

## **SURAT SMART CITY PROJECTS**

### **ABD-1(E)**

#### **1. Name of the Project:**

Construction of 45 MLD French well under Smart City Project.

**Vision:** To fetch sub surface water below river Tapi and to provide back up to the city during tough times.

#### **Background:**

Surat City, known as the Diamond city, Textile city and the business hub and Economical capital of Gujarat is in all time high demand of Sweet water. Looking at the ever increasing demand in water, the surface water of River Tapi which serves as the main source of Water today won't alone be sufficient to meet the water demand of city. For this particular reason Surat has moved forward in Constructing French wells to extract the sub surface water of River Tapi, which otherwise used to get mixed with sea water. Surat has initiated this concept in year 1982 by constructing a 45MLD French well at Sarthana water works on experimental basis. Acheiving desired output, surat moved with another french well of same capacity at sarthana water works.

French wells commonly work on the principle of Radial collecting well whose screens have a radial or horizontal component. Types of radial wells include collector wells, horizontally directionally drilled wells, and slant or horizontal wells. Collector wells are the most common type of radial wells. The basic components of collector well design are a vertical shaft with horizontal screen laterals. These laterals typically extend up to tens of hundreds of meters and vary in number based on aquifer characteristics.

Radial wells take advantage of natural filtration through aquifer materials, which reduces treatment costs. Maintenance is reduced as the longer horizontal screens reduce water velocity, thereby reducing well head losses and clogging. Furthermore, lateral well screens are able to exploit the maximum saturated thickness of shallow aquifers. For example, up to 500 m of horizontal well screen can be developed in formations that would accommodate only 20 m of vertical well screen. Horizontal directionally drilled (HDD) wells, which are widely used in the oil and gas industry, are now being developed for groundwater applications.

#### **Need of French well:**

Apart from being a supplementary supply media, French wells have a special feature where the collected water is no more required to be treated as raw water in Water Treatment Plant. The raw water Collected in French well can be supplied directly after

chlorination which helps to maintain the supply demand during natural disasters when the Treatment plants are overloaded or inoperative.

**Sector:** Hydraulic Department

**2. Cost and financing:**

▪ SCP Cost	:
▪ DPR Cost	: Rs. 25.00 cr.
▪ Tender Estimated Cost	: --
▪ Tender Sanctioned Cost	: --
▪ Convergence Scheme/PPP/SMC	: AMRUT YOJNA
▪ Convergence/PPP/SMC Costing-	: 25.00 CR.

**3. Current status of the project implementation:** - Subject to Aquifer mapping study. Aquifer mapping work awarded and would be completed within 6 to 8 months.

**4. Impact/ Envisaged Impact of the project:**

As the collected water at tail end of french well discards the need of conventional treatment, it can be speedily moved to the supply system just by initial chlorination. This particular aspect of French well serves as the backbone of water supply system during crucial time of flood when the Treatment plants are generally inoperative due to failure of electrical/mechanical parts of the plant or are overloaded in treating raw water which takes hours together to meet the demand of city.