



*Project Name:*

*Water Plant, Kundrapuvani Palem Village,  
Visakhapatnam district.*

*Date: 5/3/2017*

*Prepared by: Vijay Oruganti*

Contents

1. Project Description: .....	3
2. Project Purpose.....	3
3. Project Funding & Sponsors .....	3
4. Detailed Specifications & Estimated Budget.....	4
5. Project Schedule .....	4
6. Project Deliverables .....	4
7. Risks .....	12
8. Authorization .....	13

*Note: Select all (ctrl + A) and hit the "F9" key to update all document references and the table of contents*

## **1. Project Description:**

To provide drinking water for the village Kundrapuvani Palem in Visakhapatnam District. The water plant will support 3 villages within a 500 metre radius benefiting a population of around 2,000 people.

## **2. Project Purpose**

At present, the village drinking water facility is connected with a Bore point with no purification. The water has high TDS content and hardness causing health problems to the villagers. Hence, Sri Sathya Sai Seva Organization (SSSSO) Visakhapatnam has proposed installing a Reverse Osmosis plant to supply purified drinking water. SSSSO and the villagers have constructed the plant room at a cost of Rs. 100,000. Sri Kannuru Suryanarayana has donated Rs. 60,000 towards the cost of the borewell. A team of members under SSSSO, zone III will maintain the plant. The Albany Sai Group has approached AAA to commission the water plant as AAA has successfully and efficiently executed several water plant projects in other villages in Andhra Pradesh.

## **3. Project Funding & Sponsors**

The village already has a shed with power to house the water plant. The remaining project is being fully funded by members of the Albany Sai Group with no financial dependence on AAA.

AAA will be contributing procurement and project management services and their expertise in water plant projects for smooth commissioning of the project. AAA will also provide necessary guidelines and directions to the project stake holders to ensure successful implementation and ongoing maintenance of the water plant.

### **Project Stakeholders:**

#### **1) Kasireddy Appala Naidu**

Kundrupuvani Palem Village, Kintada Post

K. Kotapadu Mandal, Visakhapatnam District

Andhra Pradesh,

Phone: +91 988 518 4411

Email: kasireddyappalanaidu@gmail.com

#### **2) R Sashi Bhusan**

Phone: +91 984 928 6800

#### **3) V R Nageswara Rao**

Phone: +91 984 887 7925

- 4) **Kannuru Appala Naidu, Convenor**
- 5) **Kannuru Suryanarayana**
- 6) **Kalluri Srinija (Project Sponsor, Albany Sai Group)**
- 7) Phone: +1 518 813 6319
- 8) **Pavan Jalluri (Project Sponsor, Albany Sai Group)**  
Phone: +1 518 779 9673

#### 4. Detailed Specifications & Estimated Budget

By executing this project, will meet AAA objective of “To serve backward regions of Andhra Pradesh through sustainable community based projects in public health, medical, education, sanitation and cultural propagation”.

Estimated budget is Rs. 250,000/- (USD 3,970).

#### 5. Project Schedule


Identify the project key dates

Date	Description	Responsible Party
4/25/17	New Project Request received	AAA Board
5/2/17	Final quotations received	Vendors
5/3/17	Project charter prepared	Vijay Oruganti
5/3/17	Vendor finalized (Godavari Mineral Water Technologies)	AAA Exec Team
5/3/17	PO sent to selected vendor	Raman Kota
5/5/17	PO acceptance by vendor	GMWT
5/8/17	Release of First Payment	AAA Exec Team
5/9/17	Delivery of materials and begin Installation	GMWT
5/15/17	Establish Operating Procedures	Village Ops Team
5/20/17	Installation complete	GMWT
5/22/17	Inauguration	Stakeholders


#### 6. Project Deliverables


The final product of this project is assembled unit or 1000 LPH water plan installed and operational. The assembled unit consists of the below parts


**Capacity : 1000LPH RO WATER PLANT****Equipment details (from Godavari Mineral Water Technologies quotation)**

	Equipment	Technical Specifications	Material of construction	Make & Qty	Image
01	Raw water pump	Power Range-0.75kW (1 HP) Voltage range-single phase-220-240v 50HZ, AC supply Maximum Total Head- 41 meter Maximum flow rate- 18 lps (68.8 m/hr)	Impeller- Cast Iron / SS - 304 / Noryl Pump casing-cast iron Shaft-ss-410 Motor frame-cast iron/aluminium Bracket-cast iron	<u>kirloskar/Willo</u> 1 no	


Application: Raw water Pump can suck the water from feed water tank and supply to media filters

02	Sand filter	Volume capacity-104.4 lit/3.7 cu ft Weight -10.35 kgs, height-1665 Opening-SIDE /Top Dimensions in mm -1400x300x334 Operating temperature-49 degrees maximum Operating pressure 150 PSI/10.5 Kg f/c	Composite material with LLDPE inner Filament winding out side	<u>Aventura/Pentair</u> 1 no	
----	-------------	--	--	---------------------------------	--


03	Sand Media	Silica based Specific gravity- 2640 kg/M3 Appreance -Natural rounded particle Colour : light whitish and brown	Natural river side sand with fine nature mix of white quartz particles	<u>GMT</u> 150 kg	
----	------------	---	--	----------------------	---

04	Sand filter Multiport valve	Inlet/out let vessels -1 ½" BSPM union Mount : side/open type 40 NB Pressure gauge & sampling points on: ¼ "BPSF Re-gen rant suction tubing size : ¾"BSPF Injector ratio: 1:1 Black injector suction rate : 750 lph Maximum flow service/rinse/Back wash:14 m3/hr@0.5 kg/cm2 Maximum operating pressure:5 kg /cm2 Maximum pressure for uniform suction: 2 kg/cm2	Valves in ABS material of construction	<u>Ukl/equle nt</u> 1 no	
----	-----------------------------	--	--	-----------------------------	---


Application: sand filter separate small amount of fine solids (< 100 microns) can be captured by adopting though coagulation & flocculation.

02	Activated carbon filter	Volume capacity-104.4 lit/3.7 cu ft Weight -10.35 kgs, height-1665 Opening-Top /side Dimensions in mm -1400x300x334 Operating temperature-49 degrees maximum Operating pressure 150 PSI/10.5 Kg f/c	Composite material with LLDPE inner Filament winding out side	<u>Aventura /Pentair</u> 1 no	
----	-------------------------	--	--	----------------------------------	---

Application: Activated carbon filter can remove chlorine and odour of water


03	Activated Carbon	Appearance –Black granules Particle size: 4/8,8/16 Iodine Adsorption 900 mg/+25 PH-9-10 Moisture -5% Total surface area- 600 m2 /gm Ash content- 5%	<b>Produced</b> from carbonaceous source materials such as nutshells, coconut husk, peat, wood, coir, lignite, coal, and petroleum pitch.	<u>GMT</u> 100 kg	
----	------------------	---	---	----------------------	---

Application: **Carbon filtering** is a method of **filtering** that **uses** a bed of **activated carbon** to remove contaminants and impurities, using chemical adsorption. Each particle/granule of **carbon** provides a large surface area/pore structure, allowing contaminants the maximum possible exposure to the **active** sites within the **filter** media.


05	Sand filter Multiport valve	Inlet/out let vessels -1 ½" BSPM union Mount : side type/top 40 NB Pressure gauge & sampling points on: ¼ "BSPF Re-gen rant suction tubing size : ¾"BSPF Injector ratio: 1:1 Black injector suction rate : 750 lph Maximum flow service/rinse/Back wash:14 <a href="#">m3/hr@0.5</a> kg/cm2 Maximum operating pressure:5 kg /cm2 Maximum pressure for uniform suction: 2 kg/cm2	Valves in ABS material of construction	<u>Ukl/equent</u> 1 no	
----	-----------------------------	---	--	---------------------------	---

Application: Multiport valve primarily to help clean or back flush the filter media. ...


Clockwise and anticlockwise rotating of handle, multiple *functions*

06	Micron cartridge	20" Wound Filter Cartridges FDA Compliant Polypropylene Filter Yarn FDA Compliant Polypropylene, 1 1/6" I.D Filter Core Length: 19 7/8"  Filter Outer Diameter: D ± 1/16"	Polypropylene Filter Yarn	<u>Aqua/equalent</u> 2 no	
----	------------------	--	---------------------------	------------------------------	---


Application: Essentials end filters, to get a super clarity & extra sparkle to water that is already filtered by a conventional sand filter. Very fine suspended impurities, colloidal matter, chlorine traces sand particles etc. which escape untrapped in sand filter, are easily separated in these filters

07	Micron Housing	4.5 x 20 inch Maximum temperature 100 f Maximum operating pressure 125 psi Inlet out let opening 1 1/2"	Fibre Reinforced Polypropylene	<u>Big blue/GMT</u> 2 nos	
----	----------------	--	--------------------------------	------------------------------	--


Application: Cartridge filters are the machines which is used in filtration purpose by uses the filtration ... it through a variety micro porous filters, ultra filtration units, green sand cartridge filters,

08	Vertical Multistage centrifugal pump	Power Range(kW)- 2.2 kW Speed -2900 rpm MODEL-3-33 versions-AC, 1Ph, 230V, PSC, [incorporated with TOP] AC, 3Ph, 380/415V duty-S1 (Continuous) Degree of protection-  IP 55 (Optional IP44, IP54) Class of insulation-F' / 'B' (Optional) Flange type-  Round / PJE Discharge range-  1 - 110 m <sup>3</sup> /h Head range-10 - 330 m Maximum suction lift-7meters Sealing type-Mechanical Seal (Cartridge Type) Maximum liquid temperature-	Impellers-ss Diffusers-ss Wear rings-Lead free alloye Shaft -ss Shaft sleeves-ss	<u>Grundfos/lubequivalent</u> 1 NO	
----	--------------------------------------	--	--	---------------------------------------	---


		-15°C to +120°C Maximum operating pressure-30 bar			
--	--	--	--	--	--

09	Thin film composite element	Permeate Flow: 10,000 gpd (37.9 m3 /d) Salt Rejection: 99.7% (99.5% minimum) Type Configuration: Spiral Wound Membrane Polymer: Composite Polyamide Membrane Active Area: 365 ft2 (33.9m2 ) Feed/Brine Spacer Thickness: 34 mil (0.87 mm) Application Data* Maximum Applied Pressure: 600 psig (4.14 MPa) Maximum Chlorine Concentration: < 0.1 PPM Maximum Operating Temperature: 113 °F (45 °C) pH Range, Continuous (Cleaning): 2-10 (1-12)* Maximum Feedwater Turbidity: 1.0 NTU Maximum Feedwater SDI (15 mins): 5.0 Maximum Feed Flow: 75 GPM (17.0 m3 /h) Minimum Ratio of Concentrate to Permeate Flow for any Element: 5:1 Maximum Pressure Drop for Each Element: 15 psi	Configuration: Spiral Wound Membrane Polymer: Composite Polyamide Membrane Active Spacer Thickness: 34 mil (0.87 mm)	<u>Filmtech</u> <u>/LG</u> <u>equal</u>  <u>2 no</u>	
----	-----------------------------	--	--	--	---


**Reverse osmosis (RO)** is a water purification technology that **uses** a semipermeable **membrane** to remove ions, molecules, and larger particles from feed water.

10	Membrane housing	DESIGN PRESSURE : 250 PSI & 400 PSI MAX. OPERATING TEMPRATURE : 120 F / 50 C MIN. OPERATING TEMPRATURE : 20F / -6 C TESING PRESSURE : 280 PSI & 446 PSI OPERATING PH RANGE : 3-13 CLEANING PH RANGE : 2 â€“ 14	Integrated Looking Segments/ Screws Straps & Saddles Included Certified Manufacturing Facility 250PSI & 400 PSI Maximum Operating Pressure. MOC: Stainless Steel Operating Pressure: 250 - 400 psi Stainless Steel, High Polished Exterior End Entry	<u>GMT</u> <u>1 NO</u>	<b>FRP Membrane Vessel</b> 
----	------------------	---	--	---------------------------	---




11	Rota meter	Accuracy $\pm 2\%$ fsd Meter body construction-Moulded polycarbonate End connectors-ABS O ring material-NITRILE Float material-SS316 Temperature limit Pressure limit	Ukl 100 L-model 0-1200- range $\frac{3}{4}$ " BSP(M) Dimensions 275x81x50x242	UKL-2 no	
----	------------	---	--	----------	---


The **rota meter** is an industrial flow meter **used** to measure the flow rate of liquids and gases. The **rota meter** consists of a tube and float. The float response to flow rate changes is linear, and a 10-to-1 flow range or turndown is standard.


12	Pressure gauge	Liquid Filled $\frac{1}{4}$ " NPT Connections Stainless Steel Case Available with Bronze or Stainless Steel Internals Offered in Panel Mount (back mount) and In-Line (bottom mount) Models	Range-100 psi Bottom -Brass Inside liquid-Glisarin	Waree/ GMT-2 no	
----	----------------	---	--	-----------------------	--

A manometer is a good example as it **uses** a column of liquid to both measure and indicate **pressure**. ... A vacuum **gauge** is an absolute **pressure gauge used** to measure the **pressures** lower than the ambient atmospheric **pressure**.


12	Dosing pump	Dosing rate @ 4 Kg/Cm2-1.5; 3.0; 6.0 & 10.0 Lph Suction/Discharge tubing-4/6 mm Frequency- Up to 400 spm Electrical- 230 V AC, 50 Hz Power consumption at 400 spm- 30 Watts	Level switch interlock External fault relay output 4 to 20 mA input Pulse input facility	E-dose	
----	-------------	---	---	--------	---

14		RO systems creates salt concentrated water streams that could produce scale or fouling, while "the narrow feed water channel found in your spiral wound and hollow fibre elements accentuates scaling		GMT	
----	--	---	--	-----	--


	Antiscalent Dosing chemical	and fouling". GMT membrane anti-scalants are a pre-treatment programs designed to eliminate scale and reduce fouling in membrane systems, regardless of the feed water source.	For smooth running of filter		
--	-----------------------------	--	------------------------------	--	---


13	Chemical tank	natural white, round polyethylene secondary containers feature re-curved handles for easy lifting and will withstand temperatures from -40° to 160° F. Made from FDA approved natural HDPE plastic resins.	Virgin HDPE	Sintex/GMT	
----	---------------	--	-------------	------------	---


15	LCD Panel board	Low Pr. Switch High Pr. Switch Permeate tank level switch. Raw water tank level. Current overload protection. Dry running protection. Digital Amp. Meter, displays RWP and HPP current alternatively. Debounce Delay for Low Pr. Switch is settable. Auto flushing, during startup and stopping of plant as well as cyclic flushing. Low Level in dosing tank	Suitable for Raw Water Pump and High Pr. Pump b HP.		
----	-----------------	---	---	--	--


16	Float Ball	ank Level Control Valves. ... the level drops, <b>valve</b> will open, disengaging the shut off <b>valve</b> , allowing feed water to the <b>RO</b> ... For <b>use</b> with atmospheric (non-pressurized) storage tanks or other reservoir.	Industrial type and open type	<u>GMT</u> <u>2 NO</u>	
----	------------	---	-------------------------------	---------------------------	---


17	Membrane refreshing system: It can be re flush setting for periodical refreshing, A complete range of customised setup.			GMT	
----	---	--	--	-----	--


18	Solenoid valve	Industrial I type Opening 1"	Stainless steel	GMT	
----	----------------	---------------------------------	-----------------	-----	--

19	Ultra violet Treatment set	Stainless steel housing Opening 1" Length 1 meter Discharge capacity –Max 4000 lit	SS Lamp- Philips	GMT	
----	----------------------------	---	---------------------	-----	---

18	Low pressure switch	Pin type  Set point adjustable.  Both NO / NC contacts.  Fixed hysteresis.  Easy to install.  Excellent repeatability	GMT	
----	---------------------	---	-----	---

19	High pressure switch	Set point adjustable. Both NO / NC contacts. Fixed hysteresis. Easy to install. Excellent repeatability.	Switch type-SPDT Micro Switch contact rating	GMT	
----	----------------------	--	---	-----	---

20	Product water Tank	Capacity-1000 lit Dia-1400 mm Total height Including stand - 2150 mm Thickness-4.5 to 6 mm	316 Grade / Special Pharmaceutical Grade / Agitator Type SS Containers can also be made against customer request *** All the containers are multiple double ribbed to give High Impact Strength and Robustness **** All The containers have a Hot Dipped Galvanised Stand (Acid washed and dipped in Hot Zinc Bath) to enhance the Corrosion	Lotus/Aqua/GMT	
----	--------------------	---	--	----------------	---

21	Feed water tank	Capacity – 3000 liters Dia-71.26 Height-86.22 Manhole-20.0	A single layer tank with white outer layer with 100% UV stabilised white outer layer & Most modern design. Made with 100% virgin material for Extra packing for product safety. Created with Food Grade material (FDA), for hygienic water storage	Sintex Reno/ isi approved	
----	-----------------	--	--	---------------------------	---

SL NO	ITEMS	Size/capacity	Qty	Make
01	Main Pipe line	CPVC	-	ashirvad
02	Drain pipe line	PVC	-	Pvc/sudakar
03	Internal electrical wiring	4 square mm	-	legrand
04	Hose pipe	1/4 <sup>th</sup>	-	-
06	Ball valves	BRASS	-	ashirvad
07	Adhesive	750 ml	-	ashirvad
08	Online TDS monitoring	available		

## 7. Risks

This is our first project with the chosen vendor Godavari Mineral Water Technologies. However the vendor has a good reputation and full confidence of the village.

## 8. Authorization

Provide the names of those business sponsors that must sign the Project Charter. Once the project Charter is signed by the project sponsors, the project is authorized to start.

### AAA Board Approval:

_____ [Project Donor]	Date: _____
_____ [Vijay Oruganti – Project Lead, BOD]	Date: _____
_____ [Chandra Sekhar Narisetty – Purchasing officer, BOD]	Date: _____
_____ [Raman Kota – Project Committee Chair, BOD]	Date: _____
_____ [Venkata Srinivas Nidamanuri – <b>President</b> ]	Date: _____
_____ [Mahesh Nallamothu - <b>Secretary</b> ]	Date: _____
_____ [Chandra Sekhar- <b>Treasurer</b> ]	Date: _____