6th Annual Chemical Strategies Partnership Workshop
Lessons, Innovations, and Future Directions for CMS

Hyatt Regency O'Hare, Rosemont, Illinois
October 24, 2002

Summary

Chemical Strategies Partnership's (CSP) 6th Annual Workshop on chemical management services (CMS) brought together 83 representatives from 48 different organizations to hear presentations and engage in discussions about the CMS model and, more broadly, the CMS industry and its trends. The day was highlighted by case study presentations from General Motors and Haas TCM; Harley-Davidson and Henkel Chemical Management; Delta Air Lines and Interface LLC; and Philips Electronics and Ashland Specialty Chemical Company. Three afternoon breakout sessions included presentations and discussions on selling and re-selling the CMS model internally, information technology, and applying the CMS model to small and medium-sized enterprises.

Companies and Organizations in Attendance

Ashland Specialty Chemical Company, AVChem, CapitalResponse Group, Castrol, Chemetall Oakite, Chemico Systems, Inc., Continental Airlines, Coral Chemical, D.A. Stuart, DaimlerChrysler Corporation, Delta Air Lines, Dow Corning Corporation, DRMS, FirstEnergy Corporation, Gateway Associates, GE/Betz, General Motors, Haas TCM, Harley-Davidson, Henkel Chemical Management, Hydrite Chemical, Hygieneering, Illinois Department of Commerce and Community Affairs, Illinois EPA Office of Pollution Prevention, Illinois State University, Illinois Waste Management and Research Center, Interface LLC, International Truck and Engine Corporation, Mercury Marine, Milacron, Miller Oil of Indiana, Morrison & Foerster, NTN USA Corporation, Pantellos Group, PharmEcology, PPG Industries, Quad/Graphics, Quaker Chemical Corporation, R.A. Hunter Enterprise, Inc., Raytheon Company, Rolls-Royce, Seagate Technology, Shell Services USA, Stanford Linear Accelerator Center, United Technologies Corporation, US EPA Design for Environment Program, US EPA Region 5

Workshop Sponsors

The workshop was sponsored by Chemical Strategies Partnership, CMS Forum, Illinois Waste Management and Research Center, and the Illinois Department of Commerce and Community Affairs. Members of the CMS Forum include the following companies:
Founding Members: Ashland Specialty Chemical Company and Haas TCM
Other Members: Air Products and Chemicals, DaimlerChrysler Corporation, Delta Air Lines, Dow Corning Corporation, General Motors Corporation, Henkel Chemical Management, Illinois State University, Illinois Waste Management and Research Center, Interface LLC, Raytheon Company, Rockwood Electronic Materials, Seagate Technology, and Shell Services USA

Welcome and Introductory Remarks
Tom Votta, Deputy Director, Chemical Strategies Partnership

CSP is a non-profit project helping to promote the economic and environmental benefits of CMS. CSP's mission is to reduce chemical use, waste, and cost through the transformation of the chemical supply chain. CMS is a business model that is based on the concept of "servicizing" which goes beyond a "product-in-a-box." The cornerstone is a change in compensation for the supplier from volume of product supplied to quality/quantity of services provided.

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CMS is a strategic, long-term relationship in which a service provider supplies and manages a customer's chemicals and services. It goes beyond invoicing and delivering product to include optimizing processes, reducing chemical lifecycle costs and risk, and reducing environmental impact. Under the CMS model, formerly conflicting incentives between supplier and customer are now aligned—both supplier and customer want to decrease chemical lifecycle costs. The CMS model is catching on in certain industries in the US, in particular the automotive, electronics, aerospace, and metalworking industries. Case studies in these industries have shown that companies who implement CMS are receiving a number of benefits including chemical use reduction, improved data management, reduced chemical costs, and improved inventory management. To further the adoption of the CMS model, CSP conducts pilot programs to assist organizations in assessing their total chemical lifecycle costs and developing a CMS program.

CASE STUDIES OF CMS PROGRAMS

General Motors Allison Transmission Plant

Thad Fortin, President, Haas TCM
Tim Lindsey, Manager, Pollution Prevention Program, Illinois Waste Management and Research Center

Haas TCM and the Illinois Waste Management and Research Center (WMRC) joined forces in March 2002 for a project at General Motors' Allison Transmission Plant (Allison) in Maryland. Haas has been Allison's CMS provider since early 2001 and provides a variety of chemical management services including procurement, inventory management, delivery, receiving, environmental engineering and reporting, MSDS management, and shop-floor fluid management. In addition, Haas is required by contract to develop continuous improvement projects. For one such project, Haas tackled an issue that had been plaguing Allison for a while—poor leak detection in the dip tank was resulting in a number of transmission leaks in the field and accounting for 40% of 90-day warranty claims. Haas approached WMRC—a non-regulatory, Illinois state agency whose mission is to make businesses more sustainable and competitive through technology—for assistance with technologies that might improve dip tank performance. Haas was the driver for the project, but Haas relied on skilled trade support from Allison staff and project management and technical support from WMRC.

Working with Haas and GM staff, WMRC performed an opportunity assessment, a root cause analysis, and evaluated some options for correcting the problem. Ultimately the team decided to employ a membrane filtration unit that would essentially purify the water in the dip tank, leaving it clear so that transmission leaks could be detected. The initial trial indicated that membrane filtration would clarify the dip tank water and reduce water and chemical consumption, however there was much more oil introduced into the dip tank than originally anticipated and the first membrane filtration unit was too small for the load. Right now, WMRC and Haas are re-doing the pilot test this time with a larger unit. Haas and WMRC anticipate collaborating on future projects requiring technology to improve performance. The success of this project was a direct result of the structure of the contract between GM and Haas. The contract was designed in such a way to ensure the sustainability of the program. After the initial price reduction upon implementation of a CMS program, there should be gainsharing opportunities so that the CMS provider will look for these types of process improvements.

Harley-Davidson Motor Company

Albert Keal, Director of Operations – Power Train, Harley-Davidson Motor Company
Steve Marshall, Director of Operations, Henkel Chemical Management

In the 1980s Harley-Davidson (Harley) was on the verge of bankruptcy, and by the 1990s Harley realized that to survive, they would have to improve production and improve on their operations. This realization is what drove the initiative to implement an integrated supply chain management program. Currently, Harley works with three major suppliers for the supply and management of most indirect materials, including chemicals. These three suppliers are integrated into Harley operations and they work as part of Harley's work force. Henkel Chemical Management (Henkel) covers the chemical side of the equation, providing chemical management services to Harley corporate-wide. Unlike most CMS programs, Harley's program began with

CMS provider selection first and program design second. Harley selected Henkel based on their core competencies and merits as a firm, and then worked alongside Henkel to design a CMS program that would meet Harley's chemical supply and management needs as well as reduce costs and improve processes. Also unlike most CMS programs, there is no contract between Harley and Henkel for CMS. Harley uses a score sheet to measure Henkel's performance and as long as Henkel meets expectations, it is understood that Henkel will continue to be employed by Harley. Although unorthodox, this level of trust between the two companies effectively strengthens the CMS partnership.

Henkel provides a variety of services to Harley including procurement, delivery, inventory management, and EH&S support. Henkel sits on an EH&S committee at both the facility and corporate level and is engaged in EH&S initiatives such as reducing chemical usage, increasing recycling, and improving safety. In general, Henkel is compensated through a fee-based service arrangement, although there is a program in Pennsylvania that employs a management fee with chemical-cost pass through arrangement. Both companies recognize that over time, the leveraged purchasing savings a company can receive in the first year of a CMS contract become less substantial. In long-term CMS programs such as this one, cost savings are a result of productivity improvements. Henkel and Harley meet monthly to identify potential strategic improvements and determine whether there have been savings from past initiatives.

Delta Air Lines Technical Operation Center

Mitch Rushing, President, Interface LLC

Delta Air Lines is the second largest airline in the US with over 830 aircraft and service to approximately 285 cities around the world. By the early 1990s, Delta's system for managing chemicals had become extremely complex, costly, and difficult to manage. Each year, Delta was spending over $15 million on chemical purchases, managing 1,500 SKUs and 500 parts with limited shelf life, ordering from over 350 suppliers, managing 140 waste streams, and making 350,000 total transactions. Added to this complexity was the fact that Delta operates in a 24/7/365 operational demand environment with 2-3 hour delivery requirements. Driven primarily by substantial regulatory scrutiny and a fine for environmental non-compliance from the EPA, Delta sought a CMS provider to take on the responsibility of managing this complex process. In 1995, Interface Chemical Management, a chemical management company based in Greenville, SC, was awarded the contract The initial goals of the program were to manage chemicals "better", JIT, capture all required and relevant chemical usage and profile data, reduce risk, and lower labor costs and chemical spend. Upon implementation of the CMS program, Interface absorbed Delta's chemical inventory, shifted 12 Delta FTEs to Interface, integrated computer infrastructure, and implemented a chemical container tracking system.

Interface provides global support to Delta which includes supply chain management (forecasting, procurement, etc.), warehousing and logistics (receiving, delivery, inspection, etc.), and environmental information management (profiling, reporting, etc.). Interface makes all chemical purchases and materials are passed through at cost. Delta is billed separately for chemical management services and cost savings initiated by Interface are shared between the two companies. Initial results of the program were substantial. Delta gained 30,000 square feet of floor space, reduced supplier base from 350 to 1, saved $250K in expired chemicals, and saved $1.5 million in chemical inventory. Over the life of the program, Delta has seen a number of other benefits including a net savings in excess of $2.5 million, improved inventory management, minimized chemical waste, order fill rates exceeding 97%, shelf-life related losses decreased by 75%, and compliance with FAA, EPA, DOT, and OSHA regulations.

Philips Electronics Semiconductor Fab, San Antonio, TX

Mark Kappes, Business Manager, Ashland Specialty Chemical Company

Ashland Specialty Chemical Company primarily services the semiconductor industry providing management service solutions such as chemical, gas, and water management, materials management, environmental services, and analytical services. Ashland also provides equipment utility service solutions such as parts cleaning, tool preventative maintenance, tool refurbishments, and parts supply. Ashland has been providing services to

Philips Electronics' semiconductor fabrication facility in San Antonio, TX since 1997. This facility chooses to outsource many services to "experts" in order to reduce the cost of ownership and focus on regulatory requirements. Ashland provides a variety of services including chemical handling, hazardous waste handling, chemical delivery system maintenance and repair, inventory management, reporting, and off-site analytical services.

In 2000, Philips Electronics engaged Ashland in a "Chemical Dispense Ramp Project" in order to decrease the amount of chemicals remaining in "empty" drums, reduce the labor required for disposal of hazardous materials, and reduce injury risk. A project team was formed and they discovered that 6 gallons of chemical remained in the drum and diptubes were not placed in the sump of the drum by several vendors. Following an analysis of the chemical drums, the team ensured proper diptube methods by vendors, adjusted drum cabinet rollers to a seven degree angle, and adjusted the capacitor sensor replacement. As a result, only ½ gallon of chemical remained in the drums and the capacitor sensor is now 96% accurate on empty drum alerts. This simple project reduced waste by 19,558 gallons each year with no expenses or resources required from the customer.

BREAKOUT SESSION 1

Applying the CMS Model to Small and Medium-Sized Facilities

This breakout session asked the question, "can the CMS model be applied to small and medium-sized facilities (SMEs), and if so, how? Dr. Tom Bierma, Professor of Environmental Health at Illinois State University chaired this session which included panelists Darcy Whaley, Communications Manager for CSP, Tom Bierma (on behalf of an SME), and Kishore Rajagopalan, Senior Research Engineer for Illinois Waste Management and Research Center. In aggregate SMEs represent a large market for many sectors and would have a significant environmental impact if CMS was adopted widely. However, all panelists agreed that the biggest challenge is that the chemical spend in SME facilities is very low and a CMS provider could not afford to provide the level of service required. Dr. Bierma pointed out that in order for a traditional CMS program to be profitable for the provider, the facility will need to spend approximately $1 million annually on chemical purchases.

CSP conducted two pilot projects to test the CMS model in the SME environment. One of the projects took a coalition approach—a cluster of tool & die firms aggregated their chemical purchases into a joint CMS proposal. With 4 companies and 7 facilities, the total chemical buy was $562,000, still below the $1 million threshold Dr. Bierma had indicated earlier. The Coalition put together an RFP and went out to bid, but did not go forward with a CMS program because they wouldn't see any hard savings in the first year and, in fact, the smaller facilities would suffer a loss in the first year. Tom Bierma and his colleague Frank Waterstraat conducted a pilot with a small aluminum fabricator in the Chicago area. The provider was compensated by a fixed monthly fee that is significantly in excess of the facilities chemical buy. Despite this, the value has been tremendous with chemical use reduced by 80%, waste reduced by >80%, and production has increase thanks to additional machines. Both pilots indicate that for CMS to be successful in an SME, the value of a CMS program needs to be emphasized over the potential dollar savings. A CMS program may be cost neutral at best for an SME, but the facility will be receiving a number of benefits, such as supplier expertise and improved inventory and data management that could lead to process improvements.

BREAKOUT SESSION 2

Selling & Re-selling CMS to Internal Stakeholders

Lynne Mueller, Manager of e-Supply Chain Projects for Raytheon Company chaired this panel discussion on selling and re-selling CMS to internal stakeholders. Panelists included Gary George, Paint and Energy Management for DaimlerChrysler Corporation, Brian Ross, Commodity Manager for United Technologies Corporation (UTC), and Anders Stenstedt, Attorney at Law for Morrison & Foerster, LLP. The first three speakers provided a brief overview of their CMS programs, presented the obstacles encountered when

developing and implementing their programs, and highlighted strategies to sell and re-sell their CMS program internally.

All panelists agreed that one critical success factor is to secure top management support for the CMS program as early in the process as possible. Once there is buy-in from management, the CMS champion should assemble a cross-functional team. Ideally, the team should be made up of staff from purchasing, EH&S, engineering, logistics, finance, human resources (particularly if a labor union is involved), quality, legal, and supply chain management. Another success factor is to implement a good communications plan so that the current status of CMS program development is communicated throughout the company. This ensures that no one is surprised when program implementation gets underway. Finally, the three speakers and audience all agreed that for a CMS program to succeed, both the customer and the CMS provider have to be flexible in order to change the program in tandem with the customer's needs.
When it comes to a CMS partnership, legal issues abound and customers need to be aware of these in order to establish a trusting relationship with their CMS provider. A few legal issues include a confidentiality agreement, update of the CMS contract with new environmental regulations (e.g., the responsibility to comply with permit requirements), labor issues (e.g. transfer of employees to CMS provider), and ownership of information (e.g., ownership of chemical use data).

BREAKOUT SESSION 3

Information Technology: What Gets Measured Gets Managed

This session raised several core issues around the application and utility of information technology (IT) to CMS. The panel was chaired by Tom Votta, Deputy Director for CSP and the panelists were Mike Knoblock, Worldwide Facilities Group for General Motors (GM), Leigh Hayes, Executive Vice President for Haas TCM, Butch Byers, EH&S for Stanford Linear Accelerator Center (SLAC), and Geb Marett, Program Associate for the Tellus Institute. The panel brought together diverse perspectives—customer, supplier, and an independent expert—to discuss the critical information management component of CMS programs. Topics covered included IT-related business benefits and drivers for CMS, streamlining data collection and tracking in a complex chemical environment, benefits and barriers to inter and intra-company chemical data sharing.

Highlights of the panel were SLAC's account of its Department of Energy and air emissions drivers for chemical information management. SLAC also described the difficulties and expenses of developing and operating a "home grown" chemical management information system on a large campus with a low volume, high diversity chemical environment. General Motors discussed development of its chemical management information tool and supplier reporting protocol. The presentation addressed issues of data quality and consistency between suppliers, data parameters definition, and streamlining the data collection and sharing process that are influencing GM's tool development project. Haas brought the issue of peer-to-peer and intra-company chemical data communication to the table. The conversation centered on the risks and benefits of sharing chemical data, and the appropriate level and scale of any data exchange. Audience discussion concentrated on the resource intensity of chemical information management tool development, and corporate specific attitudes to chemical data sharing.

Future Directions for CMS and Closing Remarks from Participants

Tom Votta, Deputy Director, Chemical Strategies Partnership

After 6 years of operation, CSP continues to grow alongside the CMS market. In the beginning, CSP focused on working with the demand side of CMS, helping customers to develop programs and recruit CMS providers. Today, CSP engages all communities with an interest in CMS from customers to CMS providers to academia to investment companies. CSP will continue to promote the model and adjust with the changing market landscape into the future. Ideas for future directions for CSP and CMS include leverage to environmental goals and policy such as ISO 14001, introduce the CMS model to new industry sectors such as steel and pharmaceuticals, continue to develop tools such as CSP's manual, promote CMS internationally, and employ new tactics for communications and outreach.