DOWNLOAD PDF MANUFACTURING WATER USE SURVEY, 1972

Chapter 1 : Alliance for Water Efficiency

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The completed survey is due 60 days after receipt. Letters notifying recipients are mailed in late December and the online survey is available by the first business day in January, so the due date is set as the first business day in March. Back to top What are the criteria for determining who receives a survey? There are two types of surveys available each year: Annually, the TWDB surveys approximately 7, water systems and industrial facilities in the state. This number represents roughly 4, municipal and 2, industrial water use surveys. Industrial Water Use Surveys are required by manufacturing and mining water users that annually use more than 10 million gallons of water, or use a significant volume of water for the industrial sector for a particular area of the state. Because the Water Use Survey Program has a long history, some water systems or industrial facilities may have been missed or not surveyed in the past. However, staff attempts to include all water systems or industrial facilities that meet the above criteria. Surveys are also required of all electric power generating plants regardless of volume. The Water Use Survey is intended to collect a comprehensive view of groundwater and surface water use across the state for water supply planning. While the volumes reported to other entities may be identical to what is reported in the water use survey, the local reporting provides only a partial picture of water use geographically and by source. Resources do not currently exist to coordinate the collection of water data between all agencies, districts, and authorities involved. Though some water systems may be required to fill out the Survey, Report, and Audit in a given year, the criteria for all three are different. Some systems may fill out only one, two, or all three of the forms. The online applications were developed to streamline your data entry and reporting and to improve data collection and analysis. Back to top Are all survey questions required or are some optional? Back to top What do we need to do if our survey is returned as incomplete? Surveys are considered administratively incomplete if questions are left blank with no notation indicating that the question does not apply or cannot be answered. Until the survey is submitted with the missing information, the survey is not considered complete for the purposes of TWDB financial assistance and water-right application requirements. Please contact Survey staff if there are questions regarding missing information. Back to top How do I determine which aquifer my water well pulls from? Please click on our board Map of Major Aquifers. If further assistance is needed, please contact Water Use Survey Hotline phone number at Back to top How much is an Acre-Foot? An acre foot equals , gallons which is an amount of water sufficient to cover one acre with one foot of water. Water use estimates for municipal, manufacturing, and steam-electric power categories come from an annual survey of public water suppliers and major manufacturing and power entities. Response to this survey is mandatory Section Mining water-use estimates are based on the annual water-use survey and an estimate of the water used in secondary processes for oil and gas recovery. Livestock water-use estimates are derived from annual livestock population estimates produced by the Texas Agricultural Statistics Service. Estimated water use per animal unit is based on research conducted by the Texas Agricultural Experiment Station. Estimates of irrigation water use up through were based upon five-year irrigation surveys conducted in coordination with the U. Irrigation water use estimates and later are developed through the use of various datasets including, but not limited to, available weather data, irrigated acres from the U. Department of Agriculture-Farm Service Agency, surface water diversions from the Texas Commission on Environmental Quality, and local revisions from groundwater conservation districts and other local political subdivisions. More information on this process may be found on the Irrigation Water Use Estimates webpage. Back to top How are the water use and pumpage volumes estimated? The TWDB estimates water use at the city level for cities which have population of or greater and for county seats. County estimates are the sum of net water use from municipal utilities and rural users in each county. Water use for manufacturing is the summation of water use for manufacturing firms reporting to the TWDB. Water use for power is a combination of reports and calculations of consumed water based on individual water supply power plant configurations. Irrigation is provided annually by the TWDB

Conservation Division and is based on crops, acreage, climatic conditions, and observations by local agricultural representatives, and data provided by irrigation and groundwater districts. Each municipal and industrial entity surveyed has an assigned major aquifer, so reports of ground water pumpage by municipal and industrial users can be summed. Pumpage estimated for residual county-other municipal water use, residual mining water use, irrigation, and livestock has been distributed to the thirty major aquifers according to research and professional opinion of TWDB geologists. Back to top What types of water use are included? Municipal water use includes: City-owned, districts, water supply corporations, or private utilities supplying residential, commercial non-goods-producing businesses , and institutional schools, governmental operations. Manufacturing is process water use reported by large manufacturing plants. Steam-Electric Power is consumptive use of water by large power generation plants that sell power on the open market, generally not cogeneration plants that generate power for manufacturing or mining processes. Include water used in the mining of oil, gas, coal, sand, gravel, and other materials.

Chapter 2 : Industrial Effluent Guidelines | Effluent Guidelines | US EPA

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A black or brownish-black solid, combustible substance formed by the partial decomposition of vegetable matter without access to air. The term includes anthracite, bituminous, and sub bituminous coal, as well as coke, the derivative of coal formed by destructive distillation or imperfect combustion. Data on the use of coal were collected but no consumption and expenditure data were collected. The simultaneous production of electric and thermal energy in on-site, distributed energy systems; typically, waste heat from the electricity generation process is recovered and used to heat, cool, or dehumidify building space. Neither generation of electricity without use of the byproduct heat, nor waste-heat recovery from processes other than electricity generation is included in the definition of cogeneration. A building with more than 50 percent of its floorspace used for commercial activities. Commercial buildings include, but are not limited to, the following: Government buildings were included except for buildings on sites with restricted access, such as some military bases. Since , parking garages and commercial buildings on manufacturing sites have also been excluded. An energy-related function that has space specifically designed and equipped to meet the needs for preparing and serving food commercially. This includes kitchens in restaurants, diners, and other commercial institutions, such as schools. This category includes cafeterias where food is brought in and kept warm with steam tables or other warming devices until it is served. Refrigeration equipment is designed to maintain the stored items below room temperature but above the freezing point of water. This category also includes freezer equipment, which is designed to keep its contents below the freezing point of water 32 degrees Fahrenheit. Compact Fluorescent Light Bulb: A light bulb designed to replace screw-in incandescent light bulbs; they are often found in table lamps, wall sconces, and hall and ceiling fixtures of commercial buildings with residential type lights. They combine the efficiency of fluorescent lighting with the convenience of standard incandescent bulbs. Light is produced the same way as other fluorescent lamps. Compact fluorescent bulbs have either electronic or magnetic ballasts. Concrete Block or Poured: A wall construction material usually made in a factory and delivered to the construction site, where it is hoisted onto the structure, although sometimes they are poured at the site and then hoisted on the structure. The panels are either solid or insulated. They can have plain, colored, or textured finishing. A poured concrete roof, often intended to bear the load of a parking garage that occupies the roof area of a building. Total consumption of a particular energy source s or fuel s divided by the total floorspace of buildings that use the energy source s or fuel s , i. This measure is used in the fuel-specific detailed tables. The amount of energy used in, or delivered to, a building during a given period of time. Unless otherwise noted, all consumption statistics are site energy consumption, which includes electric utility sales to commercial buildings but excludes electrical system and district heat energy losses. Statistics are presented on an annual basis for the survey calendar year. Site consumption is the amount of energy delivered to the site building ; no adjustment is made for the fuels consumed to produce electricity or district sources. Site consumption is also referred to as net energy. Primary consumption is the amount of site consumption plus losses that occur in the electricity generation process. Data on energy consumption were not collected by end uses separately. For example, although it might be known that electricity was used in some buildings for heating, the consumption of electricity reported for those buildings would typically include other uses of electricity as well such as lighting and water heating. The amount of energy lost during generation, transmission, and distribution of energy sources, particularly electricity, including plant and unaccounted-for uses. See Site Electricity and Primary Electricity. As an energy end use, the use of energy for commercial or institutional food preparation. Specifically, cooking that took place in a kitchen facility that was not part of a residence. See Energy End Use. The conditioning of air in a room for human comfort by a refrigeration unit such as an air conditioner or heat pump or by a central cooling or district cooling system that circulates chilled water. Use of fans or blowers by themselves without chilled air or water is not included in this definition of air

conditioning. A measure of how hot a location was over a period of time, relative to a base temperature. In this report, the base temperature is 65 degrees Fahrenheit, and the period of time is one year. Cooling degree-days for a year are the sum of the daily cooling degree-days for that year. The equipment used for cooling room air in a building for human comfort. A type of building renovation involving interior or exterior surface improvements such as new paint, siding, furniture, wallpaper, or carpeting. As a natural gas measure, the volume of gas contained in a cube with an edge that is 1 foot long at standard temperature and pressure 60 degrees Fahrenheit and The thermal content varies by the composition of the gas. A lighting feature that takes advantage of sunlight to cut the amount of electric lighting used in a building by varying output of the lighting system in response to variations in available daylight. It may look just like window glass when viewed from the street, except that it is opaque and does not let light through. Includes glass blocks, structural glass, or glass curtain walls. A server is usually just the CPU or "case" portion of a computer that is used to manage network resources such as computer files, printers, databases, or network traffic; it does not require much human operation, so most do not have keyboards or monitors. The average of the total annual heating and cooling degree-days base, 65 Degrees Fahrenheit in each NOAA Division, for the 45 years, through An interior lighting control that reduces lighting at times of peak electricity demand. A fuel composed of distillates obtained in petroleum refining operation or blends of such distillates with residual oil used in motor vehicles. A type of system for heating water for purposes other than space-heating that heats water as needed for immediate use near the location where this water is used. Because water is not heated until it is required, this equipment is more energy efficient. Water chilled outside of a building in a central plant and piped into the building as an energy source for cooling. Chilled water may be purchased from a utility or provided by a central physical plant in a separate building that is part of the same multibuilding facility for example, a hospital complex or university. Steam or hot water produced outside of a building in a central plant and piped into the building as an energy source for space heating or another end use. The district heat may be purchased from a utility or provided by a central physical plant in a separate building that is part of the same multibuilding facility for example, a hospital complex or university. District heat in the form of hot water. District heat in the form of steam. A heating, ventilation, and air-conditioning HVAC conservation feature consisting of indoor and outdoor temperature and humidity sensors, dampers, motors, and motor controls for the ventilation system to reduce the air-conditioning load. Wherever the temperature and humidity of the outdoor air are more favorable lower heat content than the temperature and humidity of the return air, more outdoor air is brought into the building. Electric energy supplied to a building by a central utility via power lines or from a central physical plant in a separate building that is part of the same multibuilding facility. Electric power generated within a building for exclusive use in that building is specifically excluded from the definition of electricity as an energy source. As an energy end use, the onsite production of electricity by means of electricity generators on either a regular or emergency basis. See Energy End Use and Electricity. A lighting conservation feature that consists of an electronic version of a conventional electromagnetic ballast. The ballast is the transformer for fluorescent and high-intensity discharge HID lamps and provides the necessary current, voltage, and wave-form conditions to operate the lamp. Electronic ballasts operate lamps using electronic switching power supply circuits, are lightweight, and start instantly without flickering. Specifically excluded from this category are magnetic ballasts. A use for which energy is consumed in a building. Information on six specific end uses was collected in the CBECSâ€”space heating, cooling, water heating, cooking, manufacturing, and electricity generation. The ratio of consumption to unit of measurement floorspace, number of workers, etc. Energy intensity is usually given on an aggregate basis, as the ratio of the total consumption for a set of buildings to the total floorspace in those buildings. Conditional energy intensity and gross energy intensity are presented. The energy intensity can also be computed for individual buildings. An energy management feature that uses remote sensing and control instruments, and interpretive and control software to monitor changes in ambient temperature and operating systems. These systems may also manage fire control, safety, and security. The use of space in the building for one or more of three specific functions: A type of energy or fuel consumed in a building. In the CBECS, information about the use of electricity, natural gas, fuel oil, district heat, district chilled water, propane, wood, coal, and solar thermal panels in commercial

buildings was obtained from the building respondent. Total floorspace of those buildings that use a particular fuel, for example, total floorspace in buildings that use natural gas. See Conditional Energy Intensity. Energy companies that supply electricity, natural gas, fuel oil, or other sources of energy to a building. In the and CBECS, suppliers of electricity, natural gas, fuel oil, and district heat were sent the Energy Supplier Survey forms; in the CBECS, only suppliers of electricity and natural gas were sent the forms consumption and expenditure information for fuel oil and district heat were collected only from the building respondent. A method of conserving energy by changing the temperature setting or reducing the use of heating, cooling, lighting, or office equipment either manually or automatically when the building is closed. In and , for buildings open 24 hours a day, this question also included whether heating or cooling was reduced during any periods over a normal 24 hour day. Funds spent for the energy consumed in, or delivered to, a building during a given period of time. All expenditure statistics are presented on an annual basis for the survey calendar year. The total dollar amount includes State and local taxes, fuel adjustment charges, system charges, and demand charges. The total dollar amount excludes merchandise, repair charges, and service charges. Data on energy expenditures were not collected by end uses separately. For example, although it might be known that electricity was used in some buildings for heating, the expenditures for electricity reported for those buildings would typically include other uses of electricity as well such as lighting and water heating. External Overhangs or Awnings: A conservation feature designed to reduce the transmission of light into a building. These include any type of overhang including architectural or awning on the outside of the building designed to limit solar penetration.

Chapter 3 : Water withdrawal and consumption by sector - calendrierdelascience.com

This paper examines water use and recirculation in the U.S. manufacturing sector, using newly recovered microdata from the Survey of Water Use in Manufacturing, merged with establishment-level data from the Annual Survey of Manufactures and the Census of Manufactures.

Steel is the material of choice for many elements of construction, transportation, manufacturing, and a variety of consumer products. It is the backbone of bridges, skyscrapers, railroads, automobiles, and appliances. Most grades of steel used today - particularly high-strength steels that are lighter and more versatile - were not available a decade ago. The chemical industries are a cornerstone of the U. Chemicals are key materials for producing an extensive assortment of consumer goods. Features The Capability of U. Manufacturing to Switch Fuels Release Date: September 6, Preliminary estimates show that the total U. This is the first measured 4-year increase in manufacturing energy consumption since Figure 1. Energy Use and Energy Intensity of U. October 18, Energy intensity in manufacturing in the United States decreased from to Preliminary estimates show that U. October 13, Preliminary estimates show that the total U. September 6, Natural gas has been an important exception to the trend of rising prices for energy sources used by manufacturers. Production of natural gas in the United States increased rapidly beginning in as a result of resources found in shale formations. That increase in supply has in turn lowered the price of natural gas to manufacturers as well as other consumers. Manufacturing energy consumption data show large reductions in both manufacturing energy use and the energy intensity of manufacturing activity between and Release Date: March 19, Total energy consumption in the manufacturing sector decreased by 17 percent from to Figure 1 , according to new MECS data. Early-release estimates from the MECS show that energy consumption in the manufacturing sector decreased between and Release Date: March 28, Energy consumption in the U. This decline continues the downward trend in manufacturing energy use since the MECS report.

Chapter 4 : Water Use Survey | Texas Water Development Board

Water utilities have discovered the best water-related actions i for the manufacturing sector are working with the facility managers and engineers to provide a comprehensive survey of water use and water efficiency strategies.

The most common uses for water in manufacturing are cooling, process uses, cleaning, employee sanitation, and steam generation. All five of these water uses can be fraught with waste and inefficiencies. There is great water conservation potential for those who invest the time and effort to implement programs and efficiencies in this sector. Cooling Water Most every manufacturing processes involves the use of energy, lots of it. There are four ways to handle this "waste heat. An example of this is co-generation. Even with the best energy efficiency practices, cooling may still be needed. This cooling can be performed either with air or with water. Air cooling has been used for centuries, but it has its economic limits. Where water must be used, there are three ways to dissipate this waste heat, single-pass cooling, a recirculating cooling pond, or a cooling tower. Water is often the most acceptable medium to transfer heat away from the machinery. It was once common to use single-pass cooling water, and simply dispose of the hot water into the sewer after a single pass through the machinery or equipment. This method is rarely used today because of rising water costs, regulations prohibiting single-pass cooling, and other options available for the reuse of cooling water. The other two are the use of a recirculating cooling pond or cooling tower. In these latter two cases, cooling water is pumped to a cooling pond or tower where evaporative techniques are employed to rid the waste heat and cool the water. The cooled water is then reused in the equipment cooling system or for some other beneficial use in the building or project. This is not to say there is no water loss and water waste because of this process; in fact, most cooling towers are notoriously inefficient in the use of water. More detailed information on cooling tower efficiency can be found at the following link: Cooling Tower Introduction Process Water There are many uses of water within any give manufacturing process. Each process is different, but many diverse manufacturing operations use water for either: When examining a manufacturing operation, it is important to take all water saving opportunities into consideration, including the use of water-efficient equipment as well as the use of water conserving practices. There is a ranking of five water saving possibilities to look at in any manufacturing operation. This order starts at the simplest to that requiring larger changes. Reuse and recycling of water produced within the facility is a promising option. Here the quantity and quality of discharge from each operation is examined to see if it would be possible to reuse that water in another process with or without additional treatment. The following simplified table illustrates this process. The use of reclaimed municipal water or water from another facility are other possibilities. Steam Generation and Boilers While some manufacturing processes use water to remove heat as described above , other processes use water to generate steam needed in the manufacturing process. Steam boilers lose water as the steam escapes the system. This water loss can be minimized with heat exchangers to collect the condensate and return it to the boiler. Boilers suffer the same water quality problems as cooling towers. As the water vapor steam escapes the system, the minerals in the water are left behind. If the TDS is not removed from the boiler water, a build-up of the minerals will collect on the inside of the boiler and pipes. The accumulation of scale can greatly hamper the efficiency of the system and eventually cause catastrophic failure. Blow-down water losses can be reduced by similar means as those used in the efficient operation of cooling towers; acidification of the water, side-stream filtration, magnetic pulse technology, and scale inhibitors. For more information on these treatments, use the following link: Cooling Tower Introduction Sanitation, Irrigation, food Service and Housekeeping As with any place where people gather, the processes of life continue. Manufacturing facilities all have restrooms, general areas must be cleaned, landscape watered, and in many cases food service is offered and even laundry facilities are required for uniforms and special clothing. Water efficiency in these areas is also important. This site contains water efficiency information on all of these operations. Wate r Audits Each manufacturing process is unique in its water use. A thorough audit of the water use is usually needed to assess: Industrial processes are often complicated and sensitive to water quality. The facility engineers and management must be intimately familiar with and involved in the audit process to achieve a satisfactory plan for water use

reduction. The strategies of reduce, reuse, and recycle should be applied to all water uses. Water use reductions are often found in the ability to reuse the water several times before discharging it into the sewer system. Many manufacturing facilities are surrounded with irrigated landscape; much of the water used in manufacturing is suitable for irrigating the landscape, sometimes requiring only minimal treatment. Caution should be used if the water collects solvents or toxic chemicals during the manufacturing process; these pollutants can percolate into the groundwater when applied as part of irrigation water. This cannot be accomplished in only a two hour site visit nor can it be performed by someone unfamiliar with manufacturing processes and techniquies of engineering analysis. Comprehensive audits within process industries require highly skilled, technically experienced individuals preferably engineers to perform the required water balance calculations, technical analyses of processes, and development of cost-effective strategies and plans for reducing water consumption. Anything less than that will only yield superficial results and less-than-optimum water savings. Furthermore, the utility must be dedicated to a long process of repeated site visits and meetings with engineers and management to prepare and implement a suitable water efficiency action plan for each participating facility. Links to more information:

Chapter 5 : The semiconductor industry struggles to control water use | Business | The Earth Times

Industrial water use includes water used for such purposes as fabricating, processing, washing, diluting, cooling, or transporting a product; incorporating water into a product; or for sanitation needs within the manufacturing facility.

These should include information relating to water and sanitation, such as the results of water sampling. Thus strengthening the human right of access to information. According to the report these measures are also crucial for gaining public confidence in water quality, the reliability of services and encourage people to accept tariff reform. Given the high water scarcity in Jordan, the average per capita use is lower than in most other countries. Water production before network losses is about liters per person and day while actual consumption is close to 80 liters per capita and day. Most households have roof storage tanks with a volume of 1â€”2 m3. One example is the Water Wise Women Initiative carried out since in initially five local communities throughout Jordan. It thus provides opportunities for women to generate income and to reduce expenses for bottled water, water bought from trucks and hired plumbers. Population growth is expected to increase the pressure on available water resources. Instead demand is defined as water needs derived from policy objectives. The Strategy envisages increasing water supply through three measures: Conventional Water Resources[edit] Conventional water resources in Jordan consist of groundwater and surface water. Countrywide, twelve groundwater basins have been identified. In terms of sustainability, their state can be described as critical since some of them are exploited to their maximum capacity, while others are overexploited, threatening their future use. Much of the flow of the Jordan River is diverted by Israel and much of the flow of the Yarmouk River by Syria , leaving only a small share to Jordan. Syria and Jordan have signed a bilateral treaty over the sharing of the Yarmouk River in in preparation for the construction of the Al-Wehda Dam on the border between the two countries. As part of this treaty, Israel supplies Jordan with 20 million cubic metres per year during the summer from the Sea of Galilee in exchange for the same amount that Israel pumps from the Yarmouk River in the winter for storage in the Sea of Galilee. The Zarqa River is severely polluted by industry, municipal wastewater and non-point sources. However, water quality in the King Talal reservoir has improved as a result of the construction of the new As-Samra wastewater treatment plant. Water reuse[edit] Treated wastewater from the Amman-Zarqa area flows through the Zarqa River to the Jordan Valley where it is reused indirectly for irrigation. Reuse of treated wastewater also called "reclaimed water" occurs both indirectly, after discharge of the effluent to a river and mixing with freshwater, and directly, e. As part of it, a strategy for pricing and marketing reclaimed water has been established. One challenge for the reuse of wastewater is the fact that industries discharge untreated wastewater into the sewer system. However, this industrial wastewater contains heavy metals and other substances which the municipal wastewater treatment plants cannot remove. The Jordanian standard JS The reclaimed water treated wastewater from the largest wastewater treatment plant in Jordan, As-Samra, flows through the Zarqa River into the King-Talal-Reservoir where it mixes with freshwater. From there it flows into the King-Abdullah-Canal in the Jordan Valley where it further mixes with freshwater. The diluted reclaimed water is reused on about 4, farms covering 10, hectares in the Southern part of the valley, mostly using drip irrigation. According to one estimate, 1, ha were irrigated with reclaimed water in the vicinity of treatment plants as of in 15 locations, of which the biggest are near As-Samra ha , Aqaba ha , Ramtha ha and Wadi Musa ha. Crops irrigated are forage crops and tree crops. Water was first used to irrigate a demonstration farm, and then the fields of nearby farmers. The total area irrigated under contracts with WAJ is ha, or about half the total irrigated area. It is thus about 12 times smaller than the area irrigated with indirectly reclaimed water from the As-Samra plant in the Jordan Valley. A major water reuse project is being planned to reuse water from three wastewater treatment plants in the area of Irbid in the North of Jordan through a project supported in the framework of Jordanian-German cooperation. An explanation for this is that farmers in the Jordan Valley are reluctant to use the reclaimed water, which they perceive to be of poor quality, for irrigation. The wastewater thus flows into the Jordan River, unused. In the future, the treated effluent from the three plants will flow through a pipe into the Jordan Valley, generating hydropower from the elevation differential of more

than 1,m. It will then be mixed with freshwater and delivered to the farmers in a quality that is acceptable to them. Desalination[edit] Desalination , which includes both desalination of sea water and desalination of brackish water, is another important non-conventional water resource for Jordan. The key project for sea water desalination is the Red Sea-Dead Sea Canal project which is yet to be completed. Impact of climate change on the water balance[edit] Main article: To address this challenge, Jordan has developed an extensive water supply infrastructure to provide water for both irrigation and municipal uses. Existing infrastructure[edit] The Mujib dam stores water from Wadi Mujib which is then mixed with desalinated water from brackish springs near the shore of the Dead Sea and then pumped up to Amman for drinking water supply. The Disi Water Conveyance Project that extracts million m3 2. The project also incorporates the construction of a desalination plant. It is expected to provide Jordan with million cubic metres of water annually. Other relevant laws include Public Health Law No. Jordan does not yet have a comprehensive water law, although a draft law is being discussed. The bill is supposed to define the structure and functions of the different ministries and other institutions managing the water and sanitation sectors. The UN Special Rapporteur on the human right to safe water drinking water and sanitation stated in a report: The MWI has been established in through a bylaw. Since its establishment, MWI has been supported by several donor organizations that have assisted in the development of water policy and water master planning as well as in restructuring the water sector. Two key agencies in the water sector are under the authority of the Ministry: The first of them is the Water Authority of Jordan WAJ which is mainly in charge of water and sanitation service provision. It provides its services directly or through public companies that it owns see below. Moreover, WAJ is also responsible, together with the Ministry, for water resources planning and monitoring. It also regulates water abstraction by all users, including itself, by issuing licenses. WAJ thus combines both regulatory and service provision functions. It is in charge of projects with private sector participation. It has also carried out major investment projects such as the water loss reduction program in Amman and has regulated the private operator in Amman from to The PMU was supposed to be an embryonic unit for a future semi-autonomous water regulatory agency for the entire country, to be established by law outside of the Ministry of Water and Irrigation. The unit has set up a benchmarking system using performance indicators that have initially been applied to the Aqaba Water Company and Miyahuna. It has been established as an autonomous corporate body, with financial and administrative independence linked with the Minister of Water and Irrigation. In Miyahuna was given the responsibility for water supply and sanitation in Madaba Governorate and in January in Zarqa Governorate under public-public management contracts, while the employees in these two governorates remain employees of WAJ. Private participation[edit] Water distribution and sewerage in Amman were operated by a private French company from to

Chapter 6 : Frequently Asked Questions | Texas Water Development Board

Industrial withdrawals provide water for such purposes as fabricating, processing, washing, diluting, cooling, or transporting a product; incorporating water into a product; or for sanitation needs within the manufacturing facility. Some industries that use large amounts of water produce such.

Market Groups Production for most major market groups rose in September. The index for consumer goods moved up 0. The indexes for business equipment and for defense and space equipment each advanced 0. Among nonindustrial supplies, the index for construction supplies decreased in September, but the index for business supplies increased after declining in the previous two months. The output of industrial materials moved up 0. Industry Groups Manufacturing output moved up 0. Factory output advanced 2. In September, the indexes for durables and for other manufacturing publishing and logging rose, while the index for nondurables edged down. Production rose for most major categories within durable manufacturing. The largest increases were posted by motor vehicles and parts, wood products, and primary metals, while the only sizable decline was recorded by nonmetallic mineral products. Mining output increased 0. The index for utilities was unchanged in September, as a decline in electric utilities offset an increase in natural gas utilities. Capacity utilization for manufacturing edged up in September to The operating rates for durables and for other manufacturing increased, but the rate for nondurables decreased. The utilization rate for mining edged down to The utilization rate for utilities moved down to Revision of Industrial Production and Capacity Utilization The Federal Reserve Board plans to issue its annual revision to the index of industrial production IP and the related measures of capacity utilization around the end of the first quarter of The Economic Census for will not be available from the U. Census Bureau by early , so no new annual benchmark data will be included for manufacturing. Other annual data, including information on the mining of metallic and nonmetallic minerals except fuels , will be incorporated. The updated IP indexes will include revisions to the monthly indicator either product data or input data and to seasonal factors for each industry. In addition, the estimation methods for some series may be changed. Any modifications to the methods for estimating the output of an industry will affect the index from to the present. Capacity and capacity utilization will be revised to incorporate data through the fourth quarter of from the U. Geological Survey, the U. Department of Energy, and other organizations. The statistics in this release cover output, capacity, and capacity utilization in the U. Manufacturing comprises NAICS manufacturing industries sector plus the logging industry and the newspaper, periodical, book, and directory publishing industries. Logging and publishing are classified elsewhere in NAICS under agriculture and information, respectively , but historically they were considered to be manufacturing and were included in the industrial sector under the Standard Industrial Classification SIC system.

Chapter 7 : Water Use and Conservation in Manufacturing: Evidence from U.S. Microdata

water intake and the percent of gross water use, by purpose, for U.S. manufacturing in and (U.S. Bureau of the Census ,). 3 Water for other cooling & condensing, for process, and for steam electric power generation dominate here, in that order. 4.

Conduct a facility audit to quantify water use. Understanding water use will indentify savings opportunities, allow appropriate savings targets to be established, and serve as a benchmark from which water savings can be tracked. This should be the first step in a water efficiency program. It may be cost-beneficial to hire a professional with expertise in industrial water use efficiency to carry out an on-site survey. Compare water use to industry benchmarks if available. Water use benchmarks provide an estimation of the average water use for specific industrial sectors and can be used as a tool to evaluate current consumption patterns among peers. Learn from water saving success stories of industry peers. These details can often be found in sustainability reports or annual reports. Investigate the feasibility of the following general options in your operations. Reduce the flow of water. Modify the equipment or installing water saving devices. Replace existing equipment with more water efficient equipment. Water treatment, recycling, and reuse. Change to a waterless process. Educate employees about the importance of using less water. Creating a workplace culture that focuses and takes pride in efficiency can be a very beneficial component of a water conservation plan. Increased awareness will ensure more staff members are monitoring water use. Things that can be done include: Give recognition to those who initiate water-efficiency procedures and processes. Make resource conservation part of performance reviews, especially for line manager. Use non-potable water for industrial process use. Potable water is often not required for many industrial uses and can be substituted with non-potable or reused water. Sources include but are not limited to air conditioner condensate, cooling tower blow down, and rainwater. Improve cooling tower efficiency. Cooling towers often represent the largest percentage of water consumption in industrial operations. Some ways to improve the efficiency of cooling towers and reduce water use include: Install a conductivity controller on each cooling tower. Equip cooling towers with overflow alarms. Use high-efficiency drift eliminators. Install submeters to monitor make-up and bleed on each cooling tower. Properly train and educate cooling tower operators. For more information and resources: Water use is often a hidden component of industrial and commercial equipment as it is used for cooling purposes. Often this equipment is available with technology that uses air for cooling. The pros and cons of each should be determined before switching. A couple of factors to consider are energy efficiency and performance. Equipment that falls into this category include:

Chapter 8 : Manufacturing water use survey, : a summary of results - University of Manitoba Libraries

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Chapter 9 : Manufacturing Introduction

Water use estimates for municipal, manufacturing, and steam-electric power categories come from an annual survey of public water suppliers and major manufacturing and power entities. Response to this survey is mandatory (Section (m) of the Texas Water Code, as amended by the 78th Texas Legislature in).