

**CITY OF MISSOULA - WASTEWATER TREATMENT PLANT  
EKO COMPOST  
JOINT SITE ODOR CHARACTERIZATION STUDY**

**ATTACHMENT 2 - SCOPE OF SERVICES**

<b>TASKS</b>	
100	Project Management
200	Source Identification and Evaluation
300	Ambient Air Evaluation
400	Alternative Analysis and Corrective Action Plan
500	Public Outreach and Presentations

**Background.** On December 1, 2008, the City of Missoula received a Notice of Violation (Notice) and Order to Take Corrective Action (Order) from the Missoula City-County Health Department (Health Department) regarding odors from EKO Compost and the City’s wastewater treatment plant. The Notice provides documented odor complaints dating back to April 2006 and requires that the City, in cooperation with EKO Compost complete an odor characterization study and submit a plan for corrective action before December 1, 2009. It also requires the City to establish regular meetings with EKO Compost and work cooperatively until the public nuisance is abated.

**Scope.** The scope includes assisting the City with preparation and submittal of a sampling and analysis plan for investigation of odor sources to the Health Department and execution of the sampling and analysis. The Engineer will execute a subcontract with Robert Bowker, P.E., who specializes in odor control. Mr. Bowker will provide much of the equipment required to perform the source identification sampling. The project will include source identification and evaluation, ambient air evaluation, evaluation of findings, and recommendations for odor control.

It is assumed that the County Health Department will install and operate an odor complaint hotline, compile information from complaints, and advertise and encourage use of the hotline in the targeted complaint areas. It is also assumed that the Health Department will make the information available immediately for use in this study.

The scope does not include the purchase or installation cost of instrumentation for wind measurement described in Task 300, nor does it include the cost of laboratory analyses of air samples collected, or the cost for any design phase services which may be added through a contract amendment after completion of the odor control study. (Note: Under separate contract, the Engineer is assisting the City with odor control design for the TWAS tank and new Headworks Facility.)

**TASK 100. PROJECT MANAGEMENT**

**101 Project Kickoff Meeting.** The consultant team will meet with City staff in a kickoff meeting for the purpose of discussing overall project direction and

consensus building on major issues. Preparation for this meeting is included in this subtask. This meeting will be held at the Wastewater Treatment Plant. Meeting notes will be prepared and distributed to all participants.

**102 Project Management.** The Engineer will identify the level of work effort and assess the project needs; update the City's project manager on a monthly basis (at a minimum) as to project status and action items; assist the City with monthly progress reports to the Health Department; manage internal staff and subconsultants; prepare monthly invoices; and prepare a monthly progress report.

**103 Quality Control.** Review all work activities and project deliverables for conformance with quality control requirements and project standards. Monitor project activities for potential changes, anticipate changes whenever possible, and with the City's approval, modify project tasks and approach to keep the overall project within budget and on schedule.

## **TASK 200. SOURCE IDENTIFICATION AND EVALUATION**

This task will attempt to identify odor sources at the WWTP and EKO Compost and those portions of the wastewater collection system within a one mile radius of the plant. A summary and ranking of odor sources will be provided and foul air volumes requiring treatment estimated for each source.

**201 Sampling and Analysis Plan Submittal.** Consultant team will develop a draft plan for investigation and determination of odor sources within the study area. Existing information including the Odor Source Assessment prepared by Morrison-Maierle, Inc. dated May 2007, and the Compilation of Reserve Street & Clark Fork Street Odor Investigation Reports prepared by Missoula City-County Health Department will be utilized in development of the draft. Draft plan will be submitted to City for review and approval. Final plan will be submitted to Health Department as required in the Order.

**202 Source Identification.** Engineer will develop a summary of potential odor sources within the study area, including the WWTP and EKO Compost. Odor intensity, foul air volume, frequency of odor generation, and other impacts related to odor sources will be evaluated for each unit process at both facilities. An on-site evaluation will be conducted and recommendations will be made with regard to confirmation odor testing as discussed in Task 203.

**203 Potential Source Sampling and Testing.** Odor samples will be collected and analyzed for identified potential odor sources within the study area. Consultant team will sample and test potential odor sources to comply with the schedule in the Health Department Order. Gas samples will be collected in Tedlar bags or stainless steel canisters and shipped to a certified laboratory. Samples will be analyzed by dynamic dilution olfactometry using a trained and screened odor panel. Samples will be quantified in terms of dilution-to-threshold (D/T) ratio and odor intensity in accordance with ASTM Methods E-679-91 and E-544,

respectively. In addition, select sources will be analyzed via gas chromatography. Chemical speciation and quantification of emissions will be performed.

- 204 Foul Air Estimates.** Information gathered from task 202 through 204 will be used to estimate volumes of foul air to be treated from each source. Containment options will be evaluated as well as existing plant heating ventilating and air conditioning.
- 205 Evaluation of Data.** Consultant will analyze and correlate data compiled in Tasks 200 and 300 and provide a summary of the findings to the City in the form of a Technical Memorandum (TM). The TM will include the identification and prioritization of the confirmed odor sources and describe local conditions impacting odor dispersion.

### **TASK 300. AMBIENT AIR EVALUATION**

This task will provide data regarding wind speed and direction as well as testing of ambient air within the study area.

- 301 Ambient Air Sampling.** As required by the Health Department Order, Consultant will assist WWTP staff in providing sampling of ambient air at times and locations where complaints have occurred. Consultant will train one or more designated staff members in use of field olfactometer such as the Nasal Ranger. Sampling will be performed by trained staff on an as needed basis during the data collection from March through October 2009 based on complaints received from the Health Department hotline. It is assumed that the field olfactometer for use during this project will be purchased and provided by the City or EKO Compost. Samples will be quantified in terms of D/T ratio and odor intensity. Documentation of odor character will also be recorded by sampling personnel.
- 302 Operate Wind Instrumentation.** As required by the Health Department Order, the City will install instrumentation to measure and record wind speed and direction for no less than eight months. Budget does not include any services by consultant or rental/purchase costs of the instruments.
- 303 Dispersion modeling.** Using the evaluation of data from Task 206, a dispersion model will be used to perform a screening level estimate of downwind pollutant concentrations. Dispersion modeling software ISCST-SCREEN which is based on the U.S. EPA Industrial Source Complex - Short Term model will be used. The model will use calculated odor emission rates from the specific pollutant sources to estimate odor concentrations within the study area. Dispersion modeling results will be used to prioritize the sources of odor based on their downwind impact and to estimate the degree of odor control required to meet selected downwind odor levels.

## **TASK 400. ALTERNATIVE ANALYSIS AND CORRECTIVE ACTION PLAN**

This task will identify available approaches to odor control for each odor source including containment, conveyance, and treatment.

- 401 Overview of General Odor Control Techniques.** Consultant will present a summary of available operational and process modifications including containment, conveyance, and treatment options for all odor sources.
- 402 Alternative Screening.** Alternatives identified as part of task 401 will be evaluated against ranking criteria approved by the City. Alternatives that are unattractive or have low benefit-to-cost ratios will be eliminated from further study. A workshop will be held with plant staff to review and complete the final screening of alternatives.
- 403 Recommended Alternative Evaluation.** Alternatives selected as part of subtask 402 will be described in detail with regard to impact on odor, cost, implementation complexity, O&M, and worker safety.
- 404 Corrective Action Plan.** Consultant will meet with City and EKO Compost to discuss results of the alternative evaluation. Based on input from City and EKO Compost, Consultant will develop a proposed plan for corrective action for odor sources necessary to abate the public nuisance violations. Corrective actions shall be broken into two categories: those that can be implemented in the near-term without major capital investment, and those that require significant capital investment. The draft plan will be submitted to the City and EKO Compost for review. Consultant will prepare a final plan for submittal to the Health Department as required by the Order.

## **TASK 500. PUBLIC OUTREACH AND PRESENTATIONS**

- 501** A Stakeholder panel will be developed by the City comprised of representatives of Homeowner Associations, City Council, business owners, and community groups. Consultant will conduct a stakeholder workshop to identify the type, location and severity of odors at and in the vicinity of the WWTP and EKO Compost. Regulatory requirements will be reviewed. Current odor control practices and operational issues will be described.
- 502** The estimated level of effort includes one workshop with stakeholders and one public presentation of the findings and recommendations of the odor control study. The public presentation will be planned for a City Commission session or workshop and will include the Stakeholder group.

## **TASK 600. ADDITIONAL SERVICES – UPON AUTHORIZATION OF CITY**

This task addresses additional services which may be required during the course of the project but which are difficult to quantify during development of the project scope. If required, these services would be completed on a time and materials basis, as negotiated at the time identified for project completion. Although not all-inclusive, the

following work tasks have been identified as work items that may be identified as needed additional services for the project:

Additional Sampling of Potential Odor Sources: In the event that one, three-day sampling period can not be identified which optimizes capturing odor-producing operations at both the WWTP and EKO Compost site concurrently, a second sampling period may be required. Services would include one additional trip by Bowker & Associates, including labor and expenses, one additional MMI staff member during sampling, and shipping costs for sampling equipment.

Laboratory Analysis Costs: Attachment 2 – Engineering Fee Estimate does not include expenses for laboratory analysis costs. City may opt to include laboratory costs in under this scope of work.

#### **WORK PRODUCTS:**

- **Kickoff meeting agenda and meeting notes**
- **Progress memoranda and invoices**
- **Sampling and Analysis Plan (Draft and Final)**
- **Training staff in use of field olfactometer**
- **Technical Memorandum - Odor sampling results and ranking**
- **Dispersion Modeling**
- **Alternatives evaluation criteria and alternatives evaluation for odor source**
- **Alternatives recommendation report.**
- **Cost estimates of recommended alternatives.**
- **Corrective Action Plan (Draft and Final)**
- **Stakeholder Workshop**
- **Presentation to City Commission**

#### **CITY RESPONSIBILITIES**

- **Staff participation in meetings and review of deliverables**
- **Act as liaison between Engineer and EKO Compost**
- **Take part in stakeholder workshop and assemble stakeholder group**
- **Perform ambient air sampling with field olfactometer on as needed basis.**
- **Operate wind instrumentation and provide data to Consultant for use in dispersion modeling.**
- **Participate in review meetings for Sampling and Analysis Plan and Corrective Action Plan**
- **Participate in summary project presentation to the City Commission**

**Estimated Budget.** \$74,400. See detailed breakdown in Attachment 2.

**Schedule:** Starting from the Notice to Proceed (NTP), the proposed project schedule is as shown below. It is assumed that the Notice to Proceed will be issued by January 31, 2009.

<b>Task</b>	<b>Description</b>	<b>Schedule</b>
100	Project Management	<ul style="list-style-type: none"> <li>▪ Project Duration</li> </ul>
200	Source Identification and Evaluation	<ul style="list-style-type: none"> <li>▪ Sampling and Analysis Plan Submittal to County – March 31, 2009</li> <li>▪ Source Testing – May 2009 – September 2009</li> <li>▪ Technical Memorandum – October 15, 2009</li> </ul>
300	Ambient Air Evaluation	<ul style="list-style-type: none"> <li>▪ Sampling - March 2009 – October 2009</li> <li>▪ Dispersion Model – October 2009</li> </ul>
400	Alternative Analysis and Corrective Action Plan	<ul style="list-style-type: none"> <li>▪ Draft Corrective Action Plan - November 1, 2009</li> <li>▪ Corrective Action Plan Submittal to Health Department – December 1, 2009</li> </ul>
500	Public Presentations	<ul style="list-style-type: none"> <li>▪ Stakeholder Workshop – April 2009</li> <li>▪ Presentation to City Commission – November 15, 2009</li> </ul>

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