EXHIBIT NO. 1

(Reference: Item No. 4f)

The pulse duration is adjustable from 330 nanoseconds to 8 microseconds. Bi-phase (180 degrees) modulation may be employed in minimum intervals of 330 nanoseconds.

The pulse repetition frequency is also adjusted to the mode of operation, but cannot exceed 100 KHz.

EXHIBIT NO. 2

(Reference: Item No. 4g)

Simple calculation using the minimum 330 nanosecond pulse/code cell duration yields:

Signal Level Below Peak	**Bandwidth**
-3 dB	3.0 MHz
-10 dB	4.5 MHz
-20 dB	13.9 MHz

These values have been confirmed by measurement.

EXHIBIT NO. 3

(Reference: Item No. 6)

The antenna system will consist of one (1) Mark Antenna Products model P-15A120 parabolic reflector and two (2) fixed position micro-patch phased array planar antenna, all with sidelobe reduction fences. The parabolic will be pointed vertically, while the micropatch antennas are pointed 15 degrees from vertical in plane that are roughly 90 degrees from each other. The vertical parabolic will have a beamwidth of ~7.6 degrees and ~27.5 dB of gain. The oblique antennas will have a beamwidth of ~6 degrees by 18 degrees and ~24dB of gain.

Normal operation will consist of sequential transmission in each of the three directions.

EXHIBIT NO. 4

(Reference Item No. 10a, b, c)

(a) The radar will be used in two modes, to obtain wind profiles to altitudes of about two kilometers and when used with an acoustic source to obtain temperature profiles to altitudes of 750 meters.

The pulsed range gated Doppler radar is used to obtain wind profiles by sequentially radiating in three different directions using three antennas; one radiating vertically, one 15° north of the zenith and one 15° east of the zenith. Wind profiles are determined by computer processing the Doppler shift information obtained at each range gate from each antenna.

Temperature profiles are obtained using radiation from the vertical antenna of the pulsed range gated radar and a simultaneously radiated acoustic signal. The Doppler shift in the dominant radar return signal from a given altitude range can provide the temperature at that altitude.

(b) The work proposed would provide continuous hourly averages of the upper air temperature profiles from about 200 to 750 meters above ground level (AGL) and wind profiles to about 2000 meters (AGL). A data base containing information for each day of operation would be developed. The data would be processed to determine seasonal averages, expected variances, and for a given weather condition provide expected temperature and wind profiles. The data would be formatted for use as inputs to computer models used to predict and validate air quality models.

(c) Maintaining air quality will require the development of strategies for determining the spread of air pollution and minimizing its impact on the airshed. Pollution levels depend on the rate, amount, size and location of material injected in the air as well as the cleansing processes. Dominant factors in pollution dispersion are upper air temperature and wind profiles. The lighter particles will rise to a level determined by the temperature profile and dependent on the upper level winds may be displaced and/or spread over the airshed in a predictable fashion. The development of effective pollution control strategies depends upon knowledge of both the contaminating and cleansing processes. the strategies for locating industrial sites and for determining allowable emission levels will depend upon a variety of scenarios involving polluting sources and atmospheric conditions, i.e. temperature, wind, rain. For computer models to estimate air quality temperature and wind profiles must be known or expected values must be known and provided as inputs to the computer models.