period 3**	**Period 4**	**Period 5**
Project Months	1-28	29-36	37-48	49-60	61-72
Start	1/1/00	5/1/02	1/1/03	1/1/04	1/1/05
End	4/30/02	12/31/02	12/31/03	12/31/04	12/31/05
Amount	$4,000,000	$1,117,202	$1,400,524	$1,428,176	$1,136,104

This grant supports *all* effort on CDMS at Berkeley, Case Western, Santa Clara, and Princeton on CDMS II. Subawards are established from Berkeley to the other institutions. Funds support a) project construction efforts, including technical, project management, and administratve personnel, b) operations expenses such as travel and supplies, and c) scientist support such as data analysis, support of post-docs and graduate students and travel to conferences.

Note: In this document all NSF amounts are referred to calendar years.

2.2.2. DOE Award

This is a commitment of $5.3M over 6 years from the DOE University Program for a supplement to the base grants (at Stanford and UC Santa Barbara) for the construction of CDMS II. This supports only project construction costs, such as technical personnel, equipment, and installation costs. It supports work at Stanford, Santa Barbara, LBNL, NIST, and Colorado-Denver.

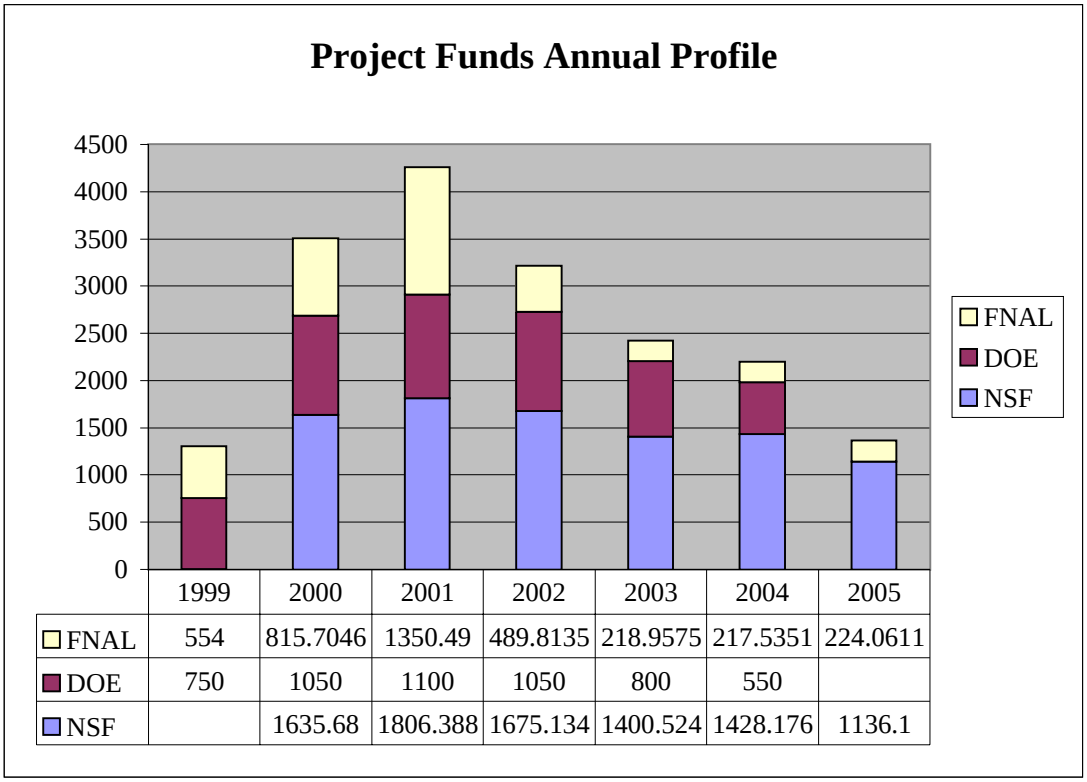
These funds are administered by the Project office at Fermilab as “pass-through” funds, supporting work at the other institutions. The project manager establishes the annual allocations to the various groups and holds funds in reserve for contingency

These funds are awarded and allocated on US government fiscal year basis (Oct 1 start).

2.2.3. *FNAL Project funds*

The funds included in this budget are the FNAL equipment and operating allocations for the construction and operation of CDMS II. These project funds are distinguished from the FNAL base funding which supports personnel.

These funds are awarded and allocated on US government fiscal year basis (Oct 1 start).



	1999	2000	2001	2002	2003	2004	2005
FNAL	554	815.7046	1350.49	489.8135	218.9575	217.5351	224.0611
DOE	750	1050	1100	1050	800	550	
NSF		1635.68	1806.388	1675.134	1400.524	1428.176	1136.1

Note:

Note: in the above graph FNAL and DOE funds correspond to Oct-1 ***fiscal years*** *while the NSF funds correspond to* ***calendar years.***

2.3. Other Funds

The other funds used to support the project are listed above on p. 4. These include:

- c o ntinuing base support of the Stanford and Santa Barbara groups. These are renewed annually.
- s u p p ort of scientific personnel at LBNL from the base program
- O p erating supplements to the above. It is projected that when the experiment is in operation, supplements to the base grants to support travel and technical personnel will be needed. *These operating supplements have not yet been requested.* This will proceed when necessary.
- M iscellaneous NSF grants: a career award to D. Akerib at CWRU and an ARI (Academic Research Infrastructure) grant to Stanford and Berkeley.

3. Baseline Budget

A baseline budget for the project has been established for the project grants within the award profiles. The project schedule calls for a four year construction and commissioning period: 2000 through 2003, followed by a two year operations period. However, due to the modularity of the detector installation, the construction and operations phases will overlap: we will be operating the experiment with a partial complement of detectors during the “construction” phase and will still be operating the detector test facilities during the “operations” phase in order to study the detector performance.

The project budget is constructed according to the work breakdown structure (WBS), which is shown to level 4 on the following page. This is followed by various summary tables.

3.1 Work Breakdown Structure

WBS_no level:	Task 1	2	3	4
1.	Construction			
1.1.		Integration and Running		
1.1.1.			SUF and Test Facility Operations	
1.1.1.1.				SUF Test Facility
1.1.1.2.				UCB Test Facility
1.1.1.3.				CWRU Test Facility
1.1.1.4.				SU/SCU Test Facility
1.1.1.5.				SU 15uW Test Facility
1.1.2.			Det. Install/commission at Soudan	
1.1.2.1.				Det system operation
1.1.2.2.				Det system setup/supplies
1.1.2.3.				Sci personnel/travel
1.1.3.			Soudan Ops/Science	
1.1.3.1.				Experiment operations
1.1.3.2.				Science support
1.1.4.			Scientific Communication	
1.1.4.1.				Meetings/conferences
1.1.4.2.				Education/outreach
1.2.		Detectors		
1.2.1.			Det Production	
1.2.1.1.				Planning & Monitoring
1.2.1.2.				Ge/Si Procurement
1.2.1.3.				Wafer Processing
1.2.1.4.				Detector mounting
1.2.2.			SQUID Amplifier Production	
1.2.2.1.				SQUID Chip production
1.2.2.2.				SQUID Card production
1.2.2.3.				Testing
1.2.3.			Cold Hardware & Electronics Prod	
1.2.3.1.				Design & Assembly
1.2.3.2.				Towers
1.2.3.3.				Cold Electronics
1.2.3.4.				Cold Elec Testing
1.2.4.			Det Test & Characterization	
1.2.4.1.				Det Mounting/prep
1.2.4.2.				Det Transport
1.2.4.3.				Det Testing
1.3.		Warm Electronics		
1.3.1.			Front End Elec. Prod	
1.3.1.1				Design & Assembly
1.3.1.2.				ZIP bds
1.3.1.3.				RTF bds
1.3.1.4.				Crates & PS
1.3.1.5.				Cables
1.3.1.6				Test Stands
1.3.2.			Warm Elec. Testing & Installation	
1.3.2.1.				Testing Personnel
1.3.2.2.				Testing Supplies & travel
1.4.		DAQ & Information Management		
1.4.1.			DAQ	
1.4.1.1.				Design, Assemble, Test
1.4.2.1.				DAQ Hardware
1.4.2.			Information Management	
1.4.2.1.				Design, code, test
1.4.2.2.				Hardware
1.4.2.3.				Software
1.4.3.			Data Reduction	
1.4.3.1.				Offline Hardware
1.4.3.2.				Software
1.5.		Shield, Veto, Backgrounds		
1.5.1.			Muon Veto system	
1.5.1.1.				Veto Design & Construct
1.5.1.2.				Veto Components
1.5.1.3.				Assemble and test veto at Soudan
1.5.1.4.				Outer Veto
1.5.2.			Shield Construction and Installation	
1.5.2.1.				Shield design & Assembly
1.5.2.2.				Shield Components
1.5.2.3.				Extra Shielding
1.5.3.			Phys Design & Bkgds	
1.5.3.1.				Neutron calc & meas
1.5.3.2.				Gamma Screening
1.5.3.3.				Surface Contamination
1.5.3.4.				Radon Suppression
1.5.3.5.				Alpha Screening
1.5.3.6.				General Bkgd calc.
1.6.		Soudan Installation		
1.6.1.			Cryogenic Systems	
1.6.1.1.				Dilution Fridge
1.6.1.2.				Liquefier
1.6.1.3.				Cryo Control System
1.6.1.4.				Icebox & Cryo Installation
1.6.2.			Exp Enclosures at Soudan	
1.6.2.1				Design & Planning
1.6.2.2.				Pre-installation setup
1.6.2.3.				Utility Systems
1.6.2.4.				General setup
1.6.2.5.				Structures
1.6.2.6.				Network Conn.
1.7.		Management		
1.7.1.			Project Management	
1.7.1.1.				Man. Personnel & Support
1.7.1.2.				Grant Admin
1.7.1.3.				Management meetings
2.	Operations			
2.1.		Integration and Running		
2.1.1.			SUF and Test Facility Operations	
2.1.1.1.				SUF Test Facility
2.1.1.2.				UCB Test Facility
2.1.1.3.				CWRU Test Facility
2.1.1.4.				SU/SCU Test Facility
2.1.1.5.				SU 15uW Test Facility
2.1.3.			Soudan Ops/Science	
2.1.3.1.				Experiment operations
2.1.3.2.				Science support
2.1.4.			Scientific Communication	
2.1.4.1.				Meetings/conferences
2.1.4.2.				Education/outreach
2.2.		Detectors		
2.2.4.			Detector Testing & Characterization	
2.2.4.1.				Det Mounting/prep
2.2.4.2.				Det Transport
2.2.4.3.				Det Testing
2.7.		Management		
2.7.1.			Project Management	
2.7.1.1.				Man. Personnel & Support
2.7.1.2.				Grant Admin
2.7.1.3.				Management meetings

3.2 Baseline budget 6-year cumulative

		Baseline Project Funds	fund no.		Project Total	other Total	Grand Total
WBS1_task							
Construction							
WBS 2	WBS 3	NSF	DOE	FNAL			
1.1.Integ/Run	1.1.1.SUF & Test Facil. Oper	654	495	36	1,185	436	1,621
	1.1.2.Det. Install/commission at Soudan	326	233	298	857	184	1,041
	1.1.3.Soudan Ops/Science			121	121		121
	1.1.4.Scientific Communication	284			284	114	398
1.1.Integ/Run Total		1,264	728	455	2,447	734	3,180
1.2.Detectors	1.2.1.Det Production	105	1,011		1,115	388	1,503
	1.2.2.SQUID Amplifier Production		441		441		441
	1.2.3.Cold Hdwr & Elec	923	411		1,334		1,334
	1.2.4.Det Test & Characterization	964	325		1,289	504	1,793
1.2.Detectors Total		1,992	2,187		4,179	892	5,071
1.3.W Elec	1.3.1.Front End Elec. Prod	341		433	773	395	1,168
	1.3.2.Warm Elec. Testing & Installation	22			22	159	181
1.3.W Elec Total		362		433	795	554	1,349
1.4.DAQ	1.4.1.DAQ		476		476	781	1,257
	1.4.2.Information Management		71		71		71
	1.4.3.Data Reduction		126		126		126
1.4.DAQ Total			673		673	781	1,454
1.5.Shld & Bkgds	1.5.1.Muon Veto system		359		359	91	449
	1.5.2.Shield Construction and Installation		194		194	149	343
	1.5.3.Phys Design & Bkgds	211	119	125	455	226	681
1.5.Shld & Bkgds Total		211	672	125	1,008	466	1,473
1.6.Soudan	1.6.1.Cryogenic Systems		21	591	612	351	963
	1.6.2.Exp Enclosures at Soudan			622	622	951	1,573
1.6.Soudan Total			21	1,213	1,234	1,301	2,536
1.7.Management	1.7.1.Project Management	672	126	80	878	764	1,642
1.7.Management Total		672	126	80	878	764	1,642
budget item Total		**4,501**	**4,407**	**2,306**	**11,214**	**5,491**	**16,705**
Contingency Total		**397**	**893**	**545**	**1,835**	**0**	**1,835**
Construction Total		**4,898**	**5,300**	**2,851**	**13,048**	**5,491**	**18,540**
Operations							
2.1.Integ/Run	2.1.1.SUF and Test Facility Operations	247			247	216	464
	2.1.3.Soudan Ops/Science	2,624		964	3,588	4,179	7,767
	2.1.4.Scientific Communication	332			332	91	422
2.1.Integ/Run Total		3,203		964	4,168	4,486	8,653
2.2.Detectors	2.2.4.Detector Testing & Characterization	310			310	346	657
2.2.Detectors Total		310			310	346	657
2.7.Management	2.7.1.Project Management	670		56	726	882	1,608
2.7.Management Total		670		56	726	882	1,608
Operations Total		**4,184**		**1,020**	**5,204**	**5,714**	**10,918**
Grand Total		**9,082**	**5,300**	**3,871**	**18,253**	**11,205**	**29,458**

3.3.1 All funds combined: Allocation years (Calendar Year for NSF, Fiscal Year for DOE and FNAL)

TO WBS 3

Sum of Cost3K				Baseline Year							
				Project							Grand Total
WBS1_t	class_2	WBS 2	WBS 3	99	00	01	02	03	04	05	
Construction	budget item	1.1.Integ/Run	1.1.1.SUF & Test Facil. Oper	55	488	348	294				1,185
			1.1.2.Det. Install/commission at Soudan		101	417	339				857
			1.1.3.Soudan Ops/Science		121						121
			1.1.4.Scientific Communication		86	102	97				284
		1.1.Integ/Run Total		55	796	867	729				2,447
		1.2.Detectors	1.2.1.Det Production	124	423	389	179				1,115
			1.2.2.SQUID Amplifier Production	49	170	160	62				441
			1.2.3.Cold Hdwr & Elec	21	615	457	241				1,334
			1.2.4.Det Test & Characterization	48	518	373	350				1,289
		1.2.Detectors Total		242	1,726	1,379	832				4,179
		1.3.W Elec	1.3.1.Front End Elec. Prod	189	86	352	126	21			773
			1.3.2.Warm Elec. Testing & Installation		6	8	8				22
		1.3.W Elec Total		189	92	360	134	21			795
		1.4.DAQ	1.4.1.DAQ	85	97	112	115	67			476
			1.4.2.Information Management		43	12	16				71
			1.4.3.Data Reduction		23	42	46	15			126
		1.4.DAQ Total		85	162	166	178	82			673
		1.5.Shld & Bkgds	1.5.1.Muon Veto system	232	89	38					359
			1.5.2.Shield Construction and Installation	149	25	13	7				194
			1.5.3.Phys Design & Bkgds	10	69	81	295				455
		1.5.Shld & Bkgds Total		391	183	132	302				1,008
		1.6.Soudan	1.6.1.Cryogenic Systems	307	106	199					612
			1.6.2.Exp Enclosures at Soudan	58	290	274					622
		1.6.Soudan Total		365	396	473					1,234
		1.7.Management	1.7.1.Project Management	11	305	274	265	13	9		878
		1.7.Management Total		11	305	274	265	13	9		878
	budget item Total			1,338	3,660	3,650	2,440	116	9		11,214
	Contingency Total			0	508	908	393	26			1,835
Construction Total				1,338	4,168	4,558	2,833	141	9		13,048
Operations	budget item	2.1.Integ/Run	2.1.1.SUF and Test Facility Operations					94	96	58	247
			2.1.3.Soudan Ops/Science			251	458	1,004	1,043	833	3,588
			2.1.4.Scientific Communication					108	111	113	332
		2.1.Integ/Run Total				251	458	1,206	1,250	1,003	4,168
		2.2.Detectors	2.2.4.Detector Testing & Characterization					108	111	92	310
		2.2.Detectors Total						108	111	92	310
		2.7.Management	2.7.1.Project Management					240	239	247	726
		2.7.Management Total						240	239	247	726
	budget item Total					251	458	1,554	1,600	1,342	5,204
Operations Total						251	458	1,554	1,600	1,342	5,204
Grand Total				1,338	4,168	4,809	3,291	1,695	1,609	1,342	18,253

See Sec. 4.1 for details

3.3.2 All funds combined: Reporting Years - all funds on Calendar Year basis

				REPORTING (CALENDAR) YEARS						
WI	class_2	WBS 2	WBS 3	2000	2001	2002	2003	2004	2005	CUMULATIVE
1.	budget item	1.1.Integ/Run	1.1.1.SUF & Test Facil. Oper	584	337	264				1,185
			1.1.2.Det. Install/commission at Soudan	171	393	293				857
			1.1.3.Soudan Ops/Science	121						121
			1.1.4.Scientific Communication	86	102	97				284
		1.1.Integ/Run Total		962	832	653				2,447
		1.2.Detectors	1.2.1.Det Production	640	339	137				1,115
			1.2.2.SQUID Amplifier Production	259	135	46				441
			1.2.3.Cold Hdwr & Elec	680	418	236				1,334
			1.2.4.Det Test & Characterization	588	368	333				1,289
		1.2.Detectors Total		2,167	1,260	751				4,179
		1.3.W Elec	1.3.1.Front End Elec. Prod	332	295	126	21			773
			1.3.2.Warm Elec. Testing & Installation	6	8	8				22
		1.3.W Elec Total		338	302	134	21			795
		1.4.DAQ	1.4.1.DAQ	210	113	103	50			476
			1.4.2.Information Management	46	13	12				71
			1.4.3.Data Reduction	33	43	39	11			126
		1.4.DAQ Total		289	169	154	62			673
		1.5.Shld & Bkgds	1.5.1.Muon Veto system	330	28					359
			1.5.2.Shield Construction and Installation	177	11	5				194
			1.5.3.Phys Design & Bkgds	88	112	254				455
		1.5.Shld & Bkgds Total		596	152	259				1,008
		1.6.Soudan	1.6.1.Cryogenic Systems	463	149					612
			1.6.2.Exp Enclosures at Soudan	417	205					622
		1.6.Soudan Total		880	355					1,234
		1.7.Management	1.7.1.Project Management	330	275	254	12	7		878
		1.7.Management Total		330	275	254	12	7		878
	budget item Total			5,561	3,345	2,206	94	7		11,214
	Contingency Total			678	794	344	19			1,835
1. Total				6,240	4,138	2,550	114	7		13,048
2.	budget item	2.1.Integ/Run	2.1.1.SUF and Test Facility Operations				94	96	58	247
			2.1.3.Soudan Ops/Science	31	278	449	1,006	1,044	781	3,588
			2.1.4.Scientific Communication				108	111	113	332
		2.1.Integ/Run Total		31	278	449	1,208	1,251	951	4,168
		2.2.Detectors	2.2.4.Detector Testing & Characterization				108	111	92	310
		2.2.Detectors Total					108	111	92	310
		2.7.Management	2.7.1.Project Management			6	238	239	242	726
		2.7.Management Total				6	238	239	242	726
	budget item Total			31	278	454	1,553	1,601	1,286	5,204
2. Total				31	278	454	1,553	1,601	1,286	5,204
Grand Total				6,271	4,416	3,004	1,667	1,608	1,286	18,253

Note: Calendar year 2000 includes DOE and FNAL start-up funds from 1999

3.3.3 NSF Profile

Sum of Cost3K				Baseline Project	Year 00	01	02	03	04	05	Grand Total
WBS1_t	class_2	WBS 2	WBS 3								
Construction	budget item	1.1.Integ/Run	1.1.1.SUF & Test Facil. Oper		301	181	172				654
			1.1.2.Det. Install/commission at Soudan		31	139	157				326
			1.1.4.Scientific Communication		86	102	97				284
		1.1.Integ/Run Total			417	422	425				1,264
		1.2.Detectors	1.2.1.Det Production		79	17	9				105
			1.2.3.Cold Hdwr & Elec		423	281	219				923
			1.2.4.Det Test & Characterization		396	285	282				964
		1.2.Detectors Total			899	583	510				1,992
		1.3.W Elec	1.3.1.Front End Elec. Prod		71	122	126	21			341
			1.3.2.Warm Elec. Testing & Installation		6	8	8				22
		1.3.W Elec Total			77	130	134	21			362
		1.5.Shld & Bkgds	1.5.3.Phys Design & Bkgds		37	42	131				211
		1.5.Shld & Bkgds Total			37	42	131				211
		1.7.Management	1.7.1.Project Management		240	221	211				672
		1.7.Management Total			240	221	211				672
	budget item Total				1,671	1,398	1,411	21			4,501
	Contingency Total					228	170				397
Construction Total					1,671	1,626	1,581	21			4,898
Operations	budget item	2.1.Integ/Run	2.1.1.SUF and Test Facility Operations					94	96	58	247
			2.1.3.Soudan Ops/Science			126	224	809	841	625	2,624
			2.1.4.Scientific Communication					108	111	113	332
		2.1.Integ/Run Total				126	224	1,010	1,048	796	3,203
		2.2.Detectors	2.2.4.Detector Testing & Characterization					108	111	92	310
		2.2.Detectors Total						108	111	92	310
		2.7.Management	2.7.1.Project Management					217	223	230	670
		2.7.Management Total						217	223	230	670
	budget item Total					126	224	1,335	1,382	1,118	4,184
Operations Total						126	224	1,335	1,382	1,118	4,184
Grand Total					1,671	1,752	1,804	1,356	1,382	1,118	9,082

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
AWARD	1,636	1,806	1,675	1,401	1,428	1,136	9,082

See Sec. 4.2 for details

3.3.4. DOE Profile

Fiscal years

Sum of Cost3K				Baseline Year						
				Project						Grand Total
WBS1_	class_2	WBS 2	WBS 3	99	00	01	02	03	04	
Construction	budget item	1.1.Integ/Run	1.1.1.SUF & Test Facil. Oper	55	166	152	122			495
			1.1.2.Det. Install/commission at Soudan		26	74	132			233
		1.1.Integ/Run Total		55	192	226	254			728
		1.2.Detectors	1.2.1.Det Production	124	344	373	170			1,011
			1.2.2.SQUID Amplifier Production	49	170	160	62			441
			1.2.3.Cold Hdwr & Elec	21	192	176	22			411
			1.2.4.Det Test & Characterization	48	122	87	68			325
		1.2.Detectors Total		242	827	796	322			2,187
		1.4.DAQ	1.4.1.DAQ	85	97	112	115	67		476
			1.4.2.Information Management		43	12	16			71
			1.4.3.Data Reduction		23	42	46	15		126
		1.4.DAQ Total		85	162	166	178	82		673
		1.5.Shld & Bkgds	1.5.1.Muon Veto system	232	89	38				359
			1.5.2.Shield Construction and Installation	149	25	13	7			194
			1.5.3.Phys Design & Bkgds	10	26	39	44			119
		1.5.Shld & Bkgds Total		391	140	89	51			672
		1.6.Soudan	1.6.1.Cryogenic Systems		11	11				21
		1.6.Soudan Total			11	11				21
		1.7.Managemen	1.7.1.Project Management	11	30	31	31	13	9	126
		1.7.Management Total		11	30	31	31	13	9	126
	budget item Total			784	1,362	1,320	836	95	9	4,407
	Contingency Total			0	319	387	161	26		893
Construction Total				784	1,682	1,706	997	121	9	5,300
Grand Total				784	1,682	1,706	997	121	9	5,300

1999	**2000**	**2001**	**2002**	**2003**	**2004**	**TOTAL**
750	1,050	1,100	1,050	800	550	5,300

See Sec. 4.3 for details

3.3.5. FNAL Profile

Fiscal years

Sum of Cost3K				Baseline Year							
				Project							Grand Total
WBS1_t	class_2	WBS 2	WBS 3	99	00	01	02	03	04	05	
Construction	budget item	1.1.Integ/Run	1.1.1.SUF & Test Facil. Oper		21	15					36
			1.1.2.Det. Install/commission at Soudan		44	204	50				298
			1.1.3.Soudan Ops/Science		121						121
		1.1.Integ/Run Total			186	219	50				455
		1.3.W Elec	1.3.1.Front End Elec. Prod	189	14	230					433
		1.3.W Elec Total		189	14	230					433
		1.5.Shld & Bkgds	1.5.3.Phys Design & Bkgds		5		120				125
		1.5.Shld & Bkgds Total			5		120				125
		1.6.Soudan	1.6.1.Cryogenic Systems	307	95	188					591
			1.6.2.Exp Enclosures at Soudan	58	290	274					622
		1.6.Soudan Total		365	386	462					1,213
		1.7.Management	1.7.1.Project Management		36	22	23				80
		1.7.Management Total			36	22	23				80
	budget item Total			554	627	932	192				2,306
	Contingency Total				189	293	63				545
Construction Total				554	816	1,226	255				2,851
Operations	budget item	2.1.Integ/Run	2.1.3.Soudan Ops/Science			125	235	196	202	208	964
		2.1.Integ/Run Total				125	235	196	202	208	964
		2.7.Management	2.7.1.Project Management					23	16	16	56
		2.7.Management Total						23	16	16	56
	budget item Total					125	235	219	218	224	1,020
Operations Total						125	235	219	218	224	1,020
Grand Total				554	816	1,350	490	219	218	224	3,871

AWARD	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
	554	816	1,350	490	219	218	224	3,871

See Sec. 4.4 for details

3.4 Allocations to Institutions

Sum of Cost3K			Year							
fu	Fund_Nm	Inst	99	00	01	02	03	04	05	Grand Total
1	NSF	CWRU		387	447	446	438	451	398	2,567
		PU		0		160	167	169	169	665
		SCU		61	56	47	36	37	33	271
		UCB		1,223	1,021	981	714	725	517	5,181
	NSF Total			1,671	1,524	1,635	1,356	1,382	1,118	8,685
1 Total				1,671	1,524	1,635	1,356	1,382	1,118	8,685
2	DOE_Proj	CWRU	48							48
		FNAL	11	16	17	17	13	9		83
		LBNL	46	338	297	144				825
		NIST	35	119	109	45				308
		SCU	15							15
		SU	148	525	589	390				1,652
		UcolD	15	51	51	16				133
		UCSB	466	314	256	224	82			1,342
	DOE_Proj Total		784	1,362	1,320	836	95	9		4,407
2 Total			784	1,362	1,320	836	95	9		4,407
3	FNAL	FNAL	554	627	1,057	427	219	218	224	3,326
	FNAL Total		554	627	1,057	427	219	218	224	3,326
3 Total			554	627	1,057	427	219	218	224	3,326
Grand Total			1,338	3,660	3,901	2,898	1,670	1,609	1,342	16,418

Note: Contingency is NOT included

3.5 Personnel

Sum of FTE					Year						
Inst	level	Item (WBS 5)	fund	Fund_Nm	99	00	01	02	03	04	05
CWRU	fac	Akerib	1	NSF			0.50	0.50	1.00	1.00	1.00
			7	NSF_Career		1.00	0.50	0.50			
	postd	Bolozdynya/pd B	1	NSF		0.20	0.20	0.20	1.00	1.00	1.00
			7	NSF_Career		0.80	0.80	0.80			
		Schnee/pd A	1	NSF		1.00	1.00	1.00	1.00	1.00	1.00
	grad	Driscoll/gr B	1	NSF		0.50	1.00	1.00	1.00	1.00	
		Perera/gr A	1	NSF		1.00	1.00	1.00	1.00	1.00	1.00
		Wang/gr C	1	NSF			1.00	1.00	1.00	1.00	1.00
	ugrad	CWRU ugrad A	1	NSF		1.00	1.00	1.00			
		CWRU ugrad B	1	NSF		1.00	1.00	1.00			
		CWRU ugrad C	1	NSF		1.00	1.00	1.00			
	tech	Computer support	1	NSF		0.05	0.05	0.05	0.05	0.05	0.05
FNAL	phys	Crisler	3	FNAL							
			3.1	FNAL_Base		0.50	0.50	0.50	0.50	0.50	0.50
		Dixon	3.1	FNAL_Base		1.00	1.00	1.00	1.00	1.00	1.00
		FNAL phys A	3.1	FNAL_Base		0.50	1.00	1.00	1.00	1.00	1.00
		Holmgren	3.1	FNAL_Base				0.25	0.25	0.25	0.25
	postd	Eichblatt/pd A	3.1	FNAL_Base		1.00	1.00	1.00	1.00	1.00	1.00
		FNAL postd B	3.1	FNAL_Base		0.50	1.00	1.00	1.00	1.00	0.00
	ugrad	FNAL coop 1	3.1	FNAL_Base		0.63	0.13				
		FNAL coop 2	3.1	FNAL_Base		0.63	0.13				
	eng	Haldeman	3	FNAL							
			3.1	FNAL_Base		0.63	0.50				
		Kula	3	FNAL							
			3.1	FNAL_Base		1.00	1.00	1.00			
		Schmitt	3	FNAL							
			3.1	FNAL_Base		0.25	0.25	0.25			
		Holmgren	3	FNAL							
			3.1	FNAL_Base		0.50	0.50				
		Orr	3	FNAL							
			3.1	FNAL_Base		0.12					
		ES&H Professsional	3.1	FNAL_Base		0.10	0.05	0.05	0.05	0.05	0.05
	tech	FNAL designer	3	FNAL							
			3.1	FNAL_Base		0.25					
		Johnson,W.	3	FNAL							
			3.1	FNAL_Base		0.63	0.50				
		Merkel	3	FNAL							
			3.1	FNAL_Base		0.63	0.13				
		Morrison/Regan	3	FNAL							
			3.1	FNAL_Base		0.63	0.13				
		Elec tech	3.1	FNAL_Base		0.13					
		Mech techs	3	FNAL							
			3.1	FNAL_Base		2.00					
LBNL	fac	Ross	6	LBNL_Base		0.30	0.30	0.30	0.30	0.30	0.30
		Sadoulet	6	LBNL_Base		1.00	1.00	1.00	1.00	1.00	1.00
	phys	McDonald	6	LBNL_Base		0.00	0.00	0.00			
	postd	LBNL postd A	6	LBNL_Base				1.00	1.00	1.00	1.00
	eng	Taylor,J.	6	LBNL_Base		0.10	0.10	0.10	0.10	0.10	
	tech	Emes	2	DOE_Proj	0.25	1.00	1.00	1.00			
			6.1	LBNL_Oper					1.00	0.50	0.50
		Hernikl/LBNL tech A	2	DOE_Proj	0.25	1.00	1.00	0.25			
		Brumfield/LBNL tech B	2	DOE_Proj		1.00	0.75				
NIST	fac	Huber (sabbat)	2	DOE_Proj		0.40					
	phys	Martinis	2	DOE_Proj	0.05	0.10	0.10	0.05			
	tech	NIST tech	2	DOE_Proj	0.16	0.40	0.40	0.11			
PU	fac	Shutt	1	NSF				0.25	0.25	0.25	0.25
	postd	PU postd A	1	NSF		0.00	0.00	1.00	1.00	1.00	1.00
	grad	PU grad A	1	NSF		0.00	1.00	1.00	1.00	1.00	1.00

Sum of FTE					Year						
Inst	level	Item (WBS 5)	fund	Fund_Nm	99	00	01	02	03	04	05
SCU	fac	Young	1	NSF		1.00	1.00	1.00	1.00	1.00	1.00
	ugrad	SCU ugrad A	1	NSF		1.00	1.00	1.00	1.00	1.00	1.00
		SCU ugrad B	1	NSF		1.00	1.00	1.00			
SU	fac	Cabrera	5	SU_Base		1.00	1.00	1.00	1.00	1.00	1.00
	phys	Brink	2	DOE_Proj		1.00	1.00	1.00			
			5	SU_Base					1.00	1.00	1.00
	postd	Baudis/pd A	5	SU_Base		0.00	1.00	1.00			
			5.1	SU_Oper					1.00	1.00	1.00
	grad	Chang/grad B	5	SU_Base		1.00	1.00	1.00	1.00	1.00	1.00
		Saab/gr A	5	SU_Base		1.00	1.00	1.00	1.00	1.00	
		SU grad/rotation	5	SU_Base		0.50	0.50	0.50			
		Abrams/gr C	5	SU_Base		1.00	1.00	1.00	1.00	1.00	1.00
	ugrad	SU ugrad A	5	SU_Base		1.00	1.00	1.00			
	eng	Hennessy	5	SU_Base		0.25	0.25	0.25	0.25	0.25	0.25
	tech	Abusaidi et al	2	DOE_Proj	1.00						
		Castle	2	DOE_Proj		1.00	1.00	1.00			
			5.1	SU_Oper					1.00	0.50	0.50
		Perales	2	DOE_Proj		0.75	0.75	0.75			
			5.1	SU_Oper					0.75	0.30	0.30
	admin	Hubly	5	SU_Base		0.20	0.20	0.20	0.20	0.20	0.20
UCB	phys	Spadafora	1	NSF		1.00	1.00	1.00	1.00	1.00	1.00
	postd	Gaitskell/pd A	1	NSF		1.00					
		Hellmig	1	NSF		0.33					
		Isaac/pd C	1	NSF		1.00	1.00	1.00	1.00	1.00	
		Meunier/pd D	1	NSF		0.67	1.00	1.00			
		Rau/Humbolt Fellow	1	NSF		0.25	1.00	1.00	1.00	1.00	1.00
		Armel/pd A	1	NSF		0.25	1.00	1.00	1.00	1.00	
	grad	Golwala	1	NSF		0.50					
		Mandic/gr A	1	NSF		1.00	1.00	1.00	1.00	1.00	
		UCB grad B	1	NSF		0.00	1.00	1.00	1.00	1.00	1.00
		UCB grad C	1	NSF		0.00	0.50	1.00	1.00	1.00	1.00
	ugrad	UCB ugrad A	1	NSF		1.00	1.00	1.00			
		UCB ugrad B	1	NSF		1.00	1.00	1.00			
		UCB ugrad C	1	NSF		0.00	0.00				
		UCB ugrad D	1	NSF		0.00	0.00				
		UCB ugrad E	1	NSF				0.00	0.00	0.00	0.00
		web programmer	1	NSF		0.00	1.00	1.00	1.00	1.00	1.00
	eng	Seitz	1	NSF		1.00	1.00	1.00	0.50	0.50	0.50
		Smith,G.	1	NSF		0.40	0.40	0.40			
	admin	admin asst	1	NSF		0.50	0.50	0.50	0.50	0.50	0.50
		Esteves	1	NSF		0.50	0.50	0.50	0.50	0.50	0.50
UcolD	fac	Huber	2	DOE_Proj		0.50	0.50	0.33			
	ugrad	Ucol ugrad	2	DOE_Proj	0.70	1.25	1.25				
UCSB	fac	Nelson	4	UCSB_Base		1.00	1.00	1.00	1.00	1.00	1.00
		Caldwell (emeritus)	2	DOE_Proj		0.50	0.50	0.50			
			4	UCSB_Base		0.50	0.50	0.50	0.50	0.50	0.50
			4.1	UCSB_Oper					0.50	0.50	0.50
	phys	Bauer	4	UCSB_Base		1.00	1.00	1.00	1.00	1.00	1.00
		Yellin	4	UCSB_Base		1.00	1.00	1.00	1.00	1.00	1.00
	postd	UCSB postd A	4	UCSB_Base		0.25	1.00	1.00	1.00	1.00	1.00
	grad	Bunker/gr A	4	UCSB_Base		1.00	1.00	1.00	1.00	1.00	
		Maloney	4	UCSB_Base		0.50	1.00	1.00	1.00	1.00	1.00
		Sander	4	UCSB_Base		0.50	1.00	1.00	1.00	1.00	1.00
	ugrad	UCSB ugrad A	2	DOE_Proj		1.00	1.00	1.00			
	eng	Burke,S.	4	UCSB_Base		0.50	0.50	0.00			
		Hale/Kyre	4	UCSB_Base		0.50	0.50	0.00			
	tech	Callahan,D.	2	DOE_Proj		1.00	0.50				

3.6 Contingency

Sum of Cost3K		Yr					
class_2	Fund_Nm	99	00	01	02	03	Grand Total
Contingency	NSF			228	170		397
	DOE_Proj	0	319	387	161	26	893
	FNAL		189	293	63		545
Contingency Total		0	508	908	393	26	1,835
Grand Total		0	508	908	393	26	1,835

Contingency is held in reserve by the Project Manager. Its use is approved by the change control panel as described in the management section of the April 1999 proposal.

4.2 NSF Grant

NSF	All effort at UCB,CWRU,PU,SCU
	Scientist support (fac,phys,postdoc,grad). Salary & Travel
	Technical Staff (eng,tech,undergrads,admin.) Salary & Travel
	Project management and admin. at UCB
	Cold Hardware/Electronics Design, Procurement, Construction
	Warm Electronics: Design and testing
	Detector prep and testing
	Background MC studies and measurements
	Experiment operations

NSF GRANT: Original subaward plan in Proposal

	Year 1	Year 2	Year 3a	Cumulative	Year 3b	Year 4	Year 5	Year 6	Cumulative
	2000	2001	2002		2002	2003	2004	2005	
Months #	1-12	13-24	25-28	1-28	29-36	37-48	49-60	61-72	1-72
Total Award	**1,636**	**1,806**	**558**	**4,000**	**1,117**	**1,401**	**1,428**	**1,136**	**9,082**
UCB Base (not including subawards or contingency)	**837**	**1,044**	**331**	**2,212**	**663**	**751**	**763**	**528**	**4,917**
Case-Western	**388**	**447**	**149**	**983**	**297**	**438**	**451**	**398**	**2,567**
Princeton	**154**	**183**	**63**	**401**	**126**	**175**	**177**	**177**	**1,055**
Santa Clara	**61**	**55**	**16**	**131**	**31**	**36**	**37**	**33**	**269**
Subtotal	**1,440**	**1,729**	**558**	**3,727**	**1,117**	**1,401**	**1,428**	**1,136**	**8,809**
Contingency	**196**	**78**	**0**	**273**	**0**	**0**	**0**	**0**	**273**

Detail on year 3	Year 3a	Year 3b	Yr 3 Tot
	2002	2002	2002
Months #	25-28	29-36	25-36
Total Award	**558**	**1,117**	**1,675**
UCB Base	**331**	**663**	**993**
Case-Western	149	297	446
Princeton	63	126	189
Santa Clara	16	31	47
Total allocated	558	1,117	1,675

4.3 DOE Project Fund

fund no.	2	**DOE_Proj**

DOE_Proj Project support at SU,UCSB,LBNL,NIST,UCol:
Technical Staff (eng,tech,undergrads) Salary & Travel
Detector production, preparation, and testing
Cold Electronics: SQUIDs design, fab, testing
Shield design, construction, installation
DAQ design, procurement, commissioning

DOE AWARD (in $K)
from DOE letter of 1/27/00

FISCAL YEAR	**FY 1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**TOTAL**
PROJ+CONT	750	1,050	1,100	1,050	800	550	5,300

Project only	4,300
Contingency	1,000

notes:

contingency held at Project office at FNAL
quarterly reports submitted to DOE, including justification of use of contingency funds

Not included:
Scientific personnel not allowed on this grant

Operating costs can be provided for DOE-supported univ. groups through the DOE University program following standard proceedures.

nb This money is budgeted and allocated to groups on GOVERNMENT FISCAL YEARS, i.e. Oct 1.

ALLOCATION PLAN
What we NEED to budget. (Amounts shown as debits.) Breakdown given in following pages.

Sum of Amount		Fiscal Year						
Funds	Inst	99	00	01	02	03	04	Grand Total
Cost	CWRU	-48	48					0
	SCU	-15	15					0
	Ge purchases		-63					-63
	LBNL	-46	-338	-297	-144	0	0	-825
	SU	-148	-525	-589	-390	0	0	-1,652
	UCSB	-466	-314	-256	-224	-82	0	-1,342
	NIST	-35	-119	-109	-45	0	0	-308
	UcolD	-15	-51	-51	-16	0	0	-133
	FNAL	-11	-16	-17	-17	-13	-9	-83
	Cont/Reserve	0	-319	-387	-161	-26		-893
Cost Total		-785	-1,682	-1,706	-997	-121	-9	-5,300
DOE Award		750	1,050	1,100	1,050	800	550	5,300

PLANNED allocation to groups

Sum of Amount		FY						
Funds	Inst	99	00	01	02	03	04	Grand Total
Fund 2	CWRU	48	-48					0
	SCU	15	-15					0
	Ge purchases		63					63

	LBNL	7	377	297	144	0	0	825
	SU	148	300	375	450	379	0	1,652
	UCSB	466	160	154	275	287	0	1,342
	NIST	35	119	109	45		0	308
	UcolD	15	51	51	16	0	0	133
	FNAL	11	16	17	17	13	9	83
	Cont/Reserve	5	27	97	103	121	540	893
Fund 2 Total		687	1,050	1,100	1,050	800	550	5,300

FUND 2: what has been allocated as of 9/1/00

		FY						
	Inst	99	00	01	02	03	04	Grand Total
(see note below)	CWRU	48	-48					0
	SCU	15	-15					0
	Ge purchases		63					
	LBNL	7	200					207
	SU	148	200					348
	UCSB	466						466
	NIST	35						35
	UcolD	15	36					51
	FNAL 1.5% O	11	7	0	0	0	0	18
	Allocated	745	443	0	0	0	0	1,188
	Reserve	5	612	1,712	2,762	3,562	4,112	
	Alloc. + Res.	750	1,055	1,712	2,762	3,562	4,112	
	funds availabl	750	1,050	1,100	1,050	800	550	0

NOTE ON 1999 allocation:

$48K+$15K were allocated to CWRU and SCU due to delay in start of NSF funding.
This amount is repaid to the DOE Project fund in FY2000 by using NSF funds to purchase
$63K worth of Ge and Si material, reducing the DOE costs by that amount in the FY 2000 budget.

FY 2000 final allocations - pending as of 9/29/00

	FY						
Inst	99	00	01	02	03	04	
CWRU							
SCU							
LBNL		177					
SU		100					
UCSB		160					
NIST		119					
UcolD		15					
FNAL 1.5% OH		9	0	0	0	0	
Allocated		580	0	0	0	0	

Summary by Institution		FY					
		99	00	01	02	03	04
LBNL Funding Profile							
Funds received		7	377	297	144	0	0
Funds spent		-46	-338	-297	-144	0	0
Start Yr Balance		7	338	297	143	0	0
End Yr Balance	yearly	-39	39	0	0	0	0
Net Balance	Cumulative	-39	0	0	0	0	0
SU Funding Profile							
Funds received		148	300	375	450	379	0

Funds spent		-148	-525	-589	-390	0	0
Start Yr Balance		148	300	150	11	0	0
End Yr Balance	yearly	0	-225	-214	60	379	0
Net Balance	Cumulative	0	-225	-439	-379	0	0

UCSB Funding Profile

Funds received		466	160	154	275	287	0
Funds spent		-466	-314	-256	-224	-82	0
Start Yr Balance		466	160	0	19	82	0
End Yr Balance	yearly	0	-154	-102	51	205	0
Net Balance	Cumulative	0	-154	-256	-205	0	0

NISTFunding Profile

Funds received		35	119	109	45	0	0
Funds spent		-35	-119	-109	-45	0	0
Start Yr Balance		35	119	109	45	0	0
End Yr Balance	yearly	0	0	0	0	0	0
Net Balance	Cumulative	0	0	0	0	0	0

UColD Funding Profile

Funds received		15	51	51	16	0	0
Funds spent		-15	-51	-51	-16	0	0
Start Yr Balance		15	51	51	16	0	0
End Yr Balance	yearly	0	0	0	0	0	0
Net Balance	Cumulative	0	0	0	0	0	0

notes: All amounts are in $K.
(1) first row (DOE Project funds received) are the official authorizations for each year.
(2) our proposed expenditures for each year.
(3) balance at the beginning of each fiscal year
(4) balance at the end of each fiscal year
(5) total debt at end of each fiscal year

RESERVE HELD - ESTIMATED CONTINGENCY NEEDED

	yearly	5	-292	-290	-58	95	540
	cumul	5	-287	-577	-635	-540	0

Note that in yrs 1-4 we are only holding 100K in reserve for contingency items,
whereas the cost table above shows more contingency needed in these years.
This is the minimum that is acceptable. It involves some risk but
has been done to reduce the University loans to a minimum.

4.4 FNAL Project Funds

Fund No 3 **FNAL**

All effort at FNAL: Scientists and Technical
Scientist support (phys,postdoc,) Salary & Travel
Technical Staff (eng,tech,undergrads,admin.) Salary & Travel
Soudan Infrastructure and enclosures setup:
procurement, construction, and installation
Cryo system: icebox procurement, construction, and installation
Warm Electronics design, procurement, assembly, installation.
DAQ design
Experiment operations

Notes:

For items other than equipment, an overhead of 42% is included in amounts shown.
Project years correspond to fiscal years.
S&E = "supplies and expenses"

Summary

Sum of Cost3K		Yr							
categ		99	00	01	02	03	04	05	Grand Total
Operating	travel	0	156	111	30	39	32	33	401
	S&E	0	216	336	277	180	186	191	1,386
Operating Total		0	372	447	307	219	218	224	1,787
eqpt		554	255	610	120	0	0	0	1,539
Total		554	627	1,057	427	219	218	224	3,326

Contingency		99	00	01	02	03	04	05	Grand Total
	total	0	189	293	63				545

Appendix

Overhead	rate
CWRU	53.0%
FNAL	42.0%
LBNL	62.0%
NIST	169.0%
PU	58.0%
SCU	40.5%
SFSU	30.0%
SU	55.0%
UCB	50.4%
UCoID	39.0%
UCSB	26.0%

Inflation	factor
-1	1.000
0	1.000
1	1.000
2	1.030
3	1.061
4	1.093
5	1.126
6	1.159

Grad Tuition	Amount
CWRU	0
FNAL	0
LBNL	0
NIST	0
PU	12,650
SCU	0
SFSU	0
SU	12,388
UCB	4,408
UCL	0
UCSB	0