to medium sized components and assemblies for the aerospace and related industries.

• VALCOM LTD – Valcom designs and manufactures commercial and military communications and electronic equipment and is recognized as the world's leading manufacturing of whip antennas. The company is also a specialist in built-to-print MF, VF and UHF radio communications equipment.

**AVERAGE WORK FORCE**: PhD – 1
Engineers – 35
Others – 592

**GROSS SALES**: 1987 – $83.5M

**PLANT SIZE**: 175,000 Sq Ft

**EQUIPMENT**: Wide variety of numerical controlled (NC) and computer numerical controlled (CNC) machining centers and lathes, drill presses, milling machines, material handling equipment, computer aided design (CAD) and computer aided manufacturing (CAM) facilities, thermal and vibration electronic components test facility.

**EXPERIENCE**: Present customers of the member companies include various departments in the Canadian and US Governments, and industries in Canada, the US and the international marketplace.

**KEYWORDS**: Program Management; Specialized Fabrication; R&O (Components); Shipborne Helicopter Support Systems; Coupler Systems; Whip Antennas; Electronics Assembly; Machining; Precision Machining; CNC Machining.

**REVISED**: February 88

# ONTARIO HYDRO (Research Division)

**ADDRESS**: 800 Kipling Avenue
Toronto, Ontario, Canada
M8Z 5S4

**CONTACT**: Dr G R Floyd, Supervisor, Research Business Relations (416) 231-4111, X6322

**HISTORY**: Ontario Hydro was established by Provincial Legislation in 1906 and has the authority to generate, buy and distribute electricity throughout Ontario. The Research Division, which occupies the Dobson Research Laboratory was founded in 1912, and is one of the oldest and largest utility research laboratories on this Continent. Ontario Hydro is a financially self-sustaining Crown Corporation that derives no revenue from taxes.

**CAPABILITY**: The Research Division of Ontario Hydro is a fully integrated facility with a broad range of capabilities in research, development and testing. Extensive experience with solving utility-related problems has produced a staff with expertise in such areas as materials science, high voltage science and engineering, concrete technology, organic and inorganic chemistry, biology and geotechnical engineering to name a few. The keyword list gives a more detailed account of the Division's areas of expertise. Many of the techniques and skills developed at the Research Division, while developed in support of the utility, are applicable in other areas.

**AVERAGE WORK FORCE**: Research Division:
Engineers, Physicists, Chemists & Biologists – 298
Technicians & Technologists – 256
Support Staff – 74

**GROSS SALES**: 1986 – $57.0M
1987 – $58.0M

**PLANT SIZE**: 43,000 Sq Meters Kipling Complex (plus other test sites).

**EQUIPMENT**: The following is a list of the major physical facilities. The Research Division also has various sophisticated test and measurement instruments in general use in its laboratories.

• Electrical/Electronic – High Voltage Laboratory (including winter weather chamber), High Current laboratory, Industrial Processes Laboratory (high frequency power, impulse power, high temperature plasma), Electronics Development Laboratory, Mobile Cable Fault Location Laboratory, Mobile High Potential Test Facility, SF6 Substation (full scale), and Battery Laboratory.

• Mechanical/Metallurgical/Structural – Nuclear Process Components Test Facility (full-scale primary Heat Transport Pump Test Set up to 12,600 hp), Seismic laboratory, Anechoic Chamber, Conductor Stress-Strain Laboratory, Heavy Mechanical Test laboratory, Conductor Dynamics Full Scale Test Facility, Non-destructive Evaluation Center, Welding Laboratory, Metallographic Analysis Laboratory, Corrosion Testing Autoclaves and Loops, Scanning and Transmission Electron Microscopes, Tritium Laboratory, and Burst Test Facility (full-scale pressure test on pipes, pressure vessels, etc.).

• Chemical – Analytical Chemistry Laboratory, Radioactive Materials Laboratory, Surface Analysis Facility, Oil Laboratory, Combustion Test Facility, Corrosion Research Facility, and Radiography and Thermography Facility.

• Environmental – Mobile Environmental Monitoring Facility; Environmental Chamber; LIDAR, other Laser Systems; and Micrometeorological Instrumentation.

• Civil – Soil, rock and concrete research and testing laboratories – various strength testing equipment; freeze-thaw testing of concrete, petrographic analysis of geological materials, pore size distribution and surface area determination of porous media.

**EXPERIENCE**: In the past, the Research Division has won many research and development contracts from the Canadian Electrical Association, the Electric Power Research Institute, the Canadian Federal Government, and other public and private organizations, both domestic and foreign.

**KEYWORDS**: Alternate Fuels Research; Atmospheric Research; Biological Research; Biomass; Combustion Research; Concrete Technology; Corrosion Science; Electronics Research; Energy Conversion; Engineering Services; Environmental Assessment; Failure Analysis; Fracture Mechanics; Geotechnical Engineering; High Voltage Engineering; High Voltage Science; Instrumentation; Materials Sciences; Non-Destructive Testing; Nuclear Engineering; Nuclear Waste Management; Organic Materials Research; Pollution Control; Power Systems; Rock Sciences; Soil Sciences; Tritium Technology; Welding Technology.

**REVISED**: January 88

# OPTECH Inc

**ADDRESS**: 701 Petrolia Road
Downsview, Ontario, Canada
M3J 2N6

**CONTACT**: Mr Allan Carswell, President – (416) 661-5904

**HISTORY**: Incorporated in 1974, Optech Inc is Canadian owned. There is only one location at the above address.

**CAPABILITY**: Optech Inc has a broad capability in electro-optical systems with specialization in laser ranging systems. They have designed, developed and manufactured laser systems for atmospheric diagnostics (i.e., atmospheric lidars), water depth measurement, wave height analysis, terrain profiling and high resolution (0.1m) distance measurements. Optech Inc has custom fabrication and R&D capabilities. Primary capabilities are in research, development and systems engineering. Production to date has been limited to custom systems and small volume runs.