SSC-N-557

SITE-DEPENDENT ASPECTS OF INJECTOR PLACEMENT: Modified Injector

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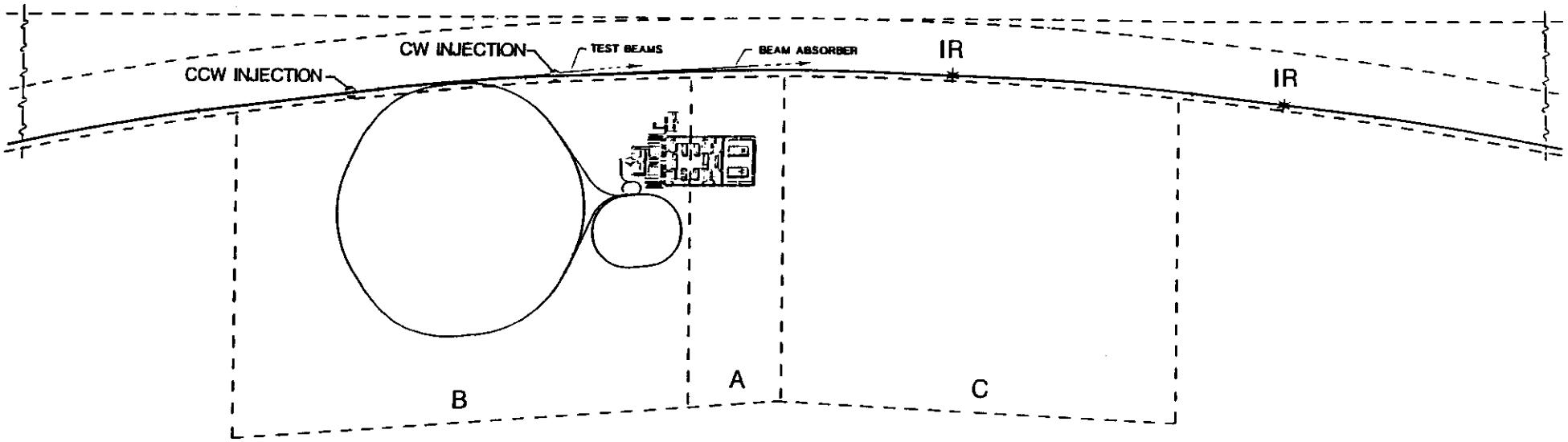
In SSC-N-542, some site-dependent aspects of injector placement were examined along with their impact on land requirements. That examination involved the Injector System as presented in the Conceptual Design Report (CDR). At the DOE Quarterly Review in September 1988, a modified set of injector accelerators was presented. Like the Injector System from the Conceptual Design Report (CDR), the placement of the injector relative to the land areas defined in the Invitation for Site Proposals (ISP) varies as a function of Collider ring depth. In addition, the two-fold symmetries of the LEB and MEB with their slight differences in circumference can lead to a more compact injector configuration and a slight reduction in land requirements relative to the CDR. Figures 1 & 2 illustrate the injector layout for a shallow and deep site, respectively, assuming a bipolar HEB. In contrast to the CDR, the injection lines to the HEB are curved, requiring a total of 120 degrees of bend. For the unipolar HEB solution, the very long straight sections of the MEB can result in quite compact configurations (Figures 3, 4, & 5) with the injection from the LEB and the extraction to the HEB in the same MEB straight section. The injection chain still requires 120 degrees of bend, but now at 1 TeV, so the integral Bxdl is a factor of ten greater than for the bipolar case. For a deep site the unipolar injection in this modified injector design requires less tunnel length than the bipolar injection scheme.



ISP LAND AREA STUDY

MODIFIED INJECTOR

SHALLOW SITE , BIPOLAR INJECTION

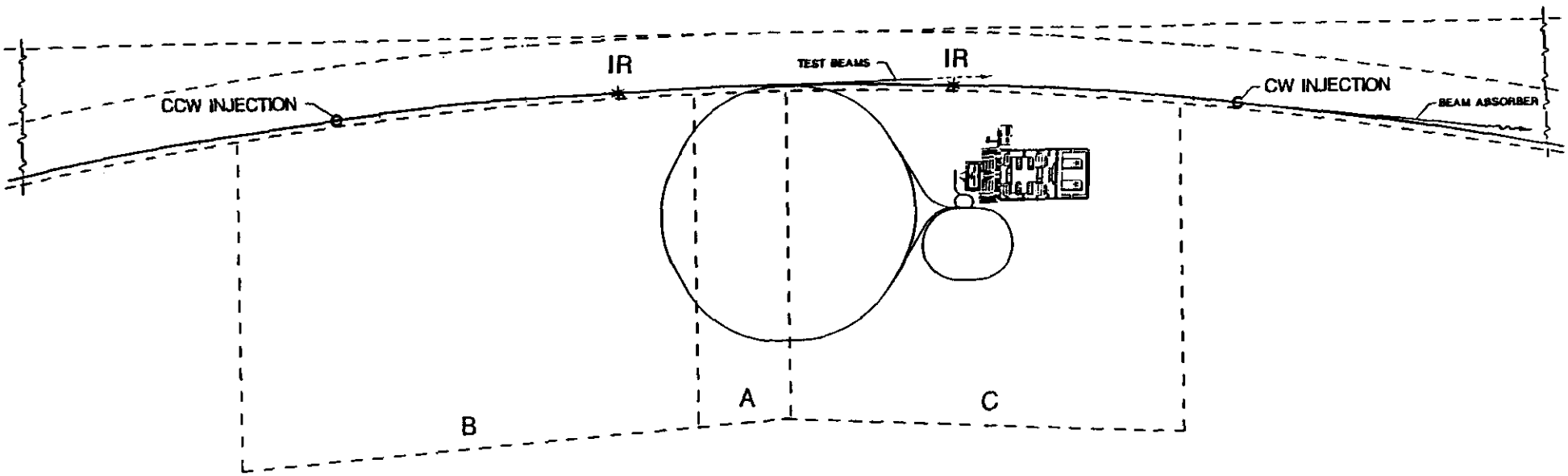
CW TEST BEAMS

Figure 1

0 1500 METERS

0 5000 FEET

SSC CENTRAL DESIGN GROUP		
TITLE: ISP LAND AREA STUDY MODIFIED INJECTOR SHALLOW SITE, BIPOLAR INJECTION CW TEST BEAMS		DRAWING NO B4A340
DWN. BY: T.M.	REV. DATE:	
APPR. BY: T.T.	DATE 9-16-'88	DISK

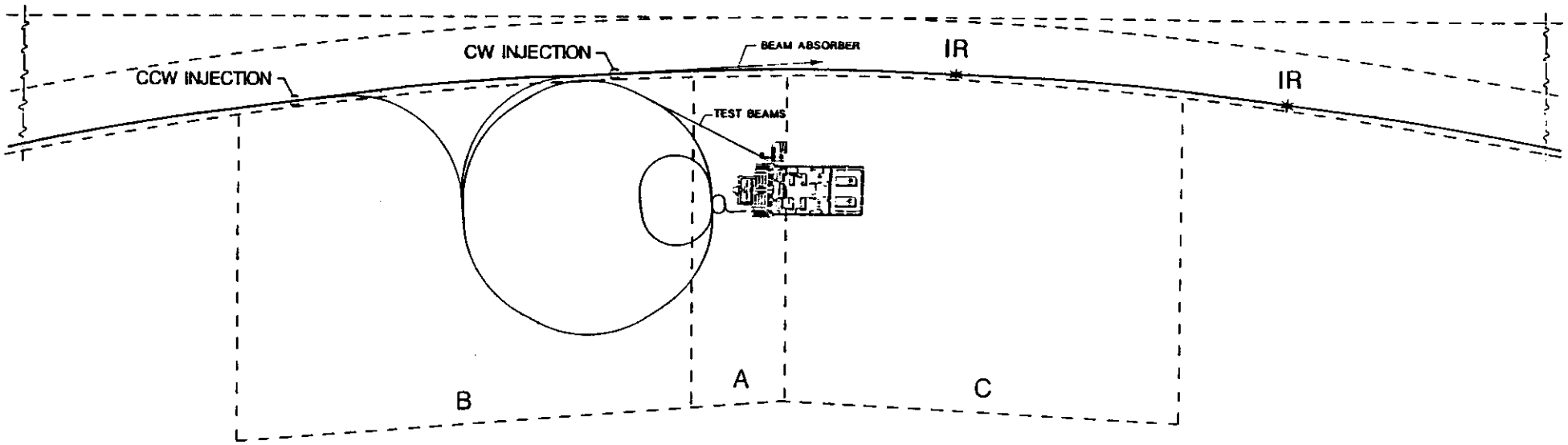


ISP LAND AREA STUDY
MODIFIED INJECTOR
DEEP SITE , BIPOLAR INJECTION
CW TEST BEAMS

0 1500 METERS
0 5000 FEET

Figure 2

SSC CENTRAL DESIGN GROUP		
TITLE: ISP LAND AREA STUDY MODIFIED INJECTOR DEEP SITE, BIPOLAR INJECTION CW TEST BEAMS		DRAWING NO. B4A342
DWN. BY: T.M.	REV. DATE:	
APPR. BY: T.T.	DATE: 9-16-88	DISK: -/-

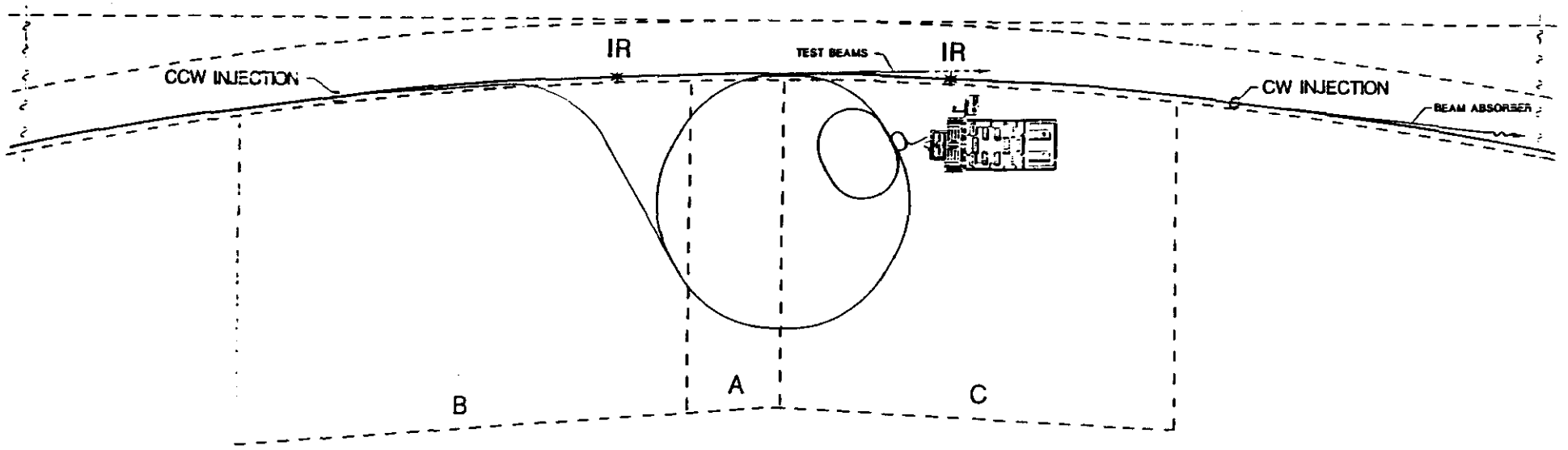


ISP LAND AREA STUDY
MODIFIED INJECTOR
SHALLOW SITE , MONOPOLAR INJECTION
CW TEST BEAMS

0 1500 METERS
0 5000 FEET

Figure 3

SSC CENTRAL DESIGN GROUP		
TITLE: ISP LAND AREA STUDY MODIFIED INJECTOR SHALLOW SITE, MONOPOLAR INJECTION CW TEST BEAMS		DRAWING NO B4A341
DWN BY TM	REV DATE:	
APPR BY TT	DATE 9-16-88	DISK

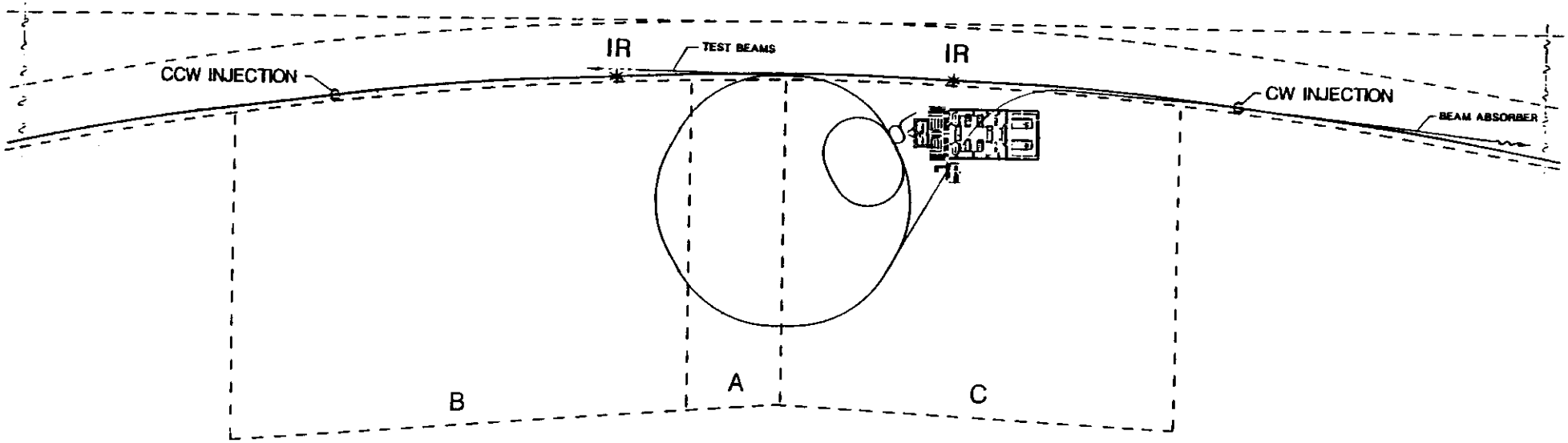


ISP LAND AREA STUDY
MODIFIED INJECTOR
DEEP SITE , MONOPOLAR INJECTION
CW TEST BEAMS

0 1500 METERS
0 5000 FEET

Figure 4

SSC CENTRAL DESIGN GROUP	
TITLE ISP LAND AREA STUDY DEEP SITE, MONOPOLAR INJECTION CW TEST BEAMS	DRAWING NO B4A343
DWN BY T.M. REV. DATE	
APPR. BY T.T. DATE 9-16-88	DISA



ISP LAND AREA STUDY
MODIFIED INJECTOR
DEEP SITE, ALTERNATE MONOPOLAR INJECTION
CCW TEST BEAMS

0 1500 METERS
0 5000 FEET

Figure 5

SSC CENTRAL DESIGN GROUP		
TITLE ISP LAND AREA STUDY MODIFIED INJECTOR DEEP SITE, MONOPOLAR INJECTION CCW TEST BEAMS		DRAWING NO. B4A344
DWN. BY T.M	REV. DATE	
APPR. BY T.T.	DATE 9-16-88	DISK