SSCL-N #721
SI-CL-004

Superconducting Super Collider Laboratory
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PROJECT MANAGEMENT

Systems Integration

MEMORANDUM

To: **Distribution**

From: **Mike Syphers** mike

Date: **May 30, 1990**

Subject: **Collider Magnet Count -- WBS Distribution**

The spreadsheets found on the following three pages tabulate the major superconducting magnetic elements for the Collider rings. These tables are to replace any earlier versions which may have been circulated; in particular, the numbers of the long and short dipole magnets have been corrected.

The first table shows the division of magnets among the primary lattice areas: typical arc half-sectors, utility regions, and interaction regions. Long (15 m), short (13 m) and vertical dipoles are listed separately, as are standard and special length quadrupoles. One ring and two ring totals are provided at the bottom. (NOTE: Magnet cold masses are tabulated here; a small number of the devices in the IR regions will share common cryostats.)

The second table breaks down the magnet count according to the Collider WBS sections. The numbers shown are the two-ring totals for that category. The number of spool pieces shown is an approximation based on one spool piece per quadrupole. This number is provided simply to give an idea of the total number or major objects to be installed in each half sector.

The third table further breaks down the counting of the special quadrupoles found in the utility regions and interaction regions.

Distribution:

Helen Edwards	Gerry Tool	Jeff Gannon	Tom Bush
Don Edwards	Mike McAshan	John Warren	Phil Sanger
Bob Morse	Alex Chao	Jim Sanford	Bob Malnar
David Scott	Bob Smellie	Bob Williamson	Ron Hale
Wayne Simmons	Larry Sauer	Tim Toohig	Jim Franciscovich
Chuck Fletcher	Bob Sheldon	Ted Kozman	John Nonte

Collider Magnet Count

5/30/90

	15 m Dipoles	13 m Dipoles	Standard Quads	Special Quads	13m Ver. Dipoles	5m Ver. Dipoles
Arc Half Sector:	236	4	48	0	0	0
Utility Section:						
Bending Region	57	35	11	10	0	0
Utility Straight	0	0	2	8	0	0
Dispersion Supp.	0	16	0	5	0	0
Cells	20	0	3	0	0	0
West Cluster IRs:						
Cells	19	1	4	0	0	0
Dispersion Supp.	0	16	0	5	0	0
WS IP Region	0	0	6	30	12	12
Transistion Region	5	26	0	10	0	0
WN IP Region	0	0	6	30	12	12
East Cluster IRs:						
Cells	19	1	4	0	0	0
Dispersion Supp.	0	16	0	5	0	0
EN IP Region	0	0	6	30	12	20
Transition Region	5	26	0	10	0	0
ES IP Region	0	0	6	30	12	20
One Ring Totals:	3978	252	832	196	48	64
Two Ring Totals:	7956	504	1664	360	96	96

(this number takes into account common cold masses)

Total 15m Dipoles: 7956
Total 13m Dipoles: 600
Total 5 m Dipoles: 96

Total bend: 360.00 degrees

Grand Totals:

Dipoles: 8652
Quads: 2024

Collider Magnet WBS Breakdown 5/30/90

Description	WBS No.	15 m Dipoles	13 m Dipoles	Standard Quads	Special Quads	13m Ver Dipoles	5m Ver Dipoles	Spools	Total Number of Objects
	1.1.6.								
WU	1	154	102	32	46	0	0	78	412
N15 to N20	2	472	8	96	0	0	0	96	672
N20 to N25	3	472	8	96	0	0	0	96	672
N25 to N30	4	472	8	96	0	0	0	96	672
N30 to N35	5	472	8	96	0	0	0	96	672
N35 to N40	6	472	8	96	0	0	0	96	672
N40 to N45	7	472	8	96	0	0	0	96	672
N45 to N50	8	472	8	96	0	0	0	96	672
N50 to N55	9	472	8	96	0	0	0	96	672
EN, ES	10	48	86	32	134	48	60	166	574
EU	11	154	102	32	46	0	0	78	412
S15 to S20	12	472	8	96	0	0	0	96	672
S20 to S25	13	472	8	96	0	0	0	96	672
S25 to S30	14	472	8	96	0	0	0	96	672
S30 to S35	15	472	8	96	0	0	0	96	672
S35 to S40	16	472	8	96	0	0	0	96	672
S40 to S45	17	472	8	96	0	0	0	96	672
S45 to S50	18	472	8	96	0	0	0	96	672
S50 to S55	19	472	8	96	0	0	0	96	672
WS,WN	20	48	86	32	134	48	36	166	550
Totals:		7956	504	1664	360	96	96	2024	12700

Spool Numbers are Approximate

Special Quadrupole Distribution:
5/30/90

Style	Number	Description	Length (m)	Number in "WBS" Section: 1	10	11	20
QS	72	Dispersion Suppressor Quad	7.05	18	18	18	18
QS1	48	Disp. Supp. Quad (at ends)	6.13	12	12	12	12
QU1	8	Utility Quad	11.29	4		4	
QU2	8	Utility Quad	11.00	4		4	
QU3	8	Utility Quad	9.17	4		4	
QU4	8	Utility Quad	7.05	4		4	
QV	128	M=-1 Quad	14.25		64		64
QL1	4	Low Beta Quad	15.14				4
QL2	8	Low Beta Quad	11.22				8
QL3	4	Low Beta Quad	12.96				4
QL4	8	Low Beta Quad	10.63				8
QL5	8	Low Beta Quad	14.08				8
QL6	8	Low Beta Quad	4.69				8
QM1	4	Medium Beta Quad	8.00		4		
QM2	8	Medium Beta Quad	8.74		8		
QM3	4	Medium Beta Quad	11.30		4		
QM4	8	Medium Beta Quad	10.71		8		
QM5	8	Medium Beta Quad	12.82		8		
QM6	8	Medium Beta Quad	4.90		8		
TOTALS:	360			46	134	46	134