

Appendix J

DSS Database and Interface

J.1 RESERVOIR DATA USED IN INFORM DSS

- Facility name and location on major river reaches and tributaries, i.e., location relative to river network;
- Year of construction and reservoir filling;
- Elevation vs. storage vs. surface area curves;
- Active reservoir (or barrage) storage/level ranges (i.e., buffer zone, conservation pool, top of flood control pool);
- Change of reservoir (or barrage) storage over time due to siltation (i.e., siltation rate);
- Tailwater curve (i.e., downstream discharge versus downstream elevation curve);
- Spillway and other outlet characteristics (i.e., outflow discharge capacity vs. reservoir level curves);
- Penstock hydraulic loss functions, if known;
- Penstock and other outlet leakage, if significant, as function of reservoir level;
- Minimum and maximum discharge limits;
- Number and type (i.e., Francis, Kaplan, Pelton) of hydropower turbines;
- Individual turbine characteristics (power vs. net hydraulic head vs. discharge curves, operational turbine ranges, i.e., minimum and maximum power limits);
- Typical turbine maintenance schedule;
- Reservoir operating rules (i.e., seasonal level targets and relationship to releases);
- Historical (evaporation-rainfall) rate sequences (daily, 10-day, or monthly);
- Historical temperature data (min, max, average; daily, 10-day, or monthly);
- Historical sequences of reservoir inflows, levels, discharges, and energy generation at daily, 10-day, or monthly time resolution);
- Location of irrigation and water supply withdrawals relative to reservoir sites (e.g., withdrawal from the river *upstream* of the reservoir, withdrawal *directly* from the reservoir storage, or withdrawal from the river *downstream* from the reservoir);
- Current water use requirements (e.g., irrigation requirements on daily, ten-day, or monthly time resolution);
- Historical water use withdrawals (daily, 10-day, or monthly) from various river network nodes;
- Future (potential) water use scenarios at system nodes consistent with water development plans (formulated as low, medium, and high demand scenarios at daily, 10-day, or monthly time resolution);
- Power demand met by the hydro facilities (hourly demand for typical weeks in each month of the year);
- Flood prone areas (relative to the river network);
- Maximum discharge (release) level not causing flood damage;
- Flood severity as a function of river stage and discharge;
- Environmental flow requirements downstream of the reservoir, if any.

J.2 EXAMPLE INTERFACE SCREENS

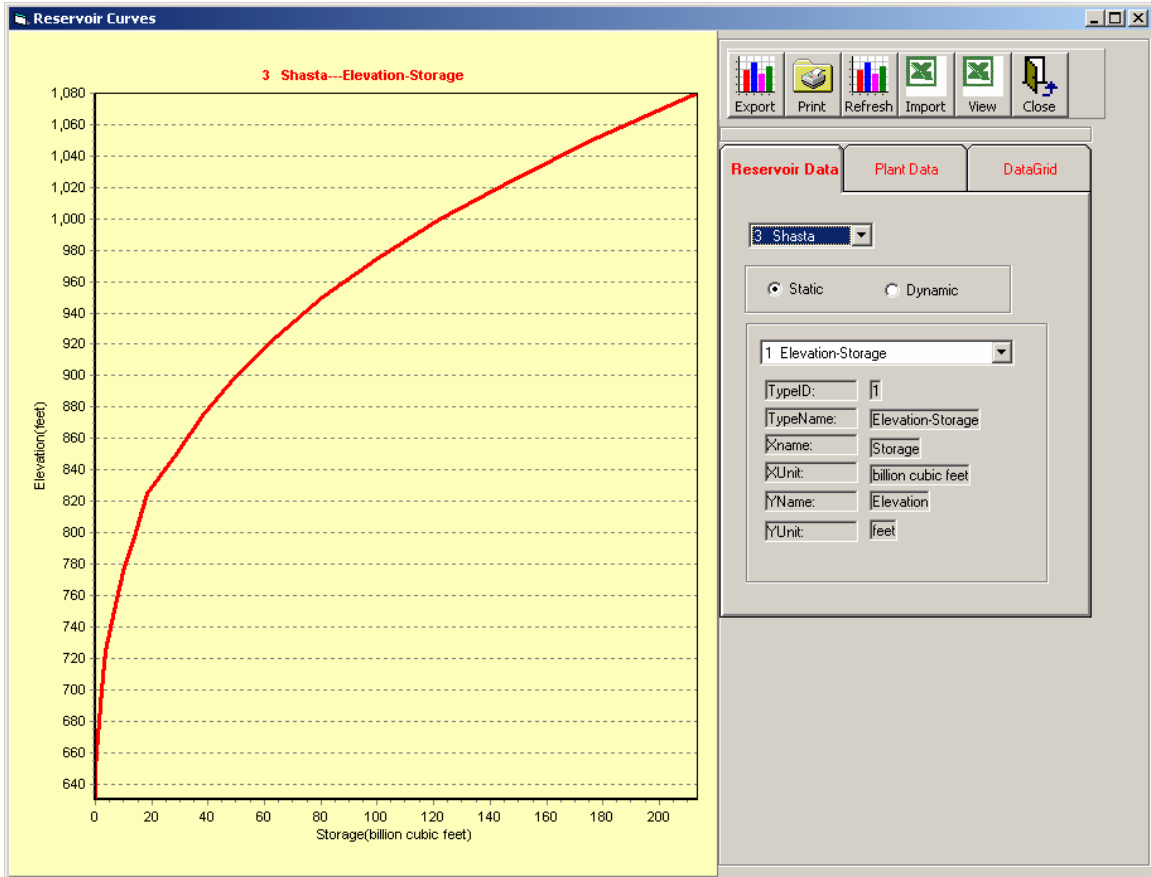
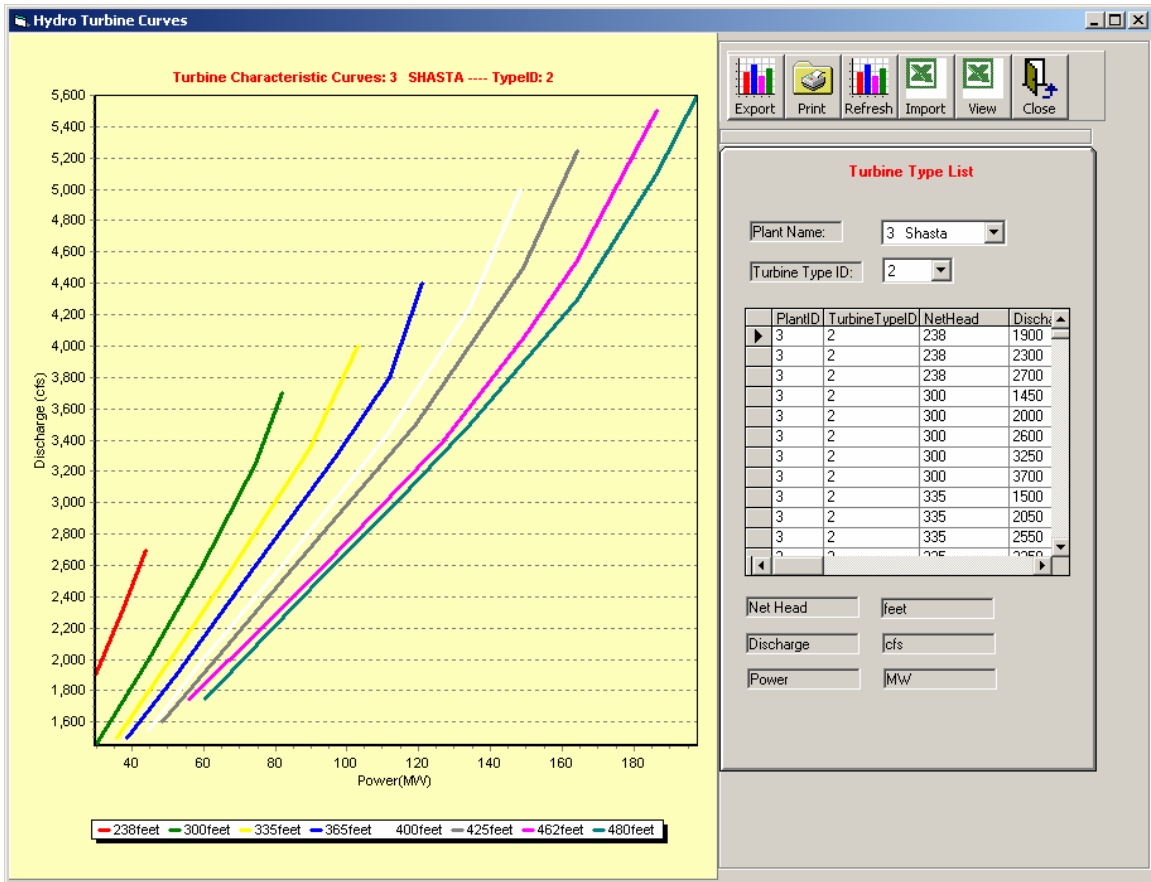


Figure J-1: Reservoir Characteristic Curves



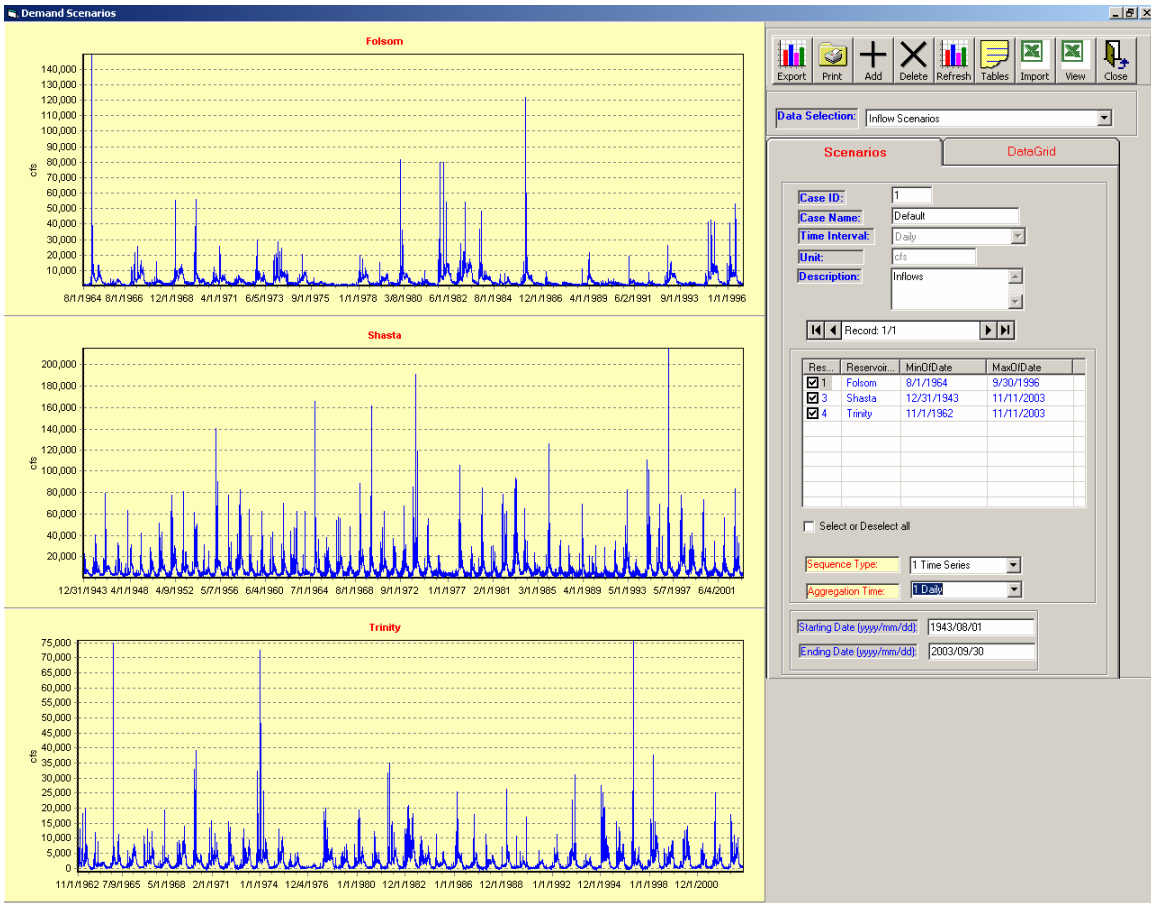


Figure J-3: Daily Historical Inflow Sequences

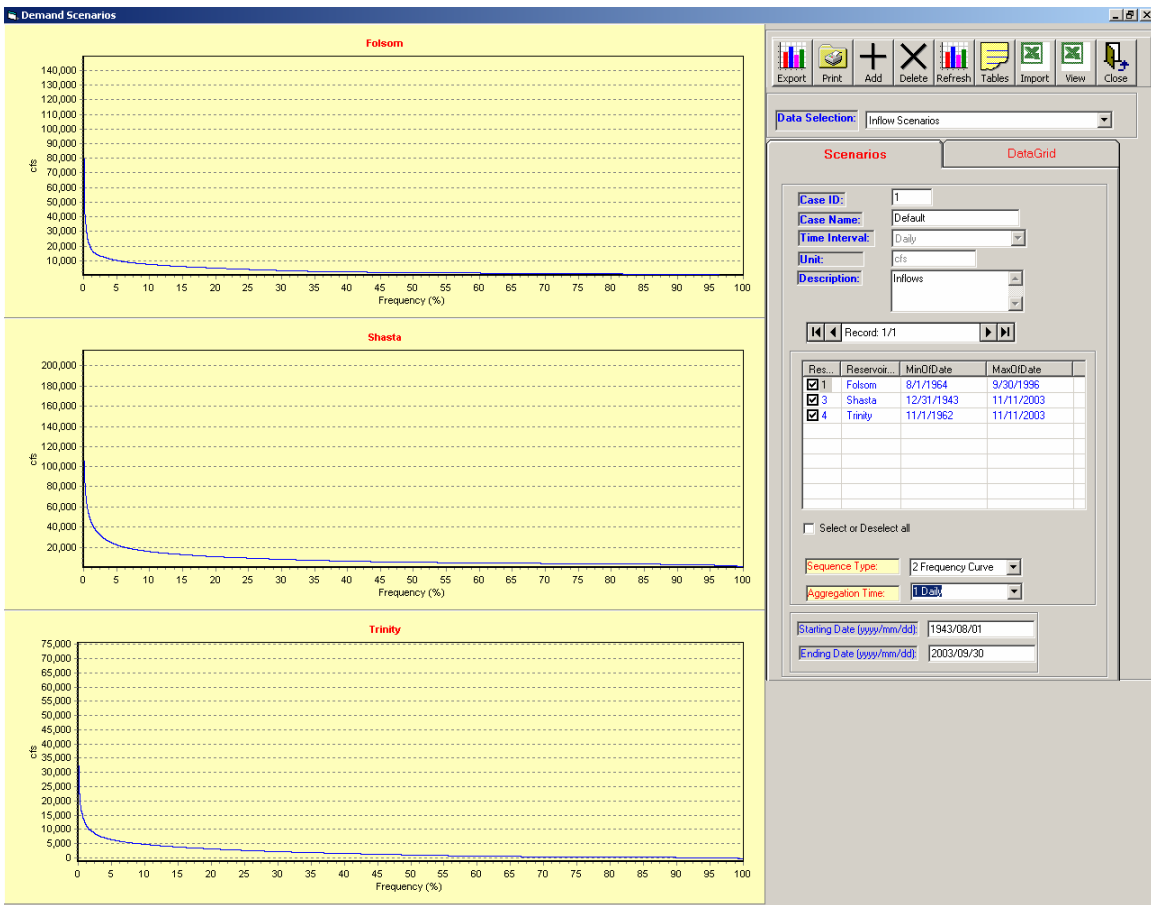


Figure J-4: Frequency Curves of Historical Inflows