

Explanation of Aloha Modeling Data

Below is the data entered into the Aloha modeling program used to model the chlorine release that occurred near Macdona, Texas on 28 June 2004. The metrological data was gathered from weather stations at the San Antonio International Airport and Stinson Airport. The data was gathered from The Weather Underground. The data concerning the size of the punctured tank was collected from blueprints provided by the manufacture through Union Pacific, mass of chemical was obtained through Union Pacific. The dimensions of the puncture were determined by observation from the Environmental Protection Agency and Texas Commission on Environmental Quality.

Consistent Data That Was Entered

| | |
|-----------------------|--------------------------------------------------|
| Tank Diameter: | 8.4 feet |
| Tank Length: | 41.9 feet |
| Tank Volume: | 17,378 gallons |
| Internal Pressure: | 77° F (ambient temperature) |
| Chemical Mass: | 90 tons |
| Length of Puncture: | 11 inches |
| Width of Puncture: | 2 inches |
| Location of Puncture: | 4.70 feet from bottom (tank placed horizontally) |
| Amount of Chemical: | 90 tons |

Meteorological Data at 453

| | |
|------------------------|------------------------------------------|
| Height Readings Taken: | 10 meters |
| Air Temperature: | 77° F |
| Wind: | 5 knots |
| Direction of Wind: | From south |
| Inversion Height: | None present |
| Relative Humidity: | 90% |
| Ground Roughness: | urban or forest (based upon observation) |
| Cloud Cover: | 50% (partly cloudy) |

Meteorological Data at 553

| | |
|------------------------|------------------------------------------|
| Height Readings Taken: | 10 meters |
| Air Temperature: | 77° F |
| Wind: | 6 knots |
| Direction of Wind: | From south southeast |
| Inversion Height: | None present |
| Relative Humidity: | 90% |
| Ground Roughness: | urban or forest (based upon observation) |
| Cloud Cover: | 50% (partly cloudy) |

Meteorological Data at 653

| | |
|------------------------|-----------|
| Height Readings Taken: | 10 meters |
| Air Temperature: | 77° F |
| Wind: | 5 knots |

| | |
|--------------------|------------------------------------------|
| Direction of Wind: | From south southeast |
| Inversion Height: | None present |
| Relative Humidity: | 90% |
| Ground Roughness: | urban or forest (based upon observation) |
| Cloud Cover: | 50% (partly cloudy) |

*Please be advised that the documents titled, *Aloha Modeling of Macdona Release at 453*, *Aloha Modeling of Macdona Release at 553*, and *Aloha Modeling of Macdona Release at 653* were created after the release and clean-up had been completed. The documents do not illustrate a true representation of the chlorine release due to the fact that the weather information entered into the model came from two weather stations, one located south east and the second northeast of the release. The models were created as an exercise and are intended to be used in planning for future incidents.