HACH COMPANY

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COMPANY PROFILE
Hach Company is an organization known for the manufacture and distribution of instruments and reagents used for water analysis. Hach Company has been a global leader in manufacturing and distributing water analysis products since it was founded by Clifford and Kathryn Hach in Ames, Iowa. The company creates products that are marketed globally and serves any industry where water analysis is required. The Hach facility in Ames employs approximately 550 people and manufactures and distributes more than 100 liquid and powder reagents used for water analysis processes.

PROJECT BACKGROUND
The Hach facility in Ames houses a multitude of operations where substantial amounts of paper are used for tracking, signaling material handlers, and labeling raw materials and goods in various states of production. The environmental, health and safety (EHS) team at Hach observed a significant amount of paper waste resulting from these operations and sought the help of DNR's Pollution Prevention Services. The P2 intern was tasked with pinpointing the primary sources of printed material, quantifying the waste generated, formulating methods to reduce paper printing, and streamlining the process flow. The intern quantified three major sources of paper waste and explored recommendations to improve these processes and reduce Hach's environmental footprint.

INCENTIVES TO CHANGE
Hach is an ISO 14001 certified company that places a high priority on achieving environmental goals. The EHS team at Hach continuously seeks opportunities to improve the company's environmental performance. Multiple processes at the Ames facility generate a large amount of paper waste. These processes also harbor inefficiencies related to this waste. If the amount of paper produced throughout these processes is reduced or eliminated, a more efficient, streamlined process is attainable, along with significant cost savings.

RESULTS
Computerized Tablet System: In the warehouse of the Ames facility, pull sheets are printed to inform associates (pickers) what inventory is required to fulfill customer orders. Each pull sheet represents one customer order. Once a pull sheet is printed, the picker collects the order inventory from the warehouse and stages the picked order for packing to be shipped out. Pull sheet printing results in approximately 1,700 sheets of paper printed each day. Additionally, operators spend a significant amount of time printing individual pull sheets.

A computerized tablet system could streamline the picking process and eliminate a significant amount of excess labor and printing. With this automated system, pull sheets would be sent electronically to the pickers, which would increase the process efficiency and productivity. Automating the picking process in the warehouse would reduce purchasing and disposal costs for the paper, decrease wear and maintenance on the printers, and improve environmental performance.

Implementation of an automated picking system would require the purchase of peripheral equipment. Along with the financial budgeting, Hach's IT staff will need to be involved with transitioning to the new system; interfacing with existing applications and providing training and support for staff who would be using the new electronic process.

SDS PDF Distribution: Customer orders that have been picked are subsequently organized and packaged in preparation for shipment. Along with the customer order itself, safety data sheets (SDS) are also included in all shipments. The SDS is necessary to inform customers of all chemicals and hazards associated with the products they have ordered. These SDS consist of a minimum of four to five pages each and are manually printed by the associates packaging these orders (packers). On an average day, this amounts to approximately 4,000 sheets of printed SDS. Physical printing of SDS for each order results in a high amount of paper use and operator time dedicated to this task.

OSHA standards state that SDS for chemicals must be provided to customers, either electronically or in paper format, the first time a customer receives that chemical. It must also be provided on a repeat shipment anytime an SDS has been updated. To maintain strict compliance with OSHA standards while also seeking to eliminate any inherent process waste, the most feasible solution would be to develop a new computer program that electronically sends customers an email with their SDS in PDF format when the packer electronically scans each product for inclusion in their order shipment. This type of system would significantly reduce paper waste and printing time and costs, and increase the potential number of shipments that packers can prepare for shipping on a given shift. To move forward, Hach will need to allocate funds and IT resources to development and integration of the new computer application, along with any pilot testing, customer reviews and employee training that would be necessary. This project is currently ongoing and will be conducted together with the European Hach facilities.

Move Ticket Labeling: At the Hach Ames facility, paper signs called move tickets are attached to products and packages that need to be moved to a different area of the facility. Move tickets consist of one sheet of printer paper and are designed to let material handlers know that a product or package needs to be transferred to a specific location in the plant. Material handlers manually enter data and location information into a computer, print the move ticket and physically tape the paper ticket to the product. This process requires a sizeable amount of paper, tape, and labor. Transfer errors may occur if the move ticket is not fully secured to the project.

To reduce the solid waste and the occurrence of transfer errors, the move tickets could be printed on small, colored, self-adhesive labels rather than full size printer paper. Label printers are available in each area where move ticket printing takes place. The initial investment would simply be the labels, time required for programming changes and material handler training.

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
COMPUTERIZED TABLET SYSTEM	$36,739	12 tons paper	RECOMMENDED
MSDS PDF DISTRIBUTION	$94,491	19.2 tons paper	RECOMMENDED
MOVE TICKET LABELING	$10,824	0.54 tons paper	RECOMMENDED