Memorandum
MONTEREY REGIONAL WASTE MANAGEMENT DISTRICT

Reviewed by: _____ Date: 4/14/17
General Manager

DATE: April 14, 2017

TO: General Manager

FROM: Director of Operations

SUBJECT: Material Recovery Facility Improvement Project Operational Acceptance and System Training

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RECOMMENDATION: That the Board of Directors authorize a professional services agreement with Sloan Vazquez McAfee, LLC., for (1) the Commissioning and Performance Testing for the Materials Recovery Facility (MRF) to certify the successful installation and operational performance in the amount not to exceed $45,000; and (2) to provide MRF Production and Management Systems Training Services in the amount of $77,000; for a combined total of a not to exceed amount of $122,000. Funding for these services are split between the current fiscal year (FY) budget and the FY 2017/18 budget.

BACKGROUND

At the May 2015 Board meeting, staff outlined a MRF Improvement Project Report and the Board approved the selection and purchase of equipment from Bulk Handling Systems (BHS) in the amount of $12,894,544 for the processing of various material streams to meet the diversion goals of the MRWMD and its member communities.

Once the final equipment drawings for the new MRF equipment were received and approved in December 2015, the JRMA design team completed design of the improvements needed to accept and install the new equipment. The plans include the necessary site improvements to accommodate receiving 80,000 tons of waste from commercial collection trucks at the MRF, 30,000 to 70,000 tons of existing construction and demolition (C&D) and self-haul, as well as clean recycled materials collected from various cities.

During the RFP development and selection process, the District and JRMA contracted with Sloan Vasquez McAfee LLC to detail the Performance Testing and Commissioning process. Sloan Vasquez McAfee LLC is a long-established organization that has been providing MRF feasibility, procurement, commissioning, start up and operational assessments to private and public sector operators.

DISCUSSION

As part of the contractual obligations of the equipment supply agreements, as well as for the authentication procedures of the bonding requirements, the District is responsible to engage a third-party consultant to verify the performance of ("Performance Testing") the individual pieces of the equipment as well as the production of the system as a whole to accept the system ("Commissioning") and make final payments. This process includes a four-phased evaluation to determine that all the individual requirements are met. Sloan Vasquez McAfee LLC performs this acceptance testing protocol review for all the Republic Industries MRFs across the US, as well as a number of private MRF operators in the US and internationally. ng-. Due to their familiarity with the project and their vast experience, staff is confident in their capabilities and expertise to verify and certify whether the BHS system is compliant with the contractual obligations.

Additionally, staff also intends to utilize Sloan Vasquez McAfee LLC's experience in MRF operational trainings and start-ups to work with the District's management team to develop our Operations and Safety practices and procedures, to assist in the systems to maximize the operational "up-time" of the system in order to exceed a minimum 90% threshold within 6 months of facility start-up, to establish material quality measures and standards that correlate to our materials marketing agreements, and assist in the transformation to a production-based operational system with measures and metrics that will allow the District to best manage this investment.

The District will be operating one of only the state-or-the-art C&D, MSW, and Single-stream MRFs in North America and has made a significant investment to meet the diversion goals set forth by the State of California. Staff feels that these investments in both our systems and our staff, which represent less than 1% of the capital investment made in the equipment will both allow the District to meet its contractual and financial obligations, as well as to facilitate the development of a state-of-the-art operations team as well. The District and its staff are going to be operating a significantly more complex mechanical system then it has in the past that will require comprehensive operational controls, safety procedures, preventative and active maintenance programs, staffing schedules, and materials marketing requirements that are dramatically different than has been required in the past. Sloan Vasquez McAfee LLC will begin working with the management team during the installation of equipment to facilitate their understanding of how the integrated system functions, will develop training programs for operational staff to prepare them for the changing nature and expectations of the work, and to assist in create measures of success that are clearly articulated through the organization. A scope of work is also attached to this memo.

STRATEGIC PLAN

Finance *– Develop a sustainable revenue structure that provides funding for programs and services we provide to the community.*
Environment *– Construct the MRF Improvement Project to increase diversion.*
Community *– Ensure the effectiveness of the District's programs, services, and strategic partnerships.*
Innovation *– Develop a comprehensive and innovative plan to maximize use of technology.*

CONCLUSION

This MRF Improvement Project represents the strategic piece of the District physical infrastructure that enables the member jurisdictions to continue to maintain compliance with state laws, regulations, and guidelines. Staff therefore recommends the Board:

- Authorize the selection of Sloan Vasquez McAfee LLC to provide professional services to the District and to approve funds in the amount of up to $122,000 necessary to continue conduct the MRF Equipment Commissioning and Performance Testing to meet its contractual and financing obligations, and for the MRF Production and Management Systems Training to meet the District's vision for a unified operation and maintaining the reputation expected of MRWMD.

Tim Brownell

Proposal to Perform MRF Testing
&
MRF Production Systems Training

MRF Commissioning and Performance Testing

Development, Training and Implementation of Lean-Centric Management and Production Systems

Presented to:

Monterey Regional Waste Management District
Marina, California

Presented by:

SloanVAZQUEZMcAFEE
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March 8, 2017

March 8, 2017

Tim Flanagan
General Manager
Monterey Regional Waste Management District
14201 Del Monte Boulevard
Marina, CA

Re: Proposal to Provide MRF System Testing and Training Services

Dear Mr. Flanagan:

In 2014-15, Sloan Vazquez McAfee's (SVM) assisted JR Miller and Associates in the development of the Monterey Regional Waste Management District's (MRWMD or the District) request for Statements of Qualification (SOQ) and Request for Proposals (RFP) for the design, manufacture, and installation of a new recycling processing system that will meet the MRWMD's long-term recycling processing needs. An important aspect of SVM's contribution to the MRF system procurement was the development of the MRF system performance requirements, mechanical commissioning protocol, and the metrics for measuring processing system performance and acceptance. SVM performance and acceptance protocols were incorporated into the District's Purchase Agreement with Bulk Handling Systems. Then, in 2016, the District contracted with SVM to manage the timely, economic removal of the old recycling processing system.

Now, SVM proposes to perform MRF Commissioning and Performance Testing, and MRF Management and MRF Management Training for the new Waste Processing Systems in the MRWMD's Marina, CA facility, as follows:

A. MRF COMMISSIONING AND PERFORMANCE TESTING

SVM's MRF operations experience is derived from years of direct, bottom-line responsibility for managing municipal solid waste and recycling operations and facilities. We offer our extensive knowledge of industry best practices and demonstrated results in all aspects of solid waste management and materials processing. The following is a description of the firm's approach to material processing system commissioning and performance testing:

SVM undertakes a four-phase approach to system commissioning, including a physical equipment inspection, a dry-run commissioning of the system without material input, wet-commissioning with material input, and performance and acceptance testing. The following is a condensed description of the four phases:

A.1 Phase One: Physical Equipment Inspection (3-person crew, 4-days)

Phase one includes a physical inspection of each piece of equipment that is listed on the Purchase Agreement to confirm inclusion of all purchased equipment, its proper installation and functionality.

Step One: Equipment verification and proper installation confirmation

Equipment includes:

1. Conveyors
   a. Beds
   b. Pulleys
   c. Rollers
   d. Chain assemblies
   e. Rails
2. Screens
3. Wind Sifters
4. Optical Sorting Units
5. Magnets
6. Eddy Current Separators
7. Motor Control System Function

Step Two: Confirm component functionality by independently testing each component

A.2 Phase Two: Dry-Run Commissioning (3-person crew, 2-days)

During this phase of the process, the system is started in "Auto" mode and the plant is continuously operated, without the input of material, for a specified number of hours, which is typically between four-to-seven hours without interruption.

A.3 Phase Three: Wet Commissioning (3-person crew, 3 to 5 days)

During this final phase of commissioning, the system is operated with material. Unlike performance testing, which is described below, wet commissioning is conducted without regard for hourly production or product quality. This process is used to confirm system availability (up-time), which is usually six-to-seven hours per shift for between 3-to-5 consecutive shifts.

A.4 Phase Four: Processing System Performance Testing (5-person crew, 5-days)

The purpose of this testing is to measure the performance of the system, including hourly production rates as well as the quality of the resulting product. This testing is usually performed four-to-six weeks after the completion of Phase Three Commissioning, and typically requires one-to-two weeks for completion. The performance testing process includes the following analysis:

- Test for system availability (e.g. 90% of scheduled shift time)
- Test for hourly production (throughput in tons per hour)
- Test for product quality (e.g. percent outthrows, percent contaminants, etc.)
- Test for targeted commodities that remain in process residue
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B. MRF MANAGEMENT AND MANAGEMENT TRAINING

SVM's MRF management objective is the creation of an environment where personnel work cross-functionally and key managers and supervisors are equipped with the technical knowledge and leadership skills necessary to gain respect among peers and voluntarily accept accountability for the achievement of operational goals.

A primary task is the implementation of an integrated production system to manage the business. Standards, measurements, tracking, feedback loops and well-defined accountability (ownership) will be created. The *process* of ownership is central to success. Collaboration in a structure with accountability dispersed throughout the operation is critical to the developing and sustaining efficient operations.

The SVM production system is Lean-centric and has five primary supporting components:

1. Standard workstations and related standard work,
2. Standard Leader work,
3. Production communication,
4. Team development/training (three-deep bench strength), and
5. Continuous improvement.

The training weaves these five components into an integrated production system.

Objectives

Results to be achieved include the following:

- Develop management skills essential to achieving the full production capabilities of the MRF system.
- Clearly define staff accountability at the individual job level.
- Clearly define flow of communication to ensure that personnel operate within the "matrix" appropriately.
- Develop skills necessary to effectively identify and mitigate obstacles presented by processes and procedures.

Methodology

Approaches to achieve the objectives include the following:

- On-site, one-on-one training for managers, supervisors, machinery operators, mechanics, and general labor in the skills and behaviors required by the management/operation structure.
- On-site email correspondence and telephonic support for MRF operations management.
- Individual and group observation and feedback, with recommendations on how to identify current level of productivity and improve the process.
- Develop all training processes, protocols, written communications and meetings to maximize ownership and accountability and accomplish production goals.
- Create direct accountability by monitoring production standards (measures of success) and implementing an incentive/disincentive reward system.

Measure of Success

Success is achieved when the new MRF systems are not merely operating, but are operating the way they were designed and manufactured to operate, and meeting or exceeding the designed rates of production and product quality.

Deliverables

SVM will perform the MRF system commissioning and performance testing, as described, and prepare a report describing the results.

SVM will apply management systems and training, as follow:

B.1 Implementation of Best Management Practices (Lean-centric) for MRF operations (1-person rotation, 40-days)

- Production (plant throughput) requirements – constantly measured
- Output (commodity quality) requirements – constantly characterized
- Staffing Plan – Maximize Per Employee Hourly Recovery
- Sorter labor productivity requirement – constantly measured
- Equipment maintenance – Scheduled and logged with accountability
- Safety, Safety, Safety – Mechanical systems and personal protection and training

B.2 Mechanical adjustment, or modification, as needed (1-person rotation, 5-days)

- Implementation of best-use of equipment
  - Operations plan to accomplish maximum hourly production and product quality
  - Preventative maintenance plan to assure maximum MRF up-time.

B.3 Maximizing recovery from mixed waste (1-person rotation, 5-days)

- Maximize Fiber Recovery
  - Evaluation of MRF residue to establish volume and value of unrecovered fiber
- Targeted Container Recovery
  - Focus upon high-value plastics and metals
  - Mixed-plastic recovery should be secondary, if-at-all.
- Increase "fines" Production
  - Improve quality/marketability of "fines"

B.4 Development of MRF Operations Manual (1-person rotation, 20-days)

- Description of MRF technology and definition of expected outputs
- Establish MRF performance metrics, e.g.
  - Plant up-time (system availability on-demand)
  - Preventative maintenance costs
  - Housekeeping costs
  - Total System operating cost
    - Per-ton, per-hour
  - Commodity quality
  - Commodity production
  - Commodity sales revenue
  - Staffing turnover
- Staffing Plan
  - Job Descriptions
    - Supervision

- Equipment operators
- Sorters
- Administration

- Safety Plan
  - Mechanical system safety
  - Illness and Injury Prevention Plan
    - Personal protective equipment
    - Personnel safety training
    - Lock-out/Tag-out, lifting, traffic, equipment familiarity
- Maintenance Plan
  - Parts inventory
  - Preventative maintenance program
  - Wear part replacement schedule
  - Emergency repair plan

Terms and Conditions

To best implement the proposed system testing and management program, it is important that SVM be accorded operational control of the MRF. If we are to be successful, we must be able to make system adjustments and staffing placement decisions, in-the-moment, and on a utilitarian basis.

We propose a project schedule generally applied as follows:

Project	Schedule	Activity	Fee
A		**MRF System Commissioning & Performance Testing**	
A.1	4 Days	Phase 1 – Physical Equipment Commissioning	$10,000
A.2	2 Days	Phase 2 – Dry-Run System Commissioning	$5,000
A.3	3 to 5 Days	Phase 3 – Wet System Commissioning	$7,500-12,500
A.4	5 Days	Phase 4 – Processing System Performance Testing	$17,500
	14 to 16 Days	**Total**	**$40,000-$45,000**
B		**Development, Training and Implementation of Lean-Centric Management and Production Systems**	
B.1	30 Days	Implementation of Best Mgmt. Practices for MRF Ops.	$41,250
B.2	3 Days	Mechanical adjustment, or modification, as needed	$4,125
B.3	3 Days	Maximizing recovery from mixed waste & C&D material	$4,125
B.4	20 Days	Development of MRF Operations Manual	$27,500
	66 Days	**Total**	**$77,000**

Joe Sloan will lead the project, with assistance from **Tommy Sloan, Enrique Vazquez, Charissa McAfee, Cliff Feldman** and other SVM associates, including **Rick Kattar**, as agreed by owner/client. SVM personnel will be continuously engaged in the proposed scope of work for the entire term of the project, supported intermittently by additional staff as required for commodity composition sampling.

Fee Proposal

SVM proposes a professional service fee of $40,000 - $45,000 to complete the described **A: MRF System Commissioning and Performance Testing**.

SVM proposes a professional service fee of $77,000 to complete the described **B: Development, Training and Implementation of Lean-Centric Management and Production Systems**.

Thank you for the opportunity to submit our proposal. Sloan Vazquez McAfee hopes to have the opportunity to provide management services for this important project.

Joe Sloan, Principal
Sloan Vazquez McAfee