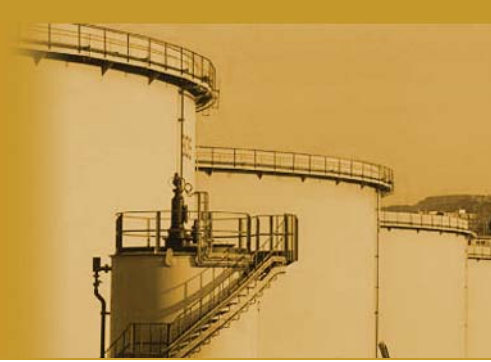


# Shell Chemicals Streamlines Environmental Management with opsEnvironmental™



## **The Company**

Shell Chemicals, a part of the Royal Dutch/Shell Group is one of the largest petrochemical companies in the world, with a multi-billion dollar annual turnover. Shell Chemicals employees carry out operations in 37 countries and 4 continents. The company produces the petrochemical building blocks used in everything from cars to computers.

## **The Challenge**

New certification requirements posed by Title V regulations and increased Group reporting requirements led many of Shell's U.S. EH&S managers to conclude that it was time to update the company's procedures and implement a new system for environmental information management. Shell Chemicals also wanted to implement a system that was flexible enough that it could potentially be adopted by Shell's entire global operations. And finally: the company wanted a system that could be used by everyone from plant operators to top management, and that could help minimize the amount of manual labor spent on data collection, data processing, and the creation of regulatory reports.

## **The Solution**

To address these issues, Shell Chemicals implemented opsEnvironmental in 2001. The software is currently used in the company's North American facilities to manage air, water, and waste data. opsEnvironmental has brought significant benefits to Shell Chemicals, greatly reducing the amount of manual labor needed for reporting and freeing up staff resources for working on higher quality tasks.

## **Project Summary**

The Deer Park complex (a Refinery & Chemical Plant) is a highly sophisticated facility, with over 1800 emission sources and 19 business units spread out across over 600 acres of land. opsEnvironmental now serves as the cornerstone for air compliance program for the company. Says Gary Hart, Air Specialist at Shell Chemicals, "opsEnvironmental replaced more than 16 spreadsheets and legacy systems to create a uniform, consistent solution for air compliance management." By replacing multiple systems with a single, centralized system, Shell Chemicals has achieved increased consistency in data capture and reporting, with significantly reduced time spent on the management of data. Using the company's Deer

Park Chemical and Refining Complex as an example, some of the benefits the company has achieved are illustrated below.

## **Streamlined Data Collection**

Prior to system implementation, data collection for compliance reporting was done using the "Sneaker Network." That is, plant environmental engineering would go to see different facility operations personnel and collect the needed data manually in the form of printouts, spreadsheets, and database dumps. Then the data would be re-entered into spreadsheets for further calculation and manipulation. This process would take on average 80 hours. With opsEnvironmental implemented, manual data collection has been reduced by 90%, saving an average of 72 hours. Although this improvement is significant in itself, the story does not end here, and there are several other related benefits resulting from manual data handling discussed below.

***"Now that we are using opsEnvironmental, emission inventories can be completed in 75% less time."***

***-- Gary Hart, Shell Chemicals***

## **Increased Report Quality, Decreased Rework**

Nobody enjoys doing things over. opsEnvironmental provides a substantial benefit in helping assure that calculations and reports are done right the first time, and then done the same way over and over in a repeatable fashion.

Before the software implementation, Hart explains that report re-submittals could require significant amounts of time. With independent silos of data that were manually gathered, an update in one system would need to be manually generated in another system. For example an updated fuel consumption number in a boiler data collection system would change the related emission calculation. "We typically had to do about 4-5 re-submittals per year, and each one would take anywhere from 10-30 hours," says Hart. "It's a cascading problem. Errors on the Emissions Inventories would lead to re-submittal of these, which could in turn cause us to have to re-submit TRI reports."

Hart explains that now that high quality data is readily available, proactive review of the raw input can be done before reports are prepared, allowing the flagging and review of anomalies. This allows errant values to be caught and corrected prior to report submittal. As a result, Hart expects that his facility will not need to do any re-submittals at all this year, saving an estimated 100 hours.

## Streamlined Air Emissions Inventories

An area of substantial time savings for Shell Chemicals is in the area of emissions inventories. Hart reports that at the Deer Park Chemical and Refining Complex, "air emissions inventories used to take over 185 person-hours to complete. Now that we are using opsEnvironmental, emission inventories can be completed in 75% less time." Hart also notes that the refinery submitted its Texas emissions inventory in electronic format this year, and that they are "very pleased with the results."

## Streamlined U.S. Form R Preparation

Every June, large manufacturing facilities in the U.S. that emit SARA 313 chemicals are required to prepare the U.S. Form R report for EPA submission. This is a tremendous challenge, and staff at the Deer Park Chemical and Refining Complex spent a great deal of time preparing the Form R report. "Formerly," said Hart, "TRI reporting took approximately 100 hours. This year, using opsEnvironmental, it took about 40 hours. That's a time savings of about 60%." In fact, Hart points out that "after seeing how smoothly the TRI reporting process went at our Norco refinery, I felt very comfortable taking a two-week vacation at the beginning of June. In the past I would never have planned a vacation for the month that Form R reports were due." Hart notes that one of the factors behind the time savings was the ability to automatically populate data from opsEnvironmental into the EPA's TRI-ME forms. This contrasted significantly with prior years, in which data needed to be manually copied in from spreadsheets and other systems.

## Streamlined Corporate Reporting

opsEnvironmental has also helped Shell Chemicals realize substantial savings in the area of internal corporate reporting. Hart notes that the U.S. chemical and refining facilities submit both quarterly and annual reports to Royal Dutch Shell, covering a variety of metrics including CO2 emissions, fuel usage, and others. Formerly, the reports took approximately 40 hours to prepare manually. With the necessary data now readily available, the metrics reports can now be produced easily out of opsEnvironmental, and are now generated in less than a day, saving Deer Park environmental staff approximately 128 hours per year.

## Automating Processes, Reducing Audits

An important aspect of Royal Dutch Shell's corporate environmental program is the ability for environmental data across the organization to stand up to third party audits.

As part of this program, Hart explains that the Deer Park Chemical and Refining Complex was typically visited annually by a 3rd party auditing company, who would spend 1-2 weeks on site conducting audits at significant cost to the company. Hart explains that one of the big advantages of the opsEnvironmental system is that its data stands up to third party auditing standards, thereby reducing or even eliminating the need for on-site audits. Hart notes that it is important for the auditors to see processes in place, and then see these being carried out. "Now that we have opsEnvironmental," he says, "our system has been 'blessed' and we expect on-site 3rd party audits to take place only about once every three years instead of every year. Data is now so transparent and reliable that our 3rd party auditors don't find it necessary to conduct on-site audits."

Table 1: Time-savings at the Deer Park Chemical and Refining Complex after opsEnvironmental Implementation

Area	Before (Hours / Year)	After (Hours / Year)	Improvement
Data Collection	80	8	90%
Emissions Inventory Preparation	185	46	75%
Form R Reporting	100	40	60%
Resubmittals	90	0 (2005)	100%
Quarterly Corporate Reporting	160	32	80%
Third Party Auditing	120	40	66%
<b>Totals</b>	<b>735</b>	<b>166</b>	<b>87%</b>

## Global Solution

One of the important factors behind Shell Chemicals' selection of opsEnvironmental was the flexibility of its design and its suitability for possible rollout to other areas of Shell. The goal was to have a system that could potentially be used in the future for management of important global environmental programs such as ISO 14001 conformance and conformance to the EC Eco Management and Audit Scheme (EMAS.) The initial implementation at Shell Chemical served as a test case, and the project proved highly successful, with demonstrable and significant results, in the form of a flexible solution which brought increased quality and verifiability of data accompanied by substantial savings. This proved opsEnvironmental to be a low-risk, high value candidate for expansion throughout other areas of Shell. Accordingly, in 2002, Shell Oil Products U.S. began implementing the software. This was in turn followed in 2004 by a major project to roll the system out to Shell International E&P. For Shell, opsEnvironmental has proved to be a truly global solution.

**"Data is now so transparent and reliable that our 3rd party auditors don't find it necessary to conduct on-site audits."**

**-- Gary Hart, Shell Chemicals**

To learn more about how opsEnvironmental can help your company streamline its environmental data management, please contact ESP.



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