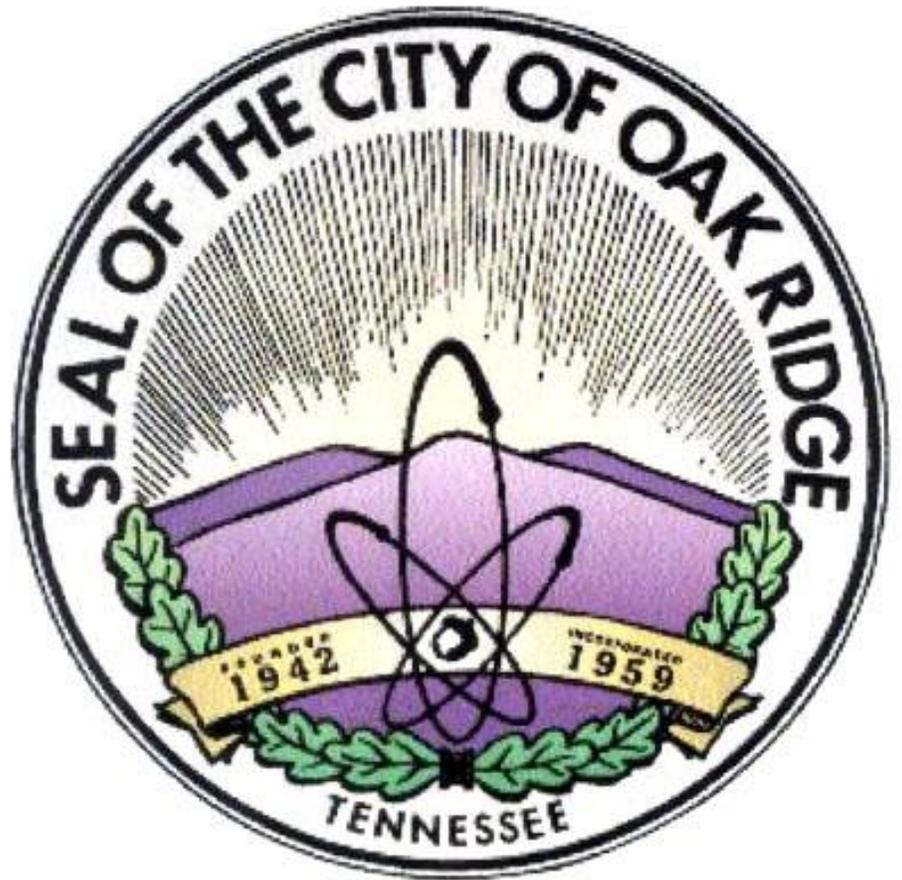


City of Oak Ridge, Tennessee

# Information Management System (IMS) Programs



June 2011

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## Section I

### GENERAL INFORMATION

#### **EPA Order Section IV, Item D, Subsection i, Letter a**

The City of Oak Ridge, Tennessee (City) received an Administrative Order (Order) from the United States Environmental Protection Agency (EPA) dated September 28, 2010.

Section IV, Item D of the EPA Order requires the City to develop Management, Operation and Maintenance Programs (MOM). A component of the MOM is an Information Management Systems (IMS) Program.

Section IV, Item D, Subsection i, stipulates that within nine months of the effective date of the Order (June 28, 2011), the City develop and submit to EPA for review, comment and approval the Information Management Systems (IMS) Program.

In general, an IMS involves the collection, identification, analysis, storage, presentation and distribution of information. The Public Works Department began the process of learning about IMS prior to receiving the EPA Order, as a possible method to increase efficiencies and track assets, such as pumps and motors installed at the sewer pump stations. Currently, the Public Works Department utilizes several software systems for these functions, including but not limited to JDEdwards, Access, Excel and AS400 programs created prior to 1985. Gathering needed information from these various sources is very time consuming and inefficient to compile the associated data.

Once the Order was received, the Public Works Department led the City staff effort in researching possible IMS providers. A work team was developed including staff from the City departments of Computer Services, Public Works and Finance along with the City's consultant Lamar Dunn & Associates (LD&A). The work team reviewed several IMS providers via the Internet and decided to invite three providers for onsite presentations. The work team developed a list of requirements for the IMS, such as ability to incorporate the current JDEdwards work orders, GIS and utility customer information. A Request for Proposal was issued to the three companies that had provided an onsite presentation.

The selection process included the work team reviewing the three proposals received, without the pricing information, which allowed for a true technical review of the proposals and allowed the work team to focus on the requirements of the EPA Order and how the IMS complied with them. The work team discussed each proposal with all being most supportive of the one received from Infor Global Solutions (Michigan), Inc. (Infor). The work team agreed that the Infor IMS allowed for the most flexibility based on the following:

- non-module based system, which allows for the flexibility to include work activities without purchasing a module for each activity
- allows for an unlimited number of users without charging a licensing fee per user
- includes energy consumption tracking and asset sustainability management

The work team felt strongly that the Infor IMS will allow for ownership of the system, instead of it being implemented for the staff by the vendor and then leaving us with it. This philosophy was demonstrated in the Infor RFP by the following statement.

*“Throughout the implementation there is a gradual transfer of knowledge and ownership from Infor consultants to your project team until the members of the project team become the drivers and champions of the new system and business processes.”*

The Infor philosophy was apparent in a three hour meeting on March 29, 2011 with the Infor representatives and City staff from several departments. Several subjects were discussed thoroughly with enough information exchange for the Infor representatives to reevaluate the original pricing and provide revised pricing for implementation and training. The revised pricing includes the integration of GIS (Geographic Information System), sewer CCTV (Closed Circuit Television), JDEdwards and SCADA (Supervisory Control and Data Acquisition), thus including integration of all the needed systems to the IMS.

The Infor Enterprise Asset Management (EAM) software allows for customization of data fields by the user. To simplify the training of City field employees, it was imperative that the chosen IMS would allow for the currently utilized five (5) digit work order numbers to be incorporated into the IMS. These work orders will be “data dumped” from JDEdwards into the Infor system and become known as “task numbers”.

The IMS implementation schedule with Infor is aggressive, but one the work team believes can be accomplished. To comply with the EPA Order, City staff plans for sewer pump station maintenance to be the first work group for implementation of the IMS, by December 28, 2011. It is believed that this work group will provide City staff with the appropriate learning curve, prior to implementing the IMS to a larger, more diverse work group. Once the sewer pump station maintenance work group is implemented, City staff plans to continue to move work groups to the IMS, with each MOM program developed integrated to the IMS.

Prior to the Infor IMS implementation, several members of the IMS work team plan a site visit to a community that has installed and implemented the Infor IMS. Members of the work team hope to spend at least a day with personnel from the host site in their respective areas, such as pump station maintenance, call center, supervisor, GIS and management. The current IMS implementation schedule includes the following milestones and significant dates.

Approval of Infor EAM Software Purchase	May 9, 2011
Infor Services Work Order Approval	June 13, 2011
Site Visit to Infor Installation	TBD (July 2011)
Infor Project Initiation	July 25, 2011
Infor Phase One Design	August 8 through September 9, 2011
Infor Phase One Build	August 15 through September 25, 2011
Infor Phase One Deploy	September 19 through October 21, 2011
Infor – Initiate Subsequent Phases	November 1, 2011

Susan Fallon, Public Works Department, Contracts/Grants Coordinator, has been assigned primary responsibility for the project management of the IMS by Gary Cinder, Public Works Director. A staffing plan has been submitted to the City Manager, with funding for the staff included in the FY2012 City of Oak Ridge budget. Upon budget approval, a formal request for staffing, including job descriptions for two new administrative positions will be forwarded to the City Manager and Personnel Director.

To provide for the “ownership” of the IMS and to allow for the most efficient data transfer from the current systems to Infor, the recommendation of the Public Works Director will include the promotion of the two current Public Works Department Administrative Assistants to newly created jobs and the promotion of the Contracts/Grants Coordinate to manager level and the hiring of a new employee as an entry level Office Specialist.

The three employees to be promoted have a total of more than fifty-seven years of experience with the City of Oak Ridge, including vast experience with all the current data systems such as JDEdwards, Access, Excel, payroll and customer accounts. It is planned for Cindy Franklin (currently Administrative Assistant) to concentrate on the development and implementation of internal data for the Infor IMS, with Kathy Stout (currently Administrative Assistant) primarily responsible for the external data and hardware required for the IMS. Susan Fallon will serve as the Administrative Division Manager with oversight of the IMS implementation process. It is planned that these roles will carry through to the training aspect of the IMS as well.

Training will be based on the train the trainer concept. Infor personnel will train certain key City staff who will then train the everyday users such as supervisors and foremen. Susan Fallon and Cindy Franklin will become experts in the data entry and report generation available by the Infor IMS and will have primary responsibility for integrity of the data, i.e. prevent "garbage in, garbage out." Kathy Stout will concentrate on issues relating to integration of other systems such as GIS and Granite (software utilized in CCTV). Support services will be provided by Adam Fiscor of the Computer Services Department within the City.

Individual work orders will be assigned by the Infor IMS that will include such data as:

- date
- origin of complaint
- time assigned
- employee assigned
- location
- description of work needed
- task number (5 digit former "work order")

The City currently tracks this information utilizing two systems, Access and JDEdwards.

The work order will be sent to the appropriate supervisor (electronically) and initially will be sent to the appropriate Foreman (paper copy). The supervisor will review the requested work and advise the Foreman accordingly. After the Foreman and crew perform work, the time, material and equipment will be input into the IMS and will include such data as:

- date
- time work began

- time work ends
- employee numbers of workers
- equipment numbers used
- warehouse inventory stock numbers and quantity used
- description of work completed

The City currently tracks this information in JDEdwards, AS400 payroll and Access systems.

In conclusion, the Infor IMS will assist the City with streamlining data and the provision of the following:

- detailed work activities conducted
- work time and cost for specific tasks
- data for supervisors and managers to adequately evaluate operations, maintenance, customer service and system rehabilitation activities
- guidelines to track scheduled maintenance activities and to enhance maintenance performance
- complaint tracking system

As the IMS is implemented, the system will collect the data into one system, allowing for the data to:

- be easily reviewed by location, work order, work task or work crew
- include time, material, equipment information and cost
- preserve historical information on each identified asset, such as individual manholes, pumps, motors
- replace numerous paper forms

At the conclusion of this report are several "screen shots" from the Infor IMS proposal submitted to the City, to depict the type of information that will be available to the City upon implementation of the Infor IMS.

## Section II

### MANAGEMENT IMS PROGRAM

#### **EPA Order Section IV, Item D, Subsection i, Letter b**

The flexibility of the Infor IMS will allow for the creation of any combination of reports desired by the City. The Infor IMS includes security levels for information, allowing managers and supervisors to receive more detailed data than work crews. The Infor IMS includes “dashboard” technology that provides instant information for the chosen data.

It is planned for the majority of the management reports to be standardized based on monthly cumulative totals of work performed and cost data. The reports will be designed to compare predetermined performance goals with actual work completed, depicting whether the goals were met.

The City realizes the importance and value of data being presented in a report format. To allow for the variety of available reports, the implementation of the Infor IMS software includes the Advanced Reporting module, which will allow for the production of custom reports for specific projects, locations, complainant, sanitary sewer overflow or any other data field.

The Infor IMS will interface with the GIS currently being developed by the City’s consultant, LD&A. With the GIS interface, the Infor IMS will provide access to the complete Wastewater Collection and Transportation System (WCTS) asset inventory as well as access to the Sewer Gems capacity model.

## Section III

### OPERATIONS IMS PROGRAM

#### EPA Order Section IV, Item D, Subsection i, Letter c

A substantial portion of the work orders are initiated by the call center personnel. The flexibility of the Infor IMS allows for managers, supervisors and other personnel to initiate work orders as well. The availability to initiate work orders will be based on user security access level.

The Utility Line Crew Chiefs currently utilize a paper based system to receive, record work and close out the work orders. Upon implementation of the Infor IMS, this process will become immediately electronic, with the exception of field notes. The speed of the Crew Chiefs utilizing an electronic format in the field will be dependent upon their ability to grasp the Infor IMS software and the electronic hardware (laptops or tablets), as well as funding for the hardware. Kathy Stout will be the lead staff person to assist the Crew Chiefs and other field personnel on improving the familiarity and comfort with the electronic hardware.

Each Crew Chief currently has a desktop computer that will include access to the Infor IMS. The Crew Chief will record the following information at the end of each work day for the work orders utilized during the day.

- date
- time work began
- time work ends
- employee numbers of workers
- equipment numbers used
- warehouse inventory stock numbers and quantity used
- description of work completed

The Crew Chiefs are currently completing most of the information above by hand on their Labor Distribution forms. Employees with access to the Infor IMS will have a customized “dashboard” for their use. This allows for the employee to have a snapshot picture of projects and the status of those projects, pertaining to their responsibilities. The work order system data will be stored and maintained by the Infor IMS.

## Section IV

### MAINTENANCE IMS PROGRAM

#### EPA Order Section IV, Item D, Subsection i, Letter d

The Infor IMS will allow for the tracking of preventive maintenance (PM) such as periodic inspection and repair of the sewer system components without waiting on a complaint and/or when a known problem does not exist. With over 1,200,000 feet of sewer main and thousands of sewer line segments, the data stored by the Infor IMS will be beneficial to schedule and track PM activities.

Once it is determined the frequency for cleaning and inspection by CCTV of the sewer system, the Infor IMS will provide work orders for these activities based on the integration of the GIS, Granite (CCTV) and other data. The work orders will include PM data such as:

- date
- time
- amount of roots removed (if any)
- amount of debris removed (if any)
- condition of upstream manhole
- condition of downstream manhole
- blockage or obstruction (if any)

The City currently tracks this information in Access and DVD utilizing paper forms.

Upon entering PM data into the Infor IMS, future inquiries based on the location of a sewer line, manhole, pump station, etc. will display the history of the PM for each work order initiated. Employees with access to the Infor IMS will have a customized “dashboard” for their use. This allows for the employee to have a snapshot picture of projects and the status of those projects, pertaining to their responsibilities. The work order system data will be stored and maintained by the Infor IMS.

The Infor IMS contains specific functionality for required preventive maintenance programs, such as Pump Stations. The programs are designed to automatically generate the approved maintenance activities based on calendar events, metered usage and/or data received from SCADA systems. Preventive maintenance work orders for some assets will be developed based on the manufacturer's recommended schedules.

## Section V

### COMPLAINT TRACKING IMS PROGRAM

#### EPA Order Section IV, Item D, Subsection i, Letter e

The implementation of the Infor IMS will enhance the current call center operation by providing additional information and combining information from various software programs into a centralized system.

It is planned for information from the utility customer accounts to be electronically “data dumped” into the Infor IMS. Once this is completed, when a complaint is phoned or emailed into the call center, the customer information will be readily available. During the Design and Build phase of the Infor IMS implementation, special attention will be given to the design of the complaint tracking screen, so that a natural flow of information can occur between the call center and the complainant and to provide ease in inputting as much information from the complaint as quickly and efficiently as possible. It is planned for social media to be utilized as a tool for customer service and complaint tracking.

Reports will be available based on type of complaint, customer initiating the complaint, location of complaint and any field included in the work order. Employees with access to the Infor IMS will have a customized “dashboard” for their use. This allows for the employee to have a snapshot picture of projects and the status of those projects, pertaining to their responsibilities. The work order system data will be stored and maintained by the Infor IMS.

## Section VI

### PERFORMANCE INDICATORS COMPUTATION IMS PROGRAM

#### EPA Order Section IV, Item D, Subsection i, Letter f

The establishment of performance indicators is essential to the operation and maintenance of the WCTS. The Infor IMS will allow for the development of user defined performance indicators based on but not limited to asset, time and/or collection data.

The City plans to establish performance indicators by identified asset as listed below.

#### Wastewater Treatment

- Effluent BOD
- Effluent TSS
- Effluent Ammonia
- Effluent Flow
- Influent Flow

#### Collection System

- Flow/Capita (total)
- East Plant Flow
- Emory Valley Flow
- Y-12 Flow
- SSO Dry Weather (date, location)
- SSO I/I (date, location)

#### Sewer Pump Stations

- Each Station
  - Power Consumption Kw/hr
  - Power Cost
  - Parts and Supplies Cost
  - Labor Cost
  - Number of Alarms

Employees with access to the Infor IMS will have a customized “dashboard” for their use. This allows for the employee to have a snapshot picture of projects and the status of those projects, pertaining to their responsibilities.

## Section VII

### PUMP STATION IMPLEMENTATION FOR INFOR IMS

#### EPA Order Section IV, Item D, Subsection iv, Letter c

Section IV, Item D, Subsection iv, Letter c stipulates that within fifteen months of the effective date of the EPA Order (December 28, 2011), the City develop and submit to EPA for review, comment and approval the Pump Station Preventive Maintenance Programs. The report shall include the procedures to submit information into the IMS Program.

In order to meet the December 28, 2011 deadline, the City has decided that the activities conducted by the maintenance crew responsible for Pump Station Maintenance will be the initial crew to utilize the IMS Program. This crew will provide the City with the opportunity to focus on data needed for the Pump Station Maintenance and allow for the transition of the data from the current systems to Infor IMS.

The supervisor for the work crew responsible for Pump Station maintenance will provide guidance and expertise to City staff during the Infor IMS implementation. The requested areas for work order data and tracking by the Infor IMS for Pump Station maintenance includes but is not limited to:

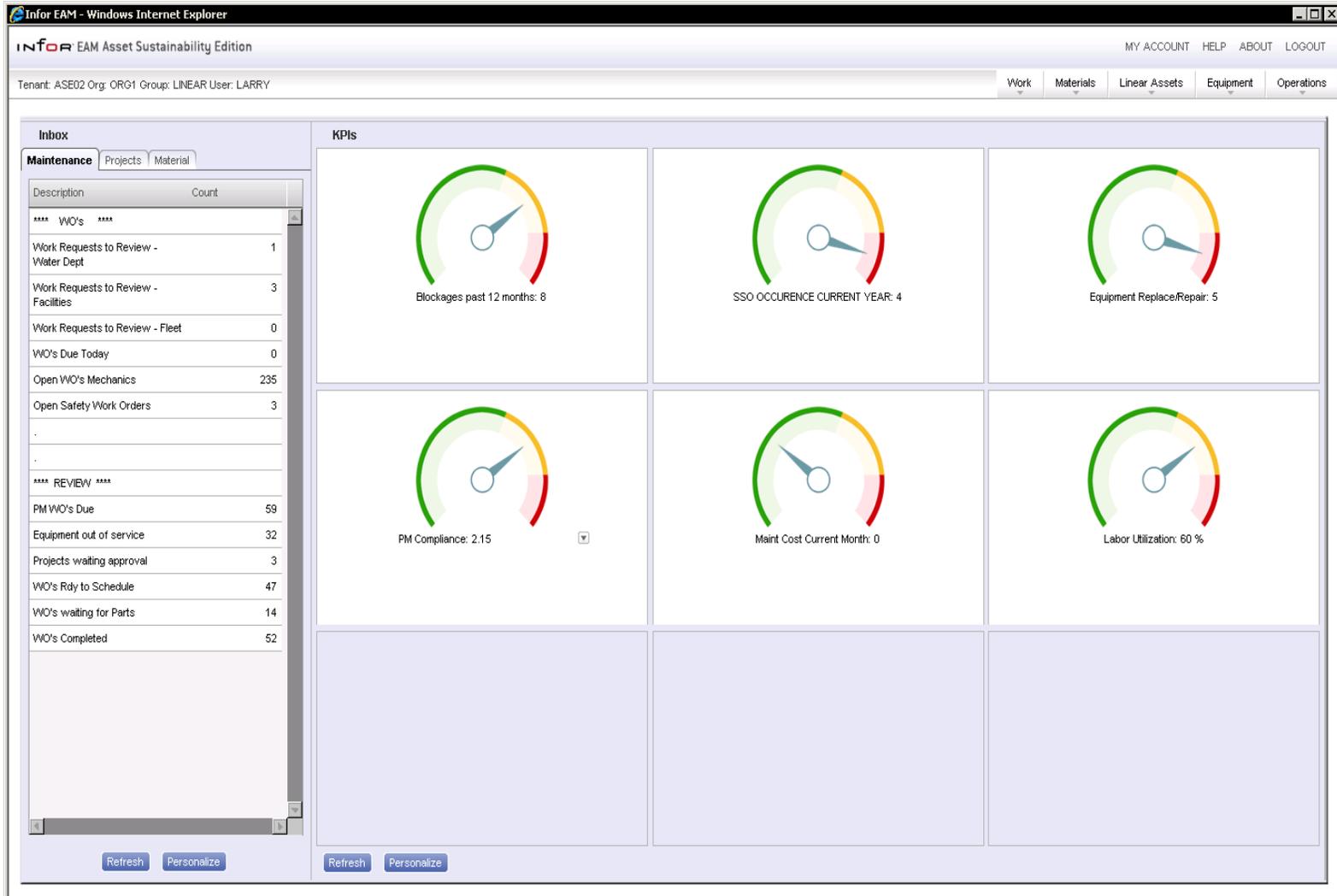
- Preventive maintenance scheduling with work orders automatically generated
  - Monthly
  - Quarterly
  - Semi Annual
  - Annual
- Availability to generate work orders for unscheduled tasks
  - Type of work required
  - Why it is required
  - Cost of labor, equipment and material
- Cost data stored by individual pump station (47 stations)
  - Electrical power
  - Fuel
  - Labor
  - Vehicle
  - Equipment

- Parts and supplies
- Response to alarms
- Vandalism and accidents
- Summary data and reports
  - Total cost to operate
  - Frequency of emergency requests
  - Number of overflows
  - Power outages

Many of the spare parts and supplies utilized by the Pump Station maintenance crew are purchased and stored at the Turtle Park Wastewater Treatment Plant (WWTP). The crew does use some parts and supplies from the City central warehouse. The Infor IMS will be able to store and track parts and supplies utilized from both of the inventories. Susan Fallon will work with the supervisor of the Pump Station maintenance crew to develop a spare parts inventory for items purchased and stored at the WWTP. This information and data cleansed information from the City central warehouse will be “data dumped” into the Infor IMS. Once the “data dump” of the inventory systems is complete, the Infor IMS will indicate when replacement parts should be ordered (reorder point) and this information will be available to employees with the appropriate access level.

The EPA Order requires certain levels of response to alarms at Pump Stations. To comply with the EPA requirements, the Infor IMS will be designed to provide and store pertinent information on telemetry alarms on the frequency and cause of station alarms and the emergency call outs to respond to the alarms.

The City realizes that a SCADA system can assist with meeting the EPA requirements for Pump Station maintenance. City staff is reviewing SCADA systems and will choose one for purchase and installation within the next few months. A requirement of the SCADA system will be the ability to interface with the Infor IMS Program.



Infor IMS Dashboard that contains user defined performance indicators to highlight problem areas requiring remediation that will be fed into the Management Program.

The screenshot displays the Infor EAM Asset Sustainability Edition Call Center interface. The browser title is "Infor EAM - Windows Internet Explorer". The application header includes "INFOR EAM Asset Sustainability Edition" and navigation links for "START CENTER", "MY ACCOUNT", "HELP", "ABOUT", and "LOGOUT". The user is identified as "Tenant: ASE02 Org: ORG1 Group: LINEAR User: LARRY".

The main interface is titled "Call Center" and features a toolbar with various icons. Below the toolbar, there are tabs for "List View", "Record View", "Comments", "WO Comments", and "Documents". A search bar is present with the text "Find Customer By: Last Name that contains".

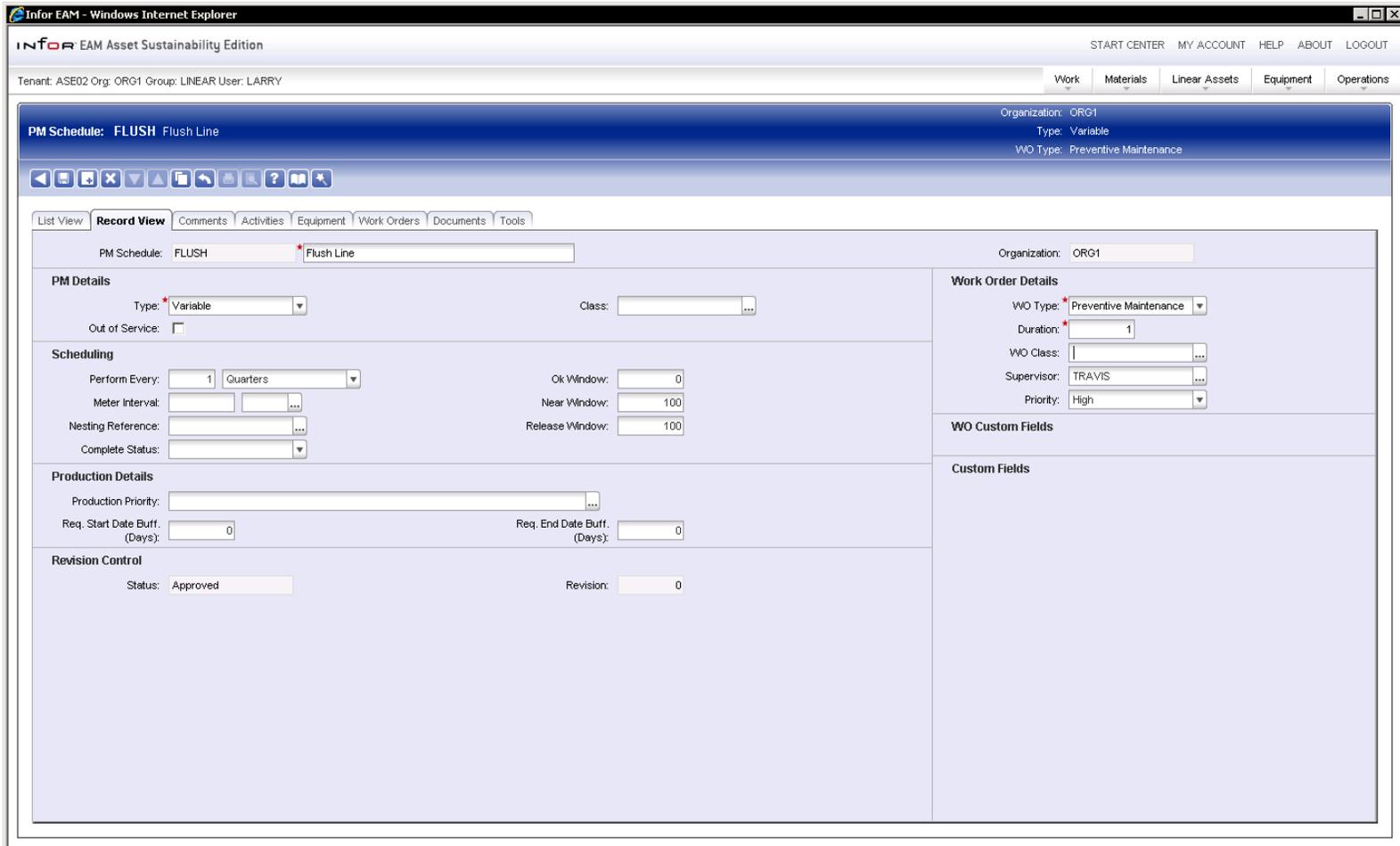
The central area is divided into two main sections:

- Customer Information:** Displays details for "Robert Jones 812-674-1234". Fields include:
  - Customer Account #: 1-28763286382
  - Name: Robert Jones
  - Employee: [Redacted]
  - Location: 4 Bearhollow Road
  - City: Evansville, State: IN, Phone: 812-674-1234
  - E-mail: rjones@yahoo.com
  - Notes: [Redacted]
- Action Request: Manhole Blockage WO:22898**
  - Problem Location: BEARHOLLOW @ WESTMINSTER
  - Landmark: [Redacted], Multiple Equipment:
  - Equipment: 10058, SWS manhole GIS Tag # 223481 (city)
  - Service Problem Code: MANHOLE BLK, Manhole Blockage
  - Work Order: 22898, WO Class: [Redacted]
  - WO Priority: Med, Equipment Usability: [Redacted]
  - Standard WO: FLUSH - UNCLOG, Duplicate:
  - Response Time: 06/02/2011 12:52, Fix Date: [Redacted]

On the right side, there is a sidebar with sections: "Organization: ORG1", "Customer Request: 10013", "Status: Open", "Source: Phone", "Type: Action", "Class: [Redacted]", "Assigned To: [Redacted]", "Follow Up Type: Email", "Date of Follow Up: [Redacted]". Below this are "Bulletin Board" (dated 06/14/2011), "Top 10 KB Articles", another "Bulletin Board" (listing "Construction Alert" and "Evansville Web Site"), and "Custom/WO Custom Fields".

At the bottom left, there is a "Remarks" section with a text area.

Infor IMS is equipped to access and record complaints and react to them by using the Call Center functionality contained in the base application.



Infor IMS contains specific functionality for Pump Station Preventive Maintenance programs. The programs are designed to automatically generate the approved maintenance activities based on calendar events, metered usage and/or data received from SCADA systems.

The screenshot displays the Infor EAM Asset Sustainability Edition interface within a Windows Internet Explorer browser. The main window title is "Infor EAM Asset Sustainability Edition". The user is logged in as "LARRY" from the "ORG1" organization. The current work order is "22898" for "Flush or Unclog Manhole or Line" at location "10058".

The interface includes a navigation menu with options: Work, Materials, Linear Assets, Equipment, and Operations. Below the navigation, there are tabs for "List View", "Record View", "Comments", "Activities", "Material", "Schedule Labor", "Sched Equip", "Documents", "Additional Costs", "Customer Requests", "Book Labor", and "Closing".

The main content area is divided into several sections:

- Work Order Summary:** Work Order: 22898, Flush or Unclog Manhole or Line. EQ Location: 10058, SWS manhole GIS Tag # 223481 (city). Status: Released. Date Created: 06/02/2011.
- Linear Reference Details:** Location: 10 MELLEN ST, Class: [empty], Problem Code: CLOG, Parent Work Order: [empty], Cost Code: 100-6000.
- Daily Work Report Details:** Priority: Med, Criticality: [empty], Route: L-001-12, Inspection Status: [empty], PM Code: [empty].
- Call Center Details:** Activity: [empty], Trade: ME, Estimated Hours: 2, Hours Remaining: 2.
- Scheduling:** Reported By: [empty], Date Reported: 06/02/2011 09:55, Supervisor: TRAVIS, Assigned To: JOHN, Sched. Start Date: 06/02/2011, Sched. End Date: 06/02/2011, Confirmed Start Date/Time: 06/02/2011 13:59.
- Activity:** Standard WO: FLUSH - UNCLOG, Task: [empty], Material List: [empty], People Required: 1.
- Additional Information:** Project - Budget: [empty].

Infor IMS provides a work order system, whether the work is preventive or corrective, with all work becoming part of the permanent record for equipment, systems and pump stations.

NUMBER 5-36-11

**RESOLUTION**

A RESOLUTION AUTHORIZING THE PURCHASE OF AN INFORMATION MANAGEMENT SYSTEM FROM INFOR GLOBAL SOLUTIONS (MICHIGAN), INC., ALPHARETTA, GEORGIA, IN THE ESTIMATED AMOUNT OF \$272,100.00.

WHEREAS, at the September 27, 2010 work session, City Council was briefed by the City Manager and Public Works Director on an Administrative Order with the United States Environmental Protection Agency (EPA Order) outlining the various studies, plans, and corrective actions to be taken by the City related to the violations determined by the EPA regarding periodic overflows from the sanitary sewer collection system; and

WHEREAS, the EPA Order requires the City to implement an Information Management System (IMS); and

WHEREAS, Section D, Item i, of the EPA Order requires the City to develop the IMS program and submit it for the EPA's review, comment and approval by June 28, 2011; and

WHEREAS, the City issued a Request for Proposals for the IMS program, with Infor Global Solutions (Michigan) Inc., Alpharetta, Georgia, submitting the most responsive proposal based upon the City's needs; and

WHEREAS, the City Manager recommends acceptance of the proposal by Infor Global Solutions (Michigan) Inc.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF OAK RIDGE, TENNESSEE:

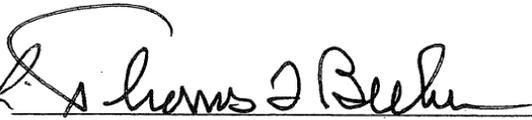
That the recommendation of the City Manager is approved and the City is hereby authorized to purchase an Information Management System (IMS) from Infor Global Solutions (Michigan), Inc., 13560 Morris Road, Suite 4100, Alpharetta, GA 30004, for compliance with the Administrative Order from the United States Environmental Protection Agency (EPA), in the estimated amount of \$272,100.00.

BE IT FURTHER RESOLVED that the Mayor is hereby authorized to execute the appropriate legal instruments to accomplish the same.

This the 9th day of May 2011.

APPROVED AS TO FORM AND LEGALITY:

  
Kenneth R. Krushenski, City Attorney

  
Thomas L. Beehan, Mayor

  
Donna L. Patterson, City Clerk