Run Plan for Mole Measurement of DCA310
(Collared and Keyed Coil Assembly)

TS-SSC 91-131
June 21, 1991
Steve Delchamps x2416

1) During this measurement, the temperature of the coils is to be kept to within 8 degrees Kelvin (about 14 degrees Fahrenheit) of its initial value. This temperature change corresponds to a resistance change at room temperature of

$$\Delta R = .0039 * 8 * R_{initial}$$

where $R_{initial}$ is the initial value of the coil resistance. Then, the maximum allowed resistance during the measurement is

$$R_{max} = R_{initial} + \Delta R$$

The minimal allowed resistance (from considerations of the resistance of a single turn) is

$$R_{min} = R_{initial} - \underline{45\ m\Omega}$$

2) Find $R_{initial}$ using the Valhalla meter. Then calculate ΔR and R_{max}, the maximum allowed resistance. Also calculate R_{min}, the minimum allowed resistance during the measurement. Calculate $V_{initial}$, V_{min} and V_{max} by multiplying $R_{initial}$, R_{min} and R_{max} each by 10 (since the measurements will be done using 10 A current.) Write $V_{initial}$, V_{min} and V_{max} for this measurement here:

$V_{initial}$ =

V_{min} =

V_{max} =

Date and Time:

3) At 10 A, record the voltage V_{10} of the magnet below. Compare to $V_{initial}$. If the values differ by more than 50 mV, call Steve Delchamps, Wayne Koska, or Ray Hanft. Record the value of V_{10} here:

V_{10} =

<u>If at any time during this measurement, the voltage becomes greater than V_{max} or less than V_{min}, turn off the current and call Steve Delchamps, Wayne Koska, or Ray Hanft.</u>

Technician Name(s): _____

_____

4) Find center of magnet in the longitudinal direction using +10 A measurements at the ends of the magnet. (These "centering" data should be written to a separate file, and later transferred to the vax using the READMOLE program.) Record the voltage, current, and time at each position. **Use the centering data chart included with this plan.**

5) Take +10, -10, and 0 amp measurements at 2 foot intervals along the coil. Record the data so that the +10 and -10 A records appear in pairs at the beginning of the file, and the 0 A data all come sequentially at the end. Each time a +10 A reading is taken, record the voltage, current, and time of the measurement. **Use the table provided for this purpose.**

Note: Positive positions relative to magnet center are toward the lead end. Negative positions relative to magnet center are toward the non-lead end (in older parliance, the "return end" or "turn-around" end.) +10 A means putting +10 A into the lead on the NORTH side of the magnet in ICB.

Note: For 0 A data, the current supply should be turned OFF, i.e. the current should not simply be set to 0 A.

6) Transfer the data files to the VAX using the READMOLE program.

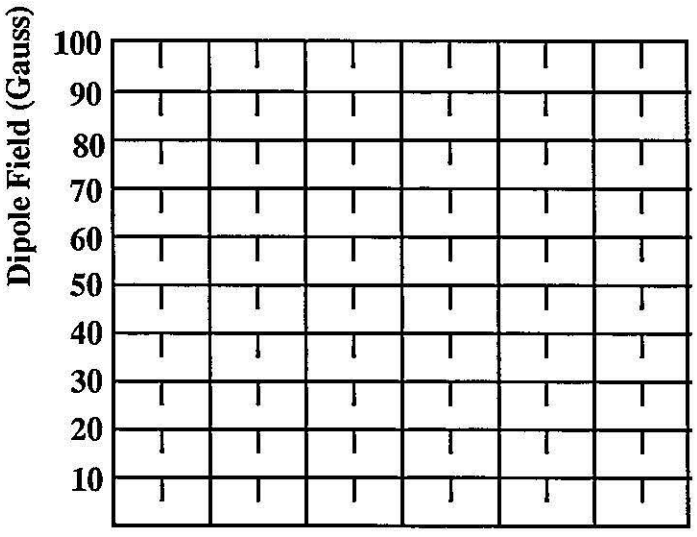
7) Please inform Steve Delchamps when the data are available on the VAX.

If there are any questions, contact Steve Delchamps at x2416, or Wayne Koska at x4500.

Centering Data

Magnet Name:
HP File Name:
VAX File Name:
Date:

Tape Measure Position (feet)	Dipole Field (Gauss)	V (volts)	I (amps)	Time



A = Intersection High =

B = Intersection Low =

Center Position = (A-B) / 2 + B

=

Tape Measure Position (feet and inches)

+/- 10 A, 0 A Data

Magnet Name:
HP File Name:
VAX File Name:
Date:

Position relative to center (feet)	Tape Measure Position (feet)	V+ (volts)	I+ (amps)	Time	Record Number +10	-10	0
-25					1	2	53
-23					3	4	54
-21					5	6	55
-19					7	8	56
-17					9	10	57
-15					11	12	58
-13					13	14	59
-11					15	16	60
-9					17	18	61
-7					19	20	62
-5					21	22	63
-3					23	24	64
-1					25	26	65
1					27	28	66
3					29	30	67
5					31	32	68
7					33	34	69
9					35	36	70
11					37	38	71
13					39	40	72
15					41	42	73

NON-LEAD END

LEAD END

+/- 10 A, 0 A Data continued

Position relative to center (feet)	Tape Measure Position (feet)	V+ (volts)	I+ (amps)	Time	Record Number +10	-10	0
17					43	44	74
19					45	46	75
21					47	48	76
23					49	50	77
25					51	52	78