FINAL KICKOFF MEETING MINUTES

SCADA COMPONENT DESIGN, INTEGRATION, AND SUPPORT AT CAMP STANLEY STORAGE ACTIVITY, TEXAS CONTRACT F41624-03-D-8613, TASK ORDER 0190 - (PARSONS JOB 745074)

Date: Tuesday, 20 February 2007
Time: 1:00 P.M. – 3:00 P.M.
Place: Camp Stanley Storage Activity (CSSA)
Subject: SCADA and Maximo Integration
Attendees:

Attendee	Organization	Phone
Tom Tijerina	CSSA Engineering	210-295-7473
Hector Davila	CSSA IT	210-295-7036
Ronnie Pfeil	CSSA IT	830-816-2393
Brian Siegfried	Portage-AFCEE	210-536-5208
Chris Beal	Portage-CSSA	210 336-1171
Chip Palluch	BAE/CSSA IT	703-568-7513
Matt Lyman	COI/CSSA IT	210-295-7330
Nichalaus Weatherington	COI/CSSA IT	210-295-7330
Brian Vanderglas	Parsons-Austin: Project Manager	512 719-6059
Mike Stimets	Parsons-Austin: IT	512 719-6802
Kyle Caskey	Parsons-CSSA: Construction Manager	210-204-8529
Scott Pearson[1]	Parsons-Austin: Task Manager	512 719-6087

[1] Minutes prepared by Scott Pearson, Parsons-Austin.

The agenda, presentation slides, and materials are included as Attachment 1.

INTRODUCTIONS AND PURPOSE

The meeting was opened with brief introductions. The purpose of the meeting was to bring together the responsible entities of the SCADA and Maximo integration. This included relevant staff from the CSSA Facilities, Environmental, and Information Technology (IT) divisions. The intention of this task order is to physically link the two systems such that Maximo can be notified and generate work orders when the SCADA system detects problems or inconsistencies at monitored locations. For this TO, Tom Tijerina is the CSSA direct report charged with administering this project.

PROJECT REVIEW AND OVERALL SCADA DESIGN

Scott Pearson provided a brief project overview of the project organization, scoped tasks, project goals, and work activities for SCADA construction completed thus far. The SCADA system consists of a data server, four workstations, and a multitude of instrumentation at more than 40 locations throughout the facility. The primary monitoring of CSSA systems includes water distribution, wastewater treatment, natural gas and electrical distribution and usage, HVAC monitoring, and various environmental nodes (wells, weather stations, and remediation

systems). The SCADA connectivity is accomplished using a combination of wired Ethernet communications via the CSSA fiber optic network and wireless VHF communications to remote locations.

System Controls and Instrumentation (SCI) from Converse, TX is the SCADA systems integrator. The funded task orders are more than 95% constructed, and training on the system will be completed in March 2007. SCI will be providing a 2-year warranty on parts and labor, and a 200-hour technical support service agreement has been pre-paid as part of the Parsons subcontract.

CLIENT EXPECTATIONS FOR INTEGRATION

This portion of the meeting was to discuss and define the expectations that the link between SCADA and Maximo will provide. Previously during informal discussions amongst members of the meeting attendees, there had been some dialog if the connection between the SCADA and Maximo systems was appropriate or necessary. In terms of the capability to alarm and provide out-of-parameter notifications, there is a significant amount of redundancy between the systems. However, during this meeting it was established that link and interaction between SCADA and Maximo will proceed as scoped.

Four aspects to implement Maximo in terms of SCADA components were identified and discussed. The least interactive approach is to simply manage the SCADA equipment and information within Maximo from a purely asset management perspective. At this level of integration, Maximo would simply track the location and specific details (serial and tag numbers, location, date installed, product manual, e.g.). In this scenario no physical linking between the servers would be required.

The next level of integration would be in the form of Preventative Maintenance (PM). In its simplest form, Maximo would notify the user of regularly scheduled maintenance, such as filter changes or scheduled calibration checks. This level of PM would not require software integration between the systems. However, if the systems were physically linked, timer-based PM could be accomplished based upon the runtime of specific piece of equipment.

The next level of integration requires a significant amount of software and hardware connectivity between the systems. A third-party software would be implemented to provide real-time or historical data from the SCADA server and evaluate that data against a pre-defined logic to determine an appropriate course of action. This level of integration is referred to as Condition-Based Maintenance (CBM). The type of monitoring basically uses ***"if-then-else"*** logic to evaluate instrument data against threshold or limit value criteria. If an outlier data point is encountered, the CBM software will automatically create a work order in Maximo for that particular asset to notify CSSA that a process evaluation or remedy needs to be performed.

Finally, the next level of integration would allow the third-party software to perform immediate notifications of CBM violations in the form of voice, pager, or e-mail callouts. This ability is a redundant function to the software already running the SCADA system. It has been determined that the most appropriate method of notifications should reside at the SCADA level, and not be subjected to further processing or reliance upon external software.

In terms of the actual functionality of the CBM method, Tom Tijerina indicated the expectation would be that SCADA would be able to notify Maximo when an outlier condition has, or is occurring. Examples would be if remote temperature sensors indicate unacceptable

climate conditions or if unusual flows or usage amounts are being measured by the utility monitoring instrumentation. At this point, the exact definitions and criteria for items to be monitored and reported is not clear, but is anticipated to be an iterative and developmental process. The drawback to monitoring too many SCADA nodes or having low tolerance threshold criteria will be the excessive amount of work order generations. All parties agreed that it would be in the best interest of CSSA to start with a limited number of monitored assets and develop a strategy based upon experience.

APPROACH TO ACHIEVE THE SYSTEMS INTEGRATION

During the January 2006 proposal phase, Parsons contacted the developers of the Maximo system (MRO Software) to determine the best approach for integrating a SCADA system. MRO suggested a Canadian-based firm named Matrikon, Inc. a certified Maximo consultant and integrator. Matrikon offers a customizable software product that is specifically used for establishing CBM of a SCADA system and communicating that information to Maximo. Their proprietary, commercially off-the-shelf (COTS) software product is known as CBM-Max.

Parsons has retained the services of Matrikon to install the CBM-Max software, provide programming and customization services, user training, and 12-months of warranty and technical support. In December 2006, there had been concerns voiced regarding the accessibility of a foreign-based company to the CSSA server room and systems. However, as of February 2007 the determination has been made by CSSA that the Canadian-based firm and its employees were authorized to conduct their contracted business. The presence of CSSA IT employees at Building 2 where the work will be conducted is sufficient escort for the visiting contractors. With regards to the secrecy or security of data that is present on the Maximo system, no additional security measures will be required according to Ronnie Pfeil.

Discussions regarding the physical architecture of the systems integration were discussed. The CBM-Max software is a relatively small program that can either be co-located on either the SCADA or Maximo servers, or operate on an independent server. SCI has made it quite clear that they do not approve of the use of CBM-Max on their SCADA system server. The CSSA IT group tentatively approved the software installation on a partitioned drive of the Maximo server. As the discussion developed, the merits of an independent CBM-Max server were discussed. Parsons had not accounted for the cost of an additional server in their contract, but Brian Siegfried indicated that it would be allowable under this time and materials task order. Ultimately, CSSA determined that they would provide Matrikon a small, rack-mounted server at Building 2 to host the CBM-Max product.

INTEGRATION SCHEDULE

Currently, the CSSA Maximo is being upgraded to version 6.2 by IBM, who acquired MRO Software in 2006. The migration to the new version is anticipated to be complete by mid-April 2007. Both CSSA and Matrikon have indicated that the addition of the CBM-Max software should not be started until the new Maximo system is proved to be running and stable. Matrikon's schedule anticipates approximately 1 month of time to program, customize, and perform the necessary data links to integrate the two systems. Following the integration, Matrikon will provide training to a select group of CSSA IT employees and contractors. This training will instruct CSSA how to maintain and expand the CBM-Max software for further enhancements or changes the CBM logic.

POTENTIAL ALARM TYPES AND THRESHOLDS

The next topic on the agenda was a discussion regarding the alarm and notification process capable by SCADA and Maximo. Parsons has proposed three levels of alarm notifications to be used in the SCADA and Maximo systems. These include general alarms, 24-hour callout notification alarms, and Maximo work orders. Inherently with the SCADA system, nearly all of the SCADA instrumentation lends itself to providing an alarm notification. However, these alarms require a prioritization between non-emergency general alarms, emergency or immediate attention alarms, and work order generation based upon CBM.

A general alarm may include those non-critical exceedences such as a minor fluctuation in room temperature that only require a log of the alarm in the SCADA system that can be viewed and evaluated by a work station user. An emergency/immediate attention alarm is most likely reserved for mission-critical systems such as disruptions or problems with utility services (water, wastewater, electrical, or natural gas). Maximo work orders should be generated when an immediate/emergency response is not required, but near future attention or maintenance is needed.

Nearly all of the types of SCADA instrumentation installed thus far are capable of producing output that could be integrated to provide work order creation based upon limit violation rules inherent to the CBM-Max software. To get a sense of level of integration that could be accomplished, Parsons provided a list of over 300 potential parameters with example threshold limit values (e.g., high and low alarm points) that could be incorporated for Maximo notification. The list was not reviewed in detail during the meeting, but it agreed that in the near future this list of alarms and actions will need to be addressed prior to the mobilization of Matrikon.

OPERATION, MAINTENANCE, AND SUPPORT

Considering the scale of this undertaking, Parsons has included the pre-purchased technical support of SCI and Matrikon for one year, plus two-year warranty on parts and labor. This support will provide access to the appropriate professionals to provide support for enhancements, maintenance, troubleshooting, or technical support. Additional service contracts from the vendors will be available to CSSA as those pre-paid service agreements expire. To some extent, it is reasonable to assume that CSSA will require this specialized support from the vendors for the lifespan of the system. Under this task order, Parsons has also included a limited amount of support hours to assist CSSA with in-house programming enhancements.

Additionally, any future upgrades to the SCADA or Maximo systems may require additional support to maintain the connectivity and functionality. Matrikon has indicated that minor revisions and enhancements to the Maximo system will be provided with the software maintenance agreement in the form of software patches or revisions. Major upgrades by IBM/MRO will likewise require major revisions to the CBM-Max software with possibility of on-site technical support at an additional cost to CSSA.

ROLES AND RESPONSIBILITIES

Prior to the mobilization of Matrikon to perform the hardware and software connectivity, certain steps must be completed before their arrival. The first step is that the Maximo database

must be populated with all the tag and attribute information for the SCADA system assets that will be monitored. Typically this includes general information regarding make, model, serial number, physical location description, and technical information. From a database perspective, the most important aspect is the physical tag numbers to address and transfer instrument data from the SCADA historian. In our proposal, Parsons assumed that a database of that information would be provided to CSSA for import into the Maximo system. CSSA acknowledged that they have the support and ability, and will be responsible for importing the asset information into Maximo. At this point, this process is a manual "cut and paste" operation to successfully import the required fields. COI estimates this task could be accomplished in less than a week.

The second step prior to Matrikon's arrival is to have completed a database of selected equipment (tag numbers), alarm threshold and limit values, and the appropriate action in Maximo (work orders). This step will be a collaborative effort between Parsons and the CSSA Facility group to make these determinations. Everyone anticipates that this will be iterative process to prioritize and clearly define the appropriate alarm limits and work order generation. This step will be initiated in March 2007 by Parsons in the form of a Project Activities Work Plan as scoped under this task order. The review process will define the processes and actions that will be taken by Maximo.

Upon completion and acceptance of the installed systems, the government will assume the responsibility of operating and maintaining the SCADA system and its appurtenances. CSSA will internally determine the responsibilities of administering the SCADA system and its integration with Maximo. Parsons will provide technical support within the scope and funding of the task order.

ACTION ITEMS

- *Parsons will obtain from Matrikon the minimum system requirements for an independent server to host CBM-Max. CSSA will provide the rack-mounted server prior to the mobilization of the contractor.*
- *Parsons will provide the type and version of virus protection being installed on the SCADA server and work stations. All CD, DVD, and disk drives will be disabled on that equipment to avoid system contamination from outside viral threats. CSSA IT will maintain and update the virus pattern files upon commissioning and turnover to the government. Since the SCADA server or work stations are not physically connected to the internet, the virus definition pattern files will need to be updated manually by CSSA IT.*
- *Parsons will ensure that SCI will update the Windows system on the server and work stations with the Microsoft software patch to account for the new daylight savings time (DST) protocol.*
- *TO 0011 and 0027 SCADA training is scheduled to begin on February 27th, 2007. The CSSA IT group has a conflict on February 27-28, 2007 and will not be able to attend critical software and systems training as scheduled. Parsons will work with SCI to reschedule training modules to better accommodate the CSSA IT staff.*

ATTACHMENT 1

MEETING AGENGA, PRESENTATION SLIDES, AND MATERIALS

DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, RRAD
25800 RALPH FAIR ROAD, BOERNE, TX 78015-4800

Agenda for Technical Interchange Meeting (TIM) #1
SCADA Component Design, Integration, and Support
at
Camp Stanley Storage Activity – Boerne, Texas
AFCEE WERC, Task Order 0190

Time: Tuesday, February 20, 2007; 1:00 pm to 3:00 pm

Place: Camp Stanley Storage Activity, Boerne, Texas, Conference Room

Proposed Order of Discussion

Date & Time	Topic
1:00 pm – 1:15 pm	***Overall SCADA Design*** • *Servers and Workstations* • *Networking and Radio Telemetry* • *Types and Quantities of Instrumentation*
1:15 pm – 1:45 pm	***Discussion of Client Expectations for Integration*** • *Emergency Notifications* • *Work order Production* • *Preventative Maintenance (PM)* • *Asset Management*
1:45 pm – 2:00 pm	***Integration of SCADA and Maximo*** • *Contractor Support (Matrikon, Ltd.)* • *Security and Access* • *Architecture and Design* • *Schedule*
2:00 pm – 2:30 pm	***Review of Potential Alarms and Maximo Inputs*** • *SCADA Alarms* • *SCADA Call-outs/Notifications* • *Maximo Work orders*
2:30 pm – 3:00 pm	***Operation, Maintenance, and Support*** • *CSSA and Contractor Responsibilities* • *Upgrades and Future Support* • *Proposal Assumptions and Scope* • *Other*

Sign-in Sheet

2-20-2007 D-0190

NAME	ORG	Contact number / ID
Brian Vandenglas	Parsons	512-719-6059
Scott Pearson	Parsons	512-719-6087
Mike Stimets	Parsons	512-719-6802
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Tom Tijerina	Facilities	(210) 336-2372
HECTOR DAVILA	IT	210-295-7036/44
MATT LYMAN	IT	295-7330
Ronnie Neil	IT	(830) 816-2393
Nicholaus Weatherington	IT	210-295-7330
Chris Beal	Portage/CSSA ENV	210 336-1171
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TECHNICAL INTERCHANGE MEETING (TIM) #1
SLIDE PRESENTATION

FEBRUARY 20, 2007

AFCEE CONTRACT
F41624-03-D-8613-0190

Technical Interchange Meeting (TIM) #1

SCADA Component Design, Integration, and Support at Camp Stanley Storage Activity – Boerne, Texas

February 20, 2007

Camp Stanley Storage Activity

AFCEE WERC FA8903-04-D-8674

Task Order 0190

PARSONS

Meeting Agenda

1:00 pm – 1:15 pm ***Overall SCADA Design***

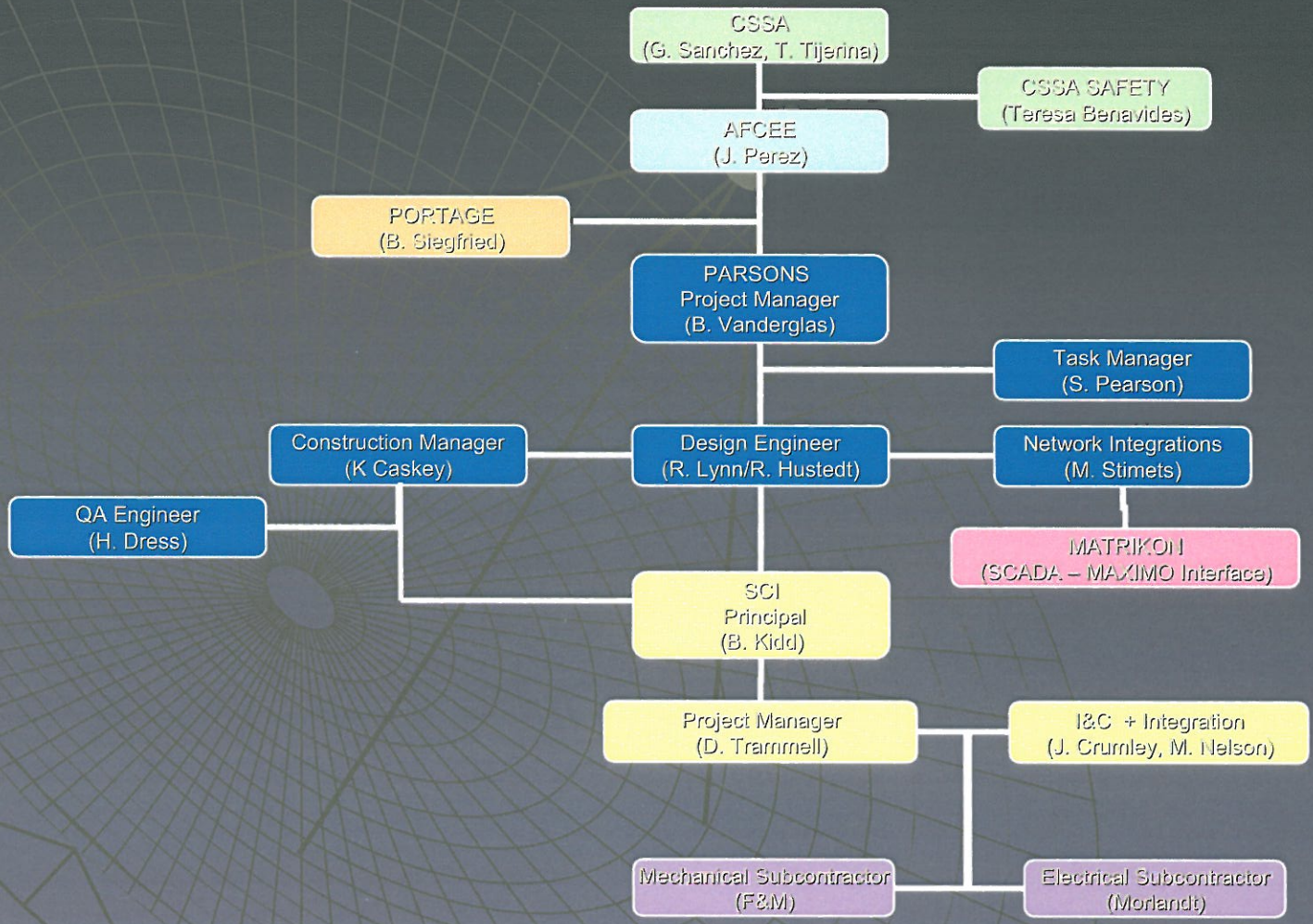
1:15 pm – 1:45 pm ***Discussion of Client Expectations for Integration***

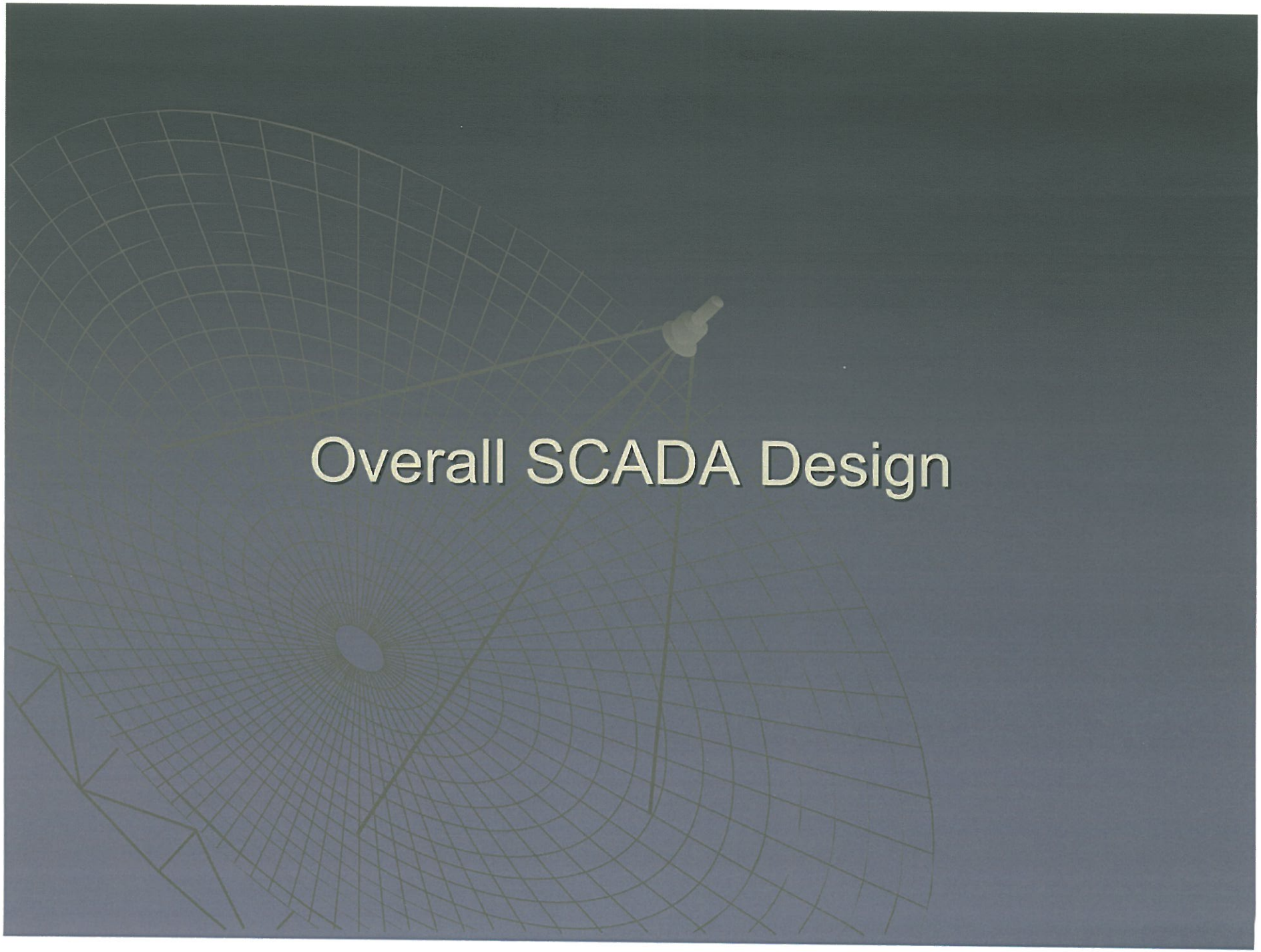
1:45 pm – 2:00 pm ***Integration of SCADA and Maximo***

2:00 pm – 2:30 pm ***Review of Potential Alarms and Maximo Inputs***

2:30 pm – 3:00 pm ***Operation, Maintenance, and Support***

Project Organization Chart




Overall SCADA Design

Elements of the SCADA System

- Server
  - Building 2
- Work Stations
  - Buildings 1, 36, 38, 73, 98
- Communication
  - Wired Ethernet on CSSA Fiber Optic Network
  - Wireless using CSSA-licensed VHF
- Potable Water Supply (CS-1, CS-9, CS-10)
  - Automated Pump Control, Reservoir Level, Chlorination, and Metering
  - Residential Booster Pump Station

Elements of the SCADA System

- WWTP
  - TPDES-permit monitoring parameters
  - Automated chlorination and flow monitoring
- Electrical Distribution
  - Building 129 Emergency Generator
  - 11 Locations for Primary Electrical Grid Metering
  - 7 Locations for Secondary Facility-Specific Metering
- Natural Gas Distribution
  - Incoming gas service at SW corner of CSSA
  - 11 End-Use Facility water metering
- Environmental Nodes
  - 2 weather stations
  - 16 monitoring wells
  - 2 SVE remediation systems and GAC Shack

Elements of the SCADA System

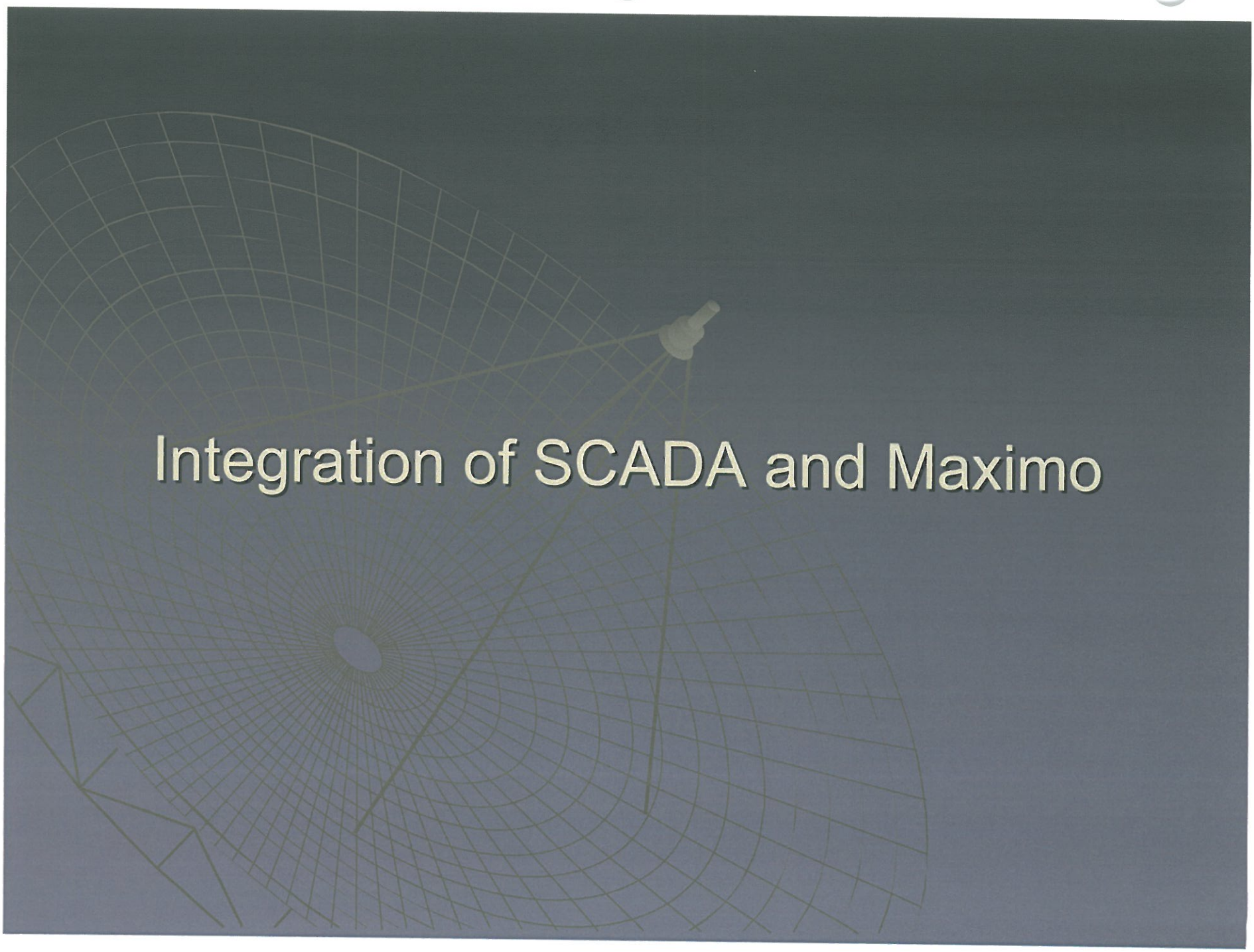
- Buildings - Gas (8), water (26), and HVAC (27)
  - 1, 1A, 4, 36, 38, 44, 45, 73, 90, 91, 92, 93, 94, 96, 98, A100, 201
  - Building 90 Test Room
  - Warehouse Fire Suppression
  - East Pasture Complex monitoring
- SCADA O&M Training
  - Conduct training for SCADA components (February 2007)
- 12-Month Technical Support
  - 192 hours technical support (12 months x 16 hours each)
  - Warranty work is not deducted from tech support

Discussion of Client Expectations For Integration

Discussion of Client Expectations For Integration into Maximo

- **Potential Levels of Integration**

1. Emergency Notification by Maximo by phone, page, or e-mail
   - Emergency Call-out Capability already inherent to SCADA system
2. Condition-based monitoring (CBM) to notify Maximo
   - If/then/else logic using third party programming to notify Maximo if a limit or threshold is exceeded at SCADA node
3. Preventative Maintenance (PM)
   - Use Maximo to track usage and schedule maintenance of assets (i.e., part replacement after a defined set of hours)
4. Asset Management
   - Maximo used strictly to manage asset location, model, serial and/or tag numbers, and service dates


Integration of SCADA and Maximo

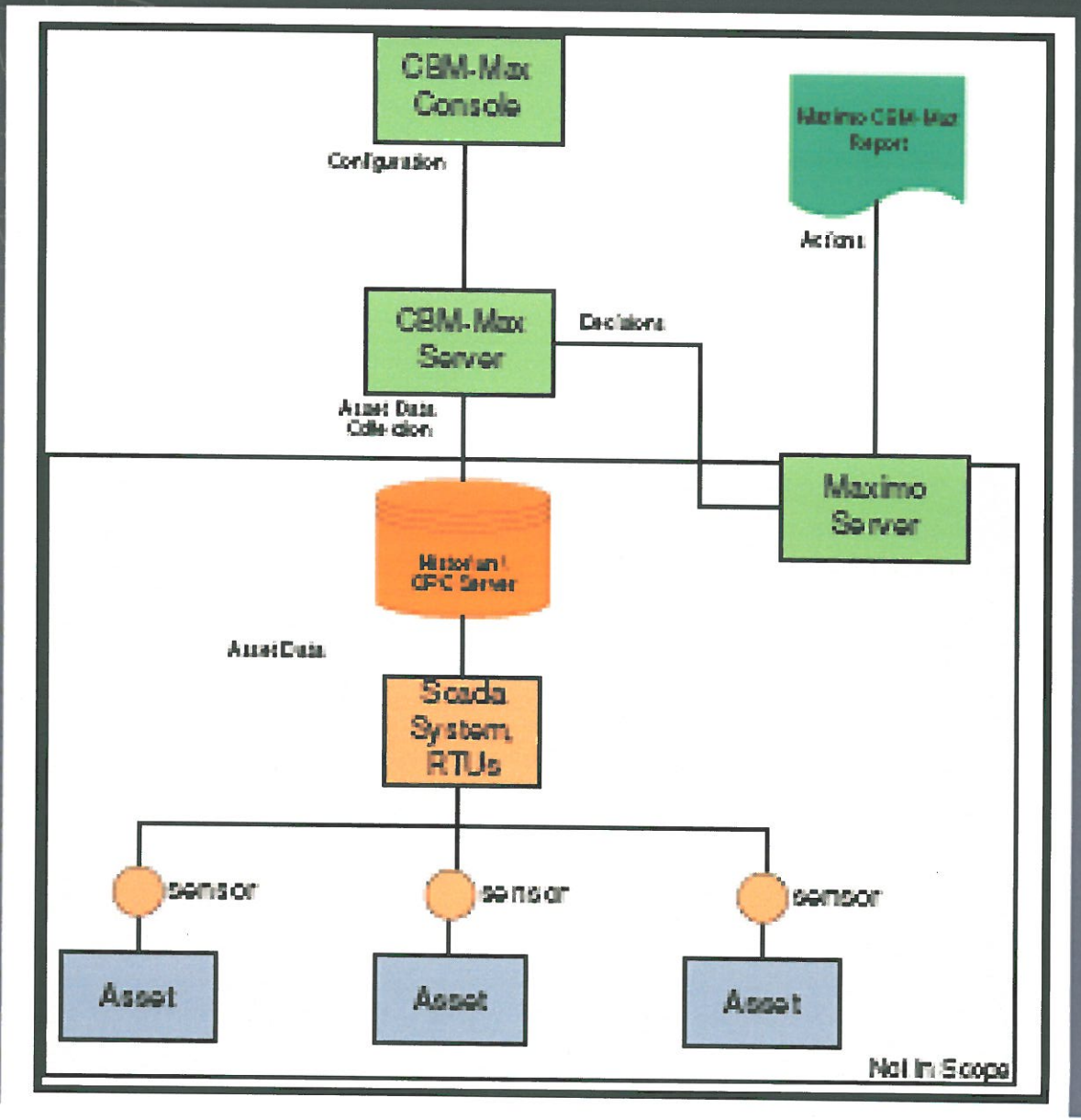
Selected Integration Contractor

- During proposal phase, MRO suggested Matrikon, Inc. as a SCADA-Maximo systems integrator
- Matrikon is based out of Edmonton, Alberta, Canada with nearly 20 international offices, with offices in the United States.
- The technology center for SCADA-Maximo integration resides in the Edmonton office

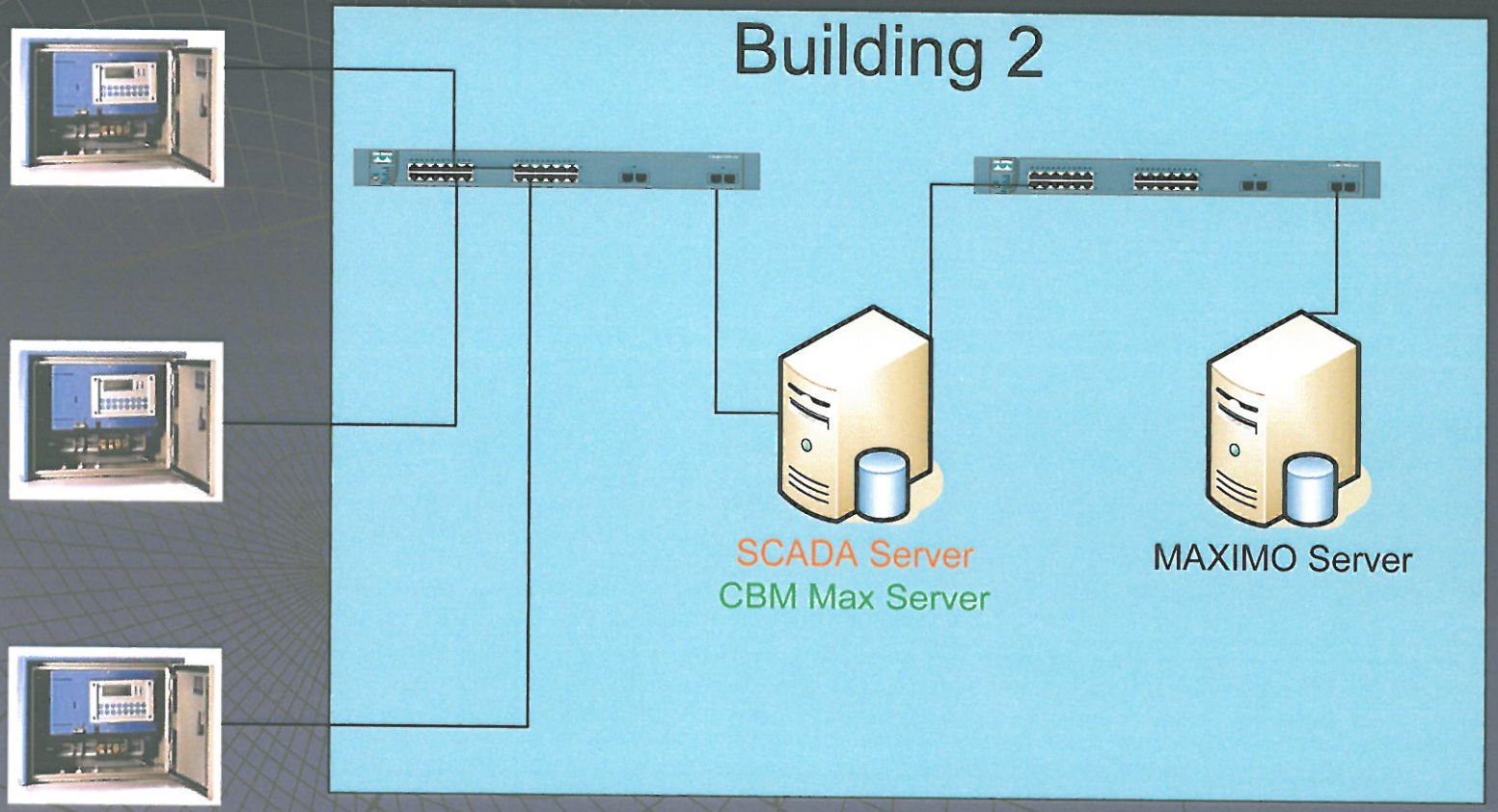
Security and Access Issues

- Issues and restrictions with respect to "foreigner" access to CSSA Maximo and SCADA servers
- Restrictions to data that may be classified
- Special clearance requirement or orientations???

Basic System Architecture



Physical Architecture



Integration Schedule

- Maximo upgrade to version 6.2 expected to last until mid-April 2007 (work by IBM)
- Matrikon anticipates approximately 1 month to complete the data linking and programming using their CBM-Max customized software.
- One week training for select group of SCADA and Maximo users to further tailor and manage the SCADA-Maximo link

Review of Potential SCADA Alarm Types and Thresholds

- SCADA General Alarms
  - SCADA nodes that exceed a limit or threshold, but only report to the SCADA system Alarm Log
- SCADA 24-hour Call-out/Notification Alarms
  - Critical SCADA nodes that exceed a limit or threshold that warrant immediate attention and therefore warrant immediate notification to responsible entity (Security, Engineering, Environmental, etc.)
- Maximo Work Orders
  - SCADA nodes that exceed a limit or threshold, and require attention or maintenance via internal CSSA work order.

Alarm Identification and Thresholds
DRAFT - January 2007

Area Description	High	Low	Units	Call-out	Responsible Group
B1 - Admin					
Water Flowrate	15		gpm		Water/Wastewater
Gas Flowrate	100		cfh		Water/Wastewater
Temp-Foyer	80	60	°F		Facilities
Temp-West Wing	80	60	°F		Facilities
Temp-East Wing	80	60	°F		Facilities
Temp-Server Room	76	60	°F		Facilities
Temp-Comm. Closet	76	60	°F		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B1A - Admin					
Water Flowrate	15		gpm		Water/Wastewater
Gas Flowrate	100		cfh		Water/Wastewater
Temp-Server Room	76	60	°F		Facilities
Temp-Comm. Closet	76	60	°F		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B4 - Motor Pool					
Water Flowrate - Motor Pool	15		gpm		Water/Wastewater
Gas Flowrate	100		cfh		Water/Wastewater
Water Flowrate -Car Wash	15		gpm		Facilities
MOGAS Aboveground Storage Tank Level	9000	2500	gallons		Facilities
MOGAS Aboveground Storage Tank Redundant Level	90	25	%		Facilities
Diesel Aboveground Storage Tank Level	1800	500	gallons		Facilities
Diesel Aboveground Storage Tank Redundant Level	90	25	%		Facilities
MOGAS Aboveground Storage Tank Leak Detection	LEAK			Security/Tom Tijerina	Facilities
Diesel Aboveground Storage Tank Leak Detection	LEAK			Security/Tom Tijerina	Facilities
EPO Status	Open			Security/Tom Tijerina	Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B36 - Security					
Water Flowrate	15		gpm		Water/Wastewater
Lift Station Water Level	5	0.5	feet	Joe Ovalle (High level only)	Water/Wastewater
Temp-Server Room	76	60	°F		Facilities
Temp-Comm. Closet	76	60	°F		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B38 - Engineering					
Water Flowrate	15		gpm		Water/Wastewater
Gas Flowrate	100		cfh		Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Redundant Radio Switchover Room	76	60	°F		Facilities
B44 - Surveillance					
Water Flowrate	15		gpm		Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B45 - Ammo					
Water Flowrate	15		gpm		Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B54 - Chlorination					
Water Flowrate	200		gpm		Water/Wastewater
Residual Cl_2	4	1	ppm	Eli Wright	Water/Wastewater
Cl_2 Scale Weight		5	lb tablets	Eli Wright	Water/Wastewater
Tablet Skid LCP Status		FAIL		Eli Wright	Water/Wastewater
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B57 - Well CS-9					
Well Pumping	120	30	gpm		Water/Wastewater
Water Level		500	feet		Water/Wastewater
Hand Operation of Pump	HAND				Water/Wastewater
Pump Status		FAIL		Eli Wright	Water/Wastewater
Well Level Transducer Signal		FAIL			Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities

Alarm Identification and Thresholds
DRAFT - January 2007

Area Description	High	Low	Units	Call-out	Responsible Group
B58 - Well CS-10					
Well Pumping	120	30	gpm		Water/Wastewater
Water Level		500	feet		Water/Wastewater
Hand Operation of Pump	HAND				Water/Wastewater
Pump Status		FAIL		Eli Wright	Water/Wastewater
Well Level Transducer Signal		FAIL			Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Well CS-1					
Well Pumping	120	30	gpm		Water/Wastewater
Water Level		400	feet		Water/Wastewater
Residual Cl_2	4	1	ppm	Eli Wright	Water/Wastewater
Cl2 Scale Weight		5	lb tablets	Eli Wright	Water/Wastewater
Tablet Skid LCP Status		FAIL		Eli Wright	Water/Wastewater
Hand Operation of Pump	HAND				Water/Wastewater
Pump Status		FAIL		Eli Wright	Water/Wastewater
Well Level Transducer Signal		FAIL			Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B73 - Water Lab					
Temp-Water Lab	80	60	°F		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B74 - Residential Booster					
Water Discharge (3")	200		gpm		Water/Wastewater
Water Discharge (6")	200		gpm		Water/Wastewater
Discharge Pressure	90	40	psi	Joe Ovalle (Low press only)	Water/Wastewater
Electrical Status - Pump #1	Voltage and/or Phase Loss				Water/Wastewater
Electrical Status - Pump #2	Voltage and/or Phase Loss				Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B76 - Reservoir					
Water Level - Ultrasonic	20	15	feet		Water/Wastewater
Water Level - Mech. Floats	20.5	14.5	feet	Eli Wright	Water/Wastewater
Water Discharge Flowrate	200		gpm		Water/Wastewater
Unusual Outflow Usage afterhours/weekends	75		gpm	Eli Wright	Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B90 - Weapon Rehab					
Water Flowrate - North End	15		gpm		Water/Wastewater
Water Flowrate - East Side	15		gpm		Water/Wastewater
Gas Flowrate - East Side	100		cfh		Water/Wastewater
Gas Flowrate - B89 Boiler	500		cfh		Water/Wastewater
Temp-Break Room	80	60	°F		Facilities
Temp-North Section	80	60	°F		Facilities
Temp-Middle Section	80	60	°F		Facilities
Temp-South Section	80	60	°F		Facilities
Electrical			amps		Facilities
Phase Imbalance	10		%		Facilities
SVE Blower (Indoor) Status		FAIL			Environmental
SVE Blower (Outdoor) Status		FAIL			Environmental
Differential Pressure (Bullet Trap)	10		ΔP " H_2O		Environmental
Differential Pressure (Firing Room)	10		ΔP " H_2O		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B91 - SEB					
Water Flowrate	15		gpm		Water/Wastewater
Temp-North Section	80	60	°F		Facilities
Temp-Middle Section	80	60	°F		Facilities
Temp-South Section	80	60	°F		Facilities
Humidity - North Section	70		%		Facilities
Humidity-Middle Section	70		%		Facilities
Humidity-South Section	70		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B91-1 - Fire Suppression System (On RTU 092)					
Electrical Status	Voltage and/or Phase Loss				Facilities
Jockey Pump Status	RUN	FAIL			Facilities
Booster Pump Status	RUN	FAIL		Security/Tom Tijerina	Facilities
Discharge Pressure	120	60	psi	Security/Tom Tijerina	Facilities

Alarm Identification and Thresholds
DRAFT - January 2007

Area Description	High	Low	Units	Call-out	Responsible Group
B92 - Warehouse					
Temp-North Section	80	60	°F		Facilities
Temp-Middle Section	80	60	°F		Facilities
Temp-South Section	80	60	°F		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B93 - Receiving					
Water Flowrate	15		gpm		Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B94 - Warehouse					
Water Flowrate	15		gpm		Water/Wastewater
Temp-North Section	80	60	°F		Facilities
Temp-Middle Section	80	60	°F		Facilities
Temp-South Section	80	60	°F		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B96 - Warehouse					
Water	15		gpm		Water/Wastewater
Temp-North Section	80	60	°F		Facilities
Temp-Middle Section	80	60	°F		Facilities
Temp-South Section	80	60	°F		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B98 - Environmental/Engineering					
Water Flowrate	15		gpm		Water/Wastewater
Gas Flowrate	1		cfh		Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
A100 - Auditorium					
Water Flowrate	15		gpm		Water/Wastewater
Gas Flowrate	100		cfh		Water/Wastewater
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B129 - Emergency Generator					
Voltage	4300		volts		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
Power			kW		Facilities
Generator Status	START	FAIL		Security/Tom Tijerina	Facilities
Leak Detection Status	LEAK			Security/Tom Tijerina	Facilities
Low Fuel Level		100	gallons	Security/Tom Tijerina	Facilities
Oil Pressure Status			psi	Security/Tom Tijerina	Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B293 - WWTP Outfall 001					
Effluent Flowrate	40		gpm		Water/Wastewater
Daily Effluent Flow	60,000		gallons		Environmental
Cl_2 Scale Weight		5	lb tablets	Eli Wright	Water/Wastewater
Tablet Skid LCP Status		FAIL		Eli Wright	Water/Wastewater
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
Residual Cl_2	4	1	ppm	Eli Wright	Water/Wastewater
pH	9	6	S.U.	Eli Wright	Water/Wastewater
Dissolved Oxygen		6	ppm	Eli Wright	Water/Wastewater
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
B700 - East Pasture					
Water (East Pasture Main)	30		gpm		Water/Wastewater
Temp-Classroom	80	68	°F		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
MW1-LGR					
Stage 1 Drought Contingency Level		1013	feet MSL		Environmental
Stage 2 Drought Contingency Level		993	feet MSL		Environmental
Stage 3 Drought Contingency Level		973	feet MSL		Environmental
Stage 4 Drought Contingency Level		950	feet MSL		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities

Alarm Identification and Thresholds
DRAFT - January 2007

Area Description	High	Low	Units	Call-out	Responsible Group
MW6-LGR					
Stage 1 Drought Contingency Level		1013	feet MSL		Environmental
Stage 2 Drought Contingency Level		993	feet MSL		Environmental
Stage 3 Drought Contingency Level		973	feet MSL		Environmental
Stage 4 Drought Contingency Level		950	feet MSL		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
MW9-LGR					
Stage 1 Drought Contingency Level		1013	feet MSL		Environmental
Stage 2 Drought Contingency Level		993	feet MSL		Environmental
Stage 3 Drought Contingency Level		973	feet MSL		Environmental
Stage 4 Drought Contingency Level		950	feet MSL		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
MW10-LGR					
Stage 1 Drought Contingency Level		1013	feet MSL		Environmental
Stage 2 Drought Contingency Level		993	feet MSL		Environmental
Stage 3 Drought Contingency Level		973	feet MSL		Environmental
Stage 4 Drought Contingency Level		950	feet MSL		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
MW12-LGR					
Stage 1 Drought Contingency Level		1013	feet MSL		Environmental
Stage 2 Drought Contingency Level		993	feet MSL		Environmental
Stage 3 Drought Contingency Level		973	feet MSL		Environmental
Stage 4 Drought Contingency Level		950	feet MSL		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
MW16-LGR					
Stage 1 Drought Contingency Level		1013	feet MSL		Environmental
Stage 2 Drought Contingency Level		993	feet MSL		Environmental
Stage 3 Drought Contingency Level		973	feet MSL		Environmental
Stage 4 Drought Contingency Level		950	feet MSL		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
GAC Shack, Outfall 002					
Effluent Flowrate	100		gpm		Environmental
Daily Effluent Flow	60,000		gallons		Environmental
Effluent pH	9	6	S.U.		Environmental
Filter Upstream Pressure	30		psig		Environmental
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Incoming Supply - CPS					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - North Leg Master					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - South Leg Master					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 1 (Admin Area)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 2 (Residential)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities

Alarm Identification and Thresholds
DRAFT - January 2007

Area Description	High	Low	Units	Call-out	Responsible Group
Electrical Distribution - 3 (Residential)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 4 (B45 Area)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 5 (East Pasture)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 6 (Residential)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 7 (Warehouse Section)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities
Electrical Distribution - 8 (Warehouse Section)					
Voltage	10	10	%		Facilities
Electrical Current			amps		Facilities
Phase Imbalance	10		%		Facilities
RTU Power Status		FAIL			Facilities
RTU Comm. Status		FAIL			Facilities

Operation, Maintenance, and Support

O&M Support

- SCADA
  - Subcontractor (SCI) has included 2-year warranty period on all parts and labor
  - CSSA has pre-paid for approximately 200 hours of O&M support from SCI for additional modifications, customizations, or support
- CBM-MAX
  - First year of annual maintenance and software support (MSS) is pre-paid by CSSA
  - Additional annual MSS is $3,000 per year
  - Upgrades with new versions of Maximo are relatively transparent unless there are large programming revisions in the Asset Management Software

Responsibilities

- Parsons
  - Provide database of all SCADA assets including equipment information and location
  - Provide mechanism to link SCADA and Maximo to alert when SCADA assets have reported a pre-determined limit violation
  - Provide technical and programming support enhance or modify the linking, programming, and reporting to Maximo by SCADA assets
- CSSA and Maximo Administrators
  - Import database of all SCADA assets including equipment information and location
  - Manage the daily function, operation, and maintenance of the Maximo system, asset management, and internal work order processes

Proposal Assumptions

- The MRO asset management system is administered by CSSA and their current Maximo subcontractors
- Parsons will provide a database of all the SCADA components and their tag attributes to CSSA and their Maximo subcontractors for incorporation into Maximo in accordance with their policy and procedures
- Parsons will provide the software and manpower to link the two systems once others have loaded the SCADA attributes into Maximo system.
- Additional technical support hours by Parsons has been assumed to allow for refinement, enhancement, or functionality as CSSA determines those requirements during the period of performance of this task order

GOVERNMENT STATEMENT OF WORK
F41624-03-D-8613-0190

JANUARY 20, 2006

STATEMENT OF WORK

FOR

SCADA COMPONENT DESIGN, INTEGRATION, AND SUPPORT

AT

CAMP STANLEY STORAGE ACTIVITY, BOERNE, TEXAS

PROJECT NUMBER: CMSLY20052607

CONTRACT NUMBER: F41624-03-D-8613

TASK ORDER: 0190

20 January 2006

STATEMENT OF WORK
For
SCADA Component Design, Integration, and Support
At
Camp Stanley Storage Activity, Boerne, Texas

PART A – INTRODUCTION

This statement of work (SOW) defines requirements for A-E services to provide all manpower, equipment, materials, supplies, and incidental items necessary to determine the engineering requirements for additional Supervisory Control and Data Acquisition (SCADA) components, and to integrate those additional components with the SCADA system installed under a separate task order (TO). The additional SCADA components shall be installed at various buildings and other necessary locations under a separate contract and TO. The place of performance shall be at Camp Stanley Storage Activity (CSSA), Texas (TX).

In carrying out the work assignment issued under this TO, the Contractor shall furnish the personnel, services, equipment, materials, facilities, and other requirements necessary for, or incidental to, the performance of work set forth herein. Primary technical services shall be performed by individuals who are credentialed members of architectural, science and engineering professions.

1. SCOPE

The Contractor shall provide Other A-E Services for environmental projects for the Air Force Center for Environmental Excellence (AFCEE). The scope of this TO includes SCADA system components and integration requirements assessment.

The Contractor shall be capable of addressing and interpreting all aspects of environmental law and regulation, including the preparation and presentation of expert testimony if required. Pollution prevention is an important aspect of this contract and will be incorporated in this TO as appropriate.

2. TITLE I, TITLE II, AND OTHER A-E SERVICES REQUIREMENTS

2.1 - 2.2
Not applicable to this TO.

~~2.3~~2.3 Other A-E Services
The Contractor shall provide support necessary to determine the engineering requirements for additional SCADA components and to integrate those additional components with the SCADA system installed under a separate TO.

PART B – ADMINISTRATIVE AND MANAGERIAL REQUIREMENTS

The Contractor shall provide management, planning, performance measurement and cost status reporting pertinent to the performance of the requirements identified in this TO.

3. APPLICABLE DOCUMENTS

The Contractor shall comply with all applicable (1) federal, state, and local environmental statutes, instructions, manuals, handbooks, regulations, guidance, policy letters, and rules (including all changes and amendments), and (2) Presidential Executive Orders, in effect on the date of issuance of this TO. In addition, the Contractor shall refer to the AFCEE Technical Services Quality Assurance Program, Guidance for Contract Deliverables (GCD), current version. This GCD is a reference document to be used in the generation of contract deliverables. Post-specific documents may be obtained from the CSSA Environmental Encyclopedia.

Additional detail concerning this statement of work can be found at the AFCEE Website in a document titled the "4P A-E Guidance and Resource List". This document is posted on the 4P A-E web page on the AFCEE Web Site (www.afcee.brooks.af.mil). This document includes additional detail where necessary and includes references to rules, regulations, statutes, instructions, manuals, handbooks, and other similar types of guidance.

4. TASK ORDER MANAGEMENT, PLANNING, AND REPORTING SERVICES

The Contractor shall plan project activities, including the development, implementation, and maintenance of project schedules, events, status of resources, report(s) on the activities, and progress toward accomplishing project objectives. The Contractor shall document for government review and approval the results of the project efforts for this TO.

~~4.1~~4.1 WBS Requirements

Proposals, project schedules, and financial report(s) shall be organized according to an approved work breakdown structure (WBS).

~~4.2~~4.2 Schedule and Planning Requirements

The Contractor shall provide schedules for tracking work progress.

4.2.1 Project Planning Chart

The Contractor shall prepare and submit a project planning chart (PPC) for approval. The PPC shall meet the RCRA 3008(h) Administrative Order requirements. The PPC shall detail the project schedule and status through the use of Gantt charts, which shall depict percent complete for each task. Schedule activities shall be reported by the approved WBS in order to facilitate easy incorporation into the Quarterly Reports. (CDRL B002)

4.2.2 Not applicable to this TO.

~~4.3~~4.3 Cost and Status Reporting

The Contractor shall provide progress and cost reports.

4.3.1 Contractor's Progress, Status, and Management Report
The Contractor shall prepare and submit a Contractor's Progress, Status, and Management Report (CPSMR) by WBS in order to facilitate easy incorporation into the Quarterly Reports. The CPSMR shall be used to review and evaluate the overall progress of the project, along with any existing or potential problem areas. The CPSMR shall include a summary of the events that occurred during the reporting period, discussion of performance, identification of problems, proposed solutions, corrective actions taken, and outstanding issues. Cost information shall be included in this report. (CDRL B004)

4.3.2 – 4.3.3 Not applicable to this TO.

~~4.4~~**4.4 – 4.6** Not applicable to this TO.

4.7 Meeting and Conference Services

4.7.1 Meeting/Teleconference Support
The Contractor shall attend and support meetings and/or teleconferences as required by the COR. The Contractor shall attend a post-award conference or pre-performance conference and additional progress meetings/technical interchange meetings (TIMs), as required. The Contractor shall develop and submit agendas, presentation materials, and meeting minutes, as necessary for all meetings attended. (CDRLs B008, B009, B010)

4.7.2 Public Meetings and Hearings
Not applicable to this TO.

4.7.3 Conference Support
Upon completion of fieldwork and installation of SCADA components, the Contractor shall provide an overall training class to CSSA employees for the additional components added under this TO. It is anticipated that the class will be approximately 2 to 4 hours in duration for 15 to 30 employees. The Contractor shall also provide more specific training for smaller groups. CSSA shall furnish facilities for training. (CDRLs B008, B009, B010)

4.8 Not applicable to this TO.

~~4.9~~**4.9 Notification Requirements**
The Contractor is required to notify the Contracting Officer (CO) and COR of critical issues that may affect the contract performance and/or human health and the environment. On critical issues, verbal notification should be made immediately, followed by written notification as soon as practical. (CDRL A003)

~~4.10~~**4.10 Work Site Coordination**
The Contractor shall coordinate work site activities to ensure the protection of human health and the environment; the prevention of damage to property, utilities, materials, supplies, and equipment; and the avoidance of work interruptions. The Contractor must comply with

Occupational Safety and Health Administration (OSHA) safety and health regulations and local safety office requirements. The Contractor is required to provide the CO copies of any OSHA report(s) submitted during the duration of this TO. (CDRL A001)

As CSSA is a restricted access facility, security measures require that all personnel be approved by CSSA. The Contractor shall be responsible for providing a list of all personnel (including subcontractor personnel) with the required personal information to the Environmental Officer prior to any on-site fieldwork activity. The Contractor shall schedule all activity to allow time for personnel access requests to be processed. Access requests shall include only personnel that are working on site, including subcontractor personnel, and the time period they will require access. All security badges shall be obtained from the base security guards and returned to installation security each time entry or exit from the facility is required. The Contractor and their subcontractors shall follow all installation security requirements and any security briefing provided.

Prior to any visit to the installation, the Contractor shall notify the installation with a list of the personnel that will be arriving three (3) days prior to the visit. Prior to the start of fieldwork the Contractor shall provide a two (2) week pre-notification of the approved personnel that will be performing the work and prepare any regulatory notifications required for submission to the base. The personnel list shall contain the following information: full name, organization, title, date of birth, place of birth, social security number, and phone number. All personnel shall report to the CSSA Environmental Office to check in and out and provide information regarding the tasks they will be accomplishing during the day. All personnel shall be briefed on the security requirements they are required to follow.

5. TASK ORDER PROJECT PLAN DEVELOPMENT SERVICES

This TO requires an update to the site-specific Work Plan (WP), developed under a separate TO, to include all of the additional SCADA components recommended for integration into the SCADA system at CSSA. The Contractor shall provide electronic and hard copies of project plans. The AFCEE COR shall approve (in writing) any proposed modification to, or deviation from, any activity described in these documents, following approval by the CO.

~~5.1~~5.1.1 Quality Program Plans (QPPs)

The Contractor shall develop updates to the QPP that will consist of the following:

5.1.1 Work Plan

The Contractor shall update the WP to include all of the additional SCADA components recommended for integration into the SCADA system (integration to occur under a separate TO). (CDRLs A004, A006, A007)

5.1.2 Health and Safety Plan

The Contractor shall update the Health and Safety Plan (HSP) as necessary for integration of the additional SCADA components (integration to occur under a separate TO). (CDRL A004)

5.1.3 Not applicable to this TO.

5.1.4 Construction Quality Plan
The Contractor shall update the Construction Quality Plan (CQP) as necessary for integration of the additional SCADA components (integration to occur under a separate TO). (CDRL A006)

5.2 Not applicable to this TO.

6. MANAGEMENT OF CHEMISTRY SERVICES
Not applicable to this TO.

PART C – ENVIRONMENTAL SERVICES

The primary emphasis of this SOW is to determine the engineering requirements for additional SCADA components and to integrate the additional components with the current SCADA system at CSSA.

7. TITLE I SERVICES FOR ENVIRONMENTAL PROJECTS
Not applicable to this TO.

8. TITLE II SERVICES FOR ENVIRONMENTAL PROJECTS
Not applicable to this TO.

9. OTHER ENVIRONMENTAL A-E SERVICES
The Contractor shall provide all labor, materials, and services necessary to deliver, for government review and approval, those studies and services detailed in this SOW. Multi-disciplinary technical capabilities may be required. In the completion of these tasks, the Contractor shall comply with all federal, state, and local rules and regulations.

9.1 – 9.10 Not applicable to this TO.

9.11 Information Technology
The Contractor shall provide support for information management applications. (CDRL A001)

9.11.1 Not applicable to this TO.

9.11.2 Database and System Development, Performance, and Recording
The Contractor shall provide information management expertise to engineer the integration of additional components to the SCADA system that will assist CSSA to successfully and efficiently operate, monitor, and maintain its existing infrastructure and facilities. With the exception of additional Work Stations, no construction or actual installation activities are planned to occur under this TO. Systems designated for SCADA programming and/or automation include: HVAC, water, wastewater, natural gas, and electricity. The Contractor shall consider the following four factors as selection criteria for providing SCADA components:

(1) Commercially off-the-shelf (COTS) hardware and software; (2) Suitability for applications; (3) Vendor's market presence; and (4) Vendor's cost. Additionally, system expansion needs shall be evaluated to provide for a scalable system for future growth.

Instrumentation and equipment installations are planned under other TOs, however, the need for incidental instrumentation or equipment may be identified during the course of performing this TO. As directed, some equipment procurement and installations may be performed under this TO.

The purpose of the SCADA system is to provide real-time remote monitoring and control of sites that include buildings, drinking water pumping and treatment facilities, meteorological monitoring stations, and a wastewater treatment plant, which require natural gas, water, wastewater, electrical power, or other monitoring and reporting. In addition, there are environmental monitoring wells and three water supply wells to be monitored. Automation of water pumping stations, chlorine injection, with remote manual override is also needed. The SCADA system shall use readily available off-the shelf components, shall have a high degree of reliability, including redundancy for critical components, and shall be expandable for future needs.

Work Station Setup

Under this TO, additional SCADA work stations shall be placed throughout the facility to complement the work stations installed under separate TOs to provide monitoring, access, and control to differing parts of the system. These work stations will be networked-based systems running the same software as the SCADA Master Station. Candidate locations for SCADA work stations include the engineering, environmental, and administrative departments of the facility.

Maximo Integration

CSSA has incorporated the MRO Maximo Asset Management software for the tracking, scheduling, and prioritizing equipment maintenance throughout the facility. The Maximo software has the capability to integrate with the SCADA system through a third party software development product. The integration will allow the Maximo software to query and monitor the SCADA server for alarm notifications and outlying measurements by SCADA instrumentation beyond the user-defined set points. Under this TO, the integration software shall be procured, installed, and programmed to allow the SCADA instrumentation data to be available to Maximo asset management system.

The Contractor shall develop and submit an updated Operations and Maintenance Manual upon completion of all SCADA component installation activities to be performed under a separate TO. The manual shall include a record of all operations and findings in the field, field procedures, equipment used, manufacturer's directions, warranties for products used, and an overall "how to" manual shall be included. The Contractor shall also discuss recommendations for future SCADA implementation and potential impacts of implementation of such recommendations. The manual shall include system descriptions, specifications, and trouble shooting advice. The Contractor shall provide training to CSSA staff as detailed in section 4.7.3 of this SOW. (CDRL A001)

9.11.3 – 9.11.4 Not applicable to this TO.

9.12 – 9.23 Not applicable to this TO.

PART D – TRADITIONAL SERVICES

10. TITLE I TRADITIONAL SERVICES
Not applicable to this TO.

11. TITLE II TRADITIONAL SERVICES
Not applicable to this TO.

12. OTHER TRADITIONAL A-E SERVICES
Not applicable to this TO.

13. DATA MANAGEMENT
The Contractor shall collect, prepare, publish, and distribute the data in the quantities and types designated on the CDRL. The Contractor shall designate a focal point who shall integrate the total data management effort and manage changes, additions or deletions of data items. The Contractor shall identify items to be added, recommend revisions or deletion of items already listed on the CDRLs as appropriate, and maintain the status of all data deliverables.

14. GOVERNMENT POINTS OF CONTACT
Government Points of Contact (POCs) shall be specified under separate cover.

15. ABBREVIATIONS, ACRONYMS, AND TERMS
The Contractor shall refer to the 4P A-E Guidance and Resource List for the abbreviations, acronyms, and terms.

PARSONS PROPOSAL SUBMITTAL
F41624-03-D-8613-0190

FEBRUARY 2006

Proposal For:

SCADA COMPONENT DESIGN, INTEGRATION, AND SUPPORT AT CAMP STANLEY STORAGE ACTIVITY - BOERNE, TEXAS

Contract No. F41624-03-D-8613
Task Order No. 0190

Prepared For:

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE/IWA
Brooks City-Base, Texas

Prepared by:

PARSONS INFRASTRUCTURE & TECHNOLOGY GROUP, INC.

San Antonio, TX

February 2004

PART A

TECHNICAL AND MANAGEMENT APPROACH

SECTION 1

INTRODUCTION

1.1 INTRODUCTION

Parsons is proposing to provide Supervisory Control and Data Acquisition (SCADA) procurement and integration services to link the Maximo® and SCADA systems being established at Camp Stanley Storage Activity (CSSA), Boerne, Texas. This proposal describes activities in support of the implementation of a SCADA system that will assist CSSA to successfully and efficiently integrate all these systems being established under separate contracts and task orders (TO). This TO will integrate work being performed by Parsons under the Air Force Center for Environmental Excellence (AFCEE) contracts WERC TO11 (currently awarded) and WERC TO27 (not yet awarded). Systems designated for SCADA programming and linking include water, wastewater, natural gas, electricity, and environmental monitoring points (wells and weather stations).

CSSA is implementing the use of the Maximo Enterprise Software for tracking and managing assets used on post, which is being installed and administrated by others. A major component of this system includes generating and tracking the progress work orders for those facility systems that need attention or maintenance. Under separate TOs (TO0011 and TO0027), Parsons is installing the equipment and instrumentation necessary to create a SCADA system which is to provide real-time remote monitoring and control of approximately 44 sites that include buildings, drinking water pumping and treatment facilities, meteorological monitoring stations, and a wastewater treatment plant, which require natural gas, water, wastewater, electrical power, or other monitoring and reporting. It is the desire of CSSA to have these SCADA assets monitored by the Maximo system, and automate the generation of work orders for facility maintenance at these locations.

Under this TO, Parsons proposes to:

- Hold stakeholder meetings with CSSA personnel, their Maximo subcontractors, and integration vendors to determine the expectations of the facility and define roles and responsibilities.
- Prepare or amend existing Quality Program Plans (QPP) and Project Activities Work Plans (PAWP) to complete the SCADA system design and to link the SCADA historian server to the Maximo system. The PAWP will include instrumentation expansion of the SCADA system to be performed under a separate task order. The PAWP will also define the approach of the SCADA/Maximo link, and determine what SCADA instrumentation and operational parameter limits will be monitored by Maximo.
- Physically network the SCADA and Maximo servers, and install software to allow the data transfer from SCADA to Maximo, so that Maximo will be alerted and work orders

generated when alarms, limit violations, or rule violations occur within the SCADA system.

- Upon completion of fieldwork, Parsons will prepare an Operations and Maintenance (O&M) manual and will provide a training class to CSSA employees and other potential end-users of the SCADA system for items installed under TO0027 and a select group of Maximo users.

Parsons shall implement actions as specified in this TO and the basic contract, and will supply all labor, equipment, and materials necessary to accomplish the tasks assigned unless otherwise specified in this TO. In addition, Parsons will perform management and planning functions during the course of this effort.

Parsons has prepared this technical and management approach to define the scope, cost and schedule to complete this project as defined by the scope of work (SOW) dated 20 January 2006. The cost estimate is included in Part B. The expected period of performance is 12 months from the date of award, which is anticipated to be 1 March 2006. This project will be performed under AFCEE Contract F41624-03-D-8613 as TO 0190.

1.2 PROPOSAL ORGANIZATION

This proposal is divided into five sections. This section, Section 1, presents an introduction to the project, project objectives, project location, and an overview of applicable project regulations. Section 2 details the technical approach designed to meet the project objectives. The project organization is described in Section 3. Section 4 details the project deliverables and their schedule. Section 5 provides key assumptions.

1.3 PROJECT OBJECTIVES

The objectives of this project are as follows:

- Perform a site inspection and produce a detailed construction design to implement additional SCADA technology at infrastructure locations throughout CSSA as an addendum to the Implementation Work Plan prepared under TO0011. The design will include two additional workstations, and up to 60 instrumentation nodes at 15 locations that will be installed and integrated under a separate task order (TO0027). The design expansion will include additional utility metering (electric, gas, and water), temperature monitoring and control at select buildings/warehouses, and automation of a proposed supply well to be installed under a separate task order. The construction of the components designed under this task under will be implemented under a separate contract (TO0027).

- Review all available SCADA instrumentation and equipment to make determinations how signal inputs will be integrated into the Maximo asset management system. Each input signal into the SCADA system will be evaluated to determine the thresholds for limit violations (high/low alarms) and rule violations (if/then/else logic) to notify the Maximo user that an out-of-parameter event has occurred, and a work order will be generated to investigate/repair the anomaly. These determinations are anticipated to be an iterative process with CSSA users as their specific needs are revealed.

- The results of the above tasks will be documented in PAWP that defines the technical approach and guides the management of the work. All of the new tasks will be incorporated into the existing work plans, including QPPs, already in place for the SCADA (TO 0011).

- Parsons will obtain the third-party software necessary to link the Maximo system to the SCADA historian server. The software will reside on the Maximo server, and will enable the communication between the two systems via an Ethernet network. The software will be programmed to monitor signal inputs placed onto the SCADA server by the remote instrumentation. The third-party software will monitor the SCADA server for changes in instrument status and will compare those values to user-programmed threshold limits. Should an instrument exceed a threshold parameter, the software provides Maximo the information necessary to generate a work order. The current SCADA design includes over 200 inputs that can be monitored.

- Parsons will amend the TO0011 Operations and Maintenance (O&M) manual that will include design schematics, equipment listings, and all software/hardware documentation for the new instrumentation. The Maximo interface software will include all the product documentation and manuals that are provided from the vendor.

- Parsons and/or its contractors will provide on-site O&M training for up to 30 CSSA employees. This training will be an amendment to the training manual previously prepared under a separate contract (TO0011). The training will include the functionality of the Maximo integration, and the documentation and use of the newly installed equipment under separate task orders (TO0027).

- Parsons or its subcontractors will provide operational and programming training in the use of the SCADA-Maximo linking software. Since the third-party linking software runs transparently from the SCADA and Maximo systems, the training is assumed to be limited to a select group of Parsons programmers, CSSA personnel and their Maximo administrative contractors.

The means to achieve each of these objectives are presented in Section 2, *Technical Approach.*

1.4 PROJECT LOCATION

The project sites are located within the Inner Cantonment of the CSSA facility. Site visits are expected to occur at 15 buildings/structures. Significant work will also be performed at the Maximo server located in Building 1A, and the SCADA server to be located at Building 98.

Site visits and data collection will be conducted at CSSA. Report development, project management, and technical review functions will be performed by Parsons personnel from the Parsons Austin, San Antonio, and Atlanta offices, with Senior Technical Direction provided by Henry Dress, P.E. from the Parsons Austin office.

1.5 COMPLIANCE REQUIREMENTS

Parsons will comply with all State, Federal, Air Force regulatory requirements including:

ARMY GUIDANCE:

- Army Regulations 200-1 and 200-2

AIR FORCE GUIDANCE:

- AFCEE Quality Assurance Project Plan, version 3.0
- AFCEE Technical Services Quality Assurance Program

OTHER:

- TPDES Permit 03849

SECTION 2

TECHNICAL APPROACH

The technical approach to accomplish the project objectives has been broken down into six (6) work breakdown structure (WBS) codes:

WBS 01000: Task Order Management;

WBS 02000: Meetings;

WBS 03000: Work Plans and Design;

WBS 04000: Maximo Integration and Programming;

WBS 05000: Operations and Maintenance (O&M) Manual;

WBS 06000: Training Program.

The work to be accomplished under each WBS is described below.

2.1 WBS 01 - TASK ORDER MANAGEMENT

This task includes program and project management labor costs and other direct costs (ODCs) necessary over the course of the project. TO management activities include project coordination and oversight, budget and schedule management, preparation of the Monthly Progress Reports (CDRL B004), project accounting and billing, and a health and safety plan. TO management also includes technical direction, and Quality Assurance/Quality Control (QA/QC) activities.

Progress Report	Date of First Submittal	Date of Subsequent Submittals
Contractor's Progress, Status and Management Report (CDRL B004) Project Schedule (CDRL B002)	First report due by the 20th day of month following the first complete monthly reporting period.	Monthly, 20th day of the month

The progress report shall describe activities completed on each task, activities planned for the next reporting period, status of deliverables, and any problems encountered.

Parsons follows a strict zero-tolerance approach to health and safety in order to protect our employees and our clients from the negative impacts associated with job related accidents and injuries. Project budget established within this task function code will be used to prepare an

internal project specific health and safety plan (CDRL A004) within 14 days of TO award. Since no construction is planned, no internal project specific health and safety audits are planned during the course of this project because they will be scheduled under the associated construction tasks (TOs 0011 and 0027).

2.2 WBS 02 – MEETINGS

This WBS includes a kickoff meeting and two Technical Interchange Meetings (TIMs). The first task under WBS 02000 will be a project kickoff meeting and a site visit to the CSSA facility. This meeting is required to coordinate the project with CSSA and AFCEE personnel. The Parsons project manager, task manager, and senior computer programmer will attend the project kickoff meeting. Parsons will prepare the project schedule, presentation materials, agenda, and meeting minutes (CDRLs B002, B008, B009, and B010).

Parsons has also included costs for two TIMs over the course of this delivery order. These meetings will be held at the direction of the CSSA project manager. Both meetings are assumed to take place at CSSA. One meeting is intended for reviewing the Operations and Maintenance manual that will be prepared, while the second TIM will be for defining parameters for the SCADA-Maximo software integration. The electrical design engineer for the SCADA implementation will attend both meetings along with the project manager, task manager, and senior computer programmer. A Maximo subcontractor may attend the second TIM. Parsons will prepare the project schedule, presentation materials, agenda, and meeting minutes (CDRLs B002, B008, B009, and B010). Two conference calls (or web casts) with CSSA and the same Parsons personnel are also anticipated during the course of the project.

2.3 WBS 03 – WORK PLANS AND DESIGN

This task includes the preparation of plan addenda for the SCADA installation. Following the kickoff meeting, Parsons will prepare a project planning and work plan addenda that will include the following elements:

- Quality Program Plan (CDRL A006),
- Project Activities Work Plan (CDRL A007).

The scope of this task order will be amended to existing work plans previously prepared under TO0011. Specific topics to be amended to the work plans include the addition of 60 instrumentation nodes at 15 locations throughout CSSA, to be constructed under TO0027. Parsons will perform site work as necessary to prepare sites for implementation activities, including site surveys. Parsons will also survey existing utilities to determine adequacy and need for modifications to support mission activities. As part of the work plan, Parsons will produce a map, in coordination with CSSA, of actual locations where SCADA meters should be installed and will obtain concurrence from CSSA of the type of meter to be used at each location.

The addenda will also address the integration of the Maximo and SCADA systems to manage SCADA assets and notify CSSA of out-of-parameter limit violations with the SCADA equipment via Maximo work orders.

For all documents, one set of government comments will be incorporated into the final plans.

2.4 WBS 04 – MAXIMO INTEGRATION AND PROGRAMMING

The SCADA system will reside on a server located within the Environmental office at Building 98. The Maximo server has been established within Building 1A. While the servers are not co-located, they can be physically linked via a fiber optic Ethernet connection between those locations within the Maximo network. Parsons and its subcontractors will require access to both of these servers during the course of the integration.

For this project, Parsons considered two avenues of performing the integration which included self-performing the programming or procuring a third-party software package. Internet searches for applicable integration programs specific to linking Maximo with SCADA systems yielded very little results. Parsons contacted MRO Software, the developer of the Maximo system to consult on options to complete the integration. They recommended an alliance partner (Mitrikon, Inc.) that has specifically created software to link Maximo to external data collection systems, such as SCADA. Mitrikon is an alliance partner to MRO, meaning their software is licensed as an add-in program to operate on the same platform and conventions inherent to Maximo. Mitrikon is also a cooperative partner to MRO, which grants them the ability to consult and work upon MRO products. Parsons has included the procurement of their software, systems integration and programming, training, and associated technical support costs within this proposal.

Parsons will provide an electronic table of all SCADA equipment, physical locations, and tag numbers to CSSA and their Maximo administrator (currently COI). Parsons assumes that CSSA and their Maximo contractor will load and populate the Maximo tables with the SCADA assets prior to programming the software links. Upon commissioning of the SCADA system, the third-party software vendor will install their product on the Maximo server located in Building 1A. The vendor will complete the programming necessary to establish data communications and exchanges between the two servers, via the third-party software. Once the system links are established, Mitrikon will train a select group of Parsons, CSSA, and the CSSA Maximo subcontractors in the process of assigning limit and rule violations and generating work orders for the Maximo software. Since this software runs transparently to the general user, is assumed that the program training will be for 6 persons (2 Parsons, 2 CSSA, and 2 CSSA Maximo subcontractors).

Once the training is complete, Parsons and its subcontractor will link approximately 200 independent SCADA instruments to Maximo for real-time status evaluations. Parsons will create the limit and rule violations (e.g., alarm notifications for out-of-parameter conditions) for each data type that an instrument provides. As part of this task order, Parsons will pre-purchase an extended service agreement that includes technical support from the program developer, as well as product and version upgrades available for the term of that agreement.

2.5 WBS 05 – OPERATIONS AND MAINTENANCE MANUAL

Parsons will update the planned Operations and Maintenance Manual funded under a separate task order (TO0011). The manual shall include a record of all operations and instrumentation installed in the field under TO0027. Field procedures, equipment used, manufacturer's directions, warranties for products used, and an overall "how to" manual shall be included. The manual shall include system descriptions, specifications, and trouble shooting advice. (CDRL A001)

2.6 WBS 06 – TRAINING PROGRAM

Upon completion of O&M manual, Parsons will provide an operational training class to CSSA personnel. The training sessions will ensure a smooth transition of the system to the CSSA facility. The training funded under this TO will be specific to the new instrumentation installed under TO0027 and the use of the SCADA/Maximo link. This training will dovetail with training already funded under TO0011, and will be performed in conjunction with that training if the timeline allows. It is anticipated that multiple classes of 16 hours will be presented for 15 to 30 employees. The Contractor shall also provide more "hands on" specific training for smaller groups. CSSA shall furnish facilities for training.

SECTION 3

PROJECT ORGANIZATION

3.1 PROJECT ORGANIZATION

This Task Order will be managed from the Parsons Austin office. The Task Order team organization is described below.

Program Management activities will be accomplished by Jack L. Sullivan, Jr., P.E. and/or Christina S. Vail, P.E., in the Parsons San Antonio Office. They will be responsible for contract administration to include progress reporting and invoicing; quality assurance; schedule compliance; and budget control. He/she will serve as the primary interface on programmatic issues.

The Task Order manager will be Brian Vanderglas P.G., in the Parsons Austin Office. Mr. Vanderglas will coordinate all activities to meet the requirements of the TO scope of work and ensure technical review of all deliverables. These activities will include meetings, document reviews, monthly reporting, and project management activities. He will be responsible for coordinating with the CSSA Point of Contact (POC), Glaré Sanchez and the AFCEE Contracting Officer's Representative (COR), Jesse Perez.

Henry Dress, P.E. will serve as the technical director for the project. The technical director will provide technical guidance and oversight to meet the project's technical directives.

Addresses and telephone numbers of the TO management team are as follows:

Name	Title	Address	Phone	E-mail
Mr. Jesse Perez	AFCEE COR	HQ AFCEE/ 3300 Sidney Brooks Brooks City Base, TX 78235-5112	(210) 536-2433 (210) 536-9067 (fax)	jesse.perez@brooks.af.mil
Ms. Glaré Sanchez	CSSA Environmental Restoration Project Manager	Camp Stanley Storage Activity 25800 Ralph Fair Road Boerne, TX 78015	(210) 698-5208 (210) 295-7386 (fax)	sanchezg@envirodept.net
Jack Sullivan	Parsons Program Manager	Parsons, Inc. 901 N.E. Loop 410, Ste 610 San Antonio, TX 78209	(210) 805-6222 (210) 828-9440 fax	jack.sullivan@parsons.com
Mr. Henry Dress	Parsons Technical Director	Parsons, Inc. 8000 Centre Park, Suite 200 Austin, TX 78754	(512)719-6063 (512)719-6099 (fax)	henry.dress@parsons.com
Mr. Brian Vanderglas	Parsons Project Manager	Parsons, Inc. 8000 Centre Park, Suite 200 Austin, TX 78754	(512)719-6059 (512)719-6099 (fax)	brian.vanderglas@parsons.com
Mr. Scott Pearson	Parsons Task Manager	Parsons, Inc. 8000 Centre Park, Suite 200 Austin, TX 78754	(512)719-6087 (512)719-6099 (fax)	william.scott.pearson@parsons.com
Mr. Ryan Lynn	Parsons Design Engineer	Parsons, Inc. 5390 Triangle Parkway, Suite 100 Norcross, GA 30092	(678)969-2471 (770) 446-4910 (fax)	ryan.lynn@parsons.com

Name	Title	Address	Phone	E-mail
Mr. Mike Stimets	Parsons Computer Programmer	Parsons, Inc. 8000 Centre Park, Suite 200 Austin, TX 78754	(512)719-6802 (512)719-6099 (fax)	mike.stimets@parsons.com
Mr. Kyle Caskey	Parsons On-Site Technician	Camp Stanley Storage Activity 25800 Ralph Fair Road Boerne, TX 78015	(210) 336-1164 (cell) (210) 828-9440 (fax)	kyle.caskey@parsons.com
Mr. Robert Barbosa	Parsons Contract Administrator	Parsons, Inc. 901 N.E Loop 410, Suite 610 San Antonio, TX 78209	(210) 805-2285 (210) 828-9440 (fax)	robert.barbosa@parsons.com

SECTION 4

PROJECT DELIVERABLES

4.1 PROJECT DELIVERABLES

All hard copy deliverables will be submitted on recycled content paper and printed double sided unless otherwise specified by the Air Force. All deliverables will be provided to CSSA and AFCEE according to format, content, and schedule as described below.

The project deliverables will be prepared and submitted as follows:

Item	Number of Pages	AFCEE/ IWA	AFCEE/ ACW	AFCEE Library	Post POC
OSHA Report (CDRL A001)	5	Draft: 1 Draft Final: 0 Final: 2	Draft: 1 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: CD or e-mail	Draft: 1 Draft Final: 0 Final: 1
O&M Manual (CDRL A001)	150	Draft: 2 Draft Final: 0 Final: 2	Draft: 0 Draft Final: 0 Final: Letter	Draft: 0 Draft Final: 0 Final: CD or e-mail	Draft: 2 Draft Final: 0 Final: 2
Critical Issues Notifications (CDRL A003)	1	Letter: 1	Letter: 1		Letter: 1
Health and Safety Plan Addenda (CDRL A004)	10	Draft: 2 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: Letter	Draft: 0 Draft Final: 0 Final: CD or e-mail	Draft: 2 Draft Final: 0 Final: 1
Quality Program Plan Addenda (CDRL A006)	15	Draft: 2 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: Letter	Draft: 0 Draft Final: 0 Final: CD or e-mail	Draft: 2 Draft Final: 0 Final: 1
Project Activities Work Plan Addenda (CDRL A007)	30	Draft: 2 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: Letter	Draft: 0 Draft Final: 0 Final: CD or e-mail	Draft: 2 Draft Final: 0 Final: 1
Project Schedule (CDRL B002)	5	Final: 1	Final: 1		Final: 1
CPSMR (CDRL B004)	10	Final: 1	Final: 1	Kathy Heihn	Final: 1
Meeting Presentation Materials (CDRL B008)	15	Draft: 2 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: Letter		Draft: 2 Draft Final: 0 Final: 1
Meeting Agenda (CDRL B009)	2	Draft: 2 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: Letter		Draft: 2 Draft Final: 0 Final: 1
Meeting Minutes (CDRL B010)	10	Draft: 2 Draft Final: 0 Final: 1	Draft: 0 Draft Final: 0 Final: Letter		Draft: 2 Draft Final: 0 Final: 1

SECTION 5

KEY ASSUMPTIONS

5.1 STATEMENT OF WORK (SOW) CLARIFICATIONS AND EXCEPTIONS

1. **Section 4.2.1 – Project Planning Chart:** This project is not under the guidance of the RCRA 3008(h) administrative order, therefore this reference is not applicable. Activities under this TO will not be incorporated into the EPA quarterly report mandated by the 3008(h) administrative order. However, a project planning chart will be submitted to the government within 30 days of the award as CDRL B002.

2. **Section 4.7.3 – Conference Support:** No field components will be installed under this TO as stated in this section. However, training will be provided under this TO for the use of the Maximo integration and those additional field instruments installed under the WERC TO0027 FFP contract for which Parsons is concurrently preparing a proposal for submittal by March 13, 2006.

3. **Section 5. - General:** The work plan amendments generated under this TO will describe the locations and instrumentations to be purchased and installed under WERC TO0027. The workplans will describe the integration of the SCADA network to the Maximo network, which will occur as a task under this delivery order.

4. **Section 9.11.2 – Database and System Development, Performance, and Recording:** *Paragraph 1:* Work stations will be installed under WERC TO0027, not this TO. *Paragraph 2:* This statement allows for SCADA equipment and instrumentation to be purchased and installed under this TO. However, for the purposes of this proposal no such equipment and installation costs have been allotted for. Any additional instrumentation to be installed will need to come at the direction of the government. *Paragraph 4:* Work stations will be installed under WERC TO0027, not this TO.

5. **Exhibit A:** In the CDRLs deliverable table, both the *OSHA Report* and the *Operation and Maintenance Manual* are listed as CDRL A001. It has been assumed that the O&M manual should be CDRL A002 throughout this proposal.

5.2 GENERAL ASSUMPTIONS

1. The CSSA SCADA project is being divided into 3 separate task orders (WERC TO0011 and TO0027 and 4PAE TO0190). WERC TO0011 is already awarded and in progress for the design and construction of the backbone of the CSSA SCADA system. The WERC TO0027 has not been awarded to date, but will be a firm-fixed price (FFP) contract to perform the construction of an expanded SCADA system. This task order (TO0190) provides the work planning and design phase of the TO0027 construction and implementation. This TO will amend the O&M and training programs already funded

under TO0011. The final task of this TO includes the manpower and software necessary to successfully link the SCADA system with the CSSA Maximo system. The link will allow the SCADA instrumentation to notify the Maximo system when alarms have triggered and automate the generation of work orders related to the SCADA system and the utilities it monitors.

2. Period of Performance (POP) for this TO is 12 months (7 months in FY 2006 and 5 months in 2007). All labor rates are based upon FY2006 and FY2007 AFCEE 4PAE contract pricing. The TO is implicitly tied to the completion of TOs 0011 and 0027. Should the schedules for either of those TOs be altered, it will impact the POP of this TO.

3. Airline travel is assumed for the design engineer between Atlanta, GA and San Antonio, TX. Airfare pricing was based upon the lowest roundtrip coach fare on the preferred carriers used by the Parsons Travel Web. A $15 travel fee is associated with each airfare reservation. Car rentals were based on Parsons corporate rates with Hertz for a mid-sized sedan. Lodging and meal rates are for San Antonio, TX as listed in FY2006 per diem rates on the Department of Defense website *https://secureapp2.hqda.pentagon.mil/perdiem/perdiemrates.html*. FY2006 mileage rates were derived from the IRS website, *www.irs.gov/newsroom/article/0,,id=151226,00.html*, and average fuel costs originated from *www.sanantoniogasprices.com*. Postage rates were quoted from the US Postal Service website *www.postcalc.usps.gov*, while express package shipping was obtained from Federal Express corporate rates exclusive to Parsons. Pricing for office supplies were derived from *www.officemax.com*.

5.3 WBS 01000 – TASK ORDER MANAGEMENT

1. Parsons' invoices will be issued under this WBS.

2. Estimated hours for task order management are based on previous experience in managing AFCEE delivery orders. Under the Project Management task, the Project Manager is responsible for preparing a project management plan (PMP) for executing this TO, preparing and maintaining a project schedule, coordinating project staff and tasks, acting as POC for the task order, ensuring project files are complete, ensuring that task order requirements are met, reviewing and approving invoices, and ensuring that task order execution is satisfactory to the client.

3. The existing Health and Safety Plan (HSP) prepared under TO0011 will be amended with specifics inherent to this TO and TO0027, and will be re-issued as a HSP addendum for TO0011 (CDRL A004).

4. A Gantt chart will be prepared using Microsoft Project for the course of the task order. The Gantt chart will summarize activities by WBS (CDRL B002).

5. A Contract/Subcontract Administrator will provide assistance in the TO Management task for subcontract and government property management required over the course of the task order.

6. Status reports (CPSMRs, CDRL B004) are estimated to be 10 pages in length, and will be prepared on a monthly basis.

7. Parsons internal budget and schedule tracking will be performed as part of this WBS.

8. Management includes Program and Project Management time, progress reporting and procurement.

9. Procurement based on subcontracts for equipment purchasing and a software integration subcontractor to perform the actual installations.

5.4 WBS 02000 –MEETINGS

1. One kick-off meeting will be attended by the project manager, task manager, and senior computer programmer.

2. One TIM will be used for the review of the O&M manual with respect to the additional SCADA equipment to be installed under TO0027. A second TIM will be used to scope the requirements of the SCADA-Maximo integration and define which instruments, alarm setpoints, and work order priorities will be programmed into the server integrations. Attendees include the project manager, task manager, project design engineer, and computer programmer. Time allotted includes hours for each attendee to prepare presentation materials, travel, and attend meeting, and additional hours to prepare and distribute meeting minutes.

5.5 WBS 03000 – WORK PLANS AND DESIGN

1. Parsons will produce Draft Work Plan Addenda for inclusion into the WERC TO0011 work plans that have already been prepared. These existing project plans include an Implementation Work Plan (IWP) and Quality Construction Plan (QCP). The revised plans will be issued to CSSA and AFCEE with both contract/task orders referenced in the deliverable. Parsons assumes that one round of government comments will be incorporated into each of these deliverables.

2. The expanded SCADA engineering drawings prepared under this TO are specific to those construction activities to be performed under TO0027. No installations of SCADA equipment or construction activities are accounted for in this proposal.

3. The existing IWP prepared under TO0011 will be amended with requirements inherent to this TO, and will be re-issued as the Project Activities Work Plan (PAWP – CDRL A007). The task order to which relevant activities pertain will be called out in the revised PAWP.

4. The existing CQP prepared under TO0011 will be amended with requirements inherent to this TO, and will be re-issued as the Quality Program Plan (QPP – CDRL A006) and will serve as guidance for the oversight of the installation and integration of SCADA equipment.

5. A brief site survey will be performed to audit those locations scheduled for additional SCADA construction under TO0027.

6. The PAWP will consist of a master location map depicting the sites of SCADA components to be installed. Additionally, each monitoring node will have a short narrative that describes the work, the equipment to be installed, and a detailed schematic of the site depicting equipment and construction locations.

7. Includes preparation of engineering specifications for construction contractor bid and presentation of requirements to bidders at pre-bid site visit at CSSA.

5.6 WBS 04000 – MAXIMO INTEGRATION AND PROGRAMMING

1. During the course of the project, Parsons may opt to self-perform the actual programming and database linking in lieu of subcontracting that portion of the work to an outside vendor. However, for the purpose of this proposal Parsons has included vendor costs for the basis of estimate.

2. Parsons was able to only determine one software vendor that has specifically developed software that integrates separate SCADA systems with the Maximo software. The developers of Maximo (MRO Software) were contacted to recommend vendors of this type. They referred us to their MRO Software's Complementary Solutions Provider (CSP) program, which is comprised of industry and product solution partners and technology providers that complete, optimize and extend MRO solutions http://www.mro.com/corporate/mroalliances/csp.php. From this, Matrikon, Inc. was referred to as providing MRO add-on software for linking Maximo to external OPC servers, such as the CSSA SCADA system. Matrikon's product, CBM-MAX, is based upon the design architecture and system functionality inherent to the Maximo system. Additionally, Matrikon is an MRO-certified consultant for their Maximo software. With government concurrence that the CBM-MAX software is most appropriate for their planned uses, Parsons will procure the Matrikon software and related technical support to provide services to link the SCADA and Maximo systems at CSSA.

3. As part of this integration, it will be required that all of SCADA assets and instrumentation be entered/incorporated to the CSSA Maximo system prior to any linking of the two systems. Currently, Construction Oversight Inc. (COI) provides contract services to CSSA for maintaining the CSSA Maximo system. It assumed that Parsons will provide a database of all the SCADA components and their tag attributes to CSSA and COI for incorporation into Maximo in accordance with their policy and procedures. Parsons will provide the software and manpower to link the two systems once others have loaded the SCADA attributes into Maximo system.

4. Parsons assumes that a TIM will be necessitated to scope and define the requirements and expectations of the SCADA-Maximo link. This will include members from Parsons, CSSA, and COI to define procedures and establish limit violations, prioritization, and work order patterns.

5. Additional technical support by the electrical design engineer and computer programmer have been assumed under this WBS to allow for refinement, enhancement, or functionality as CSSA determines those requirements during the period of performance of this TO.

5.7 WBS 05000 – O&M MANUAL

1. Under this TO, the additional equipment to be installed under TO0027 will be amended to the O&M manual which will be prepared under TO0011.

2. O&M updates with respect to new instrumentation and the expanded SCADA system will be overseen by the electrical design engineer. Software and programming enhancements will be documented by the senior computer programmer.

3. The software documentation included with the third-party software used to link the SCADA and Maximo systems will be included in the O&M manual update.

4. The software purchase from Mitrikon included with this proposal includes a 1-year warranty and technical support package. An additional year of warranty and technical support has been included in this proposal to provide two-year comprehensive coverage. Mitrikon's standard warranty and technical support package is 20 percent of the software cost on an annual basis. This warranty includes product and version upgrades as they are offered.

5.8 WBS 06000 – TRAINING PROGRAM

1. The software program linking the SCADA and Maximo systems will be transparent and inaccessible to the general Maximo user. The need for access resides solely for a select few of Parsons, CSSA, and CSSA contractors (e.g., COI) that will need to access this programming. Therefore, it assumed that programming and specific training would be reserved for six authorized system administrators collectively comprised by Parsons, CSSA, and COI personnel. Five days of training for Parsons, CSSA, and the CSSA Maximo subcontractor (2 persons each) have been assumed. This training will be performed by the software vendor in the CSSA conference room. This training will occur separately from the general SCADA training.

2. Under TO0011, Parsons and/or their subcontractors will conduct on-site training for SCADA instrumentation and workstations. This TO will amend that training for an additional day to familiarize users with the new instrumentation and workstations installed under TO0027. Manhours to update the training manuals and perform the training classes have been included within this proposal. The training program is assumed to take place at the CSSA conference room.

MATRIKON, INC.
TECHNICAL APPROACH AND COST PROPOSAL

Parsons
CBM-Max Integration

Reference #:
5-PAR-JMO-0-v1

Parsons—CBM-Max Integration

Prepared By:

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Submitted On:

February 17, 2006
Valid for 30 days from the above submission date.

Revision History:

Date	Version	Description	Author
23Nov2005	1.0	Original Bid	JO

Terminology

Term	Description
CBM	Condition-Based Maintenance
CBM-Max	Matrikon CBM-Max solution
DCS	Distributed Control System
EAM	Enterprise Asset Management
FDAH	Parsons
GUI	Graphical User Interface
Maximo™	MRO's EAM System
MBO	Maximo™ Business Objects
MRO	MRO Software Inc.
MTK	Matrikon Inc.
PLC	Programmable Logic Controller
PM	Preventative Maintenance

Table of Contents

1 Executive Summary

Parsons has embarked on a deployment of MAXIMO, and Scada across the Borene, TX Government Facility. With that implementation, the opportunity arises to standardize on a Condition Based Maintenance (CBM) system initiative that integrates fully with the MAXIMO system that can be applied to the government facility which is located in Boerne, TX

Matrikon has been providing CMMS / EAM solutions to our clients for over 11 years and is a leading implementer and integrator of Maximo software. With over 20 Maximo Certified Consultants, we implement complete solutions involving many configurations of software, operating systems and database platforms for the process, manufacturing, mining, utilities and forestry sectors.

Matrikon is a **MRO Software's Complementary Solutions Provider ((CSP) program**), (http://www.mro.com/corporate/mroalliances/csp.php) which is comprised of industry and product solution partners, and technology providers that complete, optimize and/or extend Maximo solutions. In addition to being a Maximo Certified Consultant.

As such Matrikon developed a value-added solution that uses standard MRO integration tools, Maximo Business Objects (MBO), to interface with MAXIMO. Thus giving seamless integration with MAXIMO. CBM-Max is built upon Matrikon's ProcessSuite, and OPC framework: a robust, mature product that supports open data collection and visualization.

We are a recognized world leader in the development of real-time, Alarm and Events, Historical interfaces, and and process control applications. We employ more than 500 people, over 75 of which are application specialists dedicated to full-time software projects. In each of the past 3 years, we have completed/developed over 100 interface products. Around 80% of the products were developed directly for hardware vendors. The rest were for systems integrators and end-users.

Boasting more than 30,000 users and over 100,000 installations around the world, Matrikon OPC provides connectivity to every major control system and application on the market. These products and solutions are the culmination of Matrikon's experience since 1988, in the design and implementation of device-specific communication drivers. Our vendor interoperability and OPC compliance are guaranteed, which helps make us the global leader in industrial connectivity.

At Matrikon, we consider a project complete only when our clients see value and their vision realized, not only when the legal contract requirements are met.

2 Proposed Solution

The purpose of this proposal is to define the objectives, scope and costs for the CBM-Max initiative at Government Facility using a standard project implementation approach.

2.1 Business Objective

The business objective is to apply Condition Based Maintenance (CBM) in the Facility as a maintenance strategy for all types of assets: fixed, rotating, mobile or otherwise. A full description of CBM in Parsons falls outside of the scope of this document, but for the purpose of this document, the benefits are identified as:

- Reduced cost in labor and materials for inspections, data collection and entry by reducing the number of inspections
- Reduced cost of labour and materials for Preventative Maintenance (PMs) by reducing unnecessary PMs
- Reducing major failure maintenance costs by measuring and acting on conditions that will cause equipment to fail.
- Increase asset life by proactively monitoring and acting on degrading process conditions that adversely affect an asset's health.

2.2 Scope

Matrikon proposes to integrate CBM-Max for the Borene, TX Government Facility. CBM-Max is a Matrikon value-added solution that comprises both software and services components. The software component is based on Matrikon's ProcessSuite framework and MRO Maximo Business Objects. The software facilitates both limit and rule-based algorithms to be applied to real-time and historical data. CBM-Max uses this information to make fact-based business decisions about maintenance. This includes initiating work-orders in Maximo, updating meter readings automatically, etc.

2.2.1 Project Approach

Figure 1 depicts a high-level architecture diagram of the proposed CBM-Max integration at Borene, TX. This architecture will need to be re-assessed when the final Scada System is chosen. Starting at the lower level of the diagram, an asset's condition property measurement is acquired by a sensor. This measurement typically takes place at the Scada RTU level. An asset's condition property can be any type of continuous measurement, such as temperature, pressure, flow rate, vibration displacement, etc., or discontinuous measurement, such as runtime, action count, start-stop sequence, mileage, etc.

After the condition property has been acquired at the Scada/RTU level, it is typically collected and archived over time by a process data historian. Borene, TX

uses real-time OPC data servers. Although not required, it is recommended that CBM-Max data be collected from historical sources.

Historical data provides opportunities to apply averages, noise filters, etc. to the raw sensor data that typically improves the accuracy of fault detection.

For the scope of the project, it is assumed that each applicable asset's property is already accessible from its respective OPC data source.

Matrikon will install and configure the CBM-Max software within the Borene, TX Government Facility system environment on a dedicated server. The CBM-Max server will establish a connection to the various OPC servers and collect the real-time and historical data.

The CBM-Max configuration is defined by rules called Potential-Failure (P-F) Signatures, which have a one-to-one relationship to MAXIMO work orders, but can use several different real-time data points. The CBM-Max server will continuously monitor these P-F Signatures and when a potential failure condition is detected, CBM-Max will issue a work order in MAXIMO. CBM-Max will not issue a new work order of the same type for the same equipment, if an existing work order is still outstanding from previous fault detection.

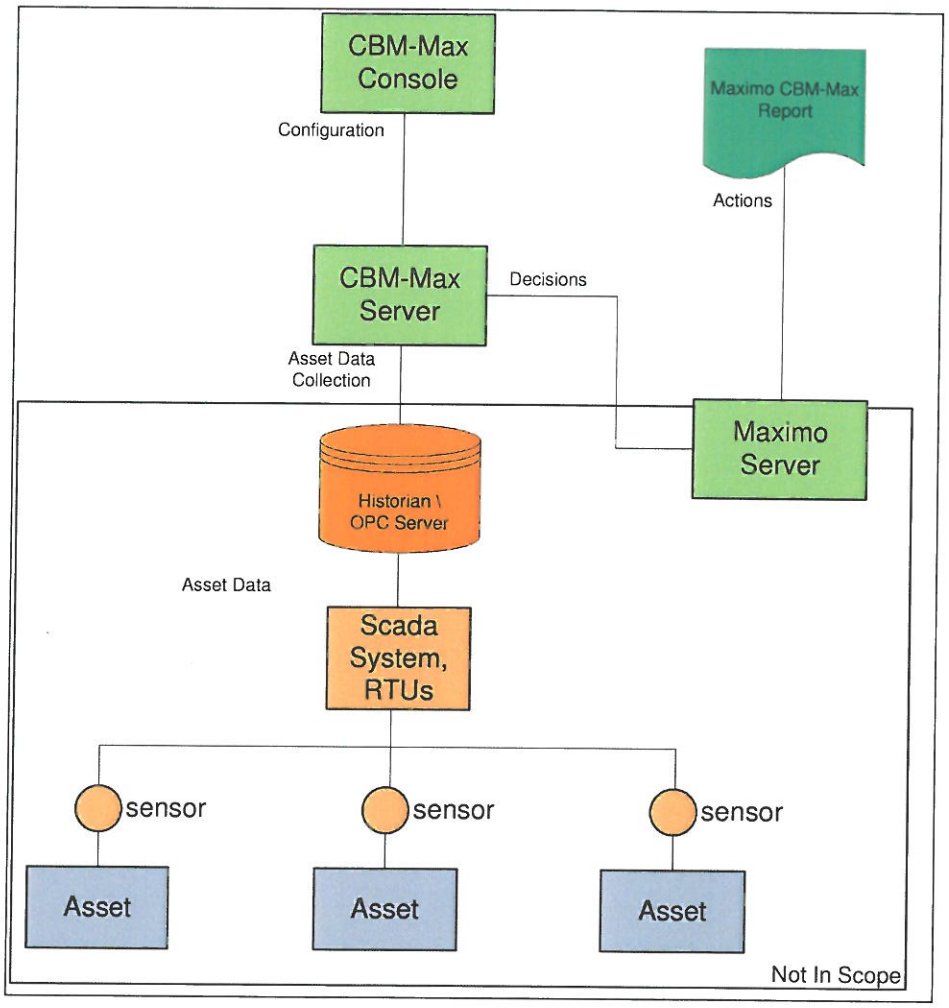

Figure 1: High-Level Architecture for CBM-Max Integration

CBM-Max is configured using the Graphical User Interface (GUI) console. Using the GUI, the P-F Signatures are defined and deployed to the CBM-Max server.

Typically, the type of work performed on P-F Signature work-orders will be inspection work, unscheduled preventive maintenance and conditional repairs. All work management and tracking following the initial work-order generation by CBM-Max will be handled with standard MAXIMO technology and FDAH business processes and rules.

For the CBM-Max project, Matrikon will create a special MAXIMO report that will generate an overview of all work that was initiated by CBM-Max. This report will provide metrics on the success criteria.

2.2.2 Project Scope

As part of the project, five-hundred (200+) monitor-able pieces of equipment (assets) will be identified in conjunction with FDAH's reliability engineering team.

Facility will use MAXIMO for work management for those assets in terms of inspection and follow-up work in addition to normal work activities for those assets

Matrikon will configure, implement and commission the CBM-Max software on a dedicated CBM-Max server machine in The Facility's system environment, which will connect to the MAXIMO server.

The following activities are within scope of this project:

- Install CBM-Max software components
- Configure connections to 1 Maximo server and 1 OPC data sources
- Configure Maximo for CBM-Max functionality (user, report, etc)
- Configure (Number to be determined and defined at a later date) limit\rule signatures in CBM-Max based on Borene, TX site requirements
- Configure meter readings for 200+ meter-based assets
- Correlate signatures and meters to pre-defined Maximo records
- Create 1 CBM-Max metric report in Maximo to monitor CBM activity. This report can be emailed to the Parson and Facility reliability engineers.

2.3 Schedule & Organizational Chart

The execution plan is dependent upon the successful commissioning of Goverments Facility's Maximo & Scada system.

Because of the nature of this project, it is imperative to have a Parsons, and The Facility reliability engineer involved in the project to ensure the solution is monitoring appropriate assets and generating clear and accurate work-orders. The tentative work breakdown and schedule is shown in Figure 2.

	Task Name	Duration	Start	Finish
1	**- CBM-Max Integration**	**16 days**	**Wed 2/1/06**	**Wed 2/22/06**
2	**- Initiate Phase**	**2 days**	**Wed 2/1/06**	**Thu 2/2/06**
3	Exploration and Functional Requirem	2 days	Wed 2/1/06	Thu 2/2/06
4	**- Design Phase**	**4 days**	**Fri 2/3/06**	**Wed 2/8/06**
5	Design Document	3 days	Fri 2/3/06	Tue 2/7/06
6	Design Assessment\Rationalization	1 day	Wed 2/8/06	Wed 2/8/06
7	**- Build Phase**	**4 days**	**Thu 2/9/06**	**Tue 2/14/06**
8	Configuration Pre-build	3 days	Thu 2/9/06	Mon 2/13/06
9	Configuration Testing	1 day	Tue 2/14/06	Tue 2/14/06
10	**- Execute Phase**	**4 days**	**Wed 2/15/06**	**Mon 2/20/06**
11	Implementation	3 days	Wed 2/15/06	Fri 2/17/06
12	End-to-End Testing	1 day	Mon 2/20/06	Mon 2/20/06
13	**- Operate Phase**	**2 days**	**Mon 2/20/06**	**Wed 2/22/06**
14	System Hand-over	0 days	Mon 2/20/06	Mon 2/20/06
15	As-built documentation	2 days	Tue 2/21/06	Wed 2/22/06
16	Project Closeout	0.5 days	Thu 2/23/06	Thu 2/23/06

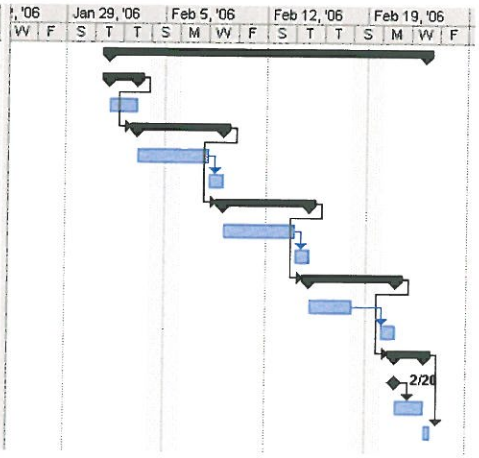

Figure 2 WBS and Schedule Gantt chart

Figure 3 depicts the organizational chart of the project, indicating both Matrikon and Parsons/Government Facility resources.

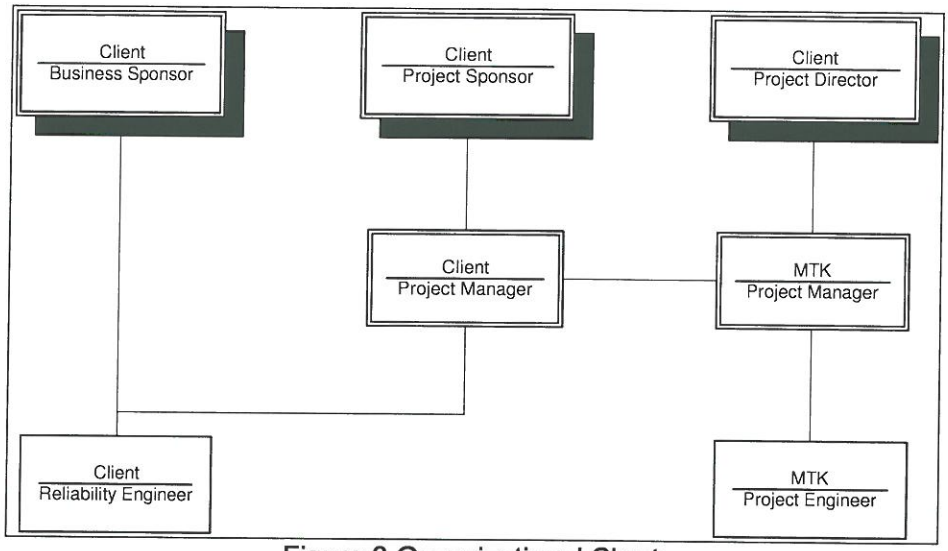

Figure 3 Organizational Chart

2.4 Roles and Responsibilities

2.4.1 Parson's and Facility Roles and Responsibilities

For this project to be successful, Parsons will need to identify a Business Sponsor for the project and then assign a Project Manager for the project. Because this is a condition based maintenance initiative, Matrikon expects to work in close collaboration with a Parsons reliability engineer (or equivalent) from the business unit where the solution is executed.

- It will be the responsibility of the Government Facility Reliability Engineer to provide input on and assist with asset monitoring requirements to support development of P-F signatures, etc. that will best serve Borene, TX Facility requirements.

2.4.2 MTK Roles and Responsibilities

Matrikon will identify a project director and assign a dedicated Project Manager and Project Engineer. Matrikon will lead the project and any required project meetings. Matrikon will implement the system and remediate any system problems with the CBM-Max solution during the project lifecycle and any subsequent warranty period.

2.5 Risk Assessment

In any project, it is imperative that the expected outcome of the implemented solution is clearly defined before the project enters the "operational" phase. For the CBM-Max project, the expected outcome and corresponding performance metrics are identified in the design phase and will be documented in the design document. It would be a significant risk to the project if new or different expectations are raised after the design document is accepted by Parsons, and the Government Facility.

From a technical point-of-view, a risk to the project would be if a required measurement point does not yet exist within the OPC Server or at the Scada/RTU layer. This scenario would require additional resources and cost to provide instrumentation and monitoring of the desired asset in CBM-Max.

2.6 Deliverables

The deliverables for the CBM-Max solution include:

- ↳ CBM-Max software, licensed for the location. First annual maintenance is included.
- ↳ CBM-Max Integration Design document
- ↳ CBM-Max Objective Validation & Testing document
- ↳ Commissioned CBM-Max system, monitoring 200 assets
- ↳ CBM-Max Integration As-Built document

2.7 Commercial Considerations

2.7.1 Software

Matrikon will be offering the CBM-Max software at a license fee of $15,000 USD. This license will cover the following:

Item	Unit Cost	Units	Extended Price	Notes
CBM-Max Server & Universal Connection Framework	15,000.00	1	15,000.00	Includes (1) CBM-Max client and (1) Universal Connector driver
CBM-Max Client [5 concurrent users]	5,000.00	0	0.00	(included)
Services/Implementation Time & Materials				
Design & Functional Specification	$1500 US/day	14 Days	21,000 US	
On-site Implementation/ System Integrated Testing/Informal Training	$1500 US/day	14 Days	21,000 US	
Total			**$57,000 US**	
Optional-Formal User/Administrator Training	$1,500 US	5 Days	$7,500 US	
Total			**64,500 US**	

The first year of software annual maintenance and support (MSS) is included. Each subsequent year of MSS is $3,000 USD.

2.7.2 Services

Matrikon proposes a Time and Materials (TM) arrangement for the services required for the integration project. Based on the proposed schedule, the estimated total effort would be approximately 4 weeks, and the estimated total cost of services is $42,000 USD. Matrikon will invoice for incurred services at the end of every month.

This services estimate makes the following assumptions about the number and type of configurations required as well as number of assets to be monitored.

- Up to 200 Assets may be monitored
- Each asset may have 3 limit and\or 3 rule based signatures
- Up to 250 meter readings will be automated

Following clarification of these assumptions, the service requirements and corresponding estimates may be revised.

2.8 Client Responsibilities

- Designation of a Parsons project manager.
- Site-specific information as requested.
- Access to existing procedures and standards.
- Access to Parsons facilities (where required).
- Availability of Parsons personnel for information gathering (interviews):
  - Technical input will be required from project personnel with a detailed knowledge of the process design for the project.

Parsons responsibilities will be to:

- Provide project sponsorship—assume "stake-holder" position during project execution.
- Identify and schedule meeting participants from Parsons personnel
- Provide hardware and third-party software required for the project.
- Review and sign-off design documents within five (5) working days