

Appendix C

NEWMARK AND MUSCOY OPERABLE UNITS STATEMENT OF WORK

I. General Provisions

A. **Definitions:** Terms used in this Statement of Work, if defined in the Consent Decree, shall have the meaning assigned to them in the Consent Decree. The **AFacilities@** shall mean the Newmark and Muscoy Operable Units extraction, transmission and granular activated carbon treatment systems installed or adopted as part of the Interim Remedy, and shall include the extraction wells, pipelines and appurtenances for both Operable Units, and the treatment plants described as follows: (1) for the Newmark Operable Unit: the North Plant Treatment Facilities, and the Newmark Plume Front Treatment Facilities (also referred to as the South Plant), including the Waterman and 17th Street Treatment Plant, and; (2) for the Muscoy Operable Unit: the 19th Street Treatment Plant, which, as of the date of entry of the Consent Decree, is under construction.

B. Warranty: EPA has exercised its best efforts to include in this Statement of Work all activities necessary to fulfill the Operation and Maintenance (**AO&M@**) requirements for the Newmark and Muscoy Operable Units, and for the Site-Wide Monitoring. However, nothing in this Statement of Work or any deliverable approved by the Lead Oversight Agency or the Support Oversight Agency pursuant hereto constitutes a warranty or representation, either express or implied, by the United States or the State of California Department of Toxic Substances Control (**ADTSC@**) that compliance with this document and/or deliverables approved

pursuant to this document will result in the achievement of the Performance Standards as defined in the Consent Decree (Section IV). Nothing in this Statement of Work or deliverables approved pursuantly hereto shall be deemed to limit EPA=s rights pursuant to Paragraph 103 of Section XXI (Covenants by the United States and DTSC) of the Consent Decree.

C. Site Description: See Paragraph 4 of the Consent Decree (Site Definition).

D. Lead Oversight Agency Approval: Lead Oversight Agency approval of any submittal by the City, or any person who will perform Work on behalf of the City within the context of the Consent Decree, including but not limited to, plans, specifications, reports, and contractors, is administrative in nature and designed to allow the City to proceed. The City acknowledges and agrees that EPA=s approval of deliverables does not constitute a warranty or representation, as discussed in Paragraph B above. Submittal by the City of a required document to the Oversight Agencies shall constitute notice to these agencies of the information contained in the submittal. EPA is the Lead Oversight Agency for review and approval of all initial plans and reports that establish requirements for or will govern Site activities, including the Reconstructed Newmark Groundwater Flow Model. All subsequent plans or report modifications that would change the requirements of a previously approved plan or report shall require EPA concurrence. The reconstructed groundwater model updates shall be approved by DTSC with EPA concurrence, or vice versa, depending on which Agency has the Lead Oversight responsibility at the time.

E. Reporting Period: The Reporting Period is defined in Section X, Paragraph 37 of the Consent Decree.

F. System Operation and Maintenance Requirements: The requirements for system

operation, maintenance and monitoring are to be specified in the O&M manuals for the Newmark and Muscoy OUs. These requirements shall be included in the O&M Plan to be submitted by the City pursuant to Section II.B.4 of this Statement of Work. The O&M Plan may be periodically updated by the City, as the need arises. In all cases the City shall operate consistently with the California Constitution, Article 10, and its DHS permit. Provided, however, that should the City allege that its obligations under its DHS permit or the California Constitution prevent the City from conducting the O&M otherwise in accordance with the requirements of the Consent Decree and this Statement of Work, EPA shall have the right to take over the work in accordance with Paragraph 110 of the Consent Decree.

II. Schedule

A. Dates: The schedule of deliverables for this Statement of Work is presented in Attachment 1 and shall be referred to as the Work Schedule. Delay by the Lead Oversight Agency in reviewing a deliverable shall not constitute a violation of the Consent Decree by the United States or DTSC, as the case may be. Once the City receives any required Lead Oversight Agency approval, comments, or other authorization or direction to proceed with the next item of work, the City is required to submit the specified deliverable within the time frame set forth in the work schedule, calculated starting from the date of receipt of the appropriate Lead Oversight Agency approval, comments or other authorization or direction to proceed. See Consent Decree, Section XI (EPA Approval of Plans and Other Submissions).

B. Items:

1. Designation of Project Coordinators: Unless already submitted to EPA and DTSC in writing, within 20 days of the entry of the Consent Decree, the City shall submit to EPA and DTSC, in writing, the name, title, address and telephone number, and qualifications of its proposed Project Coordinator, which may include the General Manager or Deputy General Manager of the Water Department. See Consent Decree, Section XII (Project Coordinators).

2. Progress Reports: The City shall provide written progress reports to the Lead or Support Oversight Agency as specified in the schedule in the Consent Decree, Section X (Reporting Requirements). The City shall include in the Progress Reports any data that the City generated or acquired as required by the Consent Decree for the period between the last Progress Report and the current Progress Report, as well as any required information generated prior to the submittal of the last Progress Report, but not included in that Progress Report. These Progress Reports shall be submitted to the Lead and Support Oversight Agency as specified in accordance with Section X (Reporting Requirements), Paragraph 37 of the Consent Decree. The City shall alert the Lead Oversight Agency within the same working day or three calendar days, whichever is shorter, if evaluation of any data indicates that a potential violation of any of the performance criteria described in Section III.F has occurred.

a) Progress Reports for the Newmark and Muscoy Facilities: Beginning the month immediately following entry of the Consent Decree, the City shall submit Progress Reports for the Newmark OU Facilities. The City shall subsequently add the Muscoy OU Facilities to Progress Reports once O&M is turned over to the City. The Progress Reports shall include at a minimum all items specified in Section X (Reporting Requirements), Paragraph 37 of the Consent Decree, and:

i) A narrative describing any noteworthy accomplishments or problems encountered at the Facilities during the Reporting Period (including, but not limited to, the implementation of process improvements; routine maintenance, maintenance days claimed and credits used (see Section III.B of this Statement of Work); and a summary of any deviations from the operational requirements of the Consent Decree, the cause of such deviations, and the steps taken to mitigate such circumstances;

ii) The System Operation Date and the current year of O&M;

iii) The quantity of water pumped by each Newmark/Muscoy extraction well;

iv) After the O&M period begins for the Muscoy OU, a compliance calculation showing that average monthly flow rates are consistent with extraction well requirements provided in Section III.B.1 and III.B.2 of this Statement of Work for the North Plant extraction well network, the Newmark Plume Front extraction well network, and Muscoy Plume extraction well network, factoring in appropriate maintenance allowances or gallonage credits as provided in Section III.B.3 of this Statement of Work and extraction well pumping limits as described in Section III.B.2 of this Statement of Work. A summary of Target Extraction Rates shall also be provided, with the dates of Lead Oversight Agency approval and rationale when the Target Extraction rates are below the Design Extraction Rates.

v) After the beginning of the Muscoy O&M, the cumulative quantity of water pumped toward extraction requirements provided in Section III.B of this Statement of Work for each year of O&M for the North Plant extraction well network, Newmark Plume Front extraction (South Plant) well network, and the Muscoy Plume extraction well

network, factoring in appropriate maintenance periods or gallonage credits as provided in Section III.B.3 of this Statement of Work;

vi) The concentrations of VOCs at each extraction well and in the treatment plants= influent and effluent, including the contaminants identified in the Newmark OU and Muscoy OU RODs, as well as the Constituents of Concern (ACoCs@) and the VOCs to be sampled pursuant to the State of California Department of Health Services Water Supply Permit (effective December 30, 1999) for the City of San Bernardino (AWater Supply Permit@), (listed in Attachment 9 of the Water Supply Permit);

vii) An estimate of the mass of VOCs removed for the Reporting Period and the cumulative mass of VOCs removed since the System Operation Date; and

viii) After completion of applicable QA/QC requirements, the results of any sampling, test, or data mentioned above or otherwise required by the Consent Decree or this Statement of Work. The report of these results shall be prepared and submitted by the City pursuant to Section VIII (Quality Assurance, Sampling, and Data Analysis) of the Consent Decree.

The Progress Reports for the Newmark and Muscoy Operable Units may be combined once O&M of the Muscoy Operable Unit is transferred to the City.

b) Other Reporting:

i) The Lead Oversight Agency may require the City to report verbally or in writing the requirements of Section II.B.2 of this Statement of Work more frequently than in the Progress Reports.

ii) The Lead Oversight Agency may require the City to report

additional relevant information, as necessary, in the Progress Reports or separately.

iii) The City shall submit to the Lead Oversight Agency two copies or summaries of compliance data submitted monthly or otherwise to the California Department of Health Services (ADHS@).

3. O&M Plans: The City shall submit O&M Plan(s) for the Newmark and Muscoy Facilities pursuant to the requirements of this Statement of Work. These O&M Plans shall include all O&M activities pursuant to this Statement of Work to be performed on all portions of the Facilities to ensure that the Facilities continue to run according to specification, and where appropriate, will incorporate or refer to O&M activities already outlined in the EPA O&M document (ADraft Operations and Maintenance Manual, Newmark Operable Unit Treatment Systems@). The Newmark OU O&M plan shall be submitted in accordance with the schedule specified in Attachment 1. The Muscoy OU O&M plan shall be prepared and submitted after the Muscoy Plume extraction well network and the 19th Street Plant Facilities are declared operational and functional, in accordance with the schedule specified in Attachment 1.

a) The O&M Plans shall include detailed descriptions, including drawings, of the Facilities; manufacturer specifications for the Facilities and equipment; easily understood, stepwise standard operating procedures for the Facilities at all appropriate flow rates; startup and shutdown procedures for all Facilities; a detailed description of manual and electronic control systems; and any other elements pertaining to efficient and safe operation of the Facilities.

b) The O&M Plans shall describe in detail the routine maintenance activities to be performed on each element of the Facilities; a schedule for these routine

maintenance activities; a schedule of visual inspection of the Facilities; a schedule of equipment overhauling per manufacturers= specifications; a description and schedule of cleaning and back flushing; detailed chemical handling procedures; and any other elements pertaining to efficient and safe maintenance of the Facilities.

c) The O&M Plans for the Facilities shall incorporate by reference the City=s Staffing Plan, Health and Safety Plan, Operational Sampling and Analysis Plan, Quality Assurance Project Plan, and Contingency Plan.

d) The O&M Plans for the Facilities in conjunction with the Staffing Plan shall delineate clear lines of responsibility for performing the activities referenced within the plans, especially with respect to emergency shut downs and implementation of the Contingency Plan if it becomes necessary.

e) The O&M Plans shall include a list of Atrouble shooting@ procedures for various operations, and identify an inventory of parts with long lead times or critical to maintain normal operations.

f) In that the Muscoy Plume extraction well network will not be on-line at the time the O&M plan for Newmark is prepared, the Muscoy O&M plan may include modifications to some operating conditions for the Newmark Plume Front and Muscoy Plume extraction well networks as a whole to reflect the design of the current system.

4. Health and Safety Plan: Unless already submitted to EPA pursuant to the Cooperative Agreement, the City shall submit Health and Safety Plans to the Lead Oversight Agency that describe the minimum health, safety, and emergency response requirements for the O&M activities at the Newmark and Muscoy Facilities, respectively. These plans shall be

prepared in accordance with U.S. Occupational Health and Safety Administration (AOSHA@) requirements and any other applicable requirements.

5. Operational Sampling and Analysis Plan: The City shall submit to the Lead Oversight Agency an Operational Sampling and Analysis Plan (AOSAP@) for the Facilities that defines the data gathering methods to be used during O&M. The OSAP shall be designed and implemented so as to provide sufficient information to enable the Lead Oversight Agency to determine the effectiveness of the Work the City is required to perform and whether the Facilities are meeting the Performance Standards defined in Section IV of the Consent Decree. The OSAP shall include sampling methods and schedules for all VOCs required to be sampled during O&M, consistent with the Water Supply Permit, the Newmark and Muscoy OU Interim RODs and this Statement of Work. The OSAP also shall include the analytical method for the VOCs samples (Method 524.2 or equivalent) and identify the QA/QC sampling schedules.

To address the requirements of Section VIII (Quality Assurance, Sampling, and Data Analysis) of the Consent Decree, at a minimum, the OSAP shall include a description of the City=s role in the implementation of the Consent Decree and its responsibilities for sampling under the Consent Decree, a description of the sampling points and who takes samples, standard operating procedures (ASOPs@) for sampling, the laboratory=s analytical SOPs (includes quality control and corrective actions, preservation of samples, etc.), and target detection limits versus maximum contaminant levels. The OSAP shall describe and require the development and maintenance of a database of these sampling data according to the EPA requirements outlined in the document: ADefinitions for the Minimum Set of Data Elements for Groundwater Quality (EPA813B92002).@

The OSAP shall include a description of the data analysis protocol that will be used to evaluate compliance with contaminant level performance criteria and flow performance criteria described in Section III.F.1 and III.F.2 of this Statement of Work. In that the Muscoy Plume extraction well network will not be on-line at the time the OSAP is prepared, an addendum to the OSAP may be required to modify data analysis procedures and performance criteria for evaluating flow performance consistent with the provisions in Section III.F for the Newmark Plume Front and Muscoy Plume extraction well networks as a whole.

6. Contingency Plan: The City shall submit to the Lead Oversight Agency a Contingency Plan which is written for the locally affected population in the event of an accident or emergency at the Site. The Contingency Plan shall incorporate an Air Monitoring Plan and a Spill Prevention, Control, and Countermeasures Plan. The following is a suggested and non-exclusive list of items that shall be considered for inclusion in the Contingency Plan:

- a) Name of the person responsible for responding in the event of an emergency incident;
- b) List of key contacts in the local community and the State and Federal agencies to be involved in the cleanup, as well as local emergency squads and hospitals with phone numbers and addresses;
- c) First aid and medical information, including names of personnel trained in first aid, a clearly marked map with the location of medical facilities and all necessary emergency phone numbers for fire, rescue, and local hazardous material teams;
- d) An air monitoring plan to assure that the VOC treatment system for the Facilities is meeting the substantive requirements of the South Coast Air Quality Management

District (ASCAQMD@). This air monitoring plan should include an evaluation demonstrating that VOC air emissions are below the threshold such that SCAQMD monitoring would not be required, or if and when such monitoring would be required by SCAQMD, the plan should include the trigger concentration for implementation of the air monitoring plan, and a description of air monitoring implementation which may include personnel monitoring, and on-site and/or off-site area monitoring; and

e) A Spill Prevention, Control, and Countermeasures Plan which shall specify actions to be taken in the event of spills from materials handling and/or transportation. The plan shall describe methods, means and facilities required to prevent contamination of soil, water, atmosphere, and uncontaminated structures, equipment, or material. It shall specify provisions for equipment and personnel to perform emergency measures required to contain any spillage; to remove and properly dispose of any material that becomes contaminated due to spills; and to decontaminate affected structures, equipment, or material.

7. Baseline Mitigation Plan: The City shall submit to the Lead Oversight Agency a Baseline Mitigation Plan outlining potential responses in the case that contaminant performance and/or flow performance criteria as outlined in Sections III.F.1 and III.F.2 of this Statement of Work are exceeded and trigger Non-Routine O&M measures. The Baseline Mitigation Plan will provide a starting point for preparation of a scenario-specific Mitigation Plan if at some point implementation of a mitigation plan for Non-Routine O&M measures becomes necessary. The Baseline Mitigation Plan shall be generic in content, and, for example, shall include a basic structure for a phased approach to increasing extraction rates, a description of reporting intervals and requirements, and a list of key contact personnel. The Baseline

Mitigation Plan shall also include procedures for performing a cost benefit analysis of potential Non-Routine O&M operation scenarios that will be used to guide selection of the appropriate Non-Routine O&M mitigation measure. The Baseline Mitigation Plan will include an inventory of all available treatment systems for both the Newmark and Muscoy OUs, conveyance systems, and distribution options that may be mobilized during Non-Routine O&M, and that will be considered when developing a scenario-specific mitigation plan.

8. Time Line and Schedule: Unless already submitted to EPA pursuant to the Cooperative Agreement, the City shall submit to the Lead Oversight Agency a fifty-year Time Line and Schedule for each treatment system (Newmark and Muscoy) beginning in October 1, 2000 for Newmark, and at the start of O&M for Muscoy that shall list the major milestones to be accomplished in order for the City to efficiently perform long-term O&M of the Facilities. The Time Line and Schedule shall include the items listed in the Work Schedule, and also intermediate milestone activities (such as carbon changes, or equipment change out, etc.) and any other items relevant to orderly implementation of O&M activities. The identification in the Time Line and Schedule of intermediate milestones, which are defined as those milestones not specified in the Work Schedule, is solely for planning purposes. Any failure by the City to meet the Time Line and Schedule's intermediate milestones shall not be deemed in and of itself a violation of the Consent Decree.

9. System Operation Date: The System Operation Dates for the Newmark and Muscoy Operable Units are defined as the first day each of the respective Operable Units is determined by EPA to be operational and functional as provided in the Consent Decree. In the case of the Newmark Operable Unit, the date is October 1, 2000.

C. Other Items:

1. Pre-Certification Inspection of O&M: At the end of the time period for which the City is required to perform O&M activities at each Operable Unit pursuant to the Consent Decree, the City shall schedule and conduct a pre-certification inspection as specified by the Consent Decree. EPA shall conduct a final review of records and inspection of the Facilities. The inspection shall be a necessary part of certification of completion of the Work in accordance with Paragraph 57 of the Consent Decree.

2. O&M Completion Report: Pursuant to Paragraph 57 of the Consent Decree, the City shall submit a report for each Operable Unit certifying that all O&M activities have been fully performed. The report shall include documentation (e.g., test results) substantiating that the relevant Performance Standards have been met. The report shall be a necessary part of certification of completion of the Work in accordance with Paragraph 57 of the Consent Decree.

3. Determination of Decommissioning/Dismantling of Newmark Facilities: Reimbursement for decommissioning or dismantling of Facilities shall be governed by Section VI, Paragraph 14.a.(2) of the Consent Decree. If the City elects to decommission Facilities at the end of Work, then at least ninety (90) days before such decommissioning, the City shall submit to the Lead Oversight Agency and Support Oversight Agency a statement as to whether all or a portion of the Facilities shall be decommissioned or dismantled, together with the timetable and estimated costs for such work. If the City decides to cease production, then the City shall notify EPA and DTSC, and either Agency can initiate the process of decommissioning or dismantling. If EPA or DTSC is initiating the process, the City shall have a reasonable opportunity for review and comment.

4. Submittals: The City shall submit two (2) copies of each deliverable to the Lead Oversight Agency=s Project Coordinator designated in Section XXVI (Notices and Submissions) of the Consent Decree, one copy each to the Lead Oversight Agency=s designated remedial action oversight contractor, the Support Oversight Agency, DHS, and RWQCB, and one copy of each deliverable transmittal letter to the EPA Office of Regional Counsel and to DTSC=s Counsel as designated in the Consent Decree, Section XXVI (Notices and Submissions). With the consent of the receiving agency, an electronic copy of the deliverable may be substituted.

III. Operation of Newmark/Muscoy Operable Units

A. Period of Operation and Maintenance: The City shall perform O&M activities on the Facilities as required under Section VI (Performance of the Work by the City) of the Consent Decree and this Statement of Work, for the period specified under Section XIV, Paragraph 57.a of the Consent Decree. O&M for each Operable Unit shall commence on the System Operation Date for each Operable Unit.

B. Extraction Requirements:

1. Definition of Extraction Rate Terms: The **Maximum Routine Extraction Rate** requirements are defined as the maximum extraction rates at which the City will be required to operate the extraction well networks under the terms of Routine O&M. The **Design Extraction Rate** is defined as the Newmark Groundwater Flow Model-derived flow rate used as the design basis for each extraction well network. The **Target Extraction Rate** requirements are defined as the flow rates that can vary up to the Maximum Routine Extraction Rates prescribed with the intention of meeting the performance criteria established in Section III.F of this Statement of Work. Target Extraction Rates can be modified pursuant to the terms of this Statement of Work, subject to Lead Oversight Agency approval. The Maximum Routine Extraction Rates and Target Extraction Rates will include adjustments for maintenance allowances as described in Section III.B.3 of this Statement of Work. The **Non-Routine Extraction Rates** are defined as extraction rates at which the City may be required to operate the Newmark Plume Front and/or Muscoy Plume extraction well networks that are in excess of the Maximum Routine Extraction Rates during periods of Transition Phase Operations or Non-Routine O&M operations.

2. Extraction Requirements: The design flow rates specifications for the extraction wells and treatment plants from the Newmark OU RD and the Muscoy OU RD Final Basis of Design Reports are summarized in Attachment 2.

Under certain circumstances, changes in hydrologic conditions of the pumped aquifer will result in reductions of the extraction rates for which the affected extraction well network can be safely operated. These changes in hydraulic conditions may result in declines in extraction rates for the affected extraction well network to levels below the Target Extraction Rate requirements

then in force. If changing hydrologic conditions result in production from any extraction well network below the Target Extraction Rate then in force, the City shall notify the Lead Oversight Agency within one working day or three calendar days (whichever is less) from the calculation of the 3-month rolling average. The City shall submit the appropriate analysis within 30 days of reporting the three month rolling average flow rate in which such shortfall occurs to demonstrate the necessity of the change in pumping rate. If a more time consuming analysis is needed for the City to demonstrate the hydraulic changes, the City shall provide to the Lead Oversight Agency for approval a work plan and schedule for completion of this analysis within the 30 day period.

The provisions of this Statement of Work contemplate conditions in which the City may propose to operate at extraction rates below the then in effect Target Extraction Rate (see Section III.F.2.d) while maintaining performance criteria. The City shall submit to the Lead Oversight Agency an analysis to justify the Target Extraction Rate for the extraction well network whenever it is proposed to be operated below the Design Extraction Rate and obtain approval to operate at such rate, consistent with the provisions stated in Section III.F.2.d.

a) Newmark Plume Front and Muscoy Plume Extraction Well Networks:

The initial Target Extraction Rate requirements will be set at the Design Extraction Rate. The Design Extraction Rates believed by EPA to be necessary under current hydrologic conditions to meet the hydraulic and mass removal requirements of the Newmark and Muscoy RODs are 8,800 gallons per minute (gpm) for the Newmark Plume front extraction well network, and 8,900 gpm for the Muscoy Plume extraction well network. These are the Newmark Groundwater Flow Model-derived extraction rates, which EPA calculates are currently needed to inhibit migration of the contaminant plumes under the modeled conditions. These initial Target Extraction Rates

may be modified by the Lead Oversight Agency or the City with Lead Oversight Agency approval, if the performance criteria are being achieved under the terms described in Section III.F.2, or if hydrologic conditions of the basin are not sustainable for such pumping rates. The total Muscoy Design Extraction Rate mentioned above may be revised downward, based upon the results of the pump tests on the Muscoy extraction wells, which are currently under construction, and the results of the performance evaluation.

The initial Target Extraction Rates, adjusted for Annual Maintenance Allowances as discussed in Section III.B.3 of the Statement of Work, are 4.182×10^9 gallons per year and 4.229×10^9 gallons per year for the Newmark Plume front extraction well network and Muscoy Plume extraction well network, respectively.

The Maximum Routine Extraction Rates for the Newmark Plume Front extraction well network and Muscoy Plume Extraction well network are set at 100 percent of the combined effective treatment capacity for the Newmark Plume Front Treatment Facilities and the 19th Street Treatment Plant as defined in Section III.C.1 (20,016 gpm), divided equally between the two extraction well networks. Therefore, the Maximum Routine Extraction Rates for the Newmark Plume Front extraction well network and Muscoy Plume Extraction well network are 10,008 gpm and 10,008 gpm, respectively. Adjusted for Annual Maintenance Allowances as discussed in Section III.B.3, the Maximum Routine Extraction Rates are 4.756×10^9 gallons per year and 4.756×10^9 gallons per year for the Newmark Plume Front extraction well network and Muscoy Plume extraction well network, respectively. These Maximum Extraction Rates only apply to the well network. The combined effective treatment capacity of the Newmark and Muscoy plume front is 9.512×10^9 gallons per year.

Beginning with the initiation of O&M for the Muscoy OU, the City shall demonstrate compliance with the initial Target Extraction Rate requirements on each anniversary of the applicable System Operation Date, which is defined in Section II.B.9 of this Statement of Work, unless the Lead Oversight Agency, relying on the EPA-approved Reconstructed Newmark Groundwater Flow Model or upon a review and analysis of applicable groundwater level data, per the methodology established in Section III.F.2, shall approve a lesser volume as sufficient, in which case the City shall demonstrate compliance with the lesser volume requirement. For each year of operation, beginning on the System Operation Date, and ending on the day before the following anniversary of the System Operation Date, the City shall demonstrate that the Newmark Plume Front extraction wells and the Muscoy Plume extraction wells network have extracted groundwater at an average monthly flow rate equivalent to the Target Extraction Rate adjusted for Annual Maintenance Allowances applied on a three month rolling average as defined in Section III.B.3. The target average monthly flow rate is calculated by dividing the approved annual Target Extraction Rate (including the annual maintenance allowance used by the City) by twelve. The actual average will be calculated by dividing the sum of the total flow for the most recent three months by three. The actual average monthly flow rate must meet or exceed the target average monthly flow rate to be in compliance.

b) North Plant Extraction Well Network:

The North Plant extraction well network was initially intended to be operated at the Design Extraction Rate of 3,900 gpm; however, this rate historically has not been sustainable due to the basin hydrologic conditions. Therefore, the City shall submit to the Lead Oversight Agency an analysis to justify the Target Extraction Rate for the North Plant extraction well network whenever it is proposed to be operated below the Design Extraction Rate of 3,900 gpm and obtain approval to operate at such rate, as discussed above. Annual Maintenance Allowances will be applied to the Target Extraction Rates for the North Plant extraction well network per the terms provided in Section III.B.3 of this Statement of Work.

c) Water Production In Excess of City Demand

It is expressly contemplated in this Statement of Work that the City may occasionally be required to produce water in excess of its demand. In such cases, and in order to put the excess water to beneficial use, the City may provide excess water to other public water systems in the area for augmentation of their supply or other beneficial use. For sale of water to other water or public agencies, any proceeds will be divided in a proportionate calculation, taking into account the cost of production and delivery (to be returned to the City) and cost of treatment (to be returned to the applicable investment vehicle). Any proceeds above total costs shall be returned to the applicable investment vehicle. This calculation shall be made annually.

3. Annual Maintenance Allowance: The Annual Maintenance Allowance shall be measured in units of gallons and shall be used as a means for the City to perform a certain amount of routine maintenance on the Facilities without violating the extraction requirements. For each extraction well network this annual maintenance allowance figure shall be calculated as

the volume which could be produced by each extraction well network at the applicable Target Extraction Rate described in Section III.B.2 for a period of 35 days. The Annual Maintenance Allowance will also be used as a means of measuring compliance with the limits set for Suspension of Operations (Section III.J). Notwithstanding the Annual Maintenance Allowance, the City shall operate the three extraction well networks in such a manner that the Target Extraction Rates described in Section III.B.2 are achieved, unless reduced pursuant to that Section, or unless reduced due to extraction well network outages caused by Force Majeure conditions as defined in Section XVIII of the Consent Decree. Extraction well network outages due to Force Majeure conditions do not count against the Annual Maintenance Allowance.

The Annual Maintenance Allowance shall be applied on a three month rolling monthly average so that the average flow rate across any three consecutive months must exceed 1/12 of the annual Target Extraction Rate, as defined in Section III.B.2.a and III.B.2.b of this Statement of Work, factoring in the Annual Maintenance Allowance of 35 days a year. Based on the initial Target Extraction Rates described in Section III.B.2 of this Statement of Work, the minimum three month rolling average extraction rate shall be equal to 3.485×10^8 gallons per month and 3.524×10^8 gallons per month for the Newmark Plume Front and Muscoy Plume extraction well network, respectively, factoring in the appropriate Annual Maintenance Allowances. The minimum three month rolling average extraction rate will be adjusted if the Target Extraction Rates are modified pursuant to the provisions described in Section III.F.2 of this Statement of Work. The three month rolling average for the North Plant extraction well network will be calculated in the same manner, and if it is below the Target Extraction Rate then in force due to aquifer conditions, then justification and the appropriate analysis, or a workplan of the

appropriate analysis if more time is needed, shall be provided for approval by the Lead Oversight Agency within 30 days of submission of the three month rolling average. During maintenance periods for the treatment systems, the City may divert extracted water for treatment to available City or State-constructed treatment systems as a reimbursable expense under the Escrow in order to maintain required flow rates. Non-Routine Extraction Rates prescribed through a mitigation plan as discussed in Section III.F.2.a of this Statement of Work that have been implemented shall also be adjusted to accommodate the Annual Maintenance Allowance.

C. Treatment Criteria and Requirements:

1. Treatment Capacity. The treatment capacity of the Newmark and Muscoy Facilities is the volume of water that can be effectively treated by the GAC vessels. Treatment capacities discussed below are summarized in Attachment 2. The volume that can be effectively treated by the GAC vessels is defined as 96% of the GAC vessel rating (i.e. 720 gpm for 20,000 pound carbon vessels, and 1,008 gpm for 30,000 pound carbon vessels). The 96% effective treatment capacity is based on meeting design specifications for a minimum 15-minute hydraulic contact across the GAC vessels. Due to the degree of daily variability in vessel flow rate, a four percent buffer is required to remain in compliance with the hydraulic contact time requirement.

The total effective treatment capacity of all the treatment facilities (at 96% of the maximum = 25,056 gpm) was designed based on the initial Target Extraction Rates set forth in Section III.B.2, at approximately 16% above the initial total required Target Extraction Rates (21,600 gpm) for all the wells in the Newmark and Muscoy systems (see Attachment 2). For the Newmark Plume Front and Muscoy Plume extraction wells and corresponding treatment facilities only, the treatment capacity is about 13% above the design extraction rates. The North

Plant Treatment Facilities are designed to treat a maximum of 2.395×10^9 gallons per year at 5,040 gpm (maximum plant flow) for 330 days per year, with a 35-day allowance for routine maintenance per year. The Newmark Plume Front Treatment Facilities (the South Plant, including the Waterman and the 17th Street Treatment Plants) are designed to treat 3.764×10^9 gallons per year at 7,920 gpm for 330 days per year, with the same 35-day allowance for routine maintenance per year. The Muscoy Treatment Facilities are being designed to treat 5.748×10^9 gallons per year at 12,096 gpm for 330 days per year at the 19th Street Plant. Since the extraction well capacity from the Newmark Plume Front Extraction Well network is higher than the Newmark South Plant treatment capacity, a portion of the water extracted in the Newmark Operable Unit and currently treated at the Waterman Treatment Plant will be treated at the Muscoy Treatment Facilities in the future, once this system is on line.

2. Design Criteria for Contaminant Treatment: The GAC Treatment Facilities were designed to treat PCE and TCE in the groundwater to meet current applicable drinking water standards.

3. Treatment Requirements:

a) The Facilities shall achieve the following standards during Operation and Maintenance: Groundwater shall be extracted and treated to meet the ARARs set forth in the Newmark and Muscoy OU RODs for the VOCs identified in the Newmark and Muscoy OU Interim RODs, and the Water Supply Permit. For VOCs identified in the Water Supply Permit, but not identified in the Newmark and Muscoy OU Interim RODs or the Final Design Reports (including the Final 100 Percent Design Submittal, Newmark OU Remedial Design, Newmark Groundwater Contamination Superfund Site, North Plant, and Final 100 Percent Design

Submittal, Newmark OU Remedial Design, Newmark Groundwater Contamination Superfund Site, South Plant), groundwater shall be extracted and treated to meet the Water Supply Permit limits or Federal or State MCL requirements, whichever are more stringent. Method 524.2 (or equivalent) will detect additional VOCs beyond the VOCs included in the documents listed above. Any such additional VOCs detected are to be reported as per Section II.B.2.a.vi, and viii of this Statement of Work.

b) The City shall accept the treated groundwater, chlorinate and/or disinfect the treated groundwater in accordance with accepted practice, the requirements of its Water Supply Permit and of Paragraph III.J.1 of this Statement of Work, and deliver the water into the City=s potable water supply system or otherwise put it to beneficial use in another agency.

D. Monitoring Requirements: The City shall monitor the effectiveness of the system through the monitoring and sampling of the existing extraction and monitoring well networks. The monitoring of the extraction and monitoring wells shall be completed in accordance with the approved QA/QC requirements stated in Section III.E, QA/QC requirements, below.

Groundwater sampling and water level measurements will be collected in accordance with an approved OSAP to be developed by the City pursuant to Section II.B.6 of this Statement of Work and approved by the Lead Oversight Agency. The OSAP shall cover the extraction wells, the Site-Wide Monitoring, and treatment system monitoring programs as described below.

1. Extraction Wells Monitoring: In order to evaluate the performance of the Newmark Operable Unit and Muscoy Operable Unit extraction well networks, the City shall monitor the water levels and the contaminant concentrations in the following wells: i) the

extraction wells (wells prefixed with EW) to evaluate mass removal and contaminant trends;
ii) the down gradient monitoring wells (wells prefixed with MW) for network break through; and
iii) up gradient monitoring wells (wells prefixed with MW) for early warning of contaminant spikes or changes.

a) For water level measurements, levels shall be collected on an ongoing basis with the aid of an electronic data acquisition system (data loggers), for purposes of monitoring the capture zone created by the extraction well networks. Water level measurements will be collected on a daily basis from the following wells, unless noted otherwise:

i) Newmark Plume Front (South Plant) wells:

EW1 (monthly water levels only) PA & PB

EW2 (monthly water levels only) PA & PB

EW3 (monthly water levels only) PA & PB

EW4 (monthly water levels only) PA & PB

EW5 (monthly water levels only) PA & PB

MW 10 A & B (up gradient)

MW 11 A, B, & C (up gradient)

MW 12 A & B

MW 13 A, B, & C

MW 14 A & B

MW 15 A & B

ii) Newmark North Plant wells:

EW6 (monthly water levels only) PA

EW7 (monthly water levels only) PA

Newmark 3

MW 04 A & B

MW 07 A & B (up gradient)

MW 09 A & B (up gradient)

MW 16 A & B

MW 17 A & B

iii) Muscoy Plume Wells:

EW 108 (monthly water levels only) PA & PB

EW 109 (monthly water levels only) PA & PB

EW 110 (monthly water levels only) PA, PB, PC & PD

EW 111 (monthly water levels only) PA, PB, PC, PD & PE

EW 112 (monthly water levels only) PA & PB

MW 135 A, B, C

MW 136 A, B, C

MW 137 A, B, C

MW 138 A, B, C

MW 139 A, B, C

MW 128 A, B, C (up gradient)

MW 129 A, B, C (up gradient)

MW 130 A, B, C (up gradient)

b) The above wells are to be sampled semi-annually for VOCs only using

EPA Method 524.2 (or an EPA-approved equivalent), or quarterly as the sampling schedule is modified per Section III.F.1.a of this Statement of Work. Additional analyses which may be required as part of the Water Supply Permit are not part of the requirements of this Statement of Work.

2. Site-Wide Monitoring: Site-Wide monitoring will include additional Site-Wide ground water level monitoring and sampling to aid in evaluating the combined Newmark and Muscoy Operable Units extraction network effectiveness, provide for establishing Site-Wide ground water background elevations, and evaluate Site-Wide contamination. The Site-Wide monitoring will consist of a monthly water level monitoring program and annual sampling program. The Site-Wide water level monitoring program will consist of a modification of the City of San Bernardino=s existing water level monitoring program and some additional existing monitoring wells. These modifications will be determined by EPA and are anticipated to consist of minor schedule changes and a QA/QC program (to assure accuracy of water level data). The sampling program will consist of sampling and VOC analysis from the wells specified in Sections III.D.2.b and III.D.2.c of this Statement of Work on an annual basis. If any monitoring program described in this Statement of Work (described below) is also required by the Water Supply Permit or any amendment to the Water Supply Permit, the more stringent program of the two shall be required.

a) The City will collect monthly water levels from the wells specified in Section III.D.2.b of this Statement of Work for the Newmark and Muscoy Operable Units. This data will be used in conjunction with the daily water level data (see Section III.D.1. above) to evaluate the overall aquifer response to extraction and set a baseline to compare extraction well

drawdown. Additionally, the City shall sample the Site-Wide wells for VOCs using EPA Method 524.2 (or an approved equivalent) on an annual basis. This annual sampling event shall be scheduled concurrent with the corresponding semi-annual sampling event for the extraction well monitoring to assure data comparability.

b) The following wells shall be monitored and sampled (if functional at the time of Consent Decree entry):

MW 08 A & B

MW 06 A & B

MUNI 01 (Devil Canyon #1)

MUNI 07 B & C (DTSC Site #1)

MUNI 09 B & C (DTSC Site #2)

MUNI 11 A & C (DTSC Site #3)

MUNI 14 (31st Street and Mt. View)

MUNI 16 (Leroy)

MUNI 18 (27th and Acacia)

MUNI 20 (23rd Street)

MUNI 22 (16th Street)

MUNI 24 (Gilbert Street)

MUNI 112 (Cajon #3)

MUNI 116 (Muscoy Mutual #5)

MUNI 108 (Mallory)

MUNI 109 (Paperboard)

MUNI 107 (Colima) (The current well has failed and cannot be used for monitoring. EPA intends to replace the well. The replacement well will be included in the Site-wide monitoring.)

MUNI 103 (State Street)

MUNI 101 (Olive and Garner)

PZ 124

PZ 125

MW 126

MW 127 A, B

c) Additional Site-Wide data collection may be required to evaluate the integrity and effectiveness of the Interim Remedial Actions, as specified in Section III.K.2, Potential Non-Routine O&M, or in new monitoring wells to replace existing wells which might have to be retired from the monitoring program due to failure.

d) The City shall maintain the above referenced wells. The City shall replace at its own cost any such well that fails because of the City=s negligence. The City shall replace any such well that fails for other reasons, but may charge the cost against the financial limits for Non-Routine O&M.

3. Treatment System Monitoring: The City shall monitor the GAC treatment system in accordance with the Water Supply Permit. If the Water Supply Permit should be modified with respect to any such sampling, the City shall continue to conduct, at a minimum, such sampling as specified in the current Water Supply Permit unless the Lead Oversight Agency approves an alternate sampling regime. Such monitoring shall include but shall not be limited to:

- a) daily residual chlorine sampling;
- b) weekly combined treatment plant effluent sampling and analysis by EPA Method 502.22 (or an EPA approved equivalent);
- c) monthly sampling of the lead vessel effluent and analysis by EPA Method 502.2 (or an EPA approved equivalent); if breakthrough is observed from the 75% point of the Lag GAC vessel, a second sample will be collected; and
- d) quarterly sampling of the combined plant influent and effluent and analysis for VOCs using EPA Method 524.2 (or an EPA approved equivalent); this sample will also be used to meet the weekly combined plant effluent requirement outlined above (III.D.3.b).

4. Treatment System Physical Inspection: The City shall conduct daily visual inspections for leakage; and monitor the system operating conditions, including volume, electronic monitoring of flow rate and pressure drop across the carbon vessels on a daily basis. Observations of, or responses to any problems that may affect the operation of the system shall be logged and summarized in the applicable O&M Progress Report.

E. QA/QC Requirement: The City shall submit to the Lead Oversight Agency a Quality Assurance/Quality Control Plan which covers all aspects of the system monitoring and data collection. This plan shall be written and implemented in accordance with the following requirements and guidance and any modifications or supplements to such guidance as may be issued by EPA:

- X EPA Requirements for Quality Management Plan (QA/R-2) EPA/240/B-01/002;
- X EPA Requirements for Quality Assurance Project Plans (QA/R-5) EPA/240/B-01/003;
- X Guidance on Quality Assurance Project Plans (G-5) EPA/600/R-98/018;

- X Guidance for Data Quality Objectives Process (G-4) EPA/600/R-96/055; and
- X Definitions for the Minimum Set of Data Elements for Groundwater Quality EPA/813/B-92/002.

F. Monitoring Data Evaluation: The City shall evaluate the effectiveness of the Newmark Plume Front and Muscoy Plume extraction well networks on a regular basis, including, but not limited to, evaluating the following criteria in comparison to the results of the monitoring requirements described above in Section III.D. Before the City shall be required to conduct O&M on the Muscoy Operable Unit, EPA shall first demonstrate that the performance criteria set forth in this section, or as made less restrictive by EPA, are met while operating at Design Extraction Rates or at lesser rates determined by EPA. To the extent consistent with Section VI, Paragraph 17 of the Consent Decree, the performance criteria may be updated by the City with Lead Oversight Agency approval and EPA concurrence to be consistent with the Reconstructed Newmark Groundwater Flow Model, which will be developed pursuant to Section III.G of this Statement of Work.

1. Contaminant Level Performance Criteria:

a) Extraction Wells and Monitoring Wells Networks:

The City shall evaluate the contaminant levels present in the groundwater pursuant to the criteria described in the Newmark and Muscoy OU Interim RODs. The RODs incorporate certain state or federal drinking water standards as ARARs. Monitoring results shall be evaluated and compared to the ARARs to assist in evaluation of the designed extraction and treatment requirements and the calculation of mass removal of VOCs.

Contaminant performance shall be evaluated based on the results of periodic monitoring

of select down gradient monitoring wells as prescribed in Section III.D.1.b of this Statement of Work. For the Newmark Plume Front extraction well network, contaminant performance shall be based on sampling results for down gradient monitoring well clusters MW-12, MW-13, MW-14 and MW-15. For the Muscoy Plume extraction well network, contaminant performance evaluation shall be based on sampling results for down gradient monitoring well clusters MW-135, MW-136, MW-137, MW 138 and MW-139. Any future monitoring wells installed down gradient of the Muscoy OU extraction well network will undergo a separate evaluation based on the location, hydrogeologic conditions and pre-existing contamination conditions to determine whether the subject monitoring well should be included in the contaminant performance evaluation program. The decision whether to include these new monitoring wells in the contaminant performance evaluation program shall be made by EPA after considering comments, if any, provided by the City and DTSC during a 60-day comment period.

i) For preexisting conditions in the Muscoy OU only: Due to preexisting contamination conditions occurring downgradient of the Muscoy Plume Extraction well network, the following activities may be implemented:

(1) During the anticipated one year period between Muscoy Plume extraction well network and treatment plant startup and EPA=s declaration that the Muscoy OU is operational and functional (one-year performance evaluation period), EPA will decide whether some of the Muscoy OU down gradient monitoring wells identified in Section III.F.1.a above may need to be temporarily suspended from the contaminant performance evaluation program. This decision will be made based on criteria set forth in this Paragraph. While a particular well is suspended from the contaminant performance evaluation program, the

City shall collect quarterly groundwater samples to evaluate potential reinstatement of the well into the contaminant performance evaluation program. If, during the one year performance evaluation period, PCE or TCE is reported in groundwater samples collected from any of the down gradient monitoring wells in excess of 1.0 ug/L, the affected well will be suspended from the contaminant performance evaluation program. Monitoring wells suspended pursuant to this provision will be reinstated for contaminant performance evaluation at such time that contaminant levels in the monitoring well samples for the particular well are below 1.0 ug/L over eight consecutive quarters of sampling.

(2) During the first year of O&M, the City may request that EPA re-evaluate whether or not any of the downgradient Muscoy OU monitoring wells should be suspended from the contaminant performance evaluation. In making this decision, EPA will consider the criteria set forth in this Paragraph, the criteria set forth in Section III.F.1.a.ii below, and other factors relevant to a determination whether the well reflects system performance.

ii) For all other operations at all times:

Criteria for evaluating contaminant performance shall be as follows, unless otherwise specified by EPA as a result of the one-year performance evaluation period, during the first year of O&M, or a Modification to the Statement of Work:

(1) If the analysis of monitoring results indicates that the concentration of VOCs or other CoCs (as defined in the Water Supply Permit) in the monitoring wells down gradient of the Newmark Plume Front and Muscoy Plume extraction well networks identified in Section III.F.1.a of this Statement of Work are showing an increasing concentration trend, the sampling frequency may, at the discretion of the Lead Oversight Agency, be increased

to quarterly during a Transition Phase period of one year in order to determine if the increased concentrations are transitory in nature or represent a more long term trend.

After one year of Transition Phase quarterly groundwater data is collected, the City shall reevaluate the concentration trend for the affected well and report the results and the City's interpretations and recommendations to the Lead Oversight Agency. Based on the results of the trend analysis, potential responses may be considered by the Lead Oversight Agency as discussed in Section III.K.2.a. (Potential Non-Routine O&M). The process for trend analysis will be established in the Operational Sampling and Analysis Plan described in Section II.B.6.

(2) If monitoring results indicate that the concentrations of VOCs or other CoCs (as defined in the Water Supply Permit) in any of the monitoring wells down gradient of the Newmark Plume Front and Muscoy Plume extraction well networks identified in Section III.F.1.a of this Statement of Work exceed one-half the State or Federal MCL (whichever is more stringent), the City shall collect a confirmation sample from the affected well within one month of validating the original laboratory data. If the confirmation sample exceeds one-half the State or Federal MCL (whichever is more stringent), the sampling frequency for the affected well shall be increased to quarterly during a Transition Phase period of one year in order to determine if the increased concentrations are transitory in nature or represent a more long term trend.

After one year of Transition Phase quarterly groundwater data is collected, the City shall reevaluate the concentration trend for the affected well and report the results, interpretations and recommendations to the Lead Oversight Agency. Based on the results of the trend analysis, potential responses may be considered by the Lead Oversight Agency as discussed in Section

III.K.2.a (Potential Non-Routine O&M). The process for trend analysis will be established in the Operational Sampling and Analysis Plan described in Section II.B.6 of SOW.

Front and Muscoy Plume extraction well networks identified in Section III.F.1.a of this Statement of Work exceed the State or Federal MCL (whichever is more stringent), the City shall collect a confirmation sample from the affected well within one month of validating the original laboratory data. If the confirmation sample exceeds the State or Federal MCL (whichever is more stringent) the City will report the results, interpretations and a recommended mitigation approach to the Lead Oversight Agency. The Lead Oversight Agency will review the City=s recommended mitigation approach and at its discretion approve or modify the approach within the limits of Non-Routine O&M discussed in Section III.K.3.a of this Statement of Work.

(4) If new VOCs or CoCs (other than those previously identified in the Newmark/Muscoy OU RODs and the Water Supply Permit) above or near MCLs or other action levels are detected in the extraction or monitoring wells, the Lead Oversight Agency may proceed to modify this Statement of Work to require additional Work in accordance with Section VI, Paragraph 17 of the Consent Decree up to the financial limits provided in that Paragraph if such additional work would require Non-Routine O&M, and in accordance with other applicable provisions of the Consent Decree.

b) Treatment System: In the event that the concentration of the VOCs in the influent to the GAC vessels exceeds the design criteria described in the Final Design Reports, the City may be required to change out the carbon in the GAC vessels at more frequent intervals than indicated by the initial design.

2. Flow Performance Criteria

At the time the Muscoy Plume extraction well network and the 19th Street Treatment Plant are declared to be Operational and Functional, EPA will demonstrate that the Muscoy Plume extraction well network meets the flow performance criteria as defined in this Section while operating at or below the initial Design Extraction Rates of 8900 gpm. All the Flow Performance Criteria discussed below are based on the Design Extraction Rates established at the times the systems are determined to be Operational and Functional.

a) Routine Performance Criteria: The City shall implement the steps prescribed by this Statement of Work in order to maintain extraction flow rates such that an inward gradient is maintained across each of the Newmark Plume Front extraction well network and the Muscoy Plume extraction well network. The inward gradient must be the result of coalescing cones of depression from the Newmark Plume Front (South Plant) extraction wells (EW-1 through EW-5), and the Muscoy Plume Front extraction wells (EW-108 through EW-112). The induced inward gradient shall be monitored through the use of ground water level data obtained from the water level monitoring program.

b) Routine Performance Criteria Analysis: Water level data will be evaluated with a combination of gridding/contouring methods to approximate the potentiometric surface of the pumped aquifer, and particle tracking to evaluate the degree of inhibition created by operating the Newmark Plume Front and Muscoy Plume extraction well networks. The potentiometric surface and/or particle tracking will be approximated based on water level data using software programs like the General Particle Tracking (GPTRAC) module of the Wellhead Protection Area (WHPA) program (developed by the EPA), Surfer⁷ for Windows (Golden Software, Inc.), Tecplot (Amtec Engineering) or an acceptable equivalent, as approved by the

Lead Oversight Agency. Particle traces will be calculated based on one of the above approximated potentiometric methodologies or acceptable equivalent, as approved by the Lead Oversight Agency. The methods for estimating the potentiometric surface and calculating particle traces will be established in the Operational Sampling and Analysis Plan discussed in Section II.B.6 of this Statement of Work and approved by the Lead Oversight Agency, and shall include input parameters to be used by one of the above software (or acceptable equivalents, as approved by LOA) and starting particle locations for the Newmark Plume Front extraction well network and Muscoy Plume extraction well network.

Maintenance of the inward gradient shall be demonstrated through the use of particle tracking simulations wherein a minimum percentage of the particles is recovered by the Newmark Plume Front and Muscoy Plume extraction well networks as a measure of a sufficient level of inhibition of groundwater flow (inhibition criteria) across these extraction well networks. When Target Extraction Rates for the Newmark Plume Front and Muscoy Plume extraction well networks are set equivalent to or above the Design Extraction Rate, the inhibition criteria will be set at a minimum of 85 percent particle recovery for the Newmark Plume Front extraction well network and the Muscoy Plume extraction well network. When Target Extraction Rates for the Newmark Plume Front and Muscoy Plume extraction well networks are set below the Design Extraction Rate, the inhibition criteria will be set at a minimum of 95 percent particle recovery. In order to decrease the Target Extraction Rate for one or both of the extraction well networks to levels below the Design Extraction Rate, 95 percent particle capture shall have been demonstrated for the extraction well network(s) for the preceding 6-month period.

c) Process for non-routine flow performance response: In the event that

evaluation of water level data indicates that flow performance criteria are not met, the following actions shall be taken:

i) Collect a second round of water levels within 7 days and perform flow performance data analysis. If the second round of water levels indicates that flow performance criteria are met, no further action is required.

ii) If the Target Extraction Rate is below the Design Extraction Rate, and the second round of water levels indicates that flow performance criteria are not met, the Target Extraction Rate will be increased to the Design Extraction Rate. In this case flow performance will be reevaluated at the Design Extraction Rate during the next monthly site-wide water level monitoring event prior to taking any additional steps.

iii) If the second round of water levels indicates that flow performance criteria are not met and the Target Extraction Rate is equivalent to or above the Design Extraction Rate, the Lead Oversight Agency shall be notified within 7 days. The City shall attempt to reestablish flow performance by adjusting Target Extraction Rates within the established limits of the Maximum Routine Extraction Rates. In this case, flow performance will be reevaluated at the increased extraction rates during the next monthly site-wide water level monitoring event prior to taking any additional steps.

iv) If particle tracking using the site-wide water level monitoring data indicates that flow performance has not been achieved, and extraction rates have been increased to the Maximum Routine Extraction Rates, a Transition Phase will begin in which the cause of the loss of flow performance will be investigated by the City and the Baseline Mitigation Plan described in Section II.B.8 will be used by the City to prepare a scenario-specific

Mitigation Plan for Non-Routine O&M operations. The Reconstructed Newmark Groundwater Flow Model may be used to evaluate mitigation alternatives.

During the Transition Phase, the City will increase extraction rates above the Maximum Routine Extraction Rate within the extraction, conveyance, treatment and distribution capabilities of the City's existing systems. During the Transition Phase, the flow performance criteria for the affected extraction well network will be adjusted. For the Newmark Plume Front extraction well network and the Muscoy Plume extraction well network, the Transition Phase particle recovery criteria will be set at 80 percent. The Transition Phase will last up to six months while the Mitigation Plan is prepared and reviewed by the Lead Oversight Agency. With the agreement of the Lead Oversight Agency, the subsequent mitigation plan may include proposed reductions in particle recovery criteria while operating under Non-Routine O&M conditions.

Once the Mitigation Plan is prepared and approved by the Lead Oversight Agency, and the six-month Transition Phase has been completed, and if performance criteria have not yet been reestablished within the Maximum Routine Extraction Rates, the Mitigation Plan for Non-Routine O&M operations shall be implemented within the limits set forth in Section III.K.2 and III.K.3 of this Statement of Work and in accordance with Section VI, Paragraph 17 of the Consent Decree, if the work involved non-routine O&M. If inhibition criteria are not being consistently maintained, the Lead Oversight Agency may require additional monitoring wells to be installed as part of Non-Routine O&M to more accurately delineate the inward gradient as discussed in Section III.K.2 and III.K.3 of this Statement of Work, subject to the financial limits in Section VI, Paragraph 17 of the Consent Decree, if the work involved non-routine O&M.

d) Criteria for flow reduction to below Design Extraction Rates: In the

event that the evaluation of water level data with respect to flow performance indicates that Target Extraction Rates are in excess of levels required to maintain flow performance at 95% particle recovery and have been so over a six-month period, the City or the Lead Oversight Agency may request a reduction in Target Extraction Rates. The Lead Oversight Agency=s and City=s requests shall be submitted in writing, and shall include supporting data and corresponding analysis that demonstrates that the proposed Target Extraction Rates are capable of meeting flow performance criteria.

If proposed by the City, the request for reduction of Target Extraction Rates shall be submitted to the Lead Oversight Agency for review. The Lead Oversight Agency shall review the City=s request for modifying Target Extraction Rates and provide comments and/or approval.

The request may be submitted by the City after a period of four months of flow performance compliance under the stipulation that Target Extraction Rate reduction will not occur prior to completion of the six-month period of flow performance compliance. The two intervening months will provide a parallel track for Lead Oversight Agency review such that the Target Extraction Rate reduction can occur at the end of the six-month period if deemed appropriate by the Lead Oversight Agency. If approved, the revised Target Extraction Rates shall be implemented.

If the Lead Oversight Agency proposes to reduce the Target Extraction Rates, the Lead Oversight Agency shall make the proposal in writing, and the City may either accept the proposed change or submit comments within thirty days of the proposal. After reviewing the City=s comments and any other relevant data, the Lead Oversight Agency will issue a decision regarding imposing a reduction in Target Extraction Rates. The City=s right to dispute the Lead

Oversight Agency's decision shall be based on Section XIX, Paragraph 84 of the Consent Decree (Dispute Resolution).

The Target Extraction Rate for an extraction well network may not be reduced below the Design Extraction Rate under conditions in which monitoring data for any of the down gradient monitoring wells identified for contaminant performance monitoring (see Section III.F.1.a of this Statement of Work) trigger additional monitoring or mitigation (as outlined in Section III.F.1.a of this Statement of Work) for that extraction well network.

If the Target Extraction Rate for one of the extraction well networks is below the Design Extraction Rate at such time that review of contaminant performance indicates that additional monitoring under a Transition Phase or mitigation measures is required, the Target Extraction Rate for the affected extraction well network shall be promptly increased to the Design Extraction Rate.

G. Groundwater Flow Model Reconstruction Requirements: The City will reconstruct the Newmark Groundwater Flow Model pursuant to a schedule approved by the Lead Oversight Agency. The City has already prepared and submitted a model reconstruction scoping document to EPA. The City shall finalize the scope of model reconstruction activities in a work plan to be submitted to EPA. The final model reconstruction work plan is required to include a discussion of modeling objectives, an outline of the modeling approach, a description of the key modeling tasks, a description of the types and sources of data that will be compiled, a discussion of the key elements to be considered during conceptual model development, an approach for model calibration, verification and sensitivity analysis and a description of the predictive scenarios to be considered. The model reconstruction work plan is also required to include a

schedule for completion of the model reconstruction effort, the reporting requirements, and a review process for all major stakeholders. The process for major stakeholder review of the model reconstruction work plan, model reconstruction report and model update reports shall include written notice from the City to the major stakeholders and at least a 30-day comment period, and will be identified in the work plan and approved by EPA. The work plan will also include a model maintenance program. Any change to this work plan shall be approved by the Lead Oversight Agency with concurrence by EPA as stated in Section I.D. The model reconstruction work plan will be submitted in accordance with the schedule specified in Attachment 1.

The City will compile, to the extent available, the historical data listed in Section III.H.1 of this Statement of Work for the Model Domain. EPA and DTSC will assist the City to the extent possible in the collection of this data from various sources, which may include EPA and USGS.

From the compiled data the City shall develop a conceptual model consisting of the following primary components: stratigraphic analysis; pumpage, recharge and discharge analysis, boundary condition analysis, aquifer parameter analysis and water budget analysis. Based on the conceptual model the City will construct a numerical groundwater flow model to simulate groundwater flow conditions in the vicinity of and including the Newmark OU and Muscoy OU.

The model will be constructed using the USGS numerical groundwater flow model MODFLOW, or an equivalent with approval and concurrence as stated in Section I.D of this Statement of Work. The model will be calibrated under transient conditions to historical water levels gathered during data compilation. Model verification will be performed using extraction well aquifer testing data. Sensitivity analysis shall be performed to assess model uncertainties.

Upon completion and approval by EPA, the model shall be referred to as the Reconstructed Newmark Groundwater Flow Model. Once the Reconstructed Newmark Groundwater Flow Model is completed, the City shall prepare a report summarizing the components of the model reconstruction effort. The report shall include a summary of data used to reconstruct the model, a summary of results of all model runs performed during model calibration, model verification, sensitivity analysis and model simulations, and interpretations made as a result of model runs using the Reconstructed Newmark Groundwater Flow Model. This report shall be made available for review by the major stakeholders during a comment period of at least 30 days before finalization as described in the approved work plan.

H. Maintenance of Groundwater Flow Model Requirements: The City will maintain and update the Reconstructed Newmark Groundwater Flow Model pursuant to the schedule provided in Section III.H.4 of this Statement of Work or as modified and approved by the Lead Oversight Agency. The City shall maintain the Reconstructed Newmark Groundwater Flow Model with groundwater data compilations, model calibration checks and model updates, according to the criteria and schedule developed during the City's Reconstructed Newmark Groundwater Flow Model reconstruction effort.

1. Data compilation: According to the schedule provided in Section III.H.4.a of this Statement of Work, new data will be compiled to support potential updates to the Reconstructed Newmark Groundwater Flow Model that will include the following:

a) Information, to the extent available to the City, using its best efforts, from new wells installed or brought on-line after the last data compilation period that are located within the model domain:

- i) Well location
- ii) Lithologic logs
- iii) E-logs
- iv) Construction details
- v) Pump test results
- vi) Sampling results
- vii) Water level data

b) Information, to the extent available to the City, using its best efforts, for all wells in the model domain, including:

- i) Production by quarters
- ii) Up-dated pump test results
- iii) Water level data

c) Other data, to the extent available to the City, using its best efforts, for the model domain including:

- i) Volumes of artificial recharge by quarters
- ii) Precipitation data
- iii) Stream flow data

2. Modeling update: The City shall update the Reconstructed Newmark Groundwater Flow Model using the compiled data required in Section III.H.1, and pursuant to the schedule provided in Section III.H.4.b of this Statement of Work. Based on the compiled input data, calibration checks of the Reconstructed Newmark Groundwater Flow Model shall be performed to evaluate whether the model meets the calibration criteria established during the

model reconstruction effort or subsequently revised with Lead Oversight Agency approval. If established calibration criteria are not met, the model shall be modified and recalibrated to meet the calibration criteria.

3. Reporting requirements:

a) The City shall submit reports of data compiled per Section III.H.1 according to the schedule that data compilation activities are completed. Data compilation reports shall include:

- i) A listing of compiled data;
- ii) Actual data records or a summary of data records; and
- iii) Recommendations for performing an interim model update

within the established baseline period for model updates, if deemed warranted by the City or Lead Oversight Agency.

b) The City shall prepare reports summarizing Reconstructed Newmark Groundwater Flow Model update activities as those updates are performed. All model updates shall be made available for review by the major stakeholders during a comment period of at least 30 days prior to being finalized, and shall include the following information:

i) A description of the updates to the Reconstructed Newmark Groundwater Flow Model;

ii) Any new data added to the Reconstructed Newmark Groundwater Flow Model;

iii) Results of all Reconstructed Newmark Groundwater Flow Model runs performed including failed or incomplete runs;

- iv) Results of the calibration check and/or calibration efforts; and
- v) Any interpretations made as a result of Reconstructed Newmark

Groundwater Flow Model runs.

All model updates will include any new and recent data that were not included in the previous model update .

4. Schedule: The schedule for performing groundwater flow model maintenance and reporting activities is as follows:

a) Compilation of the data listed in Section III.H.1 and associated reporting activities as specified in Section III.H.3 will be performed on an annual basis for the first five years after the Reconstructed Newmark Groundwater Flow Model is finalized and approved in writing by EPA. The first annual data compilation period starts on the date of approval in writing of the Reconstructed Newmark Groundwater Flow Model. After the first five years of model maintenance, the frequency of data compilation activities will be reevaluated. The City will evaluate the frequency of data compilation events and provide recommendations for modifications, if warranted, to the Lead Oversight Agency. The Lead Oversight Agency will review the City recommendations and, if deemed appropriate, will approve these modifications in accordance with Section I.D of this Statement of Work. Subsequent modifications to the frequency of data compilation events may be requested by the City following the same process.

b) Regularly scheduled model update activities shall initially be performed every five years, with the first five-year update period commencing on the date following Lead Oversight Agency approval of the Reconstructed Newmark Groundwater Flow Model in accordance with Section I.D of this Statement of Work. More frequent model updates

(interim updates) may be required based on review of data periodically compiled for the model domain. If an interim model update is performed, the next regularly scheduled update will be performed five years after completion of the interim model update. After the first 15 years of model maintenance, the baseline period of five years for performing model update activities will be reevaluated. The City will evaluate the baseline period for performing model update activities and provide recommendations for modifications, if warranted, to the Lead Oversight Agency. The Lead Oversight Agency will review the City recommendations and approve the modifications if deemed appropriate. Subsequent modifications to the model update frequency may be requested by the City following the same process.

c) Data compilation reports will be submitted within 90 days of completion of the data compilation period. Model update reports for regularly scheduled model update events will be submitted within 90 days of the corresponding submission of the data compilation report ending the five-year model update period. Interim model update reports will be submitted within 90 days of completion of the model update event.

I. Institutional Control Requirements: The City shall submit any complete permit application package that involves new or redeveloped wells, artificial recharge or other groundwater management activities that may affect the Interim Remedies to EPA and DTSC once it is evaluated by the City. The complete permit application package shall include all documents submitted by the applicant, and the complete evaluation and proposed decision made by the City. In the event that the Reconstructed Newmark Groundwater Flow Model is run in connection with the City's evaluation of the permit application, the purpose of the runs should be detailed in the complete permit application submitted to EPA and DTSC, including all inputs

and assumptions used by the applicant and by the City, if the City uses different values than the applicant in its evaluation of the application, and its decision. Any change to the model parameters by the applicant or the City, beyond adding the proposed artificial recharge and/or pumping being considered pursuant to the application, that would influence the structure of the Reconstructed Newmark Groundwater Flow Model (e.g. any recalibration, different boundary conditions, or different step sizes, etc.) shall undergo the same level of stakeholders= review as outlined in the work plan approved by the Lead Oversight Agency, and shall be fully described in the application and/or the evaluation and proposed decision by the City, as applicable. The complete application package, including the City=s evaluation of the application, will be required for EPA and DTSC review and approval in accordance with the Consent Decree. The completed application and evaluation shall be submitted to EPA and DTSC for review within 90 days of receipt of the initial permit application unless the City, DTSC, and EPA agree to a longer period.

J. Suspension of Operations: The City may suspend operation of the affected Facilities only in accordance with the following conditions:

1. If the treated water does not meet or it is anticipated that it will not meet the requirements of the Water Supply Permit after or despite the implementation of required corrective steps specified in the permit, the City shall immediately shut down the affected Facilities, unless the Lead Oversight Agency and Department of Health Services (DHS) authorize otherwise. In the case of a shutdown, the City shall verbally inform the EPA and DTSC Project Coordinators within 24 hours of the shutdown, and shall submit written notification to EPA and DTSC within 7 days of the shutdown. The written notification shall describe the cause for the shutdown, list the primary and secondary drinking water standards or Water Supply Permit

levels, if any, that were exceeded or could not be met, shall describe to the extent reasonably ascertainable the cause of any actual or anticipated deviations from these standards or permit levels, and shall outline any corrective actions beyond those specified in the Water Supply Permit necessary for the affected Facilities to meet the Performance Standards as defined in Section IV of the Consent Decree. The City shall not resume operation of the affected Facilities until directed by the Lead Oversight Agency with the concurrence of the Support Oversight Agency.

2. The City may suspend operations by designating a maintenance outage (e.g., a full day or a portion thereof). Maintenance outages during the operating year shall count toward and shall not exceed the Annual Maintenance Allowance expressed in gallons based on 35 full days annually of such maintenance or the City shall be considered in violation of the Consent Decree. Extraction well network outages due to Force Majeure conditions do not count against the Annual Maintenance Allowance. Maintenance outages may not be designated for reasons other than maintenance. The City shall notify the Lead Oversight Agency and Support Oversight Agency Project Coordinators in advance of a planned maintenance outage, and within 24 hours of any unplanned maintenance outage. Maintenance outages shall be specifically accounted for in the Progress Reports required in Section II.B.2. of this Statement of Work.

K. Non-Routine O & M: A Non-Routine O&M, as used in this Paragraph, shall include unplanned operations or O&M events that require the City to operate the Newmark and/or Muscoy extraction and treatment systems at capacities that exceed the Maximum Routine Extraction Rates established by this Statement of Work.

1. Process for Reporting Non-Routine O&M:

a) At the outset of an event that the City believes requires Non-Routine

O&M, the City shall notify the Lead and Support Oversight Agencies of the event, initiate Transition Phase activities defined in this Statement of Work, and submit a scenario specific mitigation plan within six months of the onset of the event

b) The Lead Oversight Agency, with the Support Oversight Agency=s concurrence, shall review and approve the mitigation plan in accordance with Section XI of the Consent Decree .

c) Notwithstanding paragraphs a) and b) above, EPA and DTSC shall proceed in accordance with Section VI, Paragraph 17 of the Consent Decree (Modification of the Statement of Work), when requiring Non-Routine O&M to be performed beyond what is already provided for in the mitigation plan proposed by the City. The deadline for completion of the Non-Routine O&M may also be extended by the Lead Oversight Agency, with concurrence from the Support Oversight Agency.

2. Potential Non-Routine O&M: Non-Routine O&M may be required when additional extraction, treatment or monitoring capacity is required to achieve and/or maintain the Performance Standards as defined in Section IV of the Consent Decree and in this Statement of Work. The Lead Oversight Agency shall determine the necessary response to situations that give rise to the need for Non-Routine O&M of this kind. In the event that the Lead Oversight Agency determines that such additional capacity is required beyond that provided for by this Statement of Work, the Lead Oversight Agency may proceed to modify this Statement of Work to require such Work in accordance with Section VI, Paragraph 17.c of the Consent Decree, or proceed otherwise in accordance with the Consent Decree. The City shall implement such responses in accordance with the requirements of the Consent Decree and this Statement of Work, and

pursuant to a schedule approved by the Lead Oversight Agency. Following are non-exclusive examples of events that EPA anticipates may require Non-Routine O&M and the type of Non-Routine O&M that may be required in such events:

a) If monitoring well sampling results show a departure from contaminant performance criteria per the provisions set forth in Section III.F.1.a of this Statement of Work, installation of monitoring wells may be required by the Lead Oversight Agency up to the limitations stated in Section III.K.3.a of this Statement of Work and Section VI, Paragraph 17.c of the Consent Decree. It is anticipated that these wells would be installed between the existing monitoring well network and the extraction wells, both in the vertical and horizontal plane, to further evaluate containment and determine if there is a down gradient source.

b) If inhibition criteria (as defined in Section III.F.2) cannot be sustained for a 180 day period, installation of monitoring well locations up to the limitations stated in Section III.K.3.a of this Statement of Work and Section VI, Paragraph 17.c of the Consent Decree may be required by the Lead Oversight Agency to more accurately delineate the inward gradient.

c) If additional pumping is determined by the Lead Oversight Agency to be necessary to achieve and/or maintain the Performance Standards as defined in Section IV of the Consent Decree, the City shall utilize the Reconstructed Newmark Groundwater Flow Model and its best professional judgment in consultation with the Lead Oversight Agency and the Support Oversight Agency to determine how much additional pumping is needed.

3. Limitations of Non-Routine O&M:

The City may be required to operate the Newmark Plume Front extraction well network and/or Muscoy Plume extraction well network above the set Maximum Routine Extraction Rates at what are termed Non-Routine Extraction Rates, and/or install and sample additional monitoring well clusters. All Non-Routine O&M activities shall be restricted to the set monetary limits specified in Section VI, Paragraph 17.c of the Consent Decree and the provisions specified as follows:

a) The aggregate cost for the Newmark Plume Front extraction well network and the Muscoy Plume Front extraction well network Non-Routine O&M shall be subject to the monetary limits specified in Section VI, Paragraph 17.c of the Consent Decree over the defined operational period for the Interim Remedy as set forth in Section VI, Paragraph 14 of the Consent Decree.

b) As provided in Paragraph 17.d of the Consent Decree, the City shall use its best efforts to procure insurance at commercially reasonable rates to cover the costs of Non-Routine O&M. Provided, however, that the City may determine, subject to the concurrence of the Lead and Support Oversight Agencies, that such insurance is unavailable at commercially reasonable rates, not cost-effective, or that such insurance is otherwise inappropriate.

In order to make the determinations as to whether such insurance is available at commercially reasonable rates, cost-effective, and appropriate, the City shall, no later than one year before the expiration of any applicable insurance paid for from the Escrow, or after three years of O&M if no insurance is procured at the outset of this Work (and every three years thereafter if no insurance is procured at the previous three-year interval), seek the assistance of a

qualified insurance broker to assist the City in assessing the applicable insurance market so that the City can determine whether such insurance is:

- available at commercially reasonable rates to cover the costs of Non-Routine O&M;
- cost-effective; and
- appropriate,

in light of the remaining time of performance, available funds, and claims experience, among other relevant factors. Provided, however, that if the City is approached by a qualified insurance industry representative during any such three-year interval, the City shall consider in good faith any reasonable proposal to provide such insurance.

Before soliciting bids, the City shall, to the extent practical, establish objective criteria to identify responsible and responsive providers of such insurance coverage. In the event that such insurance coverage is available at commercially reasonable rates, otherwise feasible, cost-effective, and appropriate for the Non-Routine O&M, the City shall select appropriate insurance packages and coverage that provide the most cost-effective or otherwise appropriate coverage, taking into account claims experience and expertise in such environmental matters, as well as the financial stability and capacity of the insurer. The City also may elect to purchase additional coverage to cover other potential liabilities that may arise in connection with the performance of the Work.

In the event the City purchases Non-Routine O&M or other insurance related to the Work with the concurrence of the Lead and Support Oversight Agencies, the premiums shall be payable from the O&M Escrow, to the extent funding is available. The City shall not be bound to purchase such insurance if funding is unavailable from the O&M Escrow.

c) Under no circumstances shall the City be required to operate at Non-Routine Extraction Rates that cause it to violate the terms of the City=s DHS Permit to Operate.

d) Accrual towards the monetary limits specified in Section VI, Paragraph 17.c of the Consent Decree, shall include all extraction, treatment, conveyance, distribution and monitoring costs that are associated with extracting water at rates above the Maximum Routine Extraction Rates, as detailed in Section III.K.3.h of this Statement of Work, beyond the City=s ordinary costs for operating the remedy and producing water under the normal operating conditions.

e) Non-Routine Extraction Rates shall be reduced to the extent necessary to avoid pumping at rates that are deemed unsustainable due to aquifer conditions for the extraction wells within the Newmark and Muscoy Plume Extraction Well networks. As under routine O&M, if the City proposes to reduce the pumping rate to below the Non-Routine Extraction Rates, the City shall notify the Lead Oversight Agency and obtain approval prior to lowering the flow rates, unless otherwise provided in the approved Mitigation Plan.

f) Under Non-Routine O&M conditions, the City shall only be required to extract groundwater at rates within the capacity of the City and/or State treatment systems or other treatment system facilities installed in the future during Non-Routine O&M operations or to increase the City=s water supply capacity. Additional treatment capacity may be added per the terms and schedule detailed in an approved mitigation plan within the financial limits established in Section III.K.3.a of this Statement of Work.

g) When operating at Non-Routine Extraction Rates, the following additional cost components shall be counted towards the financial limits established in Section VI, Paragraph 17 of the Consent Decree:

i) Additional capital and monitoring costs associated with increasing the capacity of existing extraction wells or monitoring wells, or installing new ones, and increasing treatment capacity, conveyance capacity, and distribution capacity, when required under an approved mitigation plan.

ii) Increased Pumping Elevation Costs and Excessive Pipeline Headloss Costs - The City will demonstrate in the mitigation plan through a cost benefit analysis the most cost effective way to evaluate the above costs. In the case that water needs to be moved to a higher elevation, increased pumping elevation costs and excessive pipeline headloss costs as defined below are covered in the financial limits established above.

Increased Pumping Elevation Costs are the energy costs for moving the increment of water extracted above the Maximum Routine Extraction Rate to higher elevation portions of the City for distribution, when necessary. The Excessive Pipeline Head Loss Costs are the incremental energy costs to convey water through the raw water pipeline to the treatment plants at the increased head loss values over the head losses encountered while operating at Maximum Routine Extraction Rates. The methodology for evaluating these costs will be established in the Operational Sampling and Analysis Plan, subject to EPA review and approval.

iii) Water Production Cost Not Covered By a Sale. In the case when the increment of water produced above the Maximum Routine Extraction Rate cannot

be used by the City and is therefore sold to another water agency at a loss, the difference between the sale price and the City's current nominal cost to produce that increment of water will be applied against the financial limits specified in Section VI, Paragraph 17.c of the Consent Decree. If the City subsequently recoups such loss, the City shall reimburse the applicable financial account. In the case when the increment of water produced over the Maximum Routine Extraction Rate can not be sold and is discharged to a river or stream for a beneficial use that is not reimbursable, the City's current nominal cost to produce that increment of water will be applied against the financial limits specified in Section VI, Paragraph 17.c of the Consent Decree.

iv) Replacement of Water Exported Out of the Basin. A condition may occur in which the City and neighboring water agencies within the San Bernardino Basin Area (ABasin@) have insufficient demand to utilize all of the water extracted under Non-Routine O&M conditions. Therefore, the only alternative may be to export excess water out of the Basin to other municipalities or export excess water out of the Basin through a river or stream for potential beneficial use outside the Basin. If export of water out of the Basin is unavoidable during Non-Routine O&M operations, the City shall comply with the terms of the Western Judgment. If water is required to be imported to satisfy the Western Judgment, the cost of the replacement water will be applied against the financial limits specified in Section VI, Paragraph 17.c of the Consent Decree. The costs will be based on the actual rates paid by the City at the time of the purchase of the replacement water.

h) If financial limits for Non-Routine O&M as specified in Section VI,

Paragraph 17.c of the Consent Decree have been reached, the City is not required by this Statement of Work to operate above the Maximum Routine Extraction Rates or to make additional capital expenditures related to Non-Routine O&M pursuant to Section VI, Paragraph 17 of the Consent Decree or Section III.K of the Statement of Work.

4. Implementation of Non-Routine O&M

a) The City shall prepare a Baseline Mitigation Plan for Non-Routine O&M according to Section II.B.8 of this Statement of Work.

b) For each Non-Routine O&M event, the City shall adapt the Baseline Mitigation Plan to the specific conditions of that event, and develop a scenario-specific Mitigation Plan. This scenario-specific plan will take into account all existing conditions at the time, and propose a solution that is supported by a Cost Benefit Analysis, considering all existing conditions. The proposed solution shall include all relevant operating conditions, and the projected length and estimated cost of the Non-Routine O&M operation. Preparation of the scenario-specific Mitigation Plan should begin at the onset of the Transition Phase, and be submitted to the Lead Oversight Agency for review within six months of the onset of the event. Implementation of the scenario-specific Mitigation Plan shall begin immediately upon approval of the Lead Oversight Agency.

ATTACHMENT 1
San Bernardino Municipal Water Department Schedule

**Due Date or
Date Completed**

OPERATION AND MAINTENANCE

- | | | |
|-----------|--------------------------------------|----------|
| A. | Submit Staffing Plan | 90 days* |
| B. | Submit Time Line and Schedule | 90 days* |

* After consent decree is entered.

DELIVERABLES

Funds expended by the City to prepare deliverables in advance of the Consent Decree will be refunded to the City through the escrow account once the Consent Decree is entered.

QA/QC Plan	180 days from receipt of existing final EPA QA/QC document or 90 days after the CD is entered, whichever is earlier
Operational Sampling and Analysis Plan	180 days from receipt of existing final EPA QA/QC document or 90 days after the CD is entered, whichever is later
Health and Safety Plan	180 days from receipt of existing final HSP document or 90 days after the CD is entered, whichever is earlier
Baseline Mitigation Plan	180 days after the CD is entered for Newmark; Addendum 180 days after Muscoy is declared operational and functional
O&M Plans	Newmark OU: 180 days from receipt of final EPA O&M Manual or 90 days after the CD is entered, whichever is later Muscoy OU: 180 days from receipt of final EPA O&M Manual or 90 days after the Muscoy Plume Front extraction well network becomes operational and functional, whichever is later
Groundwater Flow Model Reconstruction Work Plan	90 days after the CD is entered

Water Level Data	Quarterly report, 30 days after the end of the sampling event
Plant/extraction well flows	Monthly report, 30 days after the end of the sampling event
Site wide monitoring data	Semi annually, 30 days after the receipt of validated laboratory data
Groundwater flow modeling reports	Data compilation report: Annual, 90 days after the end of the data compilation period. Such data compilation efforts in support of reconstructing the model may commence after October 1, 2002. Model Update Reports: Every five years, 90 days after the last data compilation report of the five-year period or interim period.
Notification of system upset/failure	Immediately. Within the same working day or 3 calendar days of upset or failure at the latest, whichever is shorter.
O&M Progress Reports	Monthly for the first two years after the CD is entered, 45 days after the end of the month Quarterly for the following 5 years, 45 days after the end of the quarter. Semi-Annually thereafter; 45 days after the end of the semi-annual period. Annually upon Lead Oversight approval; 45 days after the end of the semi-annual period.
Five-year Review Report	Every five years, from OU operational and functional date to be established by the EPA.

ATTACHMENT 2
Design Specifications for Extraction/Treatment Systems and Extraction Rate Requirements

Extraction Well Design Flow Rate Specifications ⁽¹⁾				
Extraction Wells/Extraction Terminology	Newmark OU Extraction Rates (gpm)			Muscoy Plume Extraction Rates (gpm)
	North Plant Extraction Wells	Newmark Plume Front Extraction Wells		
	North Plant Treatment Facilities	Waterman Treatment Plant ⁽²⁾	17th Street Treatment Plant	19 th Street Treatment Plant
EW -1		1,700		
EW -2		1,700		
EW -3			2,000	
EW -4		1,700		
EW -5		1,700		
EW -6	1,000			
EW -7	1,300			
Newmark -3	1,600			
EW -108				1,300
EW -109				1,300
EW -110				2,500
EW -111				2,500
EW -112				1,300
Total Extraction Rates		6,800	2,000	
		8,800		8,900
	3,900	17,700		
	21,600			
Total Extraction Rates With Maintenance Allowance (gpy assuming 330 days of operation)		3.231E+09	9.504E+08	
		4.182E+09		4.229E+09
	1.853E+09	8.411E+09		
	1.026E+10			

Extraction Rate Requirements				
Design Extraction Rate (gpm)	3,900	8,800		8,900
Design Extraction Rates With Maintenance Allowance (gpy assuming 330 days of operation)	1.853E+09	4.182E+09		4.229E+09
Target Extraction Rate	variable	variable		variable
Maximum Routine Extraction Rate	NA	10,008		10,008
Maximum Routine Extraction Rates With Maintenance Allowance (gpy assuming 330 days of operation)	NA	4.756E+09		4.756E+09
Non-Routine Extraction Rates (gpm)	NA	>10,008		>10,008
Non-Routine Extraction Rates With Maintenance Allowance (gpy assuming 330 days of operation)	NA	>4.756E+09		>4.756E+09
Treatment Plant Design Specifications				
Component	Newmark OU Treatment Facilities (gpm)			Muscoy OU Treatment Facilities (gpm)
	North Plant Treatment Facilities	Newmark Plume Front Treatment Facilities		
		Waterman Treatment Plant⁽²⁾	17th Street Treatment Plant	19th Street Treatment Plant
Size of GAC Vessels (lbs of carbon)	20,000	20,000	20,000	30,000
Number of Pairs	7	8	3	12

LPGAC Design Flow Rate Per Pair ⁽³⁾ (gpm)	696	637	650	972
Total Design Plant Flow Rate (gpm)	4,872	5,096	1,950	11,664
Maximum Flow Per Vessel	750	750	750	1,050
Maximum Flow Per Plant	5,250	6,000	2,250	12,600
Effective Capacity Per Vessel (96% of maximum in gpm)	720	720	720	1,008
Effective Capacity (96% of maximum in gpm)	5,040	5,760	2,160	12,096
		7,920		
	25,056			
Effective Capacity (96% of maximum in gpy)	2.395E+09	2.737E+09	1.026E+09	5.748E+09
		3.764E+09		
	1.191E+10			
Percent Additional Effective Capacity Over Design Extraction Rate	29%	13%		
	16%			

Notes:

LPGAC = Liquid phase granular activated carbon

Units = Gallons Per Minute (gpm) or Gallons Per Year assuming 330 days (gpy)

(1) - Extraction well design specification flow rates are based on the Newmark Groundwater Model prepared by EPA

(2) - A portion of the water extracted from EW-1, EW-2, EW-4 and EW-5 will be conveyed to the 19th Street Plant to remain within effective plant capacities at Design Extraction Rates

(3) - Based on design rates presented in the 100% Design Report for each treatment facility

NA - Not applicable