

SECTION 01310

CPM SCHEDULES AND REPORTS

PART 1. GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.2. SUMMARY

1.2.1. General

- 1.2.1.1. This Section specifies administrative and procedural requirements for preparation and reporting of Contractor's preferred sequence of construction of the Work and other possible sequences of construction of the Work, for monitoring and reporting of actual performance of the Work, for incorporation of changes and unexpected events for determination of possible impact to the timely completion of the Work and for determination of means and method necessary for time completion of performance of the Work.

1.3. Project Schedule

1.3.1. Detailed Construction Schedule

- 1.3.1.1. The General Contractor shall develop and maintain the overall Detailed Construction Schedule, (referred to hereafter as Schedule or Construction Schedule). The Schedule shall be computer generated in precedence format using the Critical Path Method (CPM). The Contractor shall perform its obligations generally in accordance with the sequence and time frame provided by the Schedule. The Contractor shall update the Schedule and shall modify and change the Schedule as may be required as provided by this Section. The Contractor shall not modify, change, or update the Construction Schedule or any activities therein without the prior written approval of the Program Manager.

1.3.2. Purpose of the Schedule

- 1.3.2.1. Provide additional assurance by the Contractor of its adequate planning, scheduling, and reporting during the execution of the construction and related activities so they may be prosecuted in an orderly and expeditious manner, within the Contract time and the milestones stipulated herein.

- 1.3.2.2. Provide additional assurance by the Contractor of the coordination of the work of the Contractor and the various Subcontractors and suppliers at all tiers.
- 1.3.2.3. Assist the Program Manager in monitoring the progress of the work.
- 1.3.2.4. Assist the Program Manager in evaluation of the Contractor's monthly progress payments requests.
- 1.3.2.5. Assist the Program Manager in evaluating the potential impact of proposed changes to the Contract.
- 1.3.2.6. Assist and be utilized by the Contractor in the coordination of its forces, subcontractors, and vendors.
- 1.3.2.7. Assist in detecting problems for the purpose of taking timely corrective action and to provide a mechanism or tool for determining and monitoring such corrective actions.

1.3.3. General Requirements of Submitted Schedules

- 1.3.3.1. The Work shall proceed at a rate as will meet the specified Milestone Dates, Substantial Completion (if applicable), and Final Completion dates within the Contract Time. By execution of the Contract, the Contractor represents that he has analyzed the Work, the materials, and methods involved, the systems of the building, availability of qualified mechanics and labor, restrictions of the site, constraints imposed, their own work load and capacity to perform the Work, and agrees that the specified times are reasonable considering the existing conditions prevailing in the locality of the Work, including weather conditions, and other factors, with reasonable allowance for variations from average or ideal conditions.
- 1.3.3.2. The Schedule shall clearly identify the activities illustrating accomplishment of the time(s) for completion of the Project set forth in the Contract. If the Schedule indicates earlier completion time(s) than that set forth in Contract, the float between the Schedule and the Contract dates shall be considered to be part of the total float available.
- 1.3.3.3. In developing the Schedule, the Contractor shall be responsible for assuring that Subcontractor work at all tiers, as well as Contractor's own work, is included in the Schedule.
- 1.3.3.4. The Schedule as developed shall show the sequence and interdependence of activities required for complete performance of the work. The Contractor shall be responsible for assuring all work sequences are logical and the Schedule shows a coordinated plan of the work.
- 1.3.3.5. Failure by the Contractor to include any element of work required for performance of the Contract or failure to properly sequence the work shall not excuse the Contractor from completing all work within the Contract Time.

1.3.4 Use of Float and Reasonable Limitations Upon Resources

1.3.4.1 Float time is not for the exclusive use or benefit of either the Contractor or the Owner. The Contractor shall limit its use of logic restraints based upon use of a resource such that it equally reserves float for the limited resources of the Program Manager, the Owner, other entities under the Owner's control, and other entities beyond the control of either the Contractor or Owner, and that the Contractor reserves float for the various types of unexpected events which may be anticipated on a construction project of this magnitude.

1.3.4.2 The Contractor acknowledges and agrees that actual delays to specific activities that do not exceed available total float time of such activities will not have any effect upon Contract completion times and Contractor will take all actions necessary to maintain the overall schedule.

1.3.5 Requirement for Additional Resources

1.3.5.1 The Contractor shall provide adequate resources, including but not limited to manpower and construction equipment, to perform its obligations in a timely manner. The Contractor shall be required to provide additional resources for additional unanticipated work or events which may be anticipated on a construction project of this magnitude.

1.3.5.2 If the Contractor and Program Manager agree to a Change Order, such agreement shall be construed as stating that the Contractor is capable of supplying additional resources as may be required to effectuate such Change Order without the need to reduce the resources available for other work on the project, without disruption of other work on the project and without additional cost for provision of additional resources other than as may be included in the agreed Change Order.

1.3.6 Entitlement to Extension of Time and Acceleration

1.3.6.1 Entitlement to extensions of time for performance as described in the Contract Documents will be granted only to the extent that time adjustments for the activity or activities affected by any condition or event which entitles the Contractor to a time extension exceed the total float along the current critical path of activities affected.

1.3.6.3. If the Program Manager does not provide an extension of time at the request of the Contractor, the Contractor shall in a timely manner provide a Recovery Schedule and itemized estimate of costs to effectuate such or shall be deemed to waive its claim for additional compensation therefore.

PART 2. PRODUCTS

2.1. TECHNICAL REQUIREMENTS OF SUBMITTED SCHEDULES

2.1.1. Contractor shall plan, schedule, execute, and report on the Work using the Critical Path Method (CPM). The principles used herein shall be as set forth in the text *CPM in Construction Management*, 6th edition, McGraw Hill, except that in case of conflict, the provisions of these Contract Documents shall govern.

2.1.2. The Contractor shall employ the services of at least one fully qualified scheduler for the duration of the Contract. Said scheduler(s) shall have a minimum of 3 years experience in CPM scheduling on projects of similar size and scope. Said scheduler(s) shall cooperate with the Program Manager and shall be on the project site full time for the purpose of continuously monitoring, modifying, or updating the Contractor's detailed construction schedule.

2.1.3. The Schedule shall be developed utilizing the Precedence Diagramming Method. Contractor shall use Primavera P3 scheduling software, Version 3.1 for Windows. Contractor shall use such software with scheduling options set for retained logic, calculate start-to-start lag from actual start, schedule durations as interruptible, show open ends as critical, and calculate the total float as the most critical.

2.2. RESTRICTIONS SUBJECT TO DISCRETION OF ENGINEER

2.2.4. Milestone Dates, including Notice to Proceed, Substantial Completion, and Final Completion must be adhered to and shall be clearly identified on the Schedule. Milestone Dates may not be changed without the written consent of the Program Manager. Final Completion shall be a mandatory finish constrained date.

2.2.5. The Schedule shall be developed utilizing activities of specified duration of whole days between one (1) and fifteen (15) working days. Working days are defined as on a five day per week calendar, less recognized holidays as provided by the Program Manager. Milestones or other zero duration activities shall not be permitted except to indicate milestones set forth in this Specification. Submissions including use of Expected Finish constraints to calculate durations shall not be permitted.

2.2.6. Logic relationships between activities shall be limited to finish to start type relationships. The use of durations between activities, or lags, shall not be permitted.

2.2.7. Exceptions to the requirements above for the purpose of improving the Program Manager's ability to monitor the Schedule and permitting the use of durations larger than fifteen (15) working days, multiple calendars, milestones or other zero duration activity, calculated durations, logic relationships other than finish to start or durations between activities (lags) may be permitted on a case by case basis at the sole discretion of the Program Manager.

2.3. REQUIRED LEVEL OF DETAIL AND DURATIONS

2.3.1. The level of detail of the Schedule shall be a function of the complexity of the work involved. The level of detail and total number of activities shall be subject to approval by the Program Manager. No construction activity shall have duration of longer than fifteen (15) work days without prior acceptance of the Program Manager. Non-construction activities (such as procurement and fabrication) may have duration in excess of fifteen (15) work days.

- 2.3.2. Normal weather conditions shall be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures and/or precipitation to ensure completion of all work within the Contract Time. Normal weather conditions shall be determined by an assessment of average historical climatic conditions based upon the preceding ten (10) year records published for the locality by the National Ocean and Atmospheric Administration (NOAA).
- 2.3.3. Activity descriptions shall be clear and concise. The beginning and end of each activity shall be readily verifiable. All activity starts and finishes, with the exception of Milestones, must be tied into the schedule by logical restraints.
- 2.3.4. Proposed duration assigned to each activity shall be the Contractor's best estimate of time required to complete the activity considering the scope and resources planned for the activity.
- 2.3.5. Responsibility for each activity shall be identified with a single performing organization.
- 2.3.6. For all major equipment and materials fabricated or supplied for this project, the Schedule shall show a sequence of activities including:
 - 2.3.6.1. Preparation of shop drawings and sample submissions.
 - 2.3.6.2. Review of shop drawings and samples.
 - 2.3.6.3. Shop fabrication and delivery.
 - 2.3.6.4. Erection or installation.
 - 2.3.6.5. Testing of equipment and materials.

2.4. REQUIRED MINIMUM CODING OF ACTIVITIES, RESOURCES AND COSTS

- 2.4.1. Each activity shall be identified with codes including as a minimum:
 - 2.4.1.1. The party responsible for performance of the Work,
 - 2.4.1.2. Where work is to be subcontracted, the subcontractor to be responsible for the Work,
 - 2.4.1.3. The size, craft and composition of the labor crew performing the Work,
 - 2.4.1.4. The total man-hours estimated for performing the Work,
 - 2.4.1.5. The major equipment to be used for performance of the Work,
 - 2.4.1.6. The number of hours in a work day for this activity including all shifts,
 - 2.4.1.7. The contract drawing number or specification section where the Work is best portrayed,
 - 2.4.1.8. Building, Floor and Location of the Work, and
 - 2.4.1.9. The primary Schedule of Values and CSI classification associated with the Work.

- 2.4.2. Contractor shall assign resource loading, including but not limited to manpower and major construction equipment, for each activity of the Schedule.
- 2.4.2.1. Manpower and major construction equipment resources must be listed in the Resource Library of the Primavera software. The Contractor shall set the Normal level of resource usage as not less than that required to perform the project in a timely manner. The Contractor shall set the Maximum level of resource usage as not less than 150% of the Normal level of resource usage.
- 2.4.2.2. The cumulative assigned labor man-hours for each activity must equal the total man-hours assigned in the activity code tabulation.
- 2.4.3. Each activity shall be cost-loaded and the assigned dollar value (cost-loading) of each activity shall cumulatively equal the Total Contract Amount. Separate activities shall be included and cost loaded for costs associated with mobilization, demobilization, bond and insurance. The cost for demobilization shall be at least seventy-five percent (75%) of that for mobilization. Costs for General Conditions, overhead, and profit shall be prorated throughout all activities other than those for mobilization, demobilization, bond, and insurance.
- 2.4.3.1. The assigned dollar value (cost-loading) of each activity shall be coded against one or more cost category and cost account number. Cost account numbers shall be the same as line items in the Schedule of Values. Cost categories shall include Labor, Equipment, Materials and Subcontracted. The assigned dollar value (cost-loading) for each cost account for each activity shall cumulatively equal the Total Contract Amount assigned for each respective line item in the Schedule of Values.
- 2.4.3.2. The assigned dollar value (cost-loading) for the labor category shall cumulatively approximate the total labor man-hours times the average cost per man-hour times a reasonable percent for overhead and profit.
- 2.4.3.3. The assigned dollar value (cost-loading) for the equipment shall cumulatively approximate the total reasonable rental value for such equipment times a reasonable percent for overhead and profit.
- 2.4.3.4. The assigned dollar value (cost-loading) for the material category shall cumulatively approximate the total reasonable cost for materials times a reasonable percent for overhead and profit.
- 2.4.3.5. The assigned dollar value (cost-loading) for the subcontracted category shall cumulatively approximate the total dollars for subcontracted work times the average cost per man-hour times a reasonable percent for overhead and profit. If requested by the Program Manager, the Contractor shall furnish either the total subcontracted cost of selected subcontractor(s) or a breakdown by such subcontractor(s) of labor, equipment, and material cost.

2.5. REQUIRED NARRATIVE

- 2.5.1. Contractor shall prepare and provide a written narrative to further explain the plan as set forth in its CPM logic network and schedule. The narrative shall include a general summary of the Contractor's proposed plan to execute the works of the project. The narrative shall include an explanation of the format of activity descriptions including standard abbreviations used. The narrative shall include a general summary of the Contractor's plan for manning of the project including anticipated total manpower per month for direct hire and for subcontractor forces. The narrative shall include a list of the major items of construction equipment intended for use on this Contract's operations including types, number of units, unit capacities, and the proposed time each piece of equipment will be on the job, keyed to the activities on which the equipment will be used.
- 2.5.2. If requested by the Program Manager, the Contractor shall include in its written narrative the Contractor's determination of duration for critical, near-critical and other specified activities. Such explanation shall include the number of crews, crew composition, number of shifts per day, number of hours in a shift and the number of work days per week.

PART 3. EXECUTION

3.1 Contractor's Representative Designation

- 3.1.1. Within (3) working days after date of Notice to Proceed, Contractor shall designate its authorized project scheduler ("Scheduler").
- 3.1.2. Contractor's scheduler shall have complete authority to act on behalf of the Contractor in fulfilling the Construction Schedule requirements of the Contract and such authority shall not be interrupted throughout the duration of the Contract unless approved in writing by the Program Manager.

3.2 Initial Schedule Conference

- 3.2.1. The Program Manager will schedule and conduct an initial schedule conference within five (5) working days of Notice to Proceed. shall be prepared to review and discuss the schedule and sequence of operations including cost, manpower, and equipment loading methodology. The conference shall be attended by:
- 3.2.1.1. Contractor's Project Manager, Superintendent, and Scheduler
- 3.2.1.2. Other Contractor key personnel, defined as any individual reporting to the Contractor's Project Manager or Superintendent, and being in responsible charge of more than 20% of field efforts as defined by cost.
- 3.2.1.3. The Project Manager, Superintendent or person in responsible charge of each Subcontractor expected to perform more than 10% of field efforts as defined by cost.

- 3.2.1.4. A representative in responsible charge of the fabrication and delivery of materials for this project for each major supplier including each supplier of more than 10% of the total contract value as defined by cost.
 - 3.2.1.5. [intentionally blank or for known specialty subcontractor or supplier]
 - 3.2.1.6. [intentionally blank or for third party (e.g. utility, owner's operations manager, etc.) but either 1) placing obtaining as contractor's obligation or 2) relieving Owner if such individual cannot or will not attend]
 - 3.2.1.7. Program Manager or its representative(s).
- 3.2.2. Procedures will be reviewed by the Program Manager for the following:
- 3.2.2.1. Development of preliminary Schedule by Contractor.
 - 3.2.2.2. Procedures for updating and revisions.
 - 3.2.2.3. Cost and resource loading of activities. Format and use of schedule of values.
 - 3.2.2.4. Method of generating earned value reports, establishing target schedules, and evaluating cost, resource, and schedule performance.
 - 3.2.2.5. Data exchange and Communications.
 - 3.2.2.6. Procedures for assessing schedule impacts, schedule delays, and time extensions.
 - 3.2.2.7. Development of recovery schedules.

3.3 Preliminary Schedule

- 3.3.1. Within ten (10) days after Notice to Proceed, the Contractor shall submit for the Program Manager's review and acceptance a Preliminary Schedule.
- 3.3.2. The Preliminary Schedule shall cover the following project phases and activities:
 - 3.3.2.1. Proposed Procurement Activities to be accomplished during the first ninety (90) days of the Contract. Procurement activities shall include mobilization, key shop drawing and sample submittals, reviews, and the fabrication and delivery of key and long-lead procurement elements. Indicate planned submittal dates and delivery dates for fabrication and delivery activities.
 - 3.3.2.2. Proposed Construction Activities to be accomplished during the first ninety (90) days of the Contract
 - 3.3.2.3. Summary Activities not included above which are necessary to properly indicate the approach to scheduling the remaining work areas or phases of the work. The work for each phase or area must be represented by at least one summary activity such that they cumulatively indicate the entire Construction Schedule. Summary Activities may exceed the duration limitations listed above and may be connected by Start-to-Start and Finish-to-Finish logic relationships as well as Finish-to-Start logic relationships and such logic relationships may include durations between activities (lag.)

- 3.3.2.4. The Preliminary Schedule shall otherwise conform with the requirements outlined in the “Technical Requirements for Contractor-submitted Schedules” in this specification section.
- 3.3.2.5. Contractor shall assign an approximate cost to the Proposed Construction Activities and to Summary Activities. If requested by the Program Manager, the Contractor shall furnish a written narrative supporting such approximate costs.
- 3.3.3. The submission shall consist of:
 - 3.3.3.1. A Primavera Backup Disk.
 - 3.3.3.2. A pure logic diagram of the entire Preliminary Schedule, which may be either hand or machine drawn. If machine drawn, activities shall be separated by a minimum of one inch horizontally and one half inch vertically. The diagram shall be drawn or plotted on D or E size media.
 - 3.3.3.3. Machine plotted time scaled logic diagrams of:
 - 3.3.3.3.1. The entire Preliminary Schedule.
 - 3.3.3.3.2. The first 90 days of the Preliminary Schedule.
 - 3.3.3.3.3. Time scaled diagrams shall be plotted on D or E sized media.
 - 3.3.3.4. Tabular listings of:
 - 3.3.3.4.1. All Procurement Activities grouped by Submissions, Review and Fabrications, then sorted by Early Start, then Total Float.
 - 3.3.3.4.2. All Construction Activities to be performed in the first ninety (90) days, sorted by Early Start, then Total Float.
 - 3.3.3.4.3. All Summary Activities sorted by Early Start, then Total Float.
 - 3.3.3.4.4. Tabulations shall include Activity ID, Description, Original Duration, Remaining Duration, Percent Complete, Cost Percent Complete, Activity Codes, Early Dates, Late Dates, Total Float, Predecessors, Successors, and Total Assigned Cost.
 - 3.3.3.5. A hand drafted or machine plotted diagram of anticipated manpower, including subcontracted manpower versus time.
 - 3.3.3.6. Five (5) copies of all diagrams and tabulations shall be required.
- 3.3.4. Within seven (7) working days after receipt by the Program Manager of the Preliminary Schedule or changes thereto, the Program Manager will notify the Contractor of any concerns the Program Manager may have in regard to the Preliminary Schedule.
- 3.3.5. The Contractor shall provide a response to the concerns of the Program Manager, to the satisfaction of the Program Manager, within five (5) working days for the first response and three (3) working days for subsequent responses as may be required.
- 3.3.6. If the Preliminary Schedule is not approved within thirty (30) working days after Notice to Proceed, the Program Manager may assess the Contractor for liquidated damages in the amount of \$#,### per day to

reimburse the Owner for the additional risk of late completion and the increased monitoring and administration associated with attempts to control and mitigate such risk.

- 3.3.7. The Preliminary Schedule shall be updated on a monthly basis while the Baseline Schedule is being developed. The monthly updating of the Preliminary Schedule shall be consistent with the procedures and requirements described in the “Schedule Updating” section of this specification section.

3.4 Baseline Schedule

- 3.4.1. Within thirty (30) working days following Notice to Proceed, Contractor shall submit to the Program Manager a detailed Baseline Schedule in precedence format for the Contractor’s construction work scope.

- 3.4.2. The Baseline Schedule shall conform with the requirements outlined in the “Technical Requirements for Contractor-submitted Schedules” in this specification section.

- 3.4.3. The Baseline Schedule shall be prepared in accordance with the comments and concerns raised by the Program Manager relating to the Preliminary Schedule. If such concerns have not been fully addressed for the Preliminary Schedule prior to the deadline of section 3.4.1 above, the Contractor shall nevertheless submit its work in progress as of that date.

- 3.4.4. The submission shall consist of:

- 3.4.4.1. A Primavera Backup Disk.

- 3.4.4.2. A pure logic diagram of the entire Baseline Schedule, which may be either hand or machine drawn. If machine drawn, activities shall be separated by a minimum of one inch horizontally and one half inch vertically. Diagrams shall be drafted or plotted on D or E size media.

- 3.4.4.3. Machine plotted time scaled logic diagrams of:

- 3.4.4.3.1. The entire Baseline Schedule.

- 3.4.4.3.2. Activities on the critical path and those having ten (10) days or less float relative to the critical path.

- 3.4.4.3.3. Diagrams shall have the critical path highlighted and activities for which responsibility is other than the Contractor highlighted in a different color and pattern.

- 3.4.4.3.4. Diagrams shall be plotted on D or E size media.

- 3.4.4.4. Tabular listings of:

- 3.4.4.4.1. All Procurement Activities organized by Submissions, Review and Fabrications, then sorted by Early Start, then Total Float.

- 3.4.4.4.2. All Construction Activities sorted by Early Start, then Total Float.

- 3.4.4.4.3. Tabulations above shall include Activity ID, Description, Original Duration, Remaining Duration, Percent Complete, Cost Percent Complete, Activity Codes, Early Dates, Late Dates,

Total Float, Predecessors, Successors, and Assigned Cost. The column for Assigned Cost shall be totaled.

3.4.4.4.4. All activities in activity identification number order, listing the activity identification number, activity title, successor identification number, successor title, logic relationship type, lag, activity calendar number and reason for the logic relationship. The reason for the logic relationship shall be given as "Physical," "Resource," or "Other." If the reason given is "Resource" an additional column shall list what resource. If the reason given is "Other" such shall be supported by a separate narrative. This tabulation shall be provided in both print and on diskette in an Excel or compatible format.

3.4.4.5. A machine plotted diagram of manpower versus time for:

3.4.4.5.1. Total manpower on the project.

3.4.4.5.2. Manpower for each subcontractor performing ten percent (10%) or more of the total labor on the project.

3.4.4.5.3. Manpower for each craft directly employed by the Contractor.

3.4.5. The Baseline Schedule shall be reviewed in the following manner:

3.4.5.1. Within fifteen (15) working days after receipt by the Program Manager of the Baseline Schedule or seven (7) working days after receipt by the Program Manager of changes thereto, the Program Manager shall notify the Contractor of any concerns the Program Manager may have in regard to the Baseline Schedule.

3.4.5.2. The Contractor shall provide a response to the concerns of the Program Manager, to the satisfaction of the Program Manager, within five (5) working days for the first response and three (3) working days for subsequent responses as may be required.

3.4.5.3. If requested by the Program Manager after receipt of the Contractor's response, the Contractor shall meet within three (3) working days of such request for a joint review, correction, or adjustment of the Contractor's proposed Baseline Schedule. Within three (3) working days after such joint review between the Contractor and Program Manager, the Contractor shall revise the Baseline Schedule in accordance with agreements reached during the joint review and re-submit it to the Program Manager.

3.4.5.4. If the Baseline Schedule is not approved within sixty (60) working days after Notice to Proceed, the Program Manager may assess the Contractor for liquidated damages in the amount of \$#,### per day to reimburse the Owner for the additional risk of late completion and the increased monitoring and administration associated with attempts to control and mitigate such risk. This assessment of liquidated damages shall be in addition to that provided in section 3.3.6 if applicable.

3.4.6. Acceptance of Contractor's Baseline Schedule:

- 3.4.6.1. Upon the submittal by the Contractor and review and approval by the Program Manager of the Baseline Schedule, the Contractor shall submit a copy of the Approved Baseline Schedule (“ABS”) signed on the face by the Contractor and by each Subcontractor performing greater than 10% by cost of scope of the project, indicating the Contractor’s (and Subcontractor’s) acceptance and approval of the Baseline Schedule.
- 3.4.6.2. The Primavera files for Accepted Baseline Schedule shall be saved as Project ID Number/Version “BASELINE” and not further modified. A copy of this file shall be renamed as Project ID Number/Version “UPDATE <date>” and used for subsequent updates and shall reference this file as its target. A copy of the “UPDATE” file shall be renamed as Project ID Number/Version “INTERIM <date>” and shall reference the most recent “UPDATE” file.
- 3.4.6.3. Acceptance by the Program Manager of the Contractor’s accepted Baseline Schedule shall be a condition precedent to the making of any progress payments under the Contract after the first seventy-five (75) working days of the Contract at the discretion of the Program Manager. In such event, the Program Manager, in its sole discretion, may also choose to make partial progress payments requiring additional retainage or may choose to make partial progress payments based solely upon certified payrolls and vendor invoices.
- 3.4.6.4. Upon acceptance of the Baseline Schedule by the Program Manager, the cost-loaded values of the Baseline Schedule shall be used as a basis for determining progress payments. Monthly progress payments shall be based upon information developed at the monthly Schedule Update.
- 3.4.6.5. Acceptance by the Program Manager of the Contractor’s Construction Schedule does not relieve the Contractor of any of Contractor’s responsibility whatsoever for the accuracy or feasibility of the Construction Schedule, or of the Contractor’s ability to meet the Contract completion date or Milestone Dates, nor does such acceptance acknowledge or admit the reasonableness of the activities, logic, duration, manpower, cost, or equipment loading of the Contractor’s Construction Schedule.
- 3.4.6.6. In the event the Contractor fails to define any element of work, activity, or logic and the Program Manager review does not detect this omission or error, such omission or error, when discovered by the Contractor or Program Manager, shall be corrected by the Contractor at the next monthly Schedule Update (discussed hereinafter) and shall not affect the Contract Time

3.5 Use of Schedule for Project Coordination

3.5.1. Weekly Progress Meetings

- 3.5.1.1. Once each week at the progress meeting, the progress achieved by the Contractor during previous work week will be assessed. The Contractor shall update the most recent “INTERIM” Schedule with the Actual Start date of activities started in the past week, the Remaining Duration of those activities

in progress and the Actual Finish date of activities completed during the past week. The Contractor shall submit a progress schedule in Primavera's tabular/bar-chart format indicating the information used to perform this update for the previous week and the activities scheduled for the succeeding three (3) weeks. A bar chart directly derived from the most recent "INTERIM" Schedule shall be used to generate the four (4) week window. All activities shown in this short interval schedule will be identified by the same activity numbers and descriptions as shown in the Construction Schedule.

3.5.1.2. The Contractor shall mark on this computer generated bar-chart schedule the choice and timing of those activities it intends to actually perform during the upcoming three weeks. The Contractor may add further details to monitor this short interval Schedule.

3.5.1.3. A copy of this short interval schedule shall be submitted to the Program Manager.

3.5.2. Minor Revisions to the Schedule for Unanticipated Events

3.5.2.1. If the Contractor and Program Manager agree to a Change Order ("CO"), such agreement shall include an Impact Analysis and agreement on the acceptance for such impact (in part or whole by each party) and costs for mitigation thereof. In the event that such agreement is not part of the agreement for the price of the Change Order, the Contractor shall treat such Change Order as a directive for purposes of the schedule.

3.5.2.2. If the Contractor believes that a submitted Request For Information ("RFI"), claimed Change In Conditions ("CIC"), request to delay or defer work pending a Proposed Change Order ("PCO"), directive to perform a Change Order ("CO") or claimed Constructive Change Order ("CCO") may impact its work, the Contractor shall perform an Impact Analysis upon a copy of the most recent "UPDATE" file and submit such to the Program Manager as soon as practicable after determination of such belief. The failure to so promptly notify the Program Manager shall be deemed a waiver of any compensation or extension of time due to such cause. Where the parties are in disagreement over the responsibility of the delaying event, the Contractor shall use a description for such which is responsibility neutral.

3.5.2.3. As part of its Impact Analysis, the Contractor shall suggest means of mitigation including but limited to use of greater resources, modification or deletion from the logic network of selected restraints and selective overtime. If the Contractor believes that its efforts to mitigate such impact will entitle it to additional compensation, the Contractor shall submit an estimate of the unmitigated and mitigated impact and cost consequences of each. The failure to provide such a submittal in a timely manner shall be deemed a waiver of any additional compensation.

3.5.3. Monthly Schedule Update Meetings

3.5.3.1. On a monthly basis, the Contractor shall meet with the Program Manager for the purpose of updating the Schedule. The Contractor shall submit its assessment of the Actual Start date of activities started

since the last update, Remaining Duration of those activities in progress, Actual Finish date of activities completed and Cost Percent Complete of activities in progress or complete. The Program Manager will either assent to the Contractor's assessments or direct the Contractor to use other dates or Cost Percent Complete. The Program Manager may request the Contractor to provide additional assurance of a Remaining Duration of work in progress. If the Contractor does not agree to the direction of the Program Manager, it shall note such in the log field of the activity and in comments to the Minutes of the meeting.

3.5.3.2. The information shall be entered to a copy of the most recent "UPDATE" file which will then be saved and not further modified.

3.5.3.3. Monthly Update Reports submission shall consist of:

3.5.3.3.1. A Primavera Backup Disk.

3.5.3.3.2. [Intentionally blank.]

3.5.3.3.3. Machine plotted time scaled logic diagrams of:

3.5.3.3.3.1. The entire Baseline Schedule including indication of progress to date.

3.5.3.3.3.2. Activities not yet completed on the critical path and those having ten (10) days or less float relative to the critical path.

3.5.3.3.3.3. Diagrams shall have the critical path highlighted and activities for which responsibility is other than the Contractor highlighted in a different color and pattern.

3.5.3.3.3.4. Diagrams shall be plotted on D or E size media.

3.5.3.3.4. Tabular listings of:

3.5.3.3.4.1. All Procurement Activities organized by Submissions, Review, and Fabrications, then sorted by Early Start, then Total Float.

3.5.3.3.4.2. All Construction Activities sorted by Early Start, then Total Float.

3.5.3.3.4.3. Tabulations above shall include Activity ID, Description, Original Duration, Remaining Duration, Percent Complete, Cost Percent Complete, Activity Codes, Early Dates or Actual Dates, Late Dates (if applicable), Total Float, Predecessors, Successors, Assigned Cost, and Earned Cost. The columns for Assigned Cost and Earned Cost shall be totaled.

3.5.3.3.5. A machine plotted diagram of manpower versus time for work on the remainder of the project including:

3.5.3.3.5.1. Total manpower on the project.

3.5.3.3.5.2. Manpower for each subcontractor performing ten percent (10%) or more of the total labor on the project.

3.5.3.3.5.3. Manpower for each craft directly employed by the Contractor.

3.5.3.4. If there have been any Minor Revisions to the Schedule for Unanticipated Events during the past reporting period, such shall be incorporated into a copy of most recent "UPDATE" file and rescheduled. This file will be renamed as Project ID Number/Version "REVISED <date>". The file will then be saved as the new "UPDATE" file and not further modified.

3.5.3.5. Minor Revision Reports submission shall consist of:

3.5.3.5.1. All reports required for an Update.

3.5.3.5.2. Those portions of the pure logic diagram required for the Baseline Schedule submission which have been modified with the modifications highlighted.

3.5.3.6. After updating and (if required) revising the schedule, it shall be copied to the next "UPDATE" file and to a new "INTERIM" file.

3.6 MAJOR REVISIONS TO THE SCHEDULE

3.6.1. In the event that, pursuant to a Change Order, a Revised Baseline Schedule is adopted for the work remaining on the project, such revised baseline Schedule shall be used as the target for further update to the project.

3.7 RECOVERY SCHEDULE

3.7.1. In the event that the Contractor determines that it can no longer perform according to the schedule, the Contractor shall prepare and submit a Recovery Schedule.

3.7.2. In the event that the Most Recent Update indicates that the project is more than twenty (20) days behind schedule, or that a major subcontractor performing more than ten percent (10%) of the labor on the site leaves for any reason without completion of its work, or that a specialty subcontractor employing proprietary means and methods leaves the site for any reason without completion of its work, or the Contractor becomes aware of an anticipated delay of specially ordered materials or equipment calculated to delay the project more than twenty (20) days behind schedule or the Contractor anticipates for any reason that the project is likely to be delayed more than twenty (20) days behind schedule, and upon notice of such to and subsequent request of the Program Manager, the Contractor shall prepare and submit a Recovery Schedule.

3.7.3. The Recovery Schedule submittal may include, without limitation:

3.7.3.1. Revisions to the Original Durations of Activities not yet started, which are to individually be supported with a narrative of the actual productivity to date or increased resources or hours per day to effectuate such.

3.7.3.2. Revisions to the Calendar, including indicating work on Saturdays, Sundays or holidays, subject to approval by the Program Manager.

3.7.3.3. Splitting of activities to indicate more precise coordination, which are to be individually supported with a narrative of how a portion of the previously indicated activity may now suffice for a successor activity.

- 3.7.3.4. Revisions to Logic Relationships, deleting restraints based upon limited resources, which are to individually be supported with a narrative indicating the ability and willingness to engage additional resources.
- 3.7.4. The Recovery Schedule shall be prepared to indicate, where practicable, recovery within one month or within ten percent (10%) of the remaining duration until the mandated deadlines threatened.
- 3.7.5. Recovery Schedule Reports submission shall consist of:
 - 3.7.5.1. All reports required for an Update.
 - 3.7.5.2. The pure logic diagram required for the Baseline Schedule submission, highlighted, where practicable, to indicate where the Recovery Schedule differs from the Baseline Schedule.
- 3.7.6. Where the Recovery Schedule has been ordered by the Program Manager, it shall be submitted within five (5) working days. The Contractor and all parties under its control called to the Initial Schedule Conference shall be prepared to attend, upon forty-eight (48) hours notice, a Recovery Schedule Meeting which may be called by the Program Manager within the next three (3) to seven (7) working days. The Program Manager may also request the Contractor's Surety to attend the Recovery Schedule Meeting.
 - 3.7.6.1. If a Recovery Schedule Meeting is called, the parties attending shall provide additional assurances to, or revise the proposed Recovery Schedule to the satisfaction of the Program Manager.
 - 3.7.6.2. Once approved by the Program Manager, the Recovery Schedule shall be treated as a Minor Revision to the Schedule or a Major Revision to the Schedule as may be directed by the program Manager.
 - 3.7.6.3. Once approved by the Program Manager, failure by the Contractor to strictly follow the Recovery Schedule until back on schedule shall be deemed a Material Breach of the Contract.

END OF SECTION