

# **PRIVATE STORMWATER MAINTENANCE ON A GRAND SCALE**

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## **INTRODUCTION**

The work of a stormwater regulator is never complete. As soon as one new regulation is put into effect in their region another one is underway and it becomes their responsibility to begin the difficult task of enforcing the new regulation. Now, imagine being on the receiving end of the new stormwater regulation, yet you do not have just one region and one regulator to work with, you have thousands. This is a daunting task for the three stormwater compliance professionals who manage the Walmart Stormwater Operations Compliance Program. The landscape of water compliance is in continual flux on a national scale, with state and local rules and regulations changing daily. Yet, it is the responsibility of the Walmart stormwater compliance team to ensure that all stormwater compliance standards are met across the country at nearly 5,000 Walmart and Sam's Club facilities.

How does one create a national stormwater compliance program robust enough to maintain compliance with local, state, and federal regulations while staying flexible enough to meet the individual needs of the facility and still remain cost effective? For Walmart that is a question 15 years in the making and can only be answered by exploring several innovative methods of managing compliance, maintenance, and relationships. There are five elements essential to the design and success of Walmart's Stormwater Operations Compliance Program:

- First, a commitment to continual, complete compliance
- Second, a fleet of maintenance contractors, incentivized to become business partners driving both compliance and quality services for the right price
- Third, information, specifically individual facility asset information and the creation of services tailored uniquely to those assets
- Fourth, sophisticated information systems, designed to collect, monitor, and report all aspects of the stormwater system lifecycle at each facility
- Fifth, and argumentatively the most critical element is the development of an active partnership with regulatory agencies, designed to proactively identify and correct issues prior to the issuance of fines or penalties

The execution of each element is critical when working with thousands of facilities across a wide landscape of rules, regulations, geographies, climates, and other factors that influence the successful operation of a stormwater system.

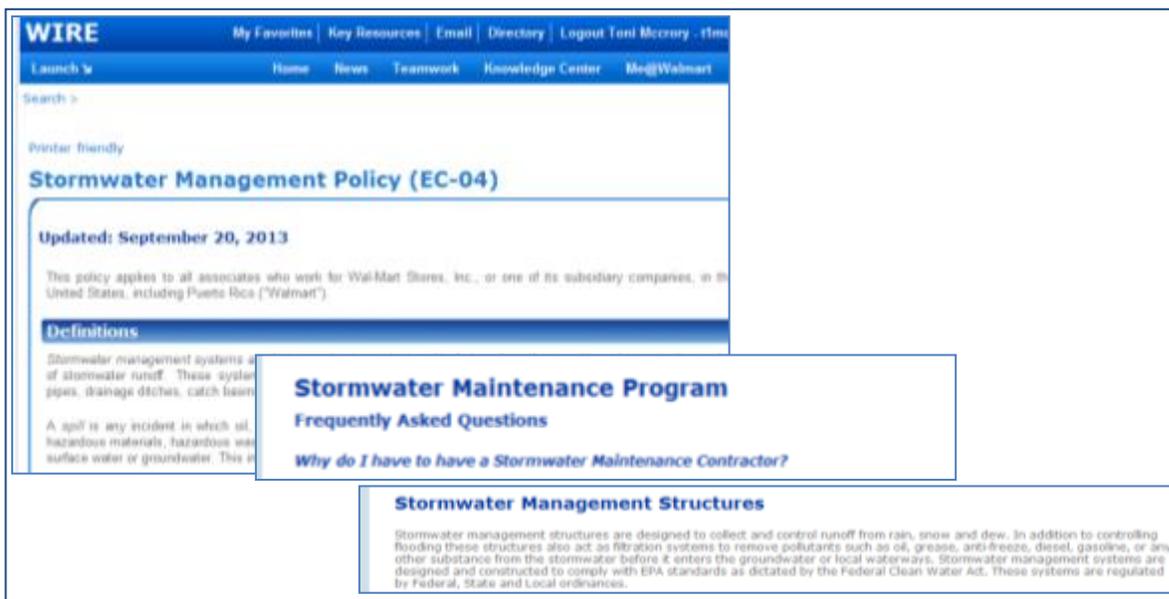
## **PROGRAM ELEMENTS**

### **Commitment to Compliance**

Walmart's corporate compliance motto is the Right Way, Every Day. This is not just a commitment to compliance; it is a philosophy that integrates into all of our business practices. If associates are provided with the right way to do their everyday tasks and compliance is naturally integrated into those procedures, then compliance comes naturally. Associates are encouraged to understand that compliance is not just simply a legal requirement, but that it actually costs less to comply with the law. Since associates are incentivized by the financial performance of their facility, this means greater rewards for them to do things the right way.

The overarching mission is to be a world-class compliance organization. It would be easy to simply compare Walmart to other retailers, but we expand that scope and continually look for emerging technologies and best practices throughout the stormwater community. This includes but is not limited to municipalities, watershed authorities, and green communities. This practice highlights one of our basic beliefs – Striving for Excellence – and allows us to stay out in front of a changing industry. Walmart also recognizes complete compliance is difficult to achieve without a clear understanding of regulatory requirements. We enlist many business partners to assist us in identifying changing regulations. These partners research local, state, and federal rules under development every quarter that could impact our stormwater program. The information is condensed, to provide a synopsis of the changes for review, with the ability to complete a thorough analysis as needed to assess potential impacts. A quarterly review seems frequent but when working in thousands of jurisdictions it is necessary to identify trends in changing regulation so programs may be developed and implemented ahead of potential enforcement activity.

Another important element in a world-class compliance organization is consistent and thorough execution from the top-down. The stormwater operations compliance team developed and implemented company policy for stormwater management at all facilities. Our policy is accessible to all associates in the United States and is reinforced by routine facility visits by compliance personnel. Training information is also readily available, as is access to compliance professionals at the home office for any questions. Corporate stormwater policy explicitly states that Walmart is committed to environmental protection and preservation of our water resources, and complying fully with all applicable environmental laws and regulations. It also states that all associates are expected to ensure proper functionality by taking steps to prevent pollution from entering the stormwater management systems. Daily inspections of each facility’s stormwater management system by store personnel are strongly encouraged to ensure proper function and to identify any potential environmental risks, which are to be immediately reported to the home office.



**Figure 1. Walmart Stormwater Operations Compliance Program Policy, Best Management Practices, and Operating Procedures on the Walmart intranet.**

Walmart Compliance places a high value on continuous improvement. The policies and standard operating procedures are reviewed frequently and modified as needed. But Walmart doesn't just value it

– Walmart requires it. As former Walmart U.S. CEO Bill Simon put it, “Compliance is the ante for Walmart to do business”. Efficient processes equal dollars, and dollars equal savings that can be passed on to customers. This model is called EDLC – Every Day Low Cost. The EDLC model enables us to provide EDLP – Every Day Low Price – to Walmart customers around the world. The last four years have seen dramatic improvement in terms of efficiency for Walmart’s Stormwater Operations Compliance Program, which is not generally a revenue-generating business. Therefore, it is important for the entire operation to be executed with excellence and efficiency to return even more value to the business and, ultimately, to Walmart customers. The Right Way, Every Day means that we will strive to achieve complete compliance, in a manner that is consistent with our corporate beliefs.

### **Contractors versus Business Partners**

An important element of the Walmart Stormwater Operations Compliance Program is the maintenance service provider. These companies perform routine maintenance services, non-contract repair opportunities, and emergency response. For many companies, a contract is structured in a manner in which the contractor does what they are paid to do and nothing further. However, for Walmart, it is imperative that the contractor become more than just a contractor and play an active role in ensuring Walmart exceeds compliance requirements while operating in a low cost manner. Therefore, the contract is structured to incentivize the right way, not just the easiest or cheapest way. Creating an incentive based contract allows the contractor to transform into a business partner, one who has a vested interest in guaranteeing work is completed in a compliant and long term manner.

The transition of contractor to business partner takes time. However, it is a very simple process: provide quality, on time service that is compliant and sustainable over the terms of the original contract and Walmart will reward with an extension of the contract. Part of that service includes building relationships with regulators, to know and understand how they interpret their regulations, and what is needed to keep Walmart in compliance. An additional element of the incentive is to integrate innovative ideas within the services to continue to provide cost reductions while driving sustainability.

*Contract Structure.* Before a contractor can work with Walmart, they must first participate in a rigorous vetting process. Walmart’s fast-pace and large scale demands that only the most qualified and experienced contractors are allowed to even be considered, so the company partners with contractors that have demonstrated the capability and skill set to perform stormwater maintenance and repair within a large territory and on complex projects. These requirements mean trust must be inherent. The bid cycle is dependent upon the contractor’s fulfillment of the performance based contract and can therefore extend anywhere from two years to four years. At any time Walmart may re-evaluate the contractor’s status in one or multiple states and complete a new bid cycle. Annually, contractors are invited to Bentonville to evaluate aspects of the stormwater program and to receive their review. Quarterly conference calls are also held to review the scorecard, discussed in greater detail later, and ensure each contractor knows how they are performing against the performance based contract.

*Roles and Responsibilities.* Walmart utilizes seven service providers to service more than 100,000 assets across nearly 5,000 locations, which range from the smaller format Walmart Neighborhood Market stores to Supercenters and Sam’s Clubs. The service provider’s scope includes regular maintenance services such as: cutting vegetation in detention ponds and swales, trash and debris removal, inspections of inlets, outlets, catch basins, and other stormwater structures, maintenance of aquatic vegetation, catch basin cleanings, and other related stormwater maintenance. Every service is tailored to the facility as each facility is uniquely designed. The service providers also scope and bid on non-routine maintenance aspects such as repairs to catch basins, pond dredging, erosion repairs, and other major repairs to

maintain peak system functionality. In addition to maintenance type services, emergency responses are often required to remediate spills and major disasters.

Walmart enjoys long-term partnerships with many service providers in the program today. This trust is very important due to the fast pace of the program. Each day sees multiple emergency responses. The nature of our business is to sell merchandise to customers and members. In order to do that, we must maintain a fluid operation in all aspects. This requires a swift and thorough response from all parties, and stormwater is no exception. For example, if a loading dock is flooded and the delivery trucks are unable to offload merchandise as a result, then there is a significant operational and sales impact on that particular location. These events happen often when the fleet is as large as Walmart's. Walmart has a pool of service providers that recognize the importance of a timely response and have adjusted their operations in order to have the bandwidth to respond to these types of events.

*Scorecard.* Mutual incentives, or win-win scenarios, drive our partnerships with our service providers. In 2012, Walmart developed a performance-based contract that incentivizes the service providers to look longer term in their up-front pricing and rewards them for strong performance and sustainable business practices. There are eight metrics that determine eligibility for contract extension:

- Execution of the scope of work – adherence to the basic elements of the contracted scope of work
- Compliance achievement – non-contractor caused non-compliant violations
- On-time service – ability to provide routine maintenance services on the pre-determined schedule within reason
- Quality assurance scores – visual assessment of facilities stormwater systems post maintenance
- Administrative scores – ability to provide maintenance records, billing, and other administrative duties within required timeframes and without errors
- Frequency effectiveness – commitment to tailor maintenance frequency to facility specific elements, reducing risk of compliance violations and maintaining system functionality
- Preventive maintenance expense reduction – ability to leverage program efficiencies which generate cost savings that are shared with Walmart
- Stormwater fee credits – research commitment to identify facilities eligible for fee credits and actively pursue where feasible

Should the service provider achieve the minimum threshold in these categories, they will be eligible for extension at Walmart's discretion. A higher grade across categories translates to a higher likelihood of extension. Categories are weighted according to priority. The heaviest weighted categories are compliance and execution. Each category is carefully evaluated with data stored in a centralized compliance and workflow system, Enviance. Service providers submit monthly inspection data which is uploaded into the system and can be queried. All data stored in Enviance is information used to track the contractors' performance on timely and effective maintenance.

Contractor	Execution (40%)	Compliance Requirement (35%)	QA Assessment Score (10%)	Administrative Score (15%)	Overall
1	C-	A-	N/A	A-	C
2	B	A	B	A-	B
3	A-	A-	N/A	A-	B
4	A-	A-	B	A-	B

Figure 2. Example scorecard used to rate service providers according to the performance-based contract guidelines.

*Winning Elements.* As a result of the implementation of the performance-based contract, Walmart has set higher expectations and offered more rewards. This approach has strengthened our partnerships with service providers, saved time and money on the national bid process, and promoted longer-term strategy for each service provider. This has decreased their cost of doing business and enabled both sides to focus more time on innovation. The contract structure has also allowed the service providers to stabilize their workforce and hire more capable individuals. Service providers have voiced their ability to share the winning elements of a performance based contract with other companies to encourage growth of mutually beneficial contracts. Walmart has also benefited from this type of contract because it has promoted very strong performance, rewarded innovation, and saved the company money. Since implementing the performance based contract Walmart has witnessed a significant decrease in the stormwater maintenance budget, while maintaining compliance.

### Asset Information

In order to provide maintenance to the more than 100,000 Walmart responsible assets across the country, asset information must be maintained and kept up to date. In coordination with the service providers, the stormwater compliance managers maintain asset information for every facility. This asset information includes types of assets, number of assets, sizes of assets, special features, and local maintenance requirements. In addition to general facility asset information it is important to maintain records of maintenance of the assets. During routine maintenance events service providers record inspection notes for each asset and deficiencies that need to be addressed. This information is then used to determine frequencies of maintenance as well as asset life cycles and associated costs.

Stormwater System Information	
Applicable Asset Type:	Stormwater System
Estimated Asset:	False
Date Attributes Last Verified:	1/1/2010
Data Source:	None given
Data Source Comments:	None given
Stormwater Maintenance Responsibility:	Walmart
Stormwater Maintenance Responsibility Comments:	None given
Stormwater Service Frequency:	12
Aerators/Fountains - number:	None given
Bio Retention Swales - number:	None given
Bio Retention Swales - size:	None given
Catch Basins - number:	8
Concrete Channels - number:	None given
Concrete Channels - size:	None given
Concrete Flumes - number:	None given
Concrete Flumes - size:	None given
Curb Cuts - number:	2
Curb Inlets - number:	4
Curb Inlets - insert present?:	None given
Curb Inlets - notes:	None given
Detention Ponds - number:	1
Detention Ponds - size:	42631 SF
Deck Drains - number:	2
Drop Inlets - number:	4

Figure 3. Walmart stormwater asset collection screen within the Enviance system.

*Asset Collection.* Asset information is originally derived from site plans and civil engineering documents. It is essential for the stormwater operational compliance team to work hand-in-hand with the civil design teams to review operations and maintenance (O&M) agreements before they are signed as well as site plans and applicable manufacturer specifications. This allows both the operational stormwater compliance team and service providers to have a clear, concise plan for maintenance of each asset. It also enables the operational stormwater compliance team to advise the civil design teams on any maintenance issues and find alternate solutions to otherwise cost-prohibitive maintenance requirements. This helps Walmart accelerate a proper construction closure and facilitates a smoother transition to routine maintenance.

Just prior to the Notice of Termination, a handoff meeting occurs. The parties involved are the civil engineer, stormwater maintenance service provider, the general contractor, and Walmart personnel. A thorough walk-through of all system elements is conducted, maintenance requirements are discussed, site plans are exchanged, and the current system condition is evaluated. It is during this visit that the site's assets are gathered by the stormwater maintenance service provider and input into a centralized system that allows a real-time update of assets for the entire fleet. Asset information can be added, removed, and adjusted on the fly and made readily available in such a manner that Walmart knows at any given moment what assets exist for each facility.

Maintenance data collection is just as important to maintaining a strong stormwater asset account. Each month service providers record critical maintenance information from routine site visits at every facility visited. The data includes inspection points such as date and time of service, vegetation height, sediment loading, trash amounts, and indications of any issues discovered during routine maintenance that may require emergency response or repair. There are 35 categories for each inspection, most of which are required fields to ensure queries return actionable data results. Each captured element is utilized to accomplish one of two requirements, assess the performance of the assets on site or assess the performance of the service provider.

Begin Date	5/22/2014 12:43 PM
End Date	5/22/2014 3:27 PM
Requirement	Collect Contractor Data
Due Date	No Associated Task
Event Template Fields:	<b>Stormwater Maintenance</b>
Service Date	5/22/2014
Start Time	12:43 PM
End Time	3:27 PM
Service Provider Name	DGC Environmental Services
Crew Lead Name	Damian Cross
Last Rainfall (inches)	None given
30 Day Rainfall To Date (inches)	3.29
Mowing	Yes
Vegetation Height (inches)	None given
Vegetation Coverage	Good
Erosion Present	

**Figure 4. Walmart stormwater maintenance inspection data collection screen within the Enviance system.**

*Utilization of Asset Information.* The type of asset information Walmart stores ranges from each individual catch basin to all ponds, proprietary assets, underground detention, wetlands, swales, and even dock drains. This allows the stormwater compliance managers to work with the service provider to set a proper maintenance frequency based on assets and requirements for each individual facility. By creating a facility specific program for all 5,000 facilities cost savings are realized. However, this is only possible with a robust information system to track, measure, and assess performance standards for facility assets and service providers. Maintenance frequency thus is based on regulated frequency requirements, lease or development agreements, and then assets, climate, labor intensity, and other environmental considerations.

In addition to service frequency analysis, maintaining a detailed list of assets and maintenance records provides for the ability to proactively assess trends in failing stormwater system elements, geographic concerns, and communication gaps. Maintenance records paired with repair records, through the workflow process to be discussed later, identify routine repairs linked to specific assets and/or geographic regions. Reporting and analysis is then conducted to identify root causes for failures and begin the process of proactively making repairs to similar assets at similar sites and notifying the construction and design team to integrate changes into the beginning of the facility life cycle for stormwater management. Trends are also identified in preventative incidents to provide a basis for detailed communication to field associates in effort to provide corrective direction and limit future incidents. By “right sizing” maintenance efforts, proactively addressing repairs, and providing direct and clear communication to the field the stormwater compliance program is able to save money and focus efforts for further program development where the greatest impact may be realized.

*Global Information Systems.* The Walmart Stormwater Operations Compliance Program has made great strides in recording and detailing asset and maintenance efforts for each facility. However, the future of asset tracking at Walmart must incorporate Global Information Systems mapping. As the number of facilities continues to increase every year, Walmart must become even more sophisticated in tracking asset information. Currently, Walmart is in the discovery phase with the desire to identify a low cost, highly functional, and highly customizable system to identify the exact latitude and longitude of each asset including photos and all pertinent information of the last time the asset was maintained. As this element of the program continues to develop, it will be critical to work with the service providers to ensure the chosen system is functional both internal and external.

### **Information Systems**

A motivation for compliance is not the only element needed to create success, systems must be developed to maintain and manage the large volumes of data required to effectively manage the Walmart Stormwater Operations Compliance Program. Walmart maintains a state of the art compliance information system that allows an individual to have access to local regulations, service histories, and regulatory histories within a matter of seconds. This allows the managers to understand the unique facets of every facility without ever having to personally visit and inspect. Integrate that system with service provider information, online manifest availability, and other tools, and you get a package that allows a manager to communicate with a local regulator quickly and efficiently. The system is highly customized to the business of the individuals managing the program and provides them only the data they need without unnecessary clutter.

*Regulations and Tasks.* Compliance obligations are readily available to Walmart at a moment’s notice thanks to a system that captures this information as stores and clubs open for business. All required maintenance requirements, reporting obligations, and other unique aspects regarding a facility’s stormwater system requirements are recorded in the Enviance system with a unique workflow setup.

Each workflow includes a link to the task obligation, rule, or regulation as well as the due date for submittal, the responsible party for completion, and an opportunity to record notes specific to the submittal for future review. The workflows are also created with automated advanced mailers and a hierarchy for notifications if not completed on time.

*Regulatory Agency Contacts.* Regulatory agency contacts are captured by store personnel per policy and recorded in the Enviance system. Contacts are recorded in a workflow process and identify differences between actionable response required contacts versus information only notifications. This enables home office personnel to have full visibility to regulatory needs in order to facilitate a timely response. Execution of this notification at store level is enforced per policy. Documents left at the facility by a regulator are uploaded into the system and all actions to resolve outstanding compliance issues are logged continuously. The contact is only closed when confirmation is received from the regulator that all issues are in fact resolved. This enables Walmart to foster strong relationships with regulators by virtue of a robust standard process that promotes actionable responses.

*Assets and Routine Maintenance Inspections.* As discussed in the previous section, asset information management along with collection of routine maintenance data is another system element executed through the use of the Enviance system. Initial attempts at collecting asset information via spreadsheets proved to be cumbersome and antiquated. Unfortunately, multiple versions of asset lists were circulated prior to the introduction of the system, resulting in inaccurate information passed following an expansion, sale, or other major facility life cycle event. Collection of maintenance data was a larger challenge with each individual facility routine maintenance event captured by pen and paper on a site inspection form. Scanned images were provided to Walmart for documentation of completed services; however results of site inspections and maintenance records were not able to be queried. This resulted in a high volume of work for service providers and stormwater compliance managers with no end benefit. As a result, the stormwater compliance managers worked closely with the maintenance service providers to design the data collection process to move from a manual to an electronic process, able to integrate with existing service provider systems.

*Project Management Through Workflows.* Until 2012, Walmart utilized spreadsheets and e-mail to manage repair projects. This required a lot of time and effort to store, track, and communicate with each service provider. This process offered virtually no reporting or accountability for timely results. The need for a workflow-based system became a high priority as a time study revealed that some significant gains could be made by upgrading. Walmart invested and participated in the development of a new system that allowed service providers to log inspections and deficiencies, upload corresponding documentation and photographs, provide cost information, and streamline billing. With the creation of our workflow-based out of scope repair system, Walmart is able to interface with the service providers regularly and aggregate data to evaluate performance. This portion of the system is particularly important in the evaluation of project execution. It also enables Walmart to streamline the bid process. Service providers are invited to bid on a wide range of projects as seen fit by the Walmart stormwater manager and they are provided feedback following the bid on their performance. The basic overview of the process is as follows:



develop a quick look up tool. The Master Facility Snapshot allows the stormwater compliance manager to quickly review site specific information for each facility. Stormwater compliance information including site assets, regulatory requirements, maintenance records, and repair workflows are captured in a succinct one page snapshot. The consolidation of each individual element to one screen allows the stormwater compliance manager to have an informed conversation with leadership and regulators, without being intimately familiar with every one of the 5,000 facilities they support.

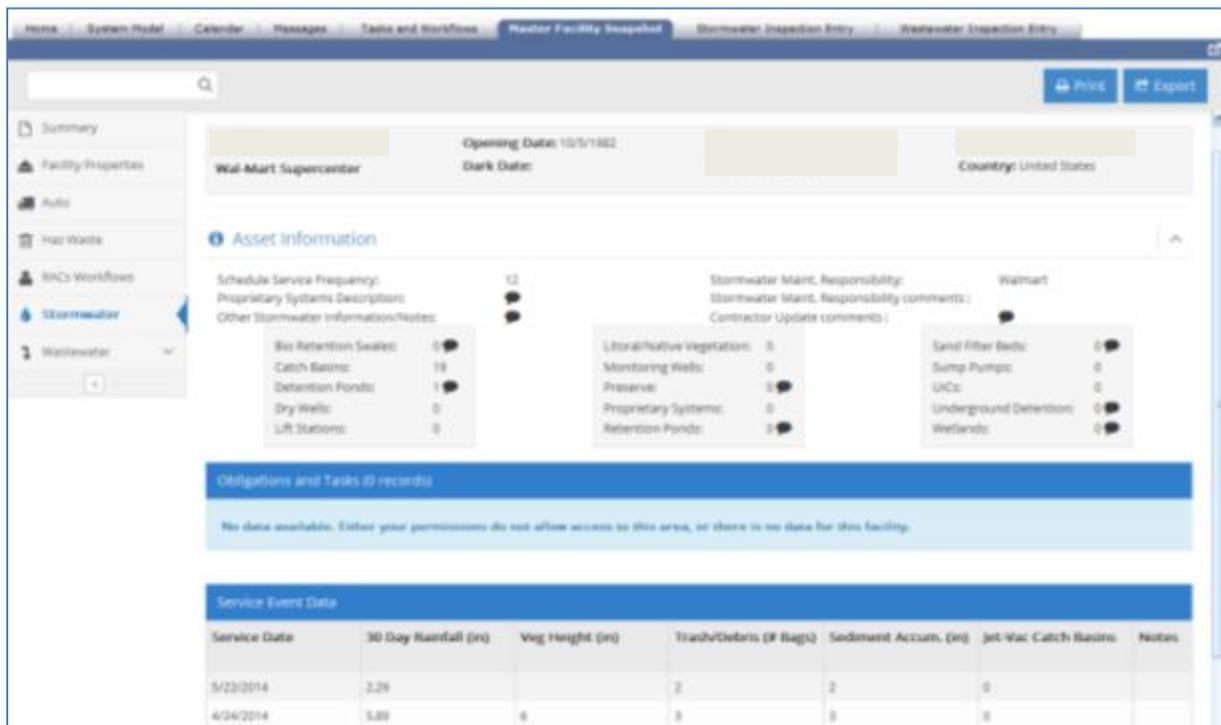


Figure 6. Screenshot of the Master Facility Snapshot Application within the Walmart Enviance system.

## Regulatory Partnerships

The most important element of an effective compliance program is a partnership with the local regulatory agencies. Often, businesses and regulatory agencies see each other as rivals. However, Walmart views these relationships as key partnerships for building sound communities and sustaining the environment in which we do business. Constructing and strengthening these relationships is the responsibility of not only the stormwater compliance manager but also the service providers and store associates. Without these partnerships, compliance is not possible, nor is business.

The communities in which Walmart operates are very important to the company. The stormwater program exists for compliance purposes but the company recognizes the need to be a good neighbor and have stormwater assets that benefit the community. Being a good neighbor is not about just keeping the property tidy – functionality of the stormwater system elements is critical. Walmart has recently partnered with communities in Arkansas and California to design and implement stormwater drain medallions. These community outreach programs sometimes come at a cost to Walmart but ultimately benefit both Walmart and the community by educating customers. Deterring one customer from depositing motor oil down a stormwater drain on a Walmart parking lot will save the company money by preventing an emergency spill response. In this example the larger benefit goes to the community through keeping the stormwater system free of contamination.



**Figure 7. Stormwater medallion installation at the Walmart Supercenter in Hot Springs, Arkansas.**

Knowing and doing the right thing consistently has demonstrated Walmart's commitment to compliance, and has earned Walmart credibility within many regulatory communities. While we acknowledge our imperfections, we will always strive for excellence in execution of our compliance programs and remedy issues as quickly as possible. At times this requires candid conversations with service providers, facility associates, and regulators.

The Walmart stormwater compliance team continues to seek opportunities to integrate with the communities and regulators where we operate. Possible opportunities include phone conversations or on site walk-throughs to discuss site specific issues, regulation creation/change and the effects on retail facilities, innovative community programs providing enhancements to stormwater compliance, and even difficult conversations outlining program deficiencies. By increasing the number and effectiveness of communication with regulatory officials Walmart can continue to improve on the current Stormwater Operations Compliance Program. Regulatory officials can also benefit through understanding the difficulties of implementing some regulations at retail facilities and share best management practices to achieve the desired compliance.

## **CONCLUSION**

Creation of a national compliance program is never a one size fits all solution. Each program must have specific elements tailored to achieve the desired results of the overall program. For the Walmart Stormwater Operations Compliance Program, this is a continuous process. The ultimate program goal is to become a world class compliance program with no equal. At this time, Walmart ventures to be a best in class compliance program when compared to other retail peers. The elements of Walmart's Stormwater Operations Compliance Program highlighted here are best practices that could be employed across the retail landscape in an effort to achieve stormwater compliance. Each element has unique facets which required years of trial and error in program development, information systems, and

program management. However, the current success of the Walmart Stormwater Operations Compliance Program would not be possible without the integration of all of these elements.

Within the current economic landscape, Walmart will continue to be pressured to exceed the expectation of their customers to Save Money So People Can Live Better. The only way to achieve this goal is to be the low cost provider, which in many cases is not conducive to maintaining quality and compliance. Therefore, it remains critical that the stormwater compliance team continually improve the Walmart Stormwater Operations Compliance Program through innovative business practices, partnerships, and technology. This is not possible without the fundamental elements that have been established over the previous 15 years. Walmart must look toward the future of stormwater compliance, knowing internal resources will be limited and low cost must be a priority second only to compliance. To do so Walmart must embrace the unique relationships they have developed, combining regulatory partnerships with the appropriate technology and the right service providers and associate incentives to drive stormwater compliance further than any other private program.