

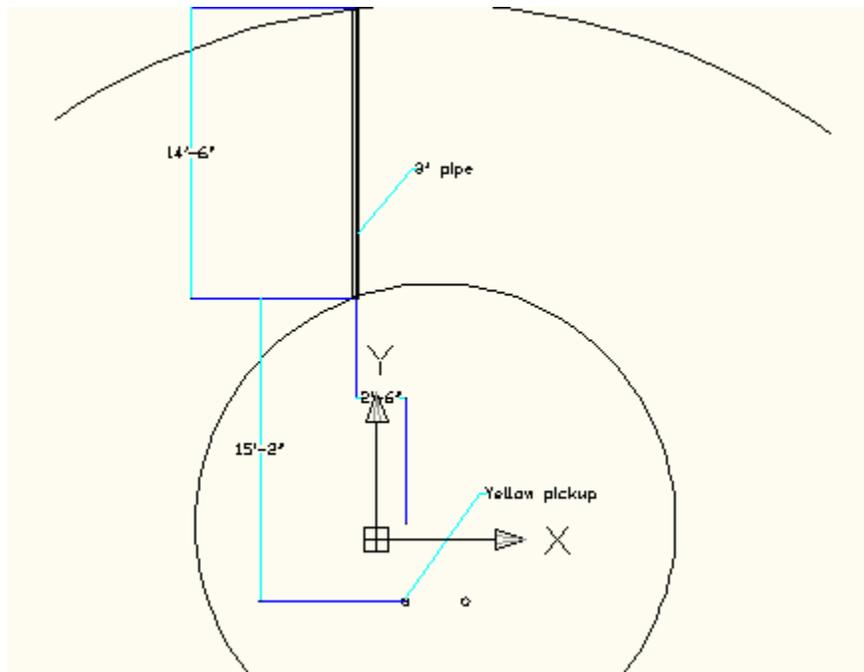


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 for the U.S. Department of Energy

# Memo

*date:* September 28, 2009  
*to:* RSC  
*from:* D. Beavis *DB*  
*subject:* Stochastic Cooling Penetration at 3 O'clock

A 3 inch diameter penetration through the berm at 3 O'clock is planned for the stochastic cooler. The penetration needs to be straight to reduce cable length. The potential radiation dose has been examined similar to that of the 11 O'clock penetration analysis<sup>1</sup>.



**Figure 1:** The planned layout of the 3 O'clock penetration.

Figure 1 shows the geometry of the planned penetration. The increase distance to the top of the tunnel and the increased thickness of the berm are responsible for substantial reduction in potential dose. The pickup cavity is not expected to cause a complete beam loss so that a factor of 0.5 will be used compared to the treatment of 11 O'clock. The pickup cavity is upstream of the yellow triplet and the blue triplet would increase the angle of radiation into the penetration. Thus the factor of 0.5 is reasonable to use. Taking into account the distances a direct dose through the berm for a half beam fault is 78 mrem and 26 mrem through the 3 inch diameter penetration.

The work was authorized to proceed.

## References

1. D. Beavis Memorandum, "[Penetrations for Stochastic Cooling at 11 O'clock--Revised](#)", August 6, 2009.

## CC:

RSC  
A. Pendzick  
A. Drees  
RSC RHIC file