6.1. Environmental Measurements and Monitoring Programs

This chapter describes the environmental measurement and monitoring programs for STP 3 & 4. Programs now in place for the existing STP units will be modified to include requirements for the new units, where appropriate. The discussion of environmental measurements and monitoring programs is divided into the following sections:

- Thermal Monitoring (Section 6.1)
- Radiological Monitoring (Section 6.2)
- Hydrological Monitoring (Section 6.3)
- Meteorological Monitoring (Section 6.4)
- Ecological Monitoring (Section 6.5)
- Chemical Monitoring (Section 6.6)
- Summary of Monitoring Programs (Section 6.7)

Monitoring details (e.g., sampling equipment, constituents, parameters, frequency, and locations) for each specific phase of the overall program are described in each of these sections.

6.1 Thermal Monitoring

This section describes the thermal monitoring program that would be implemented to monitor the effects of new units at the STP site.

6.1.1 Existing Thermal Monitoring Program

The Texas Commission on Environmental Quality (TCEQ) specifies thermal monitoring requirements as part of the Texas Pollutant Discharge Elimination System (TPDES) permit process. The TPDES permit #WQ0001908000 (Reference 6.1-1) for STP 1 & 2 requires thermal monitoring at Outfall 001 (Figure 6.1-1). This is the only discharge point from the existing units' Main Cooling Reservoir (MCR) to natural water bodies (i.e., Colorado River Tidal – Stream Segment 1401). Since the MCR is a closed-loop system, discharge from Outfall 001 is not routine. Table 6.1-1 summarizes the current monitoring required. Monitoring is performed using an in situ temperature transducer that continually records temperatures electronically when discharge occurs at the outfall. The daily temperature discharge is calculated as the flow-weighted average temperature (FWAT) and is computed on a daily basis. The daily average temperature is recorded as the arithmetic average of all FWATs calculated during the calendar month. The "daily maximum temperature" is the highest FWAT calculated during the calendar month. The data analysis procedures and reporting requirements are in accordance with the TPDES permit. Temperature is monitored daily at the intake and discharge for STP 1 & 2 in the MCR as part of normal plant operation and maintenance.

6.1.2 Pre-Application, Preoperational, and Operational Thermal Monitoring

The current thermal monitoring plan, as defined under the TPDES permit, will continue to be applicable for the pre-application and preoperational monitoring of the new units. As previously stated, discharges to the Colorado River are not routine. Based on the STP 3 & 4 design, the MCR will also be used for the two new units as a source of cooling water (See Section 3.4). Thermal impacts to the Colorado River from the discharge from the MCR at Outfall 001 were determined to be small (see Subsection 5.3.2), therefore no additional thermal monitoring is anticipated for STP 3 & 4 beyond the current TPDES permit requirements. The current permit will be modified or revised if necessary to accommodate STP 3 & 4. Operational monitoring of the intake and discharge structures of the MCR will continue for STP 3 & 4.

6.1.3 References

6.1-1 Texas Commission on Environmental Quality, Permit to Discharge Wastes under Provisions of Section 402 of the Clean Water Act and Chapter 26 of the Texas Water Code – Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0001908000, Austin, Texas, July 27, 2005.

Table 6.1-1 Thermal Monitoring Program

Monitoring Location	Constituents (units)	Frequency	Sample Type
001 (Final Plant Discharge combined waste streams from Units 1 and 2)	Temperature (°F)	Continuous [1]	In Situ

[1] When discharge occurs from outfall – last discharge occurred on March 4, 1997
Source - Reference 6.1-1

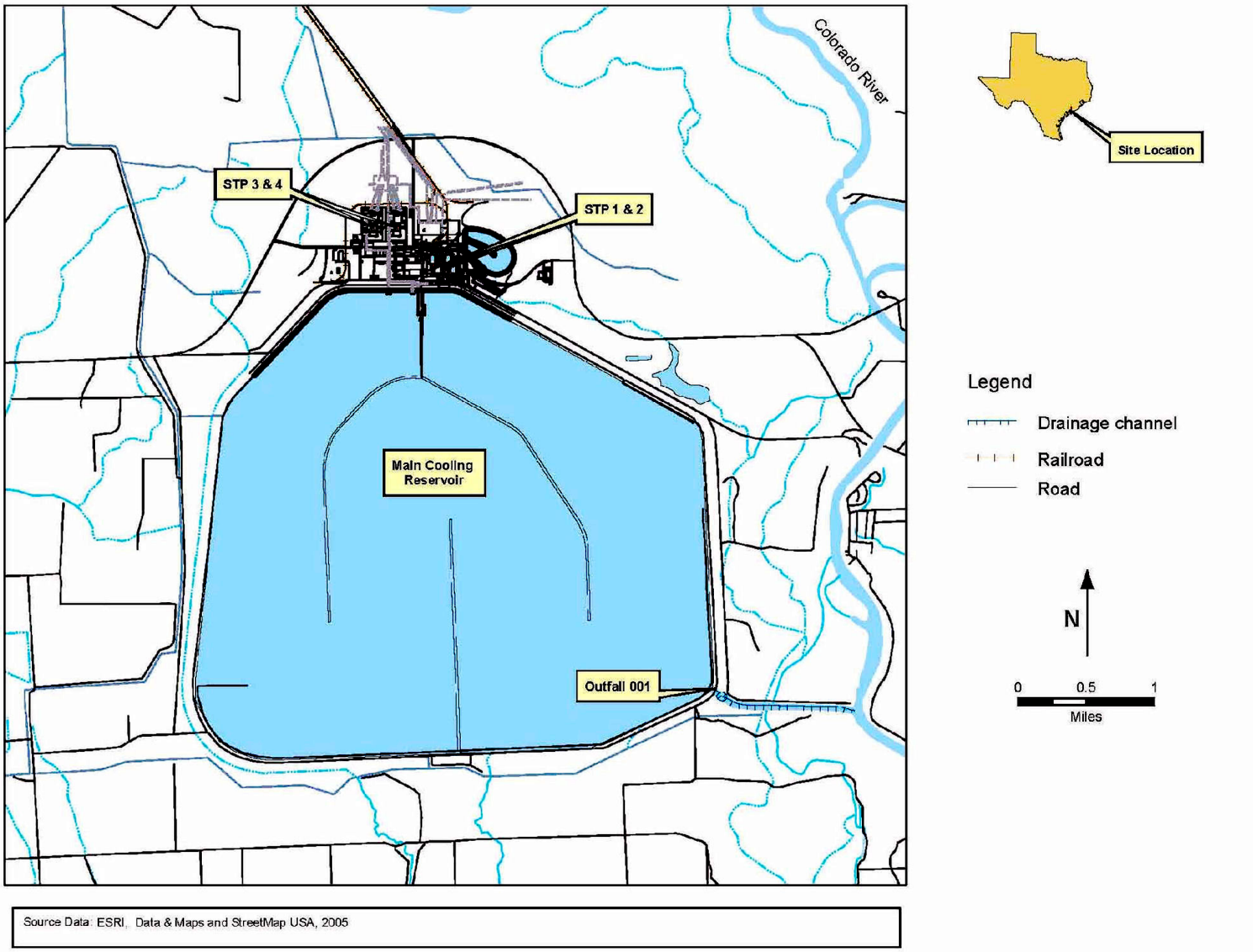

Figure 6.1-1 Thermal Monitoring Location