

CUSTOMER CASE STUDY

AVEVA solutions allow India's Damador Valley Corporation to digitize, reduce downtime, and streamline all processes into an easy-to-use format

Damador Valley Corporation
Industry - Owner operator

Goals

- To build a digital asset for its existing assets
- To enable capture and recording of historical information on failures and leakages for risk assessment
- To ensure information integrity and robust version control as designs progress

Challenge

- Absence of digital information about operating plants resulted in serious problems

AVEVA Solutions

- AVEVA™ Asset Information Management
- AVEVA™ PDMS

Results

- Collation of all information from different source systems and other third parties has increased project efficiency and operational control

Damador Valley Corporation limits and improves unplanned shutdowns

Kolkata, India – Established in 1948, Damodar Valley Corporation (DVC) is an integrated power major spread across a command area of 24,235 square kilometers in the states of West Bengal and Jharkhand. It is the first multipurpose river valley project of independent India.

DVC also performs multifarious activities of flood control, irrigation, and transmission and distribution of electricity. Millions of consumers and inhabitants of the Damodar Valley count on DVC for their energy and socio-economic needs.

DVC has been generating, transmitting and distributing electrical energy since 1953. The corporation has maintained its lead role in the eastern part of India for the past six decades.

Unplanned shut-downs: Costly and time-consuming

The management team at DVC was keen to develop an in-house engineering capability that would allow them to divide their projects into manageable sub-packages for controlling time and cost. They were looking for

an overall optimized engineering solution on a single platform, so that data interchangeability would not be an issue during downtime.

A call for superior information management

Having learned lessons from past projects, DVC wanted a rich data environment that would provide all the information related to potential shutdown issues and the associated documents and photographs – and all at the click of a button.

This called for a superior information management solution that would be cost-effective and easy to work with, and that could manage information across the entire life cycle of the power plant. Hence, the central idea was to build a digital twin for its existing assets.

Enter AVEVA's plant solutions

AVEVA's plant solutions provide the most productive engineering design software, ensuring information integrity while controlling the design progress.

They also handle interface engineering between civil/structural, electrical, mechanical, control and instrumentation disciplines – a key objective for DVC.

“The AVEVA solution is a perfect integrated solution for engineering and operation and services for the plant. It will help us to develop any drawing and documentation in a very easy method and represents the system on a 3D platform so that everybody can visualize the project before completion of the physical asset.”

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Mr Hiranmoy Chatterjee

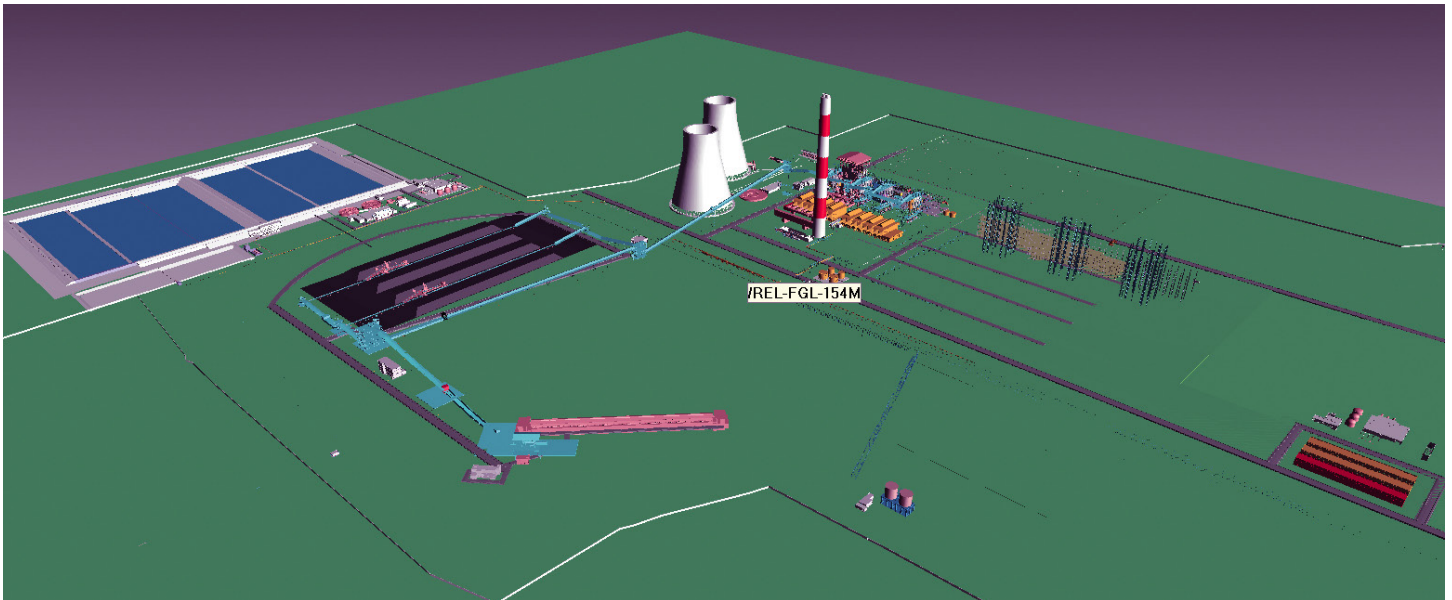
Executive Director, Engineering, DVC

In addition to AVEVA PDMS, AVEVA Asset Information Management was also implemented. AVEVA Asset Information Management collates information from various source systems and other third-party systems, validating and linking the data and documents to offer critical context to the information. It then enables site engineers at remote DVC locations to quickly visualize and collaborate effectively for increased project efficiency and operational control.

AVEVA Asset Information Management and AVEVA PDMS were used to help analyze boiler tube leakages in all DVC's thermal power plants. The solution was then deployed to the operations and maintenance team so that remote sites had access to this information. In this way, all of DVC's technical staff could access trustworthy information.

Enabling real-time access to consistent information

Efficiently executing large capital projects, as well as safely and efficiently operating and maintaining the resulting facilities, involves vast quantities of data and documents, large numbers of highly skilled personnel, a variety of information systems and an array of sophisticated business processes. With the assistance of the AVEVA technical team, DVC was able to develop the parametric model of parts and equipment for its power plant facility.



One of the uses of AVEVA PDMS was the creation of accurate as-built documentation. Taking information from the original design drawings handed over with the plant, coupled with on-site measurements, an AVEVA PDMS 3D model was created. This 3D model served

as a key information source for the plant while AVEVA Asset Information Management – with its object-centric information management capabilities – enabled controlled, real-time access to correct and consistent information, irrespective of geographical location.

But DVC not only used AVEVA Asset Information Management for engineering purposes, it also explored its capabilities regarding the operation and maintenance of the plant.

The aim was to allow remote teams to quickly access the latest available plant information, and work through it accordingly.

“We can easily walk through and visualise the plant, and any sort of faulting can be avoided at the conceptualisation stage, thus saving us a lot of time by avoiding re-engineering.”

–
Mr Manas Kumar Naskar
 Senior Divisional Engineer, DVC

This successful implementation resulted in the creation of the DVC digital library, which helped build the 3D model of the DVC power plant within a rapid time span.

A solid process for boiler mapping and reduced downtime

As AVEVA Asset Information Management now served as a major information source for the operational plant, the collection and loading of the data and documents was able to follow a very rigorous procedure. DVC was able to use AVEVA Asset Information Management to develop boiler mapping to explore how to improve the management of boiler tube leakages, which was one of the major issues of the DVC units.

“DVC extended the use of the AVEVA solution for 3D boiler mapping to help our operational engineers analyze the causes of leakage. This will now help them to visualize the area of leakage and approach the details from the very beginning of the problem, to help reduce downtime.”

–
Mr Hiranmoy Chatterjee
 Executive Director, Engineering, DVC

With the new system in place, DVC is now equipped to assess in detail any type of boiler leakage via the 3D platform. Maintenance teams can maintain leakage history and even access the information on each individual component.

DVC used AVEVA Asset Information Management for its substation of different voltage levels (400/220/132/33 KV). Thanks to the parametric library of electrical equipment, modelling the substation was simple and was executed within a very short time.

What is more, AVEVA Asset Information Management helped DVC to store all relevant documentation – design, drawing data and historical information on equipment failures – on a single server so that retrieval of data is now just a mouse-click away, helping DVC retrieve documents from a single window.

Future usage

DVC also plans to extend the use of digital asset technology using AVEVA Asset Information Management to all its operating units, and intends to start training plant personnel in its use.

“We are now continuously streamlining our systems and procedures and systematizing the way we do things to improve our outcomes.”

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Mr Hiranmoy Chatterjee
Executive Director, Engineering, DVC

The vision is to employ AVEVA Asset Information Management as an enterprise-level tool.

