RAI Volume 2, Chapter 2.1.1.5, Second Set, Number 3:

> Provide information on the minimum distances from the surface waste handling facilities to the restricted area of the GROA used for developing χ/Q values in SAR Table 1.8-12 for the offsite public not within the general environment. Also, verify the values of minimum distances listed in SAR Table 1.8-10. For example, the distance used to calculate the χ/Q value for the SSE direction (from NNW) is listed as 18,500 meters in Table 18 of BSC (2007bp). However, in SAR Table 1.8-10, the same distance is listed as 10,200 meters.

1. RESPONSE

The minimum distances from the surface waste handling facilities to the restricted area of the geologic repository operations area (GROA), which is the site boundary used for developing the χ/Q values in SAR Table 1.8-12, are shown in SAR Table 1.8-10. These distances are taken from *General Public Atmospheric Dispersion Factors* (BSC 2007, Tables 9 and 15). The SAR Table 1.8-10 footnote indicates that sectors SSE (wind from NNW) clockwise to NW (wind from SE) intersect with the general environment, and the remaining sectors intersect with areas not within the general environment. SAR Figure 1.8-2 shows that members of the public in the general environment are located to the west or south of the repository and members of the public not in the general environment are located to the east or north of the repository. The minimum distances from the surface waste handling facilities to the offsite public not in the general environment, used for developing the χ/Q values, are shown in Table 1. Table 1 was prepared using the data from SAR Table 1.8-10 only for those sectors that intersect with areas not within the general environment.

For each of the 16 sectors in SAR Table 1.8-10, the minimum distance is the nearest point on the site boundary within a 45-degree sector centered on the direction of interest (BSC 2007, Section 6.3.2.2). Figure 1 shows the wind (from) direction sectors from the surface geologic repository operations area to the site boundary. For the 45-degree sector centered on the SSE direction (wind from NNW) (Figure 1), the lower sector boundary line (at an angle of 22.5 degrees clockwise from the SSE sector center line) intersects the south site boundary at a point within the general environment. The distance from the surface waste handling facilities within the GROA to this point of intersection on the south site boundary is 18,572 (rounded to 18,500) meters. The upper sector boundary line (at an angle of 22.5 degrees counter-clockwise from the SSE sector centerline) intersects the east site boundary at a point not within the general environment. The distance from the GROA boundary to this point of intersection on the east site boundary is 10,208 (rounded to 10,200) meters. The distance of 18,500 meters, used to calculate the χ/Q value for a dose receptor in the general environment (BSC 2007, Table 18), is not listed in SAR Table 1.8-10 for meteorological sector SSE. Only the minimum of the two distances for this sector (i.e., 10,200 meters) is provided in SAR Table 1.8-10. Offsite public doses in the general environment in this sector are calculated using 18,500 meters, and offsite public doses to members of the public not in the general environment in this sector are calculated using 10,200 meters.

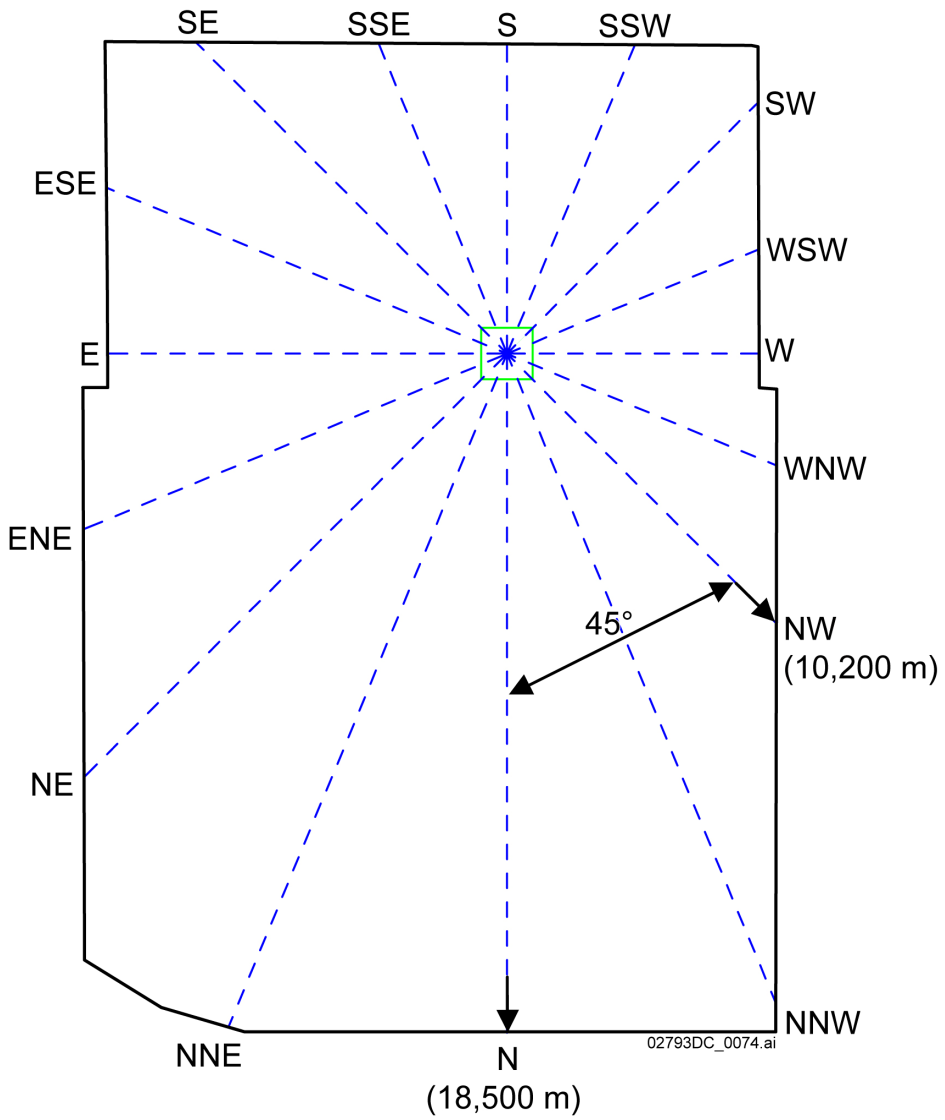

Figure 1. Minimum Distances from the Surface Waste Handling Facilities to Site Boundary

Table 1. Minimum Distances from the Surface Waste Handling Facilities to Each Sector Impacting the Offsite Public Not in the General Environment

Sector	Wind From	Distance (m)
NW	SE	9,100
NNW	SSE	8,400
N	S	8,400
NNE	SSW	8,400
NE	SW	7,200
ENE	WSW	6,700
E	W	6,700
ESE	WNW	6,700
SE	NW	7,800
SSE	NNW	10,200

2. COMMITMENTS TO NRC

None.

3. DESCRIPTION OF PROPOSED LA CHANGE

None.

4. REFERENCES

BSC (Bechtel SAIC Company) 2007. *General Public Atmospheric Dispersion Factors*. 000-00C-MGR0-02800-000-00B CACN 001. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20070813.0003; ENG.20080303.0002.