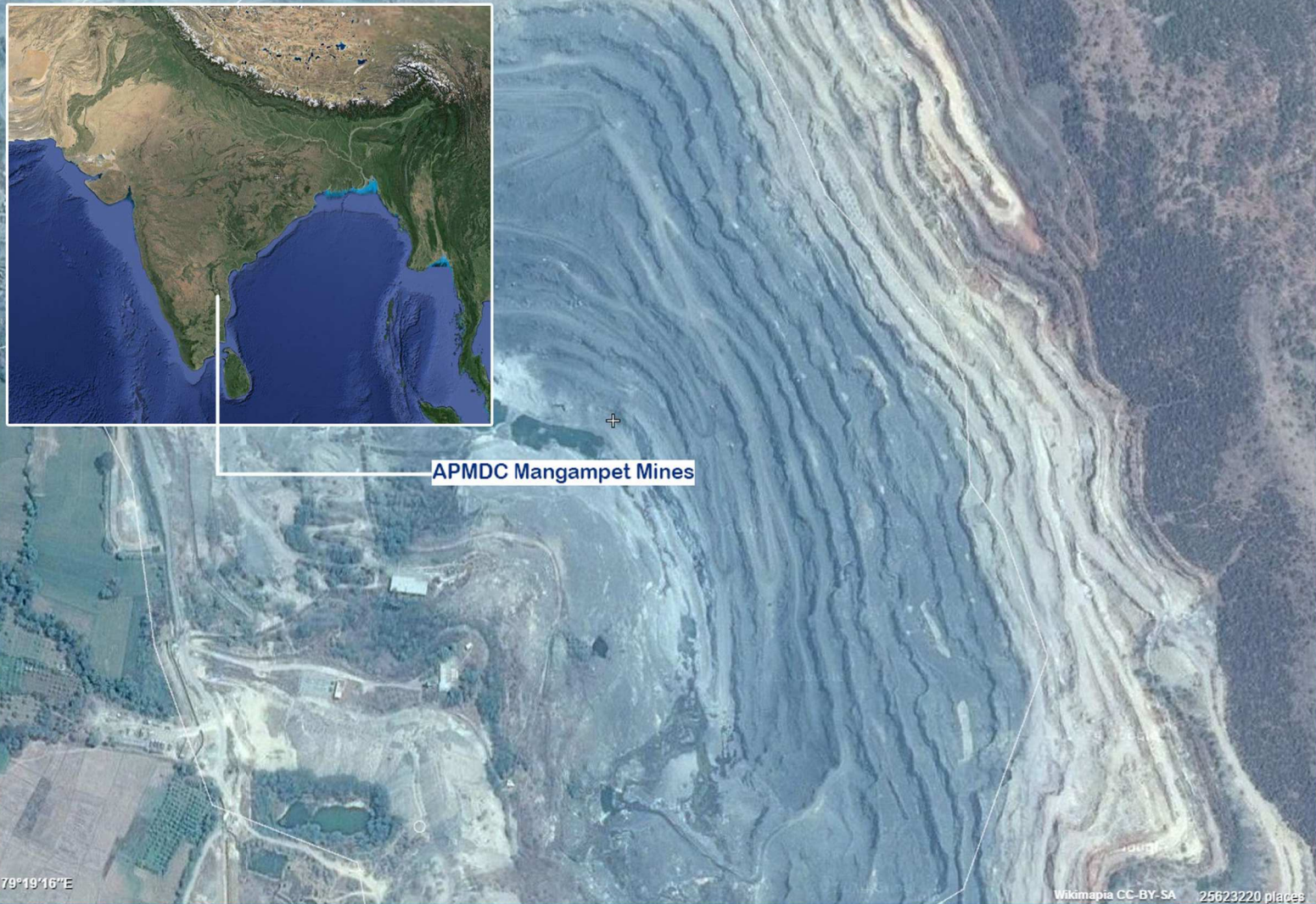


The Open Cast Mine Dewatering

At Barytes Mines, Mangampet Project, Kadapa District by APMDC-Andhrapradesh, India.



The Situation

Barytes Project, Mangampet, kadapa District: Mining lease of 225.05 Hectare and working since 1975 onwards. Still there is a reserve of 50 MT. The life of the mine is another 17 to 20 years. This is the main resource to the Corporation.

- At the time of Installation the dead water in mine was approximately 2,50,000 m³ -which requires 22 to 25 days of dewatering.
- 1 cm of Rain dumps 1000 m³ of water in to mine.
- The existing mine is at 130 m & shall go up to 180 m.
- Apart from rainfall the seepage is very heavy & shall increase as we go deeper.
- Existing pumping machineries have to be shifted frequently as per water level fluctuation or else it fails catastrophically. - This fluctuation shall in crease in frequency & intensity (as we go deeper) leading to increased downtimes in future.
- Existing HSCF machineries basically design for Dry pump house -it needs to be protected from Rains/ Trickling water/ High humidity or else its Bear ings corrode & fails.



Pump sets Data : Aqua Submerged Centrifugal Raw Water Pumpset.

Sr.No.	Model Code	Qty.	Flow (m ³ /hr)	Head (m)	hp
1	ARS 2062 MM 425	08	720	100	425
2	ARS 2052 MM 300	06	720	75	300
3	ARS 2563 MM 600	01	1250	90	600

Project Data

End Customer : Andhra Pradesh Mineral Development Corporation Limited (APMDC)



For HSCF pumps & Air Cooled TEFC Motors, lubricating oil/grease is required to be topped up every 1000-2000 hours. Failure to do so or the correct quantity or/& type of grease will endanger the bearings & they fail much before their design life

Aqua's SubCF pumps use sealed for life bearings that don't require ReGreasing for upto 90,000 (upto 335kW) & upto 45,000 hours for larger ratings



Greasing of HSCF pumps exposes the bearing to mercy of operator's skill & sincerity





Gland packed HSCF pumps require Frequent Routine maintenance (tightening & replacement of gland rope, sleeves, gaskets, etc) failing which water leaks into bearings & corrodes them leading to pump's breakdowns




Aqua's SubCF pumpsets have High Quality Mechanical Seals which require no maintenance & are Silt resistant too thereby protecting the bearings & motor for longer life

Aqua's Solution :

Before the project was started, a comprehensive study was carried out. The Aqua Submerged Centrifugal Raw Water Pumpset proved to be an ideal solution - As there is no need to shift them because of submerged pumpsets which would result to neither loss of production nor damage to pumping machineries. This robust system is must required to ensure Rain / Flood Proof dewatering system enabling minimum loss of production & reduction to down time too. In this unique solution, the pumps would never damaged due to flooding of untimely rains and the same modular system is good enough up to 208 metre.



Certificates for dewatering application at Barytes Mines, Mangampet Project, Kadapa District .



THE ANDHRA PRADESH MINERAL DEVELOPMENT CORPORATION LTD.
(A State Government of A.P. Undertaking)

Regd. & Corporate Office: 6-2-915, HMWSSB Premises, Rear Block, 3rd Floor, Khairathabad, Hyderabad -500 004. Ph: 040-23393814, 23323153 Fax: 040-23393152
E-mail:apmrdcltd@yahoo.com; Website:www.apmrdc.ap.gov.in

TO WHOMSOEVER IT CONCERN

This is certify that M/S.AQUA MACHINERIES PVT LTD, Ahmedabad have supplied Pump set for dewatering application at our Barytes Mines, Mangampet Project, Kadapa District

The Pump set Particulars are as follows.

Stage -1

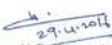
- Pump Set Type Submerged Centrifugal- Horizontal Portable.
- Pump model ARS-2062- MM 425
- Head 100 Meters
- Discharge 720 M3/Hr
- Pump set Capacity 425 HP/ 415 V -(LT)
- QTY 8 No's (In operation since November '2014)


Stage -2

- Pump Set Type Submerged Centrifugal -Horizontal portable
- Pump model ARS-2052- MM 300
- Head 75 Meters
- Discharge 720 M3/Hr
- Pump set Capacity 300 HP/ 415 V -(LT)
- QTY 6No's (In operation since October '2015)

The pump sets are in operation as indicated above and predominantly during the recent monsoon 300 HP pump sets were operated round clock and we found performances are satisfactory.

The Certificate issued on the request of Aqua Machineries Pvt Ltd for Tender purpose.


H.D.Nagaraja
Executive Director



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E-mail:apmrdcltd@yahoo.com; Website:www.apmrdc.ap.gov.in

TO WHOMSOEVER IT CONCERN


Ref: 39.

This is certify that M/S.AQUA MACHINERIES PVT LTD, Ahmedabad have supplied Pump set in a very short time for our emergency dewatering application for our Barytes Mines at Mangampet Project, Kadapa District against our P.O No. APMDC / Hyd / ED / Y.S.R.KADAPA /ZE/2015-16/2678 dated 09.12.2015.

The Pump set Particulars are as follows.

- Pump Set Type Submerged Horizontal Portable.
- Pump model ARS-2563- MM 600
- Head 90 Meters
- Discharge 1250 M3/Hr
- Pump set Capacity 600 HP/ 415 V (LT)
- QTY 1 No

The Pump set were operated round clock and we found performances are satisfactory.


H.D.Nagaraja
Executive Director

Energy Savings Analysis:

APMDC has elaborate method of recording working hours of various pumps installed in their mine as well as recording energy consumptions on a regular basis.

After installing Aqua's submerged centrifugal pumps (SCF) at Pit bottom and Pump station I, energy consumption was analysed for a complete year and compared with energy consumption during the same period of previous year (when there were only conventional HSCF)

After careful study, data recorded has revealed that there is huge energy saving in a year, to the extent of 8.5 % as shown below in a summary.

APMDC Mangampeta: Specific Power Consumption						
Year	Dewatering Quantity (m ³)	Power Consumption (KWHUnits)	Pump Type	Power Consumption (KWHUnits/m ³)	% Power Consumption Saving	Conclusion
2015-16	1,39,63,488	66,04,500	HSCF + Aqua SubCF	0.47	8.59%	After Aqua SubCF pumps were added & used along with HSCF, power consumption has gone down substantially, as compared to last year 2014-15
2014-15	1,29,78,000	66,65,700	HSCF	0.51		

Enthused with such a splendid savings, APMDC has embarked upon exercise of replacing all conventional pumps with submerged centrifugal pumps (SCF) at their last dewatering location also (Pump station 2, Pragati side) It is estimated that once this is accomplished, APMDC will eventually derive energy savings to the extent of phenomenal 10%

First stage pumping - Pit head to Intermediate Pond

